

E-12-005 / CC-027-12
Pacific Gas & Electric Co.

CORRESPONDENCE

- **Ex-Parte Communications**
- **Applicant: Pacific Gas & Electric Co.**
- **Local Government**
- **Private Organizations**
- **Opposition Letters/E-mails from Interested Individuals**

E-12-005 / CC-027-12
PG&E SEISMIC SURVEY

EX-PARTE COMMUNICATIONS

Dettmer, Alison@Coastal

From: Jana Zimmer [janazimmer@cox.net]
Sent: Monday, November 12, 2012 11:31 AM
To: Miller, Vanessa@Coastal; Dettmer, Alison@Coastal
Cc: 'Jana Zimmer'
Subject: ex parte P,G, & E Seismic Survey W13b (Neish)

FORM FOR DISCLOSURE OF EX PARTE COMMUNICATIONS

Name or description of project, LPC, etc.: P,G & E Seismic Survey W13b

Date and time of receipt of communication: November 12, 2012 9 a.m.
Location of communication: Santa Barbara

Type of communication (letter, facsimile, etc.): _telecon 866 309 0490 *9163865709

Person(s) initiating communication: David B. Neish, David J. Neish, Mark Krausse, Jearl Strickland for P,G & E

Krausse: Gave brief history- bill requiring study of plants for seismic safety and other , CEC recommended, to perform 3D study. Originally were opposed, using 2D for 30 years. Blakeslee was pushing for more analysis. PUC told them they had to do it before they could seek license renewal. In November of 2009 filed request with NRC licenses do not expire until 2024. But it takes 10 years. PUC requested advanced seismic imaging, not specifically 3D offshore.

They have a three component project. The 3D to determine whether a large earthquake could step over from one fault to another and result in greater groundshaking. The 3D imaging- used to be an Xray, now it is the equivalent of a CAT Scan. Can look at faults in relation to each other; depth down to 7-10 to kilometers, can see if a fault continues to be vertical or whether it turns and dips back toward the other fault, and they come closer together. So you see, if they are 4 k apart on the surface, if they are closer at depth. Then would be a higher probability of greater magnitude quake and greater potential to step over to another fault. **But they would conclude that if potential magnitude is up, then potential frequency is down.**

Box 4 includes the Hosgri Fault. New fault Shoreline fault. Currently the information shows it stops near the Hosgri fault. 3D would show if they are closer together. Box 4 gives them a number of targets that they are interested in. There is a concern that Franciscan formation does not image well. But have really good imaging of Franciscan for onshore. They do think the Franciscan will image well. Dr. Kent will tell you whether you need to go forward with the other boxes. There are targets within that box, this will tell us whether the faults are closer together. If they are separated, you don't have to go to other boxes. Or it might tell you it is not worth the effort because the imaging is not as good as expected. Described as a 'pilot' project.

Assuming they conclude there is really a potential for an 8.5, quake, and the plant is

designed for 7.5, are there design features/technologies available which could retrofit the plant to withstand the higher groundshaking?.

Answer: Their position would be that we cant assume if they change magnitude of quake from 7.5 to 8.5 they would look at changes to plant. Then they would go to NRC sanctioned process- Senior Seismic Hazard Advisory Committee SSHAC scientists then would provide a good picture of what the technology is. Then they do a probabilistic analysis applied to an 8.5-9 Richter scale.

They might conclude it is actually safer. For example, they look at slip rates, by having smaller slip rates reduces defined hazard to the plant. They have the experience of the Los Osos fault- they had assumed that it dipped back closer to the plant. Actually have shown that fault is vertical and does not turn back toward plant, so it drives the hazard down. The onshore work dispelled that.

If CCC does not approve a permit, they would continue to make conservative assumptions (i.e. that there is a greater risk level).

By having more detailed information, you reduce uncertainty, can show interest groups and agencies that we have more advanced knowledge, and reduce perceived risk. This is an opportunity using the latest technology available, to 'check' our answers.

Why this year instead of next year? They have been talking with staff for 6 or 7 months. They called on Friday and said why don't you put this over till next year? Alison has said this project has changed 6 times in 6 months; they say only has continued to be narrowed. There will always be someone throwing a new question out.

They have implemented all the monitoring programs because they had to. Does the otter program have all the agencies' approval that it needs? They have provided the funding, it's the agencies that are doing it: NMFS, USGS, USFWS, CDFG. They were able to show that with the type of mooring they were using that they were within the confines of their existing permits. They don't believe the feds need a permit to do work required to get a permit.

Re: November 9 letter: Why is PUC and SSC so intent on getting this done this year? From the PUC perspective it is long term grid reliability. They want more lead time. Seismic Safety Commission serves on the IPRP. Feels it should have been done already. They believe Box 4 needs to be done.

The PUC actually does the ratemaking. There has been \$64.2+ approved. The money is paid out by ratepayers over the time of the project. They have approved this a month ago. They have completed the 2D, and low energy offshore. Are interpreting data, have done \$8 monitoring. About \$40 million committed to date. The PUC said 'we will not allow you' to go through licensing'- i.e. they will not approve more rate increases without additional studies. The PUC has reasonableness review. They could say that additional boat trip would be on the shareholders. Bringing a vessel back from the east coast next year will be \$12 million more.

On issue of 10 streamer v 4-6 streamer: They cant get in nearshore with 10, maneuvering is more difficult, may be shut down over and over and would be shut down much more often. There would be damage to bottom substrate. Gibson's desire for the 10 streamer boat was not coming from an environmental impact analysis.

Asked about the reference to SONGS in their letter. SONGS is offline indefinitely. It may not come back at all. The CEC is worrying about state's liability.

They stated Congressmember Lois Capps said they need to do this before they sought license renewal. They did not want to be saying this most recent best technology wasn't appropriate for residents of San Luis County.

Met with coastal staff 3-4 years ago; staff explained it would be controversial. They would go behind State Lands, 15 months to fully certified EIR for a 3 box survey area, originally had submitted 4. State Lands dropped 1.

Feinstein and Capps have been very helpful in getting approval from NMFS and USF&W for only 1 Box, not in MPA

This will tell us whether it is necessary to do any of the other boxes.

In a recent development Strickland met with mediator for Fishermen to get further along in process in reaching accord. They have reached accord for entire month of December to compensate for maximum commercial amount of ketch. Good progress, looking for written agreement by Wednesday.

DF&G –originally was proposing a No Take permit. They have negotiated the same of a 10 person party boat. This is huge mitigation for fish. Since fishermen would be out of the area, it would be net positive for the fishery for this period for adult fish.

They want an up or down vote. They do not want to be told come back next year.

Date

Signature of Commissioner

If the communication was provided at the same time to staff as it was provided to a Commissioner, the communication is not ex parte and this form does not need to be filled out.

If communication occurred seven or more days in advance of the Commission hearing on the item that was the subject of the communication, complete this form and transmit it to the Executive Director within seven days of the communication. If it is reasonable to believe that the completed form will not arrive by U.S. mail at the Commission's main office prior to the commencement of the meeting, other means of delivery should be used, such as facsimile, overnight mail, or personal delivery by the Commissioner to the Executive Director at the meeting prior to the time that the hearing on the matter commences.

If communication occurred within seven days of the hearing, complete this form, provide the information orally on the record of the proceeding and provide the Executive Director with a copy of any written material that was part of the communication.

Dettmer, Alison@Coastal

From: Jana Zimmer [zimmerccc@gmail.com]
Sent: Saturday, November 10, 2012 9:50 AM
To: Miller, Vanessa@Coastal; Dettmer, Alison@Coastal
Subject: Fwd: The Real Story Behind PG&E's Seismic Survey
Please file as ex parte.

Begin forwarded message:

From: Harvey Sherback <harveysherback@yahoo.com>
Date: November 10, 2012 9:08:13 AM PST
To: zimmerccc@gmail.com
Subject: Re: The Real Story Behind PG&E's Seismic Survey

California Coastal Commission
Jana Zimmer
Commissioner

November 10, 2012

Dear Commissioner Zimmer,

Thanks for your many good works, they are very much appreciated.

October 28, 2012 - Headline: Drs. Gibson, Blakeslee And Their Amazing Underwater Seismic MRI Machine

"How an ex-oil executive and seismic test inventor, along with an ex-oil industry seismologist, sold an environmentally and economically devastating seismic test off the coast in Estero Bay to the State. Major organizations from around the state have unified to stop it before it starts."

<http://www.rockofthecoast.com/2012/10/28/drs-gibson-blakeslee-and-their-amazing-underwater-seismic-mri-machine/>

Just say no to PG&E's offshore "oil and gas" seismic survey. It puts us and our marine friends in harm's way while opening California's coast to offshore drilling.

May 28, 2012 - Headline: Expert Links Dolphin Deaths To Sonar Testing

A marine veterinarian and conservationist who examined many of the nearly 900 dolphins corpses found off of the northern Peruvian coast contends they were probably harmed by sound waves from seismic tests used to locate oil deposits.

<http://green.blogs.nytimes.com/2012/05/28/expert-links-dolphin-deaths-to-sonar-testing/?ref=science>

Very few people know that PG&E is also in the oil and gas exploration business.

October 15, 1991 - PG&E To Buy Oil/Gas Exploration Company From British Petroleum For About \$400 Million.

BP Exploration Inc. said it would sell its American "exploration and production" operations to Pacific Gas & Electric Company's PG&E Resources for about \$400 million. PG&E Resources will acquire the Tex-Con Oil & Gas Company of Houston, Texas.

<http://articles.latimes.com/keyword/tex-con-oil-gas-co>

Please stop PG&E's "Marine Holocaust" in the name of public safety!

Harvey Sherback
Berkeley, California

PS: Earthquake Report - Too Close For Comfort!

Headline: Magnitude 7.7 Earthquake Hits British Columbia: Canada's Largest Quake In Over Six Decades

<http://www.themanitoban.com/2012/11/magnitude-7-7-earthquake-hits-british-columbia-canadas-largest-quake-in-over-six-decades/12536/>

The Diablo Canyon Nuclear Power Plant was originally designed to withstand a 6.75 magnitude earthquake but was later upgraded to survive a "7.5 magnitude quake". Now that we have experienced a "7.7 magnitude earthquake" up the coast in British Colombia it's time to close PG&E's Diablo Canyon nuclear power plant so as to avoid another Fukushima-like nuclear disaster.

FORM FOR DISCLOSURE OF EX PARTE COMMUNICATIONS

Name or description of project, LPC, etc.: PG & E Seismic Survey W13b

Date and time of receipt of communication: November 9, 2012 10 a.m-11 a.m.

Location of communication: Santa Barbara

Type of communication (letter, facsimile, etc.): Telecon

Person(s) initiating communication: Susan Jordan, CCPN, Michael Jasny, NRDC, Chad Nelson, Surfrider

First I asked for clarification of the chart that was sent by Karen Garrison of NRDC on 11/8. The yellow highlighting indicated that resolving uncertainty of the Hosgri dip- that if the seismic survey is done only in zone 4,- which is what the project is now, would not reduce uncertainty. They would have to do it in all three zones to even meet that priority.

Michael Jasny- calling attention to the other list of methodologies, the uncertainties could be constrained by use of other methodologies, they could eliminate 3d. Zone3 was eliminated because it was sufficient low energy seismic information, they eliminated need for any high energy seismic.

Susan Jordan- difficult to understand why PG&E and CPUC are pushing to do this. CPUC approved ratepayer money, first \$18 million, then up to \$65 million.

They had a note regarding eligibility for override in their letter of October 25. They don't agree. It's a project, its not a facility. Staff has accepted that it is a facility.

They did not know if there been improvements to technology which would take this plant out of the definition of coastal dependent. Nor, supposing the 'uncertainty' could be resolved, at whatever cost to marine resources, what that would change, or whether there are design retrofits that are available that would address a greater certainty of greater groundshaking.

Chad: they are trying to reduce uncertainties in the geometry/angles of the faults and the slip rates. They can guess at the outer bounds, and they are trying to get a tighter range. He referenced the SSHAC group that meets to estimate hazards. There may be a concern that if they do this high energy modeling, that might allow their worst case modeling to be reduced (that they will say its actually safer than they thought before).

Asked them to respond to IPRP letter of October 25. The letter does not actually say this project is necessary. And they pointed out that this Independent Review Panel is not Independent with a capital "I", that they were created by the PUC, and that they are geologists and geophysicists, whose view is that the more data you can collect, the better. They were not considering the Coastal Act standard or environmentally, whether this is the least damaging project. So the claim

in the letter that our staff geologist concurs with the opinions stated has nothing to do with the Coastal Act standard that we have to consider.

They stated that the letter of opposition from San Luis County Board of Supervisors is important. They had supported the project with conditions at State Lands, but now none of the conditions they asked for has been met. As more scrutiny is put on the project, people on both sides have come to the conclusion that this is the wrong project design. Bruce Gibson supports more surveys, but does not believe this is the best project.

Jasny stated that Supervisor Gibson's criticism is that the project design utilizes too few streamers tails that carry back from the seismic vessels in some cases for several kilometers, carry microphones that pick up the sounds returning from the sea floor. The problem is that because there are too few streamers, he thinks the imaging is going to be poor. He believes this survey design will fail. That point is important not only for the purposes that the staff report puts it to, it could reduce duration of the high energy survey, because you could image faster, but, under Gibson's analysis the lack of streamers could render the project futile. That is an issue that has not been analyzed.

Regarding the scope of first prong of the override. The first alternative should be analyzing the data that has already been collected. They should do onshore surveys now, and that goes to location. Alternative locations can also extend to reduction or alterations to the track lines in the present proposal. They started with 4 boxes, now they are down to box 4. Location could be constrained again to be half the size.

Susan Jordan: was concerned about PGE stating that they would not have Level A, injury or fatality. This was going to be accounted for by keeping animals out of exclusion zone. The assumption was that seas would be Beaufort 2, are going to be Beaufort 5. They will not see. The animals will not move away, certainly not the harbor porpoise.

Chad Nelson: This same ship went off Oregon in July, the observer reports indicated that humpback whales were regularly exposed to sound levels in excess of 180 dB, which is a take, Level A. They were given a level B approval and violated it.

Michael: the fundamental deficiency is doing real time mitigation oriented monitoring on the water. Especially at night.

Susan: look at the revised project- they started the Sea Otter program. They are already conducting experiments on marine mammals without a permit approval.

PGE has been doing 2D and 3D low energy surveys for two years. Fishing interests have already been compromised by these. These earlier surveys went through a 1984 blanket survey permit from State Lands. The Coastal Commission apparently did not exercise federal consistency or permit review at that time. Commission does have a history of addressing similar acoustic sources. A few years ago CCC reviewed activities around naval tests around Monterey Bay.

Detailed substantive description of content of communication:

Date: 11/9/2012 - Signature of Commissioner Jana Zimmer

**FORM FOR DISCLOSURE
OF EX PARTE
COMMUNICATION**

Date and time of communication: November 8, 2012
Location of communication: Eureka, CA - Conference Call
Person(s) initiating communication: David Neish, Jearl Strickland, Mark Krausse
Person(s) receiving communication: Connie Stewart
Name or description of project: E-12-005 PG&E Seismic Testing

Detailed substantive description of content of communication:

The PG&E representatives explained that the CEC, Nuclear Regulatory Comm., Public Utilities Commission and the author of the Senate Bill (Blakeslee) asked for the Seismic Testing to be done by PG&E. Also the State Lands Commission held hearings and approved the testing and in addition certified the Environmental Impact Report. We also discussed the specifics of what the testing results would provide above and beyond the current data that is available. PG&E discussed what they would be presenting in their presentation and requested that a CCC decision be made on the matter without further review or additional information.

November 9, 2012
Date


Signature of Commissioner

From: Jim Wickett [<mailto:jfwickett@gmail.com>]
Subject: FW: Ex Parte Summary

Following is a summary of an Ex Parte communication I had regarding the PG&E/Diablo Canyon Nuclear Power Plant issue we'll be hearing on Wednesday.

Thanks,
Jim

From: Susan Jordan
Sent: Monday, November 05, 2012 4:22 PM
To: Jim Wickett
Subject: Ex Parte Summary

On November 5th at 2PM, Commissioner Wickett had an ex parte via phone with Susan Jordan of the California Coastal Protection Network, Karen Garrison of NRDC and Chad Nelsen of the Surfrider Foundation.

Discussed during the call were:

1. The characteristics of the marine environment, including the close proximity to the Marine Protected Areas and clarification that sound from the source would propagate into those areas.
2. Jurisdictional issues related to the NRC, the CPUC and the CEC, including the fact that the NRC is not requiring and that the CPUC and or CEC cannot usurp the discretion of the CCC.
3. The history of seismic testing off the coast of CA including a test conducted by Exxon in 1995 and smaller, quieter USGS studies
4. The likelihood that this particular seismic survey design would not produce the information necessary to increase the worst case scenario hazard assessment.
5. The need for PG&E to synthesize the low energy onshore and offshore seismic surveys that have already been done before authorizing additional high-energy seismic surveys.
6. The possibility based on anecdotal reports from the local community (fishers, etc.) that the just completed low energy offshore surveys that have been done over the last two years may have already compromised the local marine environment. Low energy means "less" impact, not "no" impact.
7. Comparison of the seismic sound source to a nuclear sub. "Noisy submarines" operate at 140dB, far quieter than this project which operates at 252db or higher.

FORM FOR DISCLOSURE OF EX PARTE COMMUNICATIONS

Name or description of project, LPC, etc.: Pacific Gas and Electric
Date and time of receipt of communication: 2pm April 3
Location of communication: home/telephone
Type of communication (letter, facsimile, etc.): _____
Person(s) initiating communication: David Neish
Detailed substantive description of content of communication:
(Attach a copy of the complete text of any written material received.)

California Energy Commission is requiring 3D studies to evaluate the exposure of Diablo Canyon Nuclear plants susceptibility to seismic forces. CDP is for cable/seismic monitors. We went over the size and number of cables and monitors. Since I had read the staff report, Mr. Neish simply emphasized how they were in total CONCURRENCE with staff and that all the state agencies were very much for this project. No opposition from anyone.

4/3/12 _____
Date Signature of Commissioner

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E-12-005 / CC-027-12
PG&E SEISMIC SURVEY

APPLICANT:
PACIFIC GAS & ELECTRIC CO.



**Pacific Gas and
Electric Company®**

Diablo Canyon Power Plant P. O. Box 56
Avila Beach, CA 93424

November 9, 2012

PG&E Letter DCL-2012-659

Ms. Alison Dettmer
Deputy Director
California Coastal Commission
45 Fremont Street 2000
San Francisco, CA 94105- 2219

Offshore Central Coastal California Seismic Imaging Project – Comments on Staff
Report for Combined Consistency Certification CC-027-12 and Coastal
Development Application No. E-12-005, dated November 2, 2012

Dear Ms. Dettmer:

On November 2, 2012, the California Coastal Commission issued its Staff Report for Combined Consistency Certification CC-027-12 and Coastal Development Application No. E-12-005.

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to comment on the staff report prepared for the above-referenced item, and acknowledges the great amount of staff work that was dedicated to evaluating and understanding PG&E's request for a coastal development permit (CDP) and consistency determination. As a preliminary matter, staff provides several suggested conditions throughout the report in the event the Commission approves the requested permit and finding of consistency. PG&E agrees to each of those proposed conditions.

Enclosed are PG&E's detailed comments on the staff report.

Please contact me should you have any questions regarding these comments.

Sincerely,

L. Jearl Strickland
Director, Nuclear Projects
805-781-9785 (office)
805-441-4208 (cell)
LJS2@pge.com (email)

Enclosure

Pacific Gas and Electric Company Comments
Staff Report for Combined Consistency Certification CC-027-12 and Coastal
Development Application No. E-12-005, dated November 2, 2012

Box 4 is the Environmentally Preferred Alternative

While PG&E concurs with the analysis in the staff report that consideration under Resources Code Section 30260, the coastal-dependent industrial development override, is appropriate, PG&E disagrees that the project fails to meet the first or any of the three tests of that statute. As set forth in PG&E's October 26, 2012, letter and as further explained below, PG&E's Box 4 survey project is an appropriate balance of impact reduction and initial seismic survey target acquisition. Box 4 has been identified by the majority of the permitting agencies as having the least environmental impacts. Additionally, it represents an appropriate narrowing of the seismic targets identified by PG&E and validated by the California Public Utility Commission's (CPUC) Independent Peer Review Panel (IPRP). Any further refinement of the survey plan to reduce environmental impacts would represent an infeasible alternative as it would necessarily sacrifice some of the target objectives. PG&E's resubmitted application to reduce from a three-box survey to Box 4 only was selected on the basis of the minimal environmental impacts of Box 4 relative to all other survey boxes, and the critical seismic questions the box will help answer. In light of the responses to staff's questions regarding alternative, specifically addressed below, the Box 4 survey plan is the least environmentally damaging approach that could be taken, and is the only appropriate locational choice given the seismic targets the survey seeks to study.

In the report's "Summary of Staff Recommendation," staff poses four questions to better assess whether the Box 4 survey project is the environmentally-preferred alternative: (1) could seafloor geophones reduce the number or length of survey lines; 2) could further analysis of existing data either eliminate the need for the Box 4 survey or reduce its size or duration; (3) could complete evaluation of recently collected 2D onshore and 3D low energy offshore data help reduce and more precisely target high-energy offshore surveys; and (4) could alternative survey techniques reduce the extent and duration of the survey impacts? Each of these questions is addressed below in the expanded forms in which they appear on page 15 of the staff report.

"Evaluation of whether placing additional seafloor geophones to collect data would allow the extent or duration of the proposed high energy survey to be reduced."

- (a) Seafloor geophones (or marine nodes) were proposed as part of the Box 1 survey immediately offshore of DCPD. The geophones are intended to provide coverage in areas too shallow for safe ship activities (area south of DCPD to Point San Luis, where the Shoreline fault occurs in shallow (< 25 m) water). In the other survey areas, waters are deep enough to allow close

approach to shore with a survey vessel. Additional placements in deeper water would:

1. involve the deployment of thousands of marine nodes on the seafloor to be comparable to a single streamer array
 2. result in a loss of image resolution affecting fault imaging and incur a considerably greater expense.
- (b) A key environmental issue previously identified by the Coastal Commission, State Lands Commission, and Department of Fish and Game staff is siting of these nodes on the seafloor. Both hard and soft (rock and sandy) bottom conditions exist throughout the survey area. A spatially uniform distribution of nodes would:
1. involve siting on both hard and soft substrates. Based on PG&E's experience with permitting Ocean Bottom Seismometer deployments, the placement of equipment on hard substrates is discouraged due to environmental impacts.
 2. involve deployment of ropes between individual nodes to enable deployment and recovery. This could have a potential for increased impacts due to entanglement of marine life and disturbance of the seafloor. The proposed marine nodes cannot be deployed as autonomous units. The use of acoustic releases for individual deployments would involve a significant increase in cost.
- (c) Sensor spacing - image resolution
1. Compared to proposed *R/V Langseth* streamers (12.5 X 100 – 150 m), the marine geophones at 100-meter grid spacing would provide less spatial resolution.

“Re-assessment using updated techniques of existing seismic data from the area to determine whether the extent or duration of the survey might be reduced.”

- (a) The high-resolution seismic reflection data collected by the USGS and PG&E have been used to map the surface location and the shallow (hundreds of meters) structure of the Hosgri, Shoreline, Los Osos and San Simeon faults. This geophysical mapping has been used to define the high energy seismic survey (HESS) target areas. The individual HESS survey boxes, or race tracks, are designed to provide the smallest survey box with the necessary aperture (or offset) and fold (data density) to image the deeper portions of these fault zones. Box 4 is oriented at a high angle to the trend of faulting in Estero Bay (in the fault dip direction) and is the most straightforward means to image the Hosgri and Los Osos faults at depth. Further reduction of in the

size Box 4 would compromise the 3D imaging aperture of the fault in the seismogenic zone, where earthquakes nucleate.

- (b) To further mitigate impact in the marine environment, we can refine the survey area by turning off the full air gun array once we pass west of the Hosgri and Los Osos Faults and after the required fold is achieved. At which point, we will only run the mitigation gun; this scenario would maintain the current racetrack configuration but could potentially minimize the number of air gun shots in the region and allow us to acquire the data necessary to image the fault architecture of interest.

“Completion of currently-occurring seismic data collection and analysis to determine whether the survey could be reduced by focusing on a smaller or different target area.”

- (a) Currently-occurring seismic data collection is focused on other areas or targets surrounding DCP. High resolution, low energy 3D seismic profiling of the Hosgri fault, for example, is focused on geologic features at shallow depth to better determine the rate of motion of the Hosgri fault. Onshore seismic reflection profiling is focused on the structure of the Irish Hills and the Los Osos fault zone. None of these data can be used to reduce the size or duration of Box 4.

“Incorporation of data and analyses from other ongoing seismic characterization programs (e.g. the Nuclear Regulatory Commission’s Senior Seismic Hazards Analysis Committee, the U.S. Geological Survey, etc.) that would allow reduction or avoidance of survey activities.”

- (a) The January 2011, PG&E “Report on the Analysis of the Shoreline Fault Zone, Central Coastal California: Report to the U.S. Nuclear Regulatory Commission” provided new geological, geophysical, and seismological data to assess the location and geometry of the Shoreline fault zone offshore DCP. Geophysical data (high resolution seismic reflection and marine magnetic) collected by the US Geological Survey in 2008-2009, as part of the California Coastal Waters Mapping Program, was supplemented by PG&E with high resolution magnetic field data, and multibeam bathymetric mapping to better define the location and geometry of the Shoreline fault zone offshore of DCP. Data in the 2011 NRC report was later supplemented with results from the AB1632 funded 2010 Pt. Buchon Low Energy 3D Seismic Reflection Survey (PG&E, 2012).
- (b) The current PG&E SSHAC process is designed to define the “center, body, and range” of seismic hazard knowledge for DCP. The integration and evaluation of geologic and geophysical data as part of the SSHAC process has identified specific parameters (e.g., the dip and slip rate of the Hosgri

Fault), where the reduction in their uncertainties would have the greatest influence in the seismic hazard assessment. As a result, we are using these SSHAC results to focus survey activities to address the specific parameters that have the greatest impact on the hazard assessment.

“Evaluation of whether the use of alternative vessels or equipment could reduce the survey extent or duration.”

- (a) The discussion of an industry vessel with 10 or more streamers versus the *R/V Langseth* with 4 streamers and flip-flopping sources to limit the time in the water neglects other important consequences. From a scientific perspective, the targets of interest are best imaged by an aperture angle afforded by 4 – 6 streamers for the targets of interest and their respective depths. Furthermore, a 10-streamer vessel lacks uniform coverage at near offsets that severely degrades imaging of the fault structure in the upper few kilometers, which is critical when linking low and high energy results. . From a safety and environmental consideration, a 10 streamer vessel is more cumbersome than a 4 – 6 streamer vessel and would represent a greater hazard to navigation. Any unexpected circumstance that may result in streamers being caught on the rugged seafloor morphology would likely have a huge environmental impact and is not justified by any purported increase in efficiency.

“A third party review of the proposed survey data acquisition and processing.”

- (a) PG&E retained third-party experts with the Scripps Institute of Oceanography, the University of Nevada, Reno, and Fugro Worldwide in developing its survey plan, selecting the survey vessel *R/V Langseth*, approving the array configuration and data processing complement. The academic experts spoke to the appropriateness of the technology choices to the satisfaction of the California State Lands Commission when it certified the EIR and issued a geophysical survey permit.
- (b) The CPUC’s IPRP was created to provide independent review of PG&E’s survey plan, has done so on four occasions and expressed concurrence with the plan, and all but one member of the IPRP supports the completion of the Box 4 survey this year. “The IPRP reached consensus that a 3D high energy seismic survey of Box 4 could provide valuable information about the faults that pose the greatest seismic hazard. [...] The IPRP membership, with one exception, support the proposed testing as designed.” IPRP letter to Chairman Shallenberger dated October 25, 2012.

- (c) The CPUC, Seismic Safety Commission (SSC) and the Diablo Canyon Independent Safety Commission (DCISC) have also reviewed PG&E's survey plan and written in support. Here are excerpts of the letters sent by each of those entities in support of Box 4:

CPUC: "I am writing to you today to request the [CCC] to expeditiously issue the permit to enable [PG&E] to perform high energy three-dimensional offshore seismic surveys for [Diablo Canyon] as proposed... Performing surveys only in Zone 4 in 2012 would minimize any effects to the marine environment, and is acceptable to our IPRP. The CPUC strongly encourages and supports the CCC to issue a permit to PG&E now so that the off-shore high energy seismic surveys as proposed by PG&E in Zone 4 can be performed in a timely fashion." Letter from CPUC President Michael Peevey to Chairman Shallenberger, dated October 12, 2012.

SSC: "The IPRP has identified Box 4 as one of three offshore areas that contain known faults and fault intersections of key importance in evaluating seismic risk at Diablo Canyon. [...] [T]he Commission respectfully requests that the California Coastal Commission grant a permit to PG&E to conduct these important tests within Box 4 before the end of the current calendar year." Seismic Safety Commission letter to Chairman Shallenberger dated October 30, 2012.

In order for the Commission to grant a permit under the coastal-dependent industrial development override, Resources Code Section 30260 also requires that: (a) to do otherwise would adversely affect the public welfare, and (b) adverse environmental effects are mitigated to the maximum extent feasible.

The "public welfare" test is satisfied in that, as stated by the CEC in its October 25, 2012 letter of support to Chairman Shallenberger, "The safety and reliability of [Diablo Canyon] is of critical importance to California and the state's overall electricity supply. The importance of undertaking a thorough analysis of risks to [Diablo Canyon's] reliability is underscored by implications of the current unavailability of the San Onofre Nuclear Generating Station, and uncertainty concerning its return to service."

Compliance with the second requirement, that adverse environmental impacts be mitigated to the maximum extent feasible, is established by the more than three-dozen mitigation measures identified in the enclosed document, "Proposed 3D HESS Survey Mitigation Measures," developed in coordination with federal, state and local regulatory agencies to expand the mitigation program. Key impact mitigation measures include:

- (a) A reduction in total survey area and implementation of the survey over a two year period. The program resulted in the selection of Box 4 for 2012.

1. Smallest survey area and shortest duration (9.25 days) of the currently CSLC approved survey boxes;
 2. Lowest estimated take of marine mammals including Morro Bay harbor porpoise and southern sea otter.
 3. November 15 to December 15th survey window has lowest impacts to fish eggs and larvae, as well as having the lowest impacts commercial and recreational fishing in project area.
 4. Includes both deep water and nearshore areas with the smallest percentage of shallow areas within three CSLC approved survey boxes;
 5. Smallest survey footprint on hardbottom substrate;
 6. Reduced annual air emissions totals; and
 7. Survey lines do not enter any Marine Protected Areas.
- (b) Implementation of a Adaptive Management Plan approach to reduce the potential impacts to marine wildlife including:
1. Harbor Porpoise Monitoring Program.
 2. Sea Otter Monitoring Program.
 3. Stranding Response Plan. .
 4. Aerial Survey Program.
 5. Monterey Bay National Marine Sanctuary HARPs Program.
 6. Study of the Effects of the Seismic Survey on Fishes.
- (c) Implementation of a Commercial Fishers Claims Program and Communications Plan. Plans will:
1. Provide up to date information on survey activities and ways to avoid disruptions to planned activities
 2. Provide a compensation program commercial and recreational fishing industry activities including the fishing vessels, fish processors, fish buyers and party boat operators a means to recover lost revenues.
 3. Conduct monitoring of impacts to fish resources during and after the proposed seismic survey.
- (d) Implementation of a Community Communications Plan to ensure recreational users are aware of the project related activities and avoid impacts to in water users (divers, surfers and beach users). The project activities will be timed to avoid periods of high in water activities.

PG&E respectfully submits the following detailed comments on the staff report.

1. Page 20, first paragraph, line 9. It should be noted that marine mammal presence may also be less than what average observations predict.

2. Page 25, second paragraph, line 14. NMFS noted that for the eight harbor porpoise deaths, several of them did have broken bones and hemorrhage that are typical of interspecific aggression from bottlenose dolphins. There is no indication that they are linked to human activities. [Input from Sarah Wilkins, NMFS, October 22,2012]
3. Page 34, second paragraph, line 7. The marine mammal aerial surveys carried out on October 2, 2012, showed a wide distribution of harbor porpoise both north and south of Survey Box 4. Additionally the highest densities of observed harbor porpoise are between Port San Luis and Point Sal. These data demonstrate that the current range of harbor porpoise is wider than just the survey area, concentrated to the south and indicate they have other areas to forage such that impacts would not be as significant. The November 5, 2012 aerial survey conducted by NMFS found a similar distribution north and south of Survey Box 4.
4. Page 44, second paragraph, line 8. PG&E provided Commission staff with an updated evaluation via email reflecting the currently proposed Project (Box 4). This evaluation looked at fish larvae mortality for Box 4 both for larvae within State water only and in State and federal waters. The evaluation was transmitted by PG&E Letter DCL-2012-655, dated October 31, 2012.
5. Page 45, second paragraph, lines 1-3. The data used in estimating larval fish mortality was from nearshore but did include deeper areas that were included in the seismic survey. The comments are correct that the composition of fishes changes with distance offshore, but the densities are also greater closer to shore. Therefore, these data result in higher, more conservative estimates of larval mortality than are likely to occur in the offshore areas being surveyed. The overall number of species is likely to be greater close to shore. Also the data from DCPD were collected over two years under different oceanographic conditions increasing the likelihood that a broad range of species were collected. The entire data set from the DCPD nearshore study area was based on over 3,000 samples which included a minimum of 175 different taxonomic categories of larval fish. The closest CalCOFI station is approximately 5 miles off Point San Luis and is sampled at most four times a year with a single sample collected each cruise.
6. Page 45, third paragraph. The suggestion is made that including data from the CalCOFI studies would improve the estimates, but these data are collected from samples further offshore and through the water column down to depths of 200 m. As a result, it is impossible to determine the water depths where the larvae were collected and the resulting densities from the samples are very low relative to the nearshore DCPD samples. Also, the data are only collected quarterly, which does not allow for fine-scale adjustments to be made for abundances and composition through the year that were possible with the DCPD data. The CalCOFI data would result in lower mortality estimates.

7. Page 46, first paragraph. The statement that the analysis used the entire water column in the survey area in calculating the proportional mortality is not correct. The volume was adjusted for water depth and then limited to a depth of 100 m which is clearly stated on page 7, under the Section titled "Source Water Area and Volume Calculation".
8. Page 46, third paragraph. The comment that there is a large degree of uncertainty in the estimates of potential larval fish mortality is not valid given the extremely conservative approach used in calculating the estimates. There is no basis for the statement that the estimates were based on a "limited number of studies, most of which were done in other areas and on species not present in the survey area." In fact, the estimates are based on what is generally recognized as one of the best data sets ever collected on nearshore ichthyoplankton and includes data from areas that are planned to be included in the seismic surveys on the species that are most likely to occur in those areas. The estimates of mortality are so low that any of the suggested adjustments would still result in levels of mortality that would not result in any impacts to the adult fish populations.
9. Page 56, fourth paragraph, line 3. The California Collaborative Fisheries Research Program (CCFRP)¹ attempts to assess long-term effects to fishing interests by monitoring catch per unit of effort (CPUE) and commercial trap for a period of five years. The sampling in years 4 and 5 should provide a good indication of whether there are any long-term impacts.
10. Page 57, first paragraph, line 1. Although the loss of larvae and eggs is estimated at 5 million, this represents an insignificant proportion of the larvae and eggs and is minor in comparison to the natural mortality of larvae and eggs.
11. Page 57, first paragraph, line 6. On October 31, 2012, PG&E provided Coastal Commission staff a revised fish larvae mortality report pursuant to Coastal Commission's request.

¹ CCFRP is a partnership of people and communities interested in fisheries sustainability. By combining the expertise and ideas of fishermen and scientists, we have successfully established protocols to gather information for fisheries management. This project is a collaborative effort among researchers from CA Sea Grant at Moss Landing Marine Laboratories (MLML) and SLOSEA/Center for Coastal Marine Sciences at Cal Poly San Luis Obispo.

12. Page 57, fourth paragraph, line 8. As shown in the Communication Plan, transmitted by PG&E Letter DCL-2012-655, the plan has been revised to include: (1) a method to provide updated sound propagation information to the community and stakeholders based on the sound source verification process, (2) a mechanism to update PG&E's database of interested parties based on the participants in the review and comment opportunities provided by the Coastal Commission, CDFG, NMFS, USFWS, and NSF; and (3) a common means of communication, including email.
13. Page 58, first paragraph, line 2. PG&E provided a detailed fish compensation plan that included: (1) negotiated upfront compensation; (2) expedited claims process; (3) mediation; and (4) at the request of Coastal Commission staff, access to a liaison to assist fishers and others in preparing and submitting their claims (PG&E selected the Joint Oil/Fisheries Liaison Office (JOFLO)).
14. Page 59, fifth paragraph, line 1. Those other aspects of the JOFLO model are not directly relevant because they contemplate ongoing activities. The proposed seismic survey is a short-term project to be conducted over a brief period of time.
15. Page 62, third paragraph, line 4. The Communication Plan has been revised to include posting of signage or notices at beaches, coastal access sites, and beach parking areas.
16. Page 63, first paragraph, line 10. Page 63, first paragraph, line 10. Literature provided by the US NAVY shows that only those being submerged for 15 minutes or more and continuously exposed to the noise source during the period are at risk. [Reference: Limits for Underwater noise exposure of human divers and swimmers, Subacoustech, Steve Parvin] Nonetheless, PG&E will provide \$100,000 to the County of San Luis Obispo for use in making improvements to beach access for surfers.
17. Page 70, second paragraph, line 2. Project is not being undertaken in support of a temporal expansion of the DCP.
18. Page 74, third paragraph, line 15. The completed low-energy offshore surveys and recent onshore surveys would not influence the 2012 high energy offshore survey the scope of the high energy survey. Each survey addresses a different component of the seismic hazard.



Pacific Gas and
Electric Company

RECEIVED

NOV 06 2012

Diablo Canyon Power Plant
P.O. Box 56
Avila Beach, CA 93424

800.545.6000

October 31, 2012

CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

PG&E Letter DCL-2012-657

Andrea Lueker, City Manager
City of Morro Bay
595 Harbor Street
Morro Bay, CA 93442

Central Coastal California Seismic Imaging Project within Morro Bay City Limits

Dear Ms. Lueker:

Your letter of October 25, 2012, raises two claims of jurisdiction over components of Pacific Gas and Electric Company's (PG&E) Central Coast California Seismic Imaging Project: (1) placement of receivers on the Morro Bay sandspit; and (2) vessel passage for those portions of the offshore survey above tidal lands owned by the City of Morro Bay.

With regard to the placement of receivers, PG&E has redesigned its plan to move these devices off of city-owned lands and onto California State Parks property. Enclosed is a map depicting the new receiver locations.

With regard to the Box 4 survey area, the Federal Government has Constitutional authority over the navigable waters and exercises its jurisdiction under the regulations set forth in Title 33 of the United States. PG&E is aware of no authority by which the City of Morro Bay may require a permit for a ship to pass through navigable waters. PG&E also noted that the statutes referenced in the drawing attached to the City's October 25, 2012, letter expressly conditioned the conveyance of the State's interest in these tidelands, requiring "That said lands shall be improved by said county without expense to the State, and shall always remain available for public use for all purposes of commerce and navigation, ..." [emphasis added]. While the City lacks regulatory authority to prohibit the survey vessel from operating in the navigable waters, PG&E would note that the *R/V Langseth* will be conducting its turns in the ocean portion of the City of Morro Bay's Tidelands Trust property identified in your October 25, 2012, letter, during which only the single mitigation gun will be fired. The 245-dB air guns used during the seismic survey will not be fired above within the Tidelands Trust-granted property.

Based upon PG&E's new placement of receivers and the legal authorities cited above, PG&E will not be seeking a permit from the City of Morro Bay.



Ms. Lueker
October 31, 2012
Page 2

PG&E Letter DCL-2012-657

Sincerely,

L. Jearl Strickland
Director, Nuclear Projects
805-781-9785 (office)
805-441-4208 (cell)
LJS2@pge.com (email)

Enclosure

cc: Janelle Beland, Acting Director, California Department of Parks and Recreation
Dan Carl, Deputy Director, California Coastal Commission
Jennifer DeLeon, Project Manager, California State Lands Commission
Alison Dettmer, Deputy Director, California Coastal Commission
Tom Jones, PG&E Director, Government and Public Relations
Dr. Charles Lester, Executive Director, California Coastal Commission
Morro Bay Mayor and City Council
James Patterson, Chair, San Luis Obispo County Board of Supervisors
John Shoals, PG&E Sr. Government Relations Representative

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California State Senate

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FIFTEENTH SENATE DISTRICT

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November 8, 2012

Mary K. Shallenberger, Chair
Honorable Commissioners
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105

Re: Application No, E-12-005 and CC-027-12
PG&E High Energy Geophysical Survey
(Wednesday, November 14th, Item 13.b.)

Dear Chair Shallenberger and Members of the Commission:

As the author of AB1632 and proponent of the state taking a more pro-active role in insisting that PG&E obtain the necessary seismic hazard information to ensure that our citizenry and environment are from seismic threats near our operating nuclear power plants, I would like to urge conditional approval of PG&E's permit to acquire 3D seismic data off the San Luis Obispo county coastline. In my role as a geophysicist prior to being elected to the state legislature I worked extensively in the fields of earthquake seismology and 3D seismic imaging technology. That training and experience informed my opinion that the seismic hazards to our coastal nuclear power plants was much greater than our state and federal regulators understood.

AB1632 was signed into law in 2006 a fully year before the Chuetsu M6.6 earthquake severely damaged the Kashawazaki-Kariwa nuclear power plant. That event produced insights which led the California Energy Commission to recommend 3D seismic studies to delineate the faults and resolve the uncertainty in the vicinity of the Diablo Canyon Nuclear Power Plant. Then, in March 2011 the Tohoku M9.0 earthquake and tsunami destroyed the Fukushima Daiichi Nuclear Power Plant with attendant fires, explosions, core meltdowns, and radiation release. That disaster caused many thousands of fatalities, environmental devastation, and upwards of \$235 billion dollars in economic losses according to the World Bank.

In the case of both Japanese disasters the earthquakes on offshore faults were larger than thought possible by the utility and the regulators. Additionally the plants proved more vulnerable to strong ground motion than predicted by engineering assumptions.

PG&E has submitted a proposal to acquire 3D seismic data in the offshore marine environment to directly image a number of poorly understood faults that interact with, and potentially intersect with, the large dangerous offshore Hosgri fault just 3 miles from the plant. There is no doubt that the data from such geophysical studies would provide invaluable information about the geometry and history of numerous inter-related offshore and onshore faults that surround and potentially underlie the power plant.

In 2008, after careful analysis of the body of existing seismic information and assessment of the issues of remaining geologic uncertainty, the California Energy Commission recommended that these 3D seismic studies be performed. This information is critically important if it is to be included in hazard assessment analyses that will inform the terms of the NRC's current operating license and their decisions regarding relicensing. The failure to acquire this data will make it difficult to ensure that regulators understand these faults properly when making critical decisions about the future of Diablo. Regulatory failure at Diablo could produce environmental consequences far greater than the regulatory failure of the Minerals Management Services in their oversight of the Deep Water Horizon in 2010, up to that point the nation's worst environmental disasters on record.

We must not allow such a regulatory failure occur in California. I therefore urge the California Coastal Commission to approve Coastal Development Permit E-12-005 pursuant to Section 30260 of the Coastal Act, subject to the following conditions:

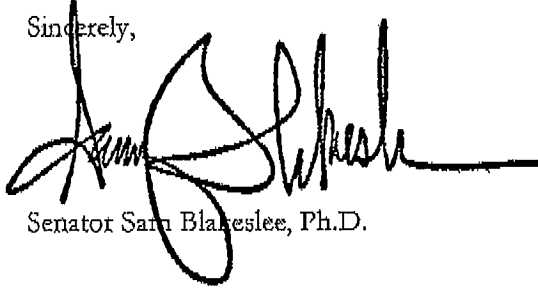
The proposed survey design should be reviewed by an experienced and independent 3rd party to identify actions to both improve the quality of the 3D seismic survey and reduce its potential environmental impact. Such actions might include but are not limited to:

- 1) Pre-survey modeling to optimize ship and streamer acquisition parameters to ensure generation of 3D seismic images that are designed to address and distinguish between various hypothesized geologic and faulting models affecting strong motion predictions at the plant,
- 2) Refining the target area to optimize imaging in the vicinity of those fault(s) closest to the plant where rupture and resultant strong ground motion pose the greatest potential threat to the safe and reliable operation of the power plant,
- 3) Selecting experienced vendors with state-of-the-art data acquisition systems including large numbers of streamers and hydrophones in effort to decrease the number of air-gun blasts and shorten the duration of the survey to reduce impacts on the marine environment.

Please note that these actions are consistent with the general thrust of the recommendations on page 15 of the Coastal Commission staff report.

Finally, I sincerely believe that this survey should be conducted as soon as practicably possible. Years of delay, in an effort to address any and all possible questions and potential impacts, presents real risks as well. We do not know when these faults will fail and unlike some permitting issues – the safety of our citizenry and our environment may depend on our ability to move expeditiously.

Sincerely,

A handwritten signature in black ink, appearing to read "Sam Blakeslee", with a long horizontal stroke extending to the right.

Senator Sam Blakeslee, Ph.D.

Cc: Governor Jerry Brown
Michael Peevey, President, California Public Utilities Commission
Allison Macfarlane, Chairman, U.S. Nuclear Regulatory Commission

State Building and Construction Trades Council of California

ROBBIE HUNTER
PRESIDENT

J. TOM BACA
SECRETARY-TREASURER

Chartered by
BUILDING AND CONSTRUCTION TRADES
DEPARTMENT
AFL - CIO

November 9, 2012

Mary Shallenberger, Chair
California Coastal Commission
45 Fremont Street
San Francisco, CA 94105

Dear Chairwoman Shallenberger:

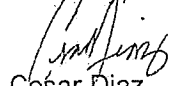
On behalf of the State Building and Construction Trades Council of California (SBCTC), I write to urge the Coastal Commission to approve Pacific Gas and Electric's (PG&E) application for a coastal development permit and federal consistency certification to conduct a narrowly tailored, fully mitigated and robustly monitored seismic survey off the coast of the company's Diablo Canyon power plant.

The SBCTC has over 180 local construction unions with nearly 350,000 members in California, many of whom work either directly for PG&E or are employed by contractors who work for PG&E. Our members directly benefit from Diablo Canyon's operations, and wish to underscore the importance of the plant in generating 22% of PG&E's electricity at a reasonable and stable cost to customers. As California heads into a future of carbon regulation under a cap-and-trade market, the importance of Diablo's GHG-free baseload generation cannot be overstressed.

According to a 2003 Nuclear Energy Institute (NEI) study, Diablo Canyon, at that time, had a total economic impact of approximately \$642 million. The plant directly employed 1,405 county residents and was responsible for a total of 2,287 jobs—"among the best-paying jobs in the county." According to a report by CalPoly's Orfalea School of Business that studied the economic impact of Diablo Canyon continuing to operate beyond its current license, the plant's contribution to the local economy in 2027 would be 1,578 direct jobs and 3,200 total jobs, for a total annual economic impact of \$1.6 billion to the state and local economy in that year.

It is crucial to the employment base and economic vitality of both San Luis Obispo County and the State of California that Diablo Canyon continues to operate. The studies you are asked to permit will help inform both the Nuclear Regulatory Commission and the California Public Utilities Commission as those regulators consider Diablo Canyon's operations beyond its current license. We urge your approval of those permits.

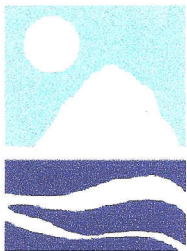
Sincerely,


Cesar Diaz
Legislative Director

CD:cmh
opeiu#29/afl-cio

E-12-005 / CC-027-12
PG&E SEISMIC SURVEY

LOCAL GOVERNMENT



City of Morro Bay

Morro Bay, CA 93442

(805) 772-6205

November 7, 2012

Pacific Gas and Electric Company
Mr. Jearl Strickland, Director, Nuclear Projects
Diablo Canyon Power Plant
Mail Code 104/6/602C
Post Office Box 56
Avila Beach, CA 93424

RE: CENTRAL COAST CALIFORNIA SEISMIC IMAGING PROJECT WITHIN MORRO
BAY CITY LIMITS

Dear Mr. Strickland,

Thank you for your letter dated October 31, 2012 in response to the City of Morro Bay's correspondence dated October 25, 2012. In terms of the placement of receivers, the City agrees that if the receiver placement plan is redesigned to keep the devices off City-owned property, then, in fact, a permit is not needed for that portion of the work.

With regard to the easternmost approximate 1/5 of Box 4, in your letter you reference the *R/V Langseth* will be conducting turns in the ocean portion of the City of Morro Bay's Tidelands Trust property, firing a single "mitigation gun." While we understand that a restriction cannot be imposed for purposes of commerce and navigation, it is the City of Morro Bay's position that this provision does not allow for free and unfettered use of said waters. The City is extremely concerned about the firing of the single "mitigation gun" and requests additional information about those activities including decibel level, frequency, duration and restrictions to navigation imposed on other vessels.

The City of Morro Bay certainly believes it would be in the best interest of PG&E to resolve these permitting issues prior to the commencement of the imaging project.

Sincerely,

Andrea Lueker
City Manager

ADMINISTRATION
595 Harbor Street

ADMINISTRATIVE SERVICES
595 Harbor Street

FIRE DEPT.
715 Harbor Street

PUBLIC SERVICES
955 Shasta Avenue

HARBOR DEPT.
1275 Embarcadero Road

CITY ATTORNEY
595 Harbor Street

POLICE DEPT.
850 Morro Bay Boulevard

RECREATION & PARKS
1001 Kennedy Way

November 7, 2012

Page 2

cc: Morro Bay Mayor and City Council
Janelle Beland, Acting Director, California Department of Parks and Recreation
Dr. Charles Lester, Exectutive Director, California Coastal Commission
Dan Carl, Deputy Director, California Coastal Commission
Alison Dettmer, Deputy Director, California Coastal Commission
Jennifer DeLeon, Project Manager, California State Lands
James Patterson, Chair, San Luis Obispo County Board of Supervisors
Tom Jones, PG&E Director, Government and Public Relations
John Shoals, PG&E Senior Government Relations Representative



November 2, 2012

Ms. Mary Schallenberger, Chairperson
Coastal Commissioners and Alternates
California Coastal Commission
45 Fremont Street, Suite 200
San Francisco, CA 94105-2219

President
Marshall E. Ochylski

Vice President
Leonard A. Moothart

Directors
Craig V. Baltimore
David S. Vogel
R. Michael Wright

General Manager
Susan Morrow

District Accountant
Amparo Haber

Fire Chief
Robert Lewin

Battalion Chief
Phill Veneris

Re: PG&E's Central Coast Seismic Imaging Project
Application No. E-12-005 and CC-027-12
Agenda Item: W11b

Dear Chairperson Schallenberger and Commissioners:

On November 1, 2012 at its regular meeting the Board of Directors of the Los Osos Community Services District voted to send a comment letter to the California Coastal Commission opposing the PG&E's Central Coast Seismic Imaging Project.

Although we are certainly concerned with the seismic safety of the region surrounding PG&E's Diablo Canyon nuclear facilities, the potential benefits of seismic testing (enhancement of current seismic protection) must be balanced with the environmental impacts on marine mammals and fish, and the environmental and economic impacts on adjacent landside areas, including the community of Los Osos.

Our opposition is based on the environmental documentation prepared for the project which states that the project as currently proposed would generate potentially significant environmental impacts on air quality, terrestrial and marine biological resources, greenhouse gases (GHG's), land use and recreation, and noise.

Our District has specific concerns that need to be addressed before any project proceeds. Primary is the potential impact on our groundwater aquifer which extends out approximately 3 miles from the shoreline of the Morro Bay sandspit. Since this aquifer is our community's only source of drinking water, any negative impact on this aquifer could have a significant impact on our ability to provide potable water to our customers. An additional concern is the potential landside impacts from liquefaction of the sandy soil underlying our community and the potential for structural damage.

Mailing Address:
P.O. Box 6064
Los Osos, CA 93412

Offices:
2122 9th Street, Suite 102
Los Osos, CA 93402

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www.locsd.org

On this basis the board urges that a permit not be issued for the project until all of the environmental and economic impacts have been properly addressed and mitigated, and there is a mechanism in place to guarantee proper compensation for all of the negative impacts on affected communities and residents.

Sincerely,

A handwritten signature in black ink, appearing to read 'M. Ochylski', with a stylized flourish at the end.

Marshall E. Ochylski
Board President

cc: San Luis Obispo County Board of Supervisors

E-12-005 / CC-027-12
PG&E SEISMIC SURVEY

PRIVATE ORGANIZATIONS



Coastal Band of the Chumash Nation

P.O. Box 4464 Santa Barbara, CA. 93140-4464

Website: CoastalBandoftheChumashNation.webs.com

Email: cordero44@charter.net

STATEMENT OF OPPOSITION **OF PG&E PURPOSAL FOR 3D GEOPHYSICAL SEISMIC TESTING**

Haku Haku,

The Coastal Band of the Chumash Nation is a sovereign California Tribe of over 2600 members. The membership and our ancestors have occupied the Coast of California from Ragged Point down to the Santa Monica Mountains and the California Channel Islands continuously for over 18,000 years.

We have several concerns with the High Energy Seismic Survey process that is being proposed on California's Central Coast and the negative impact it will have on our marine relatives, our submerged cultural resources, our cultural and traditional take, and our spiritual connection with the waters of our traditional territories. Upon reading reports of data that was collected by agencies after seismic testing was done in other areas, the conclusion among stakeholders was that the devastation to the Marine Ecosystem was worse than that of commercial fishing that was conducted previous to enactment of Marine Protected Areas.

Traditional Take:

The loss of marine life endangers traditional practices such as fishing and gathering. The Chumash peoples continue to fish and gather different species not for monetary value but for personal use. These personal uses include medicinal consumption, ceremonial dress, and prayer offerings. This type of Ecocide will affect generations of the Chumash peoples and further contribute to intergenerational trauma.

Safety:

It has been stated publicly by Pacific Gas and Electric that going to the beaches or into the waters during the seismic testing could cause illness and even death to fishermen, divers, kayakers, boaters, surfers, and swimmers. Many of our members participate in the Chumash Maritime Association. The Chumash Maritime Association is a group of Chumash peoples that come together to paddle our traditional watercraft called a tomol in the same waters our ancestors did. Today, the Chumash peoples encourage keeping up this tradition and the 3D geophysical seismic testing process infringes on our indigenous right and threatens to put our paddlers at harm.

Cultural Resources

As stated in the Final Environmental Impact Report there is several submerged Native American Cultural Resource Sites due to the rise of the waters over the thousands of years. We also want to mention that more recently there are Native American Cultural Resource Sites that have fallen or are falling into the Ocean due to erosion. As fragile as artifacts and human remains can be they would not be able to withstand the pressures of cables, nodes, large anchoring, or the effects of Cymatics Wave Phenomenon. To prevent disturbance and destruction of Native American Sacred Sites the 3D geophysical seismic testing should not be permitted. Due to the amount of area this process would take to complete it would not be possible for the National Science Foundation and its colleagues to avoid a Native American Cultural Resource Sacred Site.

Spiritual Connection

"The Rainbow Bridge Story" is also known as the Chumash creation story. This story has been passed down from one generation to the next and is even told in some schools today by teachers to their pupils. This story tells of how the Chumash ancestors crossed from the Channel Islands to the main land by walking over a rainbow bridge. According to the story the ancestors that had looked down fell and became dolphins. The end of the story states "and so today the dolphins are our close relatives." There are many other stories that are told that are very similar to this one. All of these stories discuss how sacred the waters are and how we are connected to the marine life. Whether it's how the tomol paddlers pray with each pull of the water, an offering given before taking a fish to feed the families, or a song for the ancestors that live within the waters.

Resolution

AB 1632 does not require new studies but requests PG&E to compile and assess existing data. The law states "should" not "shall". 3D Geophysical Seismic testing is not required by law. An alternative is that PG&E can reveal the data that they gathered from on-land seismic testing. Also take into consideration that the NRC recently publicly announced that the Diablo Canyon Power Plant is safe from earthquakes according to data acquired from low frequency seismic mapping.

Laws

The process of 3D Geophysical Seismic Testing goes against several local, state, federal, international, and tribal laws such as California Environmental Quality Act, Marine Life Protection Act, Native American Freedom of Religion Act, Native American Graves Protection and Repatriation Act, and the United Nations Declaration on the Rights of Indigenous Peoples.

We thank you for the opportunity to inform you about the dangers and harms the proposed 3D Geophysical Seismic Testing can do to our relatives, ancestors, culture, and traditions. We look forward to the California Coastal Commission respectfully standing with the Chumash peoples, several groups and other agencies and not permit such process on the Coast of California.

Sincerely,

Crystal Baker,
Board Member of
Coastal Band of the
Chumash Nation

Diablo Canyon Seismic Testing

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COASTAL COMMISSION

Briefing Book

November 14, 2012



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COASTAL COMMISSION

Comment Letters

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Diablo Canyon Seismic Testing Briefing Binder

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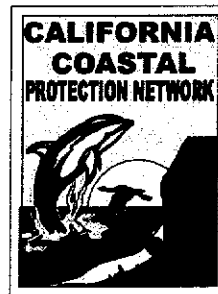
PG&E's Seismic Testing is Inconsistent with the Coastal Act

- **The high-energy seismic testing proposed by PG&E is inconsistent with the following policies of the Coastal Act:**

- **Section 30230 Marine resources; maintenance** - Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.
- **Section 30210—Access; recreational opportunities; posting** - In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.
- **Section 30220—Protection of certain water-oriented activities**-- Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.
- **Section 30234.5—Economic and recreational importance of fishing.** The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.
- **Section 30224—Recreational boating use; encouragement; and facilities.** Increased recreational boating use of coastal waters shall be encouraged...

- **The Project does not meet the three required tests under 30260 to qualify for an Industrial Override:**

- **Section 30260—Location or expansion.** Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with this division. However, where new or expanded coastal-dependent industrial facilities cannot feasibly be accommodated consistent with other policies of this division, they may nonetheless be permitted in accordance with this section and Sections 30261 and 30262 if (1) alternative locations are infeasible or more environmentally damaging; (2) to do otherwise would adversely affect the public welfare; and (3) adverse environmental effects are mitigated to the maximum extent feasible.



October 24, 2012

Mary Shallenberger, Chair
California Coastal Commission
45 Fremont Street Suite 2000
San Francisco, CA 94105

RE: Opposition to Pacific Gas & Electric Central Coast Seismic Survey: Consistency Certification and Permit Approval (E-12-005 and CC-027-12).

Dear Chair Shallenberger and Honorable Commissioners,

On behalf of the undersigned organizations, and the tens of thousands of members we represent, we write in strong opposition to Pacific Gas and Electric's (PG&E) proposal to conduct seismic testing near the Diablo Canyon Power Plant (DCPP). This project represents the first time that the Commission has reviewed a high-energy 3-D seismic survey of this scope since the impacts of intense underwater sound on marine life and ocean users came to light in the mid-1990s.

We object to this project on the following basis:

- The project will result in significant and unavoidable negative impacts to marine life, ocean recreationalists, fishermen, the local economy and cultural resources.

- The project design, itself, is flawed and unlikely to produce additional scientific data that would address the most critical issues pertaining to seismic safety at the Diablo Canyon Power Plant.
- The project is premature given that PG&E has failed to synthesize existing data and report on recently collected low energy offshore and onshore geologic data to assess whether additional information is needed.
- The project is not required by the Nuclear Regulatory Commission, AB 1632 (Blakeslee), or the California Energy Commission and cannot unilaterally be required by the California Public Utilities Commission without the Coastal Commission's consent.

Given the significant negative impacts this project poses, the lack of demonstrated need, and concerns about project design validity, we urge you to **deny both federal consistency certification and permit approval for this project.**

Discussion:

Under PG&E's revised proposed project, seismic airguns will blast high-intensity sound waves 24 hours a day for a minimum of nine days causing significant and unavoidable impacts to marine life and four endangered species. PG&E's "takings" analysis for the original project acknowledges thousands of marine mammals would be harassed and possibly killed during the testing process;¹ a significant portion of those incidents can be expected to occur in the revised project. The newly developed Marine Protected Areas (MPAs) are also at risk of being impacted; according to PG&E's own propagation maps² (which were not included in the EIR), decibel levels of 160 and possibly higher will reach the Point Buchon MPA under the revised proposal. The scientific consensus is that marine mammals begin avoidance behavior at 120dB. Given that dB ratios are logarithmic, the increase from 120 dB to 160db is 10,000 times higher than the level at which nuisance begins.³

We are equally concerned about harmful impacts to ocean users who might be present in the water during testing—especially considering beaches where people recreate will receive 160 dB. A study conducted by U.S. Navy concluded that 145 dB is a safe threshold for humans⁴. PG&E's FEIR clearly states, "Noise levels in excess of 154 dB could be considered potentially harmful to recreational divers and swimmers in the Project area". And "Studies have shown that high levels of underwater noise can cause dizziness, hearing damage, or other sensitive organ damage to divers and *swimmers*, as well as indirect injury due to startle responses"⁵

It is important to stress that there is no legislative, regulatory or legal mandate requiring seismic testing at DCP. Proponents of the Project have suggested legislation

¹ PG&E EIR impacts to marine resources, pg 4.4-79-4.4-85.

http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.04_BIOLOGICAL_RESOURCES-MARINE.pdf

² PG&E noise contour map for both the full air gun array and the mitigation air gun.. Attached. .

³ Richardson, W.J., Green, C.R., Malme, C.I., Thompson, D. H., Moore, S.E. and Wurwig, B. (1991) *Effects of noise on marine mammals*. Report prepared by LGL Ecological Research Associates Inc., TX, for US Minerals Management Service, Atlantic OCS Region, Herndon, VA, MMS Study 90-0093, NTIS PB 91-168914, 462 pp.

⁴ Navy study on divers: <http://www.surtass-lfa-eis.com/DiverStudies/index.htm>

⁵ PG&E FEIR: http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.11_NOISE.pdf

(AB 1632) and other recommendations/directives from the California Energy Commission (CEC) and California Public Utilities Commission (CPUC) mandate testing. This is false and legally incorrect. AB 1632 requires the CEC, as part of its energy forecasting and assessment activities, to compile and evaluate existing scientific studies in order to determine the potential vulnerability of the State's nuclear power plants due to aging or from a major seismic event—but it does not mandate seismic testing.⁶ Both the CEC and the CPUC have either recommended and/or directed PG&E to conduct seismic testing, however neither have the *legal authority to require it especially when considering the jurisdiction of the California Coastal Commission (CCC)*.

Existing case law says the PUC and the CEC must cooperate with other state agencies in fulfilling their roles; and neither entity can usurp the jurisdiction of any other state agency that flows from a federally approved program, such as the CCC⁷. **Therefore in order for CPUC to direct PG&E to conduct testing, the CCC must also concur.** Most importantly, the Nuclear Regulatory Commission (NRC) has not mandated this seismic testing.

We believe one of the most credible reasons to deny the Project is that expert geologists question the necessity of testing and the ability of the current design to produce information that would alter existing worse case scenario modeling. A former PG&E geologist and current USGS geologist concur that the Project as designed will only marginally improve present knowledge.⁸ Further, we are extremely concerned existing data is not being synthesized to reveal a detailed geological profile—several entities including USGS and others have already conducted seismic testing in the area over several decades⁹—and PG&E is currently conducting terrestrial testing and recently finished low energy studies. This existing information should be synthesized, assessed and provided to the Commission before high-energy 3D surveys are allowed to move forward.

It is also worth noting that some experts and local decision makers who support additional high-energy seismic testing are concerned about the technical capabilities of the ship being utilized for testing¹⁰ and do not believe the current project design will provide the information sought. In fact, PG&E has previously argued strenuously that these studies were not needed to advance their understanding of safety at the DCP. ¹¹

⁶ http://www.leginfo.ca.gov/cgi-bin/postquery?bill_number=ab_1632&sess=0506&house=B&author=blakeslee

⁷ See case law: *Orange County Air Pollution Control Dist. v. Pub. Util. Com.*, 484 P.2d 1361, 1367 (Cal. 1971) and *Voices of the Wetlands v. SWRCB*, 69 Cal Rptr 3d 487(2007)

⁸ Derived from personal communication with Dr. Jeanne Hardebeck Sept and Oct 2012; and testimony from former PG&E Geologist: <http://a4nr.org/wp-content/uploads/2012/02/021012-Hamilton-testimony-014-Full.pdf>

⁹ Testimony from former PG&E Geologist: <http://a4nr.org/wp-content/uploads/2012/02/021012-Hamilton-testimony-014-Full.pdf>

¹⁰ Cruise Report on Marcus Langseth http://steveholbrook.com/research/cascadia2d/coast_cruise_report.pdf. And quotes from Supervisor Gibson <http://www.newtimeslo.com/cover/8447/floating-the-marcus-langseth/>

¹¹ PG&E, undated. Diablo Canyon Power Plant License Renewal Application, Appendix E. Environmental Report, <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/diablo-canyon/dcpp-er.pdf>. At Chapter 5-4

In closing, this Project violates seven sections of the Coastal Act (Sections: 30220, 30224, 30234.5, 30223, 30230, 30260, and 30210). The rush for approval given the concerns expressed by seismic experts, fishermen, environmentalists, local tribes, business owners and biologists should be halted. If approved, the Project would set a negative precedent by allowing flawed and unwarranted projects of this nature to move forward at the expense of marine life, human safety, and the local economy. PG&E should be required to synthesize existing information and explore less damaging alternatives so the Commission can review the Project in the context of all phases of the proposed seismic study program, and properly weigh its marginal information benefits against its cumulative impacts on marine resources and ocean users.

Respectfully,



Susan Jordan, Director
California Coastal Protection Network



Chad Nelsen, Environmental Director
Surfrider Foundation



Amanda Wallner, Organizer
Sierra Club California




Steve Shimek, Chief Executive/Founder
The Otter Project



Samantha Murray
Senior Manager, Pacific Program
Ocean Conservancy



Karen Garrison
Co-Director, Oceans Program
Natural Resources Defense Council

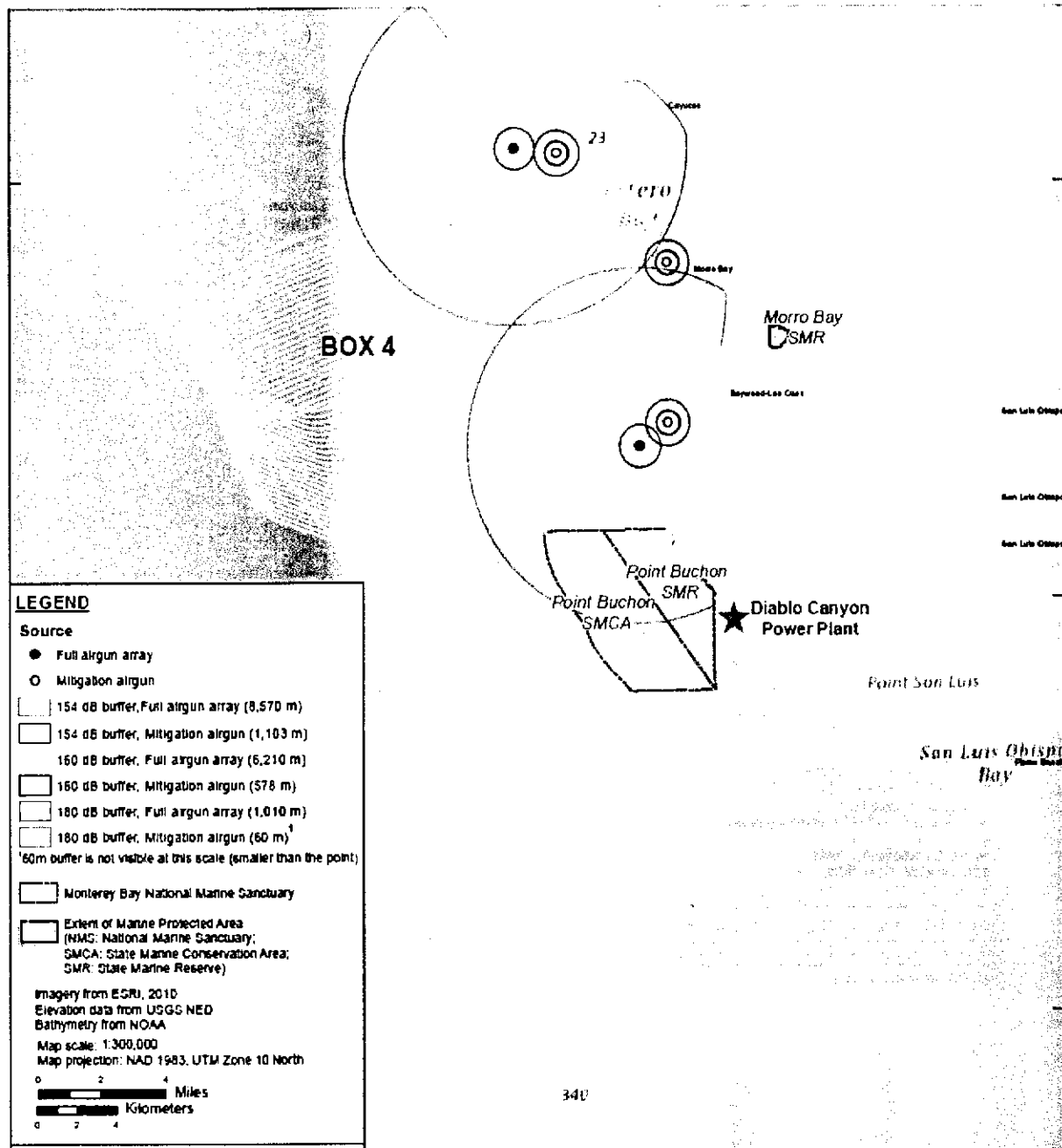


Zeke Grader, Executive Director
The Pacific Coastal Federation
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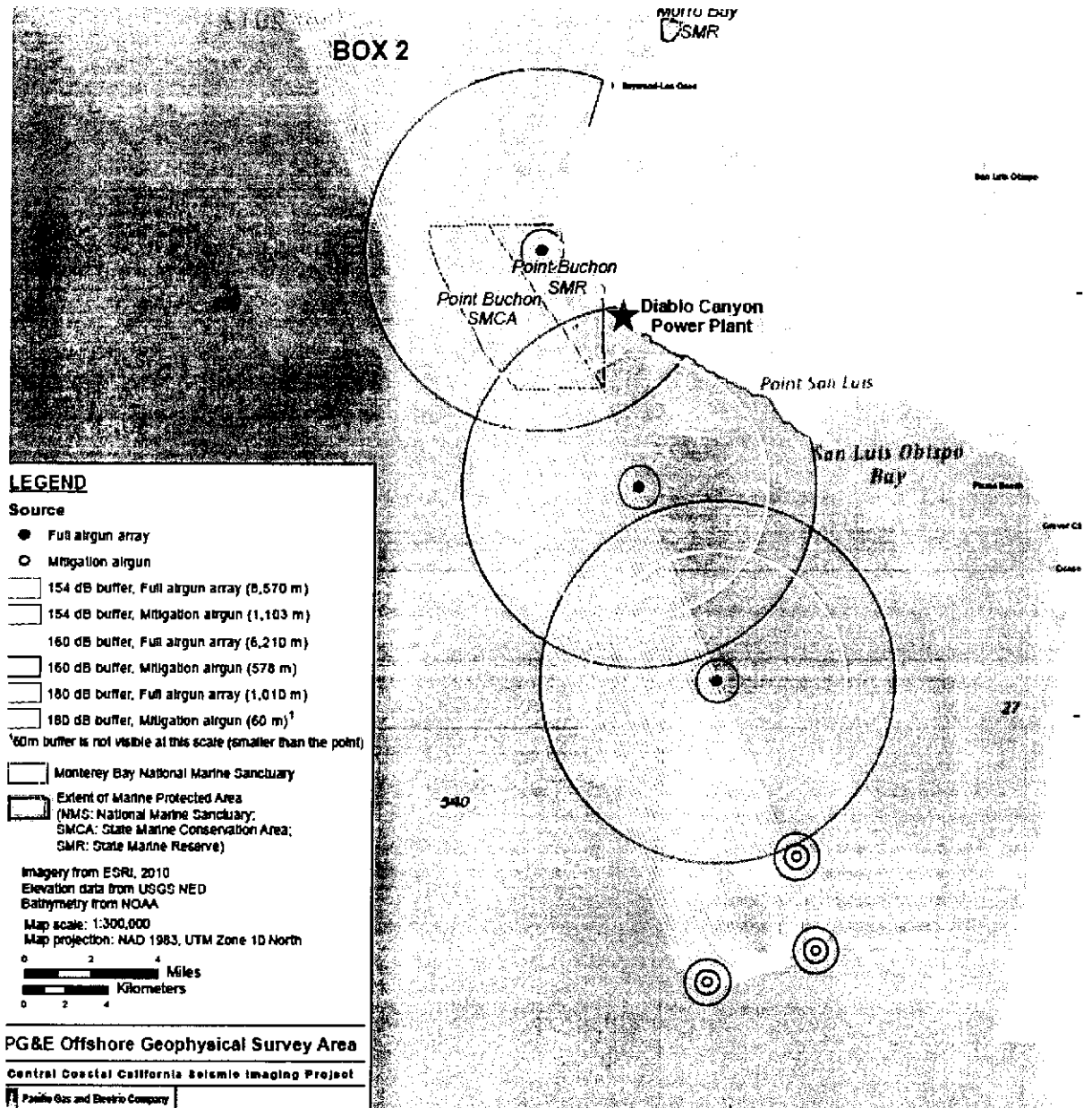


Geoffrey G. Shester, Ph.D.
California Program Director
Oceana

Revised Project Proposed for 2012



Zone 2 Proposed for 2013





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October 30th, 2012

Mary Shallenberger, Chair
California Coastal Commission
45 Fremont Street Suite 2000
San Francisco, CA 94105

RE: Opposition to Pacific Gas & Electric Central Coast Seismic Survey: Consistency Certification and Permit Approval (E-12-005 and CC-027-12).

Dear Chair Shallenberger and Honorable Commissioners,

Over the past two decades, the California Coastal Commission (CCC) has played a precedent setting national role in raising awareness of the adverse impacts of intense underwater sound on marine life and has relied on the precautionary principle in its review of individual underwater acoustic projects. It is with this in mind that CCPN respectfully urges the CCC to deny PG&E's application to conduct high-energy 3D seismic testing in the area of the Diablo Canyon Power Plant, near the Point Buchon Marine Protected Areas and in proximity to the Monterey Bay National Marine Sanctuary.

NRDC, the Ocean Conservancy, the Surfrider Foundation, Sierra Club and others have submitted detailed comment letters that clearly demonstrate that this project, with its significant adverse impacts, is legally inconsistent with Section 30230 and other Coastal Act policies that relate to the protection of marine and recreational resources. Nor does it meet the standard for an industrial override under Section 30260 because it fails to meet all three of the tests required for an approval; alternatives to the project are feasible and less damaging, denial of the project will not adversely affect the public welfare, and the adverse environmental effects are not mitigated to the maximum extent feasible.

Given CCPN's past experience on intense underwater sound projects as an appointed citizen observer to the Acoustic Thermometry of Ocean Climate (ATOC) Marine Mammal Advisory Board (1995-1999) and the Low Frequency Active (LFA) Sonar Technical Advisory Group (1997-1999), and as a member of the Mineral Management Services High Energy Seismic Team (1996-1999), our goal is to provide the Commission with a degree of historical context regarding what may be the most intense underwater acoustic project proposed off the coast of California (CA) since the Commission became aware of the harmful impacts of intense underwater sound on marine life in the mid-1990s.

Given the negative precedent that approval of this project would set, the absence of a firm deadline by which additional seismic information is required to be submitted to the NRC, as well as the fact that PG&E has not yet synthesized the onshore and offshore seismic information it has collected over the past two years, CCPN urges the Commission not to rush into an approval, but to exercise caution as it has in the past as it carries out its responsibilities as defined under Chapter 3 of the Coastal Act.

- **Understanding the impacts of intense underwater sound on marine life is fairly recent and still evolving.** Prior to the mid-1990s, little was known about the impacts of intense underwater sound on marine life and ocean users. It was not until 1991 when the Scripps Institute conducted the Heard Island Feasibility Test in which scientists transmitted underwater sound halfway across the world that scientists and the public began to question what impact these intense underwater sounds could have on marine life, particularly marine mammals who depend on sound to communicate, locate food sources, navigate, and reproduce. With so many species in decline, understanding and avoiding additional negative impacts to these populations began to take on an even greater urgency.

- **The Commission's review of intense underwater acoustic projects proposed off the coast of CA between 1994 to 2000 increased scrutiny on likely impacts to CA's marine life.**

It was not until the mid-1990s that significant concerns about the impacts of intense underwater sound on marine life began to receive greater scrutiny. Much of that evolved from the California Coastal Commission's review of two early projects: Scripps' 1994 Acoustic Thermometry of Ocean Climate (ATOC) experiment and Exxon's 1995 proposal to conduct high-energy seismic testing in the Santa Ynez Unit offshore Santa Barbara County. These were followed by two projects proposed by the Navy to conduct low-frequency active sonar and mid-frequency active sonar exercises off the CA coast.

Public controversy, the concerns expressed by this very Commission, and the courage of several well-respected marine mammal scientists who had been working with the oil and gas companies and the military to speak out publicly helped jumpstart several marine mammal research efforts with the goal of obtaining a better understanding of what the impacts from intense underwater sounds were likely to be. And while that understanding has advanced over the intervening years, it still remains incredibly difficult, if not impossible, to design an intense high-energy underwater acoustic project that avoids significant negative impacts to marine mammals and other marine life. Just as difficult is attempting to design a baseline research and monitoring program that can detect impacts in real time.

That significant and unavoidable negative impacts to marine life are likely to result from this project is inherently acknowledged by the National Marine Fisheries Service's (NMFS) requirement for this project to obtain an Incidental Harassment Authorization (IHA) for the 'take' of marine mammals. It is important to remember that an IHA does not prevent the harassment or killing of marine mammals, it *authorizes* how much harassment and killing can occur before shut down is required. The NMFS tries to set conditions that minimize those impacts, but for anyone who has been on one of these ships and seen what the ocean looks like at night or in periods of low visibility from a monitoring post or stared at a computer screen trying to pinpoint marine mammal auditory pings within the supposed exclusion and safety zones, it is readily apparent how difficult it is to comply with the conditions that agencies attempt to set to protect these animals.

• **The Coastal Commission has played an influential role in evaluating and restricting intense underwater acoustic projects off the coast of CA:**

It should be acknowledged that the California Coastal Commission has been a national leader when it comes to addressing the issue of anthropogenic (man-made) noise in the ocean and its impact on marine life and ocean users. Since the mid-1990s when underwater sound began to be recognized as a possible cause of marine life mortality, strandings, and habitat avoidance, the Commission has crafted a substantial legacy:

- **Acoustic Thermometry of Ocean Climate:** In 1994-95, the CCC reviewed and modified the controversial Scripps Acoustic Thermometry of Ocean Water (ATOC) project that proposed to transmit intense underwater sound from the coast of CA across the ocean basin to New Zealand. The project was substantially modified by the Commission from an *acoustic research project* to a *marine mammal research project* (ATOC Marine Mammal Research Project aka MMRP) that required Scripps to study the effects of the ATOC sound transmissions on marine mammals before any larger project was allowed to proceed. The ATOC project off CA was ultimately abandoned.¹ It should be noted that seismic surveys like those proposed by PG&E operate in the range of 252-255dB, roughly 500,000 to 1,000,000 times more powerful than ATOC at 195dB.²
- **Exxon High-Energy Seismic Testing:** In 1995, after scrutiny of Exxon's efforts to conduct seismic surveys off the coast of CA raised concerns about impacts to marine life, the Minerals Management Service (MMS) convened the High Energy Seismic Survey Team, one of the first stakeholder processes in the U.S. to examine the impact of high-energy seismic testing on marine life. The CCC was an active participant in devising operational guidelines for review procedures and for mitigation, avoidance and monitoring measures for seismic surveys. It was the first time that MMS officially acknowledged the adverse impacts posed by seismic surveys on marine life and proposed guidelines to attempt to minimize them. It was also the first seismic testing project to come under the new federal procedures that required the National Marine Fisheries Service to grant written approval for the "harassment" of protected species.³ The only other seismic surveys approved by the CCC since the mid-90s have been for the USGS and the scale of those studies were magnitudes smaller and quieter than what PG&E is proposing here.⁴

¹ Eugene H. Buck, CRS Report for Congress, "Acoustic Thermometry of Ocean Climate: Marine Mammal Issues", May 12, 1995. <http://www.cnje.org/nle/crsreports/marine/mar-2.cfm>

² See Appendix A

³ Richard Paddock, "Oil Firm's Noise Threat to Whales Nears OK: Environment: Exxon plans to use underwater air gun blasts to search for oil off Santa Barbara coast. Foes seek safeguards for sea mammals", Los Angeles Times, 9/18/1995.

⁴ California Coastal Commission, Consistency Determination for USGS Seismic Survey, 2000. <http://www.coastal.ca.gov/cd/cd-16-00.pdf>

- **Mitsubishi Saltworks in San Ignacio Lagoon, Mexico:** In January 2000, the CCC signed a resolution opposing the construction and operation of the proposed Mitsubishi Saltworks in San Ignacio Lagoon in Baja, Mexico, the last pristine, undeveloped gray whale birthing lagoon along the Pacific coast. The CCC was concerned, in part, that acoustic impacts from the construction and operation of the facility, including tanker traffic noise, would have an adverse impact on CA's marine resources; Pacific gray whales travel along the CA coast to and from the San Ignacio lagoon during their annual migration. After the Commission passed this resolution despite significant political pressure by the Davis Administration not to do so, the Government of Mexico declined to permit Mitsubishi's construction of the proposed salt plant at San Ignacio.⁵
- **Navy Low-Frequency Active Sonar:** In December 2000, the CCC staff recommended denial of the Navy's proposal to conduct Low-Frequency Active Sonar exercises off the coast of CA.⁶ Concerned about a likely denial from the CCC, the Navy withdrew its application. NRDC then sued the Navy over impacts to marine life and won and the Navy was not allowed to conduct its LFA low-frequency sonar exercises off the CA coast.
- **CCC Statement to Marine Mammal Commission on Anthropogenic Noise:** In 2005, the CCC, as a member of the Federal Advisory Committee on Acoustic Impacts on Marine Mammals, submitted formal comments to the Marine Mammal Commission urging a 'precautionary approach' to intense underwater acoustic projects. The report included a section specifically addressing concerns related to seismic testing as well as a longer list of adverse events associated with naval acoustic exercises.⁷
- **Navy Mid-Frequency Active Sonar:** In 2007, the CCC along with NRDC et. al. sued the Navy over its proposal to conduct Mid-Frequency Active Sonar exercises off the CA coast after the Navy refused to agree to specific conditions to minimize impacts to marine life. The suit was successful in the lower courts, but was ultimately overturned by the Supreme Court on the basis of national security. It should be noted that the Navy has not applied to conduct any sonar exercises off the CA coast since the Supreme Court decision.

• **PG&E has unjustifiably asserted that impacts from its seismic testing will be minimal and marine life will "move away" and "return" after the seismic surveys are completed.**

Despite PG&E's unjustifiable assertion that these studies are done all the time and no adverse impacts have been observed, the scientific community has acknowledged that seismic surveys impact marine mammals and other forms of marine life.

A 2004 report by Jonathan Gordon, et. al., *A Review of the Effects of Seismic Surveys on Marine Mammals*, characterized marine seismic surveys as 'some of the most intense manmade noises in the ocean. The authors' list their concerns as follows:

*"The juxtaposition of intense sound sources and acoustically sensitive marine mammals must give rise to concerns about possible adverse impacts. Powerful sounds can potentially have a number of effects on marine mammals.we divide possible effects into four categories: physical (including physiological) effects, perceptual effects, behavioral effects, and indirect effects. Possible physical and physiological effects include damage to body tissues, gross damage to ears, permanent threshold shift (PTS, i.e. permanent reduction in auditory sensitivity, temporary threshold shift (TTS, i.e. reduction in auditory sensitivity with eventual recovery) and chronic stress effects that may lead to reduced viability. The most likely perceptual effects would be masking of biologically significant sounds (e.g. communication signals, echolocation, and sounds associated with orientation, finding prey or avoiding natural or manmade threats), while behavioral effects could include disruption of foraging, avoidance of particular areas, altered dive and respiratory patterns, and disruption of mating systems. Indirect effects might include reduced prey availability resulting in reduced feeding rates."*⁸

⁵ California Coastal Commission, *Resolution in Opposition to the Construction and Operation of a Proposed Salt Factory at Laguna San Ignacio, Baja California*, 1/11/2000. <http://www.coastal.ca.gov/leginfo/Tu9b1-mm.pdf>

⁶ Coastal Commission Staff Report, CD-113-00, 12/12/00, <http://www.coastal.ca.gov/cd/CD-113-00.pdf>

⁷ California Coastal Commission, *Comments on the Effects of Anthropogenic Sound on Marine Mammals*, 12/13/2005. <http://www.coastal.ca.gov/energy/comments-mmcc-12-2005.pdf>

⁸ Jonathan Gordon, Douglas Gillespie, John Potter, Alexandros Franzis, Mark P. Simmonds, Rene Swift, and David Thompson, *A Review of the Effect of Seismic Surveys on Marine Mammals*, Marine Technology Society Journal, Winter 2003/2004, Volume 37, Number 4. P. 1

In concluding their report and detailing studies where correlations between impacts and seismic surveys had been observed, the authors called for a precautionary approach to seismic surveys and additional research to document impacts:

It is possible that, at short ranges, seismic survey noise could cause similar acute [mortality] problems. Of potentially greater concern is the possibility that alone, or in combination with other factors, air gun noise will have less dramatic chronic effect such as: excluding marine mammals from important areas at significant times, interfering with their migration and movements contribute to overall habitat degradation, disruption of biologically significant behaviors, and increased levels of stress. Although such effects appear less severe than direct mortality or injury, they affect many more individuals and extend over significant periods of time. Cumulative effects could result in reduction of reproductive rates, which are generally very low in marine mammals, and increases in mortality."⁹

Further, the Coastal Commission's own documentation contradicts PG&E's assertions. In the Commission's 2005 Statement for the Marine Mammal Commission's Report of the Advisory Committee on Acoustic Impacts on Marine Mammals, the Commission called for a precautionary approach and provided a detailed list of fifty-one (51) mass strandings of beaked whales and other species believed to be associated with underwater acoustic projects.¹⁰ See Appendix B attached.

On point for PG&E's seismic project, the Commission included a section on seismic surveys:

"Other sources of sound, particularly seismic and shipping, should be of equal concern. Seismic surveys use sound that can travel across entire ocean basins. A single seismic survey in the northwest Atlantic was found to flood an area almost 100,000 square miles with one hundred fold greater than ambient noise levels, persisting so as to be nearly continuous for days. This form of intense underwater sound has been used for many years but has only recently undergone any scrutiny as to its possible impacts on marine mammals.

*...In 2004, the International Whaling Commission's Scientific Committee concluded that increased sound from seismic surveys was "cause for serious concern." Its conclusion was based on a substantial and growing body of evidence that shows that seismic pulses can kill, injure, and disturb a wide variety of marine animals, including whales, fish, and squid. Impacts range from strandings, to temporary or permanent hearing loss and abandonment of habitat and disruption of vital behaviors like mating and feeding. The IWC Scientific Committee expressed great concern about the effects of seismic surveys on blue, fin, and other endangered large whales, particularly in their critical habitats, and some scientists have asserted that the persistent use of seismic surveys in areas known to contain large whales in significant numbers should be considered sufficient to cause population-level impacts."*¹¹

Perhaps the most compelling evidence cited by the Commission that linked whale mortality to low-frequency seismic surveys was an event that occurred in Baja in 2002 where several vacationing marine scientists came across two newly dead and stranded Cuvier's beaked whales.¹² They radioed a ship they saw in the bay for help only to learn that it was conducting seismic testing; it was the R/V Maurice Ewing (operated by Columbia University, Lamont-Doherty Earth Observatory), the predecessor ship to the Langseth that PG&E hopes to use in this survey. When news of the Baja stranding spread, another scientist recalled a similar event he had witnessed with the same ship in the Galapagos, but had never officially reported. NMFS reviewed the incident two years later, but was unable to come to a conclusion that the Galapagos stranding was directly connected to the seismic surveys.¹³

The scientists who observed the Baja stranding authored a report calling for additional research and expressing their concerns over whale mortality and the difficulties of documenting impacts given whales' relative rarity and the fact that they are usually submerged:

"We report the first observation implicating low-frequency seismic exploration in whale strandings. This

⁹ Ibid, Gordon et. al., p. 30

¹⁰ California Coastal Commission, submitted to the Marine Mammal Commission by Sara Wan on behalf of Meg Caldwell, Chair, Coastal Commission Comments on the effects of Anthropogenic Sound on Marine Mammals, 2005, p. 9-11.

¹¹ Ibid, California Coastal Commission, p. 11-12.

¹² Laura DeFrancesco, "Whales and Sounds: Low-frequency acoustic noise implicated in Baja, California whale deaths," The Scientist, October 22, 2002.

¹³ Roger Gentry, Mass Stranding of Beaked Whales in the Galapagos Islands, April 2000, NMFS Office of Protected Resources, November 4, 2002.

*observation, together with whale multiple strandings linked with naval exercises using mid-frequency sonar, suggests that acoustic-related mortality may pose problems for some deep diving whales. Detecting beaked whales is difficult both because whales are usually submerged and surfacings are inconspicuous. The worldwide increase of high-intensity underwater sound raises serious conservation concerns for this suite of species. Because of their rarity and their remote, deep-water distribution population declines are unlikely to be detected."*¹⁴

It should be noted that expected adverse impacts are not limited to whales or marine mammals. There is a growing body of evidence cited in the other comment letters submitted to the CCC that indicates fish and other forms are marine life are expected to be adversely affected as well – a fact that the EIR openly acknowledges.¹⁵ An article published in the Canadian Journal of Fisheries and Aquatic Sciences documented that fish catches, after air gun use, decreased 40-80% (depending on catch method).¹⁶

- **A high intensity seismic survey project of this magnitude and scope must be thoroughly vetted and not rushed through the approval process.**

As far as CCPN can ascertain, this project has been pushed forward by agencies with good intentions, but apparently little understanding of the impacts that these kind of high-energy 3D seismic studies entail and with little or no effort directed toward examining alternatives that could obtain the desired information while avoiding or minimizing impacts.

Even the 2012 Final Environmental Impact Report (FEIR) for this project, that should have been a careful examination of potential impacts, omitted a detailed analysis of prior adverse stranding events that are believed to be the result of high intensity acoustic projects, including seismic surveys. The only mention of strandings in the FEIR appears in Appendix H (Marine Mammal Technical Report).¹⁷ This appendix briefly mentions strandings as one impact of noise on animals and includes two sentences about a number of strandings of beaked whales in areas where the Navy was conducting sonar exercises (p. 10) but then goes on to state that "No evidence links seismic surveys to stranding events or bubble formation in cetaceans." (p.17). This kind of omission and misrepresentation is hard to understand given that the Coastal Commission included a list of 51 known stranding events associated with high intensity acoustic projects in their formal comments to the Marine Mammal Commission in 2005.

- **Members of the California Fish and Game Commission have openly questioned the necessity for this seismic testing and decried its potential impacts to marine life and Marine Protected Areas.**

It was not until the Fish and Game Commission weighed in during an informational hearing in September 2012, that impacts to marine life rose to the forefront. Commissioner Jim Kellogg opined that after he had worked so hard to establish a system of marine reserves along the coast, that he would never support a project like this because these are supposed to be 'marine protected areas' not 'marine killing areas.' Commissioner Sutton expressed significant reservations about the project and said that he had seen nothing that had convinced him that these studies were advisable or necessary, nor was he convinced that it would advance nuclear safety at the DCP. And Commissioner Rogers pointed out that it took eight years to create Marine Protected Areas and that it would be cruel to take a 'no-take' area [where fishing is not allowed] and damage it with 'take.'¹⁸

This leaves it to the Coastal Commission to do the required environmental review for consistency with the provisions of the Coastal Act and with the California's Coastal Management Program (CCMP). And, in our opinion, the project is clearly inconsistent with both.

- **Despite PG&E statements to the contrary, PG&E has not been ordered to do these seismic tests; these tests cannot move forward without the concurrence of the Coastal Commission.**

¹⁴ Barbara Taylor, Jay Barlowm Robert Pitman, Lisa Balance, Terrie Klinger, Douglas DeMaster, John Hildebrand, Jorge Urban, Daniel Palacios, and James Mead, "A call for research to assess risk of acoustic impact on beaked whale populations," Scripps Whale Acoustic Lab Report, 2004, p.1

¹⁵ PG&E's FEIR Marine Resources:

http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.04_BIOLOGICAL_RESOURCES---MARINE.pdf

¹⁶ EngaÅås, A., Lkkeborg, S., Ona, E., and Soldal, A.V. (1996). Effects of seismic shooting on local abundance and catch rates of cod (*Gadus morhua*) and haddock (*Melanogrammus aeglefinus*). *Canadian Journal of Fisheries and Aquatic Sciences* 53(10), p.2238---2249.

¹⁷

[http://www.slc.ca.gov/division_pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_Appendix_H_\(1of2\)_Final_Marine_Mammal_Report.pdf](http://www.slc.ca.gov/division_pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_Appendix_H_(1of2)_Final_Marine_Mammal_Report.pdf)

¹⁸ Fish and Game Commission, Information Hearing on Diablo Canyon Seismic Testing, September, 2012. <http://www.cal-span.org/cgi-bin/archive.php?owner=CFG&date=2012-09-24>

In at least one ex parte with a Commissioner reviewed by CCPN, PG&E appeared to indicate that the California Energy Commission was *requiring* these high-energy 3D studies. Other news reports have inaccurately reported that AB 1632 (Blakeslee) required 3D seismic studies. Yet other reports point the finger at the CPUC and the NRC.

After a careful review of the jurisdictional issues that apply to this project, we have concluded the following:

- AB 1632 Blakeslee requires the CEC, as part of its energy forecasting and assessment activities, to compile and evaluate existing scientific studies in order to determine the potential vulnerability of the State's nuclear power plants due to aging or from a major seismic event. AB 1632 does not mandate new seismic testing.¹⁹
- The CEC has recommended the testing and the CPUC has authorized PG&E to recover the costs of seismic testing from its ratepayers. However, these agencies' views are not controlling with respect to the Coastal Commission which exercises independent jurisdiction over the project and retains the responsibility to review it for consistency with the California Coastal Act. Neither entity can usurp the jurisdiction of any other state agency that flows from a federally approved program, as is the case with the CCC. Therefore, even if the CPUC were to direct PG&E to conduct testing, the CCC must also concur.
- The Nuclear Regulatory Commission (NRC), while open to receiving additional seismic information, has not mandated this high-energy 3D seismic testing. And, indeed, in its October 12, 2012 letter to PG&E, the NRC reiterates that it has already determined that Diablo Canyon is reasonably safe.²⁰
- After the disaster at Fukushima, the NRC released recommendations that required all nuclear power plants to re-evaluate seismic hazards. The letter, known as Letter 50.54 (f) **does not** mandate the use of seismic testing.²¹
- The NRC has not set a firm 2015 deadline for receipt of additional information. In a March 12, 2012 Request for Information to all Power Reactor Licensees, the NRC indicated that it hoped to receive all additional information from Phase 1 within 5 years, but anticipated that collection of information from all plants would take up to 7 years. This would appear to allow for collection of additional information to be completed within a 2017-2019 time frame, not 2015 as has often been referenced.²²

In sum, the Commission is under no obligation to approve this project regardless of the preferences expressed by other agencies who clearly failed to appropriately evaluate the project through the prism of its adverse environmental impacts or analyze alternatives that might produce the information sought while reducing or eliminating the project's adverse impacts. Further, the lack of either a hard deadline, or of a clear, safety-driven need for the project to take place in 2012, if ever, allows the Commission to exercise caution in its review of the proposed project.

• Anecdotal reports regarding strandings, injuries, and reduced fish catch as a result of PG&E's low-energy 2D offshore testing raise a question of whether the proposed survey zone(s) may have already been adversely impacted.

Testimony at the Fish and Game Commission, conversations with local residents, reports to NMFS regarding observed carcasses of marine mammals (sea otters, harbor porpoises, and dolphins) and reports of reduced fish catch raise the question of whether or not the marine environment in the vicinity of Diablo Canyon has already been compromised by the ongoing low-energy seismic testing PG&E has been conducting over the last two years. We expect that the Commission has received comment letters and will receive testimony at the November hearing on these issues.

It is our understanding that at least two incidents are currently under investigation. First, NMFS is reviewing data submitted to the agency on increased stranding numbers of harbor porpoises (8) within the last month. A final report by NMFS should be released soon. A preliminary NMFS report suggests trauma, perhaps due to interspecies aggression with bottlenose dolphins. But it is unclear what could have led to that aggression or if the harbor porpoises were compromised in some way prior to any trauma being inflicted. Second, on October 12th, researchers recovered the body of a dead bottlenose dolphin in a 'tangle net' that was being used to capture sea otters for the tagging program (see below). Preliminary evidence so far indicates that the dolphin drowned and that there was

¹⁹ http://www.leginfo.ca.gov/cgi-bin/postquery?bill_number=ab_1632&sess=0506&house=B&author=blakeslee

²⁰ <http://a4nr.org/wp-content/uploads/2012/10/101212-NRC-PGE-Ltr-confirms-Shoreline.pdf>

²¹ Letter 50.54 from NRC <http://pbadupws.nrc.gov/docs/ML1205/ML12053A340.pdf>

²² NRC, REQUEST FOR INFORMATION PURSUANT TO TITLE 10 OF THE CODE OF FEDERAL REGULATIONS 50.54(f) REGARDING RECOMMENDATIONS 2.1, 2.3, AND 9.3, OF THE NEAR-TERM TASK FORCE REVIEW OF INSIGHTS FROM THE FUKUSHIMA DAI-ICHI ACCIDENT, March 2012, p. 5. <http://pbadupws.nrc.gov/docs/ML1205/ML12053A340.pdf>

evidence of hemorrhaging in the ears and blood clots in the brain. The body is being further examined to try to determine the cause of the hemorrhaging and blood clots.

CCPN believes the concerns of the local community and their on-site observations as well as the incidents described above need to be carefully considered and reviewed by the Commission before any additional seismic testing is approved in this area. We are also concerned that the lack of a suitable monitoring system for marine life impacts during the low-energy seismic testing already conducted may have resulted in an under-reporting of impacts that may have occurred.

- **PG&E's rush to do this project in 2012 has led to a highly questionable decision regarding the already initiated Sea Otter Monitoring Program.**

The revised project description submitted to the Commission by PG&E was a relatively brief document consisting of 18 pages. On page 17, PG&E described a Sea Otter Monitoring Program that was part of the revised project:

*"Sea Otter Monitoring Program. PG&E has agreed to fund a Sea Otter Monitoring Program that will be conducted by the USFWS, California Department of Fish and Game Marine Wildlife Veterinary Care and Research Center (MWVCRC), the Monterey Bay Aquarium Sea Otter Research and Conservation Department, and University of California at Santa Cruz and Davis. The monitoring program will provide a real-time monitoring infrastructure with which to detect and measure levels of harassment caused by the surveys, as required by the USFWS, while at the same time providing useful information on behavioral response thresholds as a function of sound exposure for sea otters. **This program was initiated on October 1, 2012.**"*

CCPN found it troubling that this Sea Otter Monitoring Program was initiated fully a month and a half before the CCC was scheduled to vote on the project.

Further research into this issue revealed more disturbing information. An article that appeared in the SLO Tribune described in detail what this Sea Otter Monitoring Program entails. (*Emphasis added*)

(<http://www.sanluisobispo.com/2012/10/20/2268771/sea-otters-earthquake-tests.html>) :

"The researchers are capturing as many as 60 otters, two-thirds of them from within the seismic survey area and a third outside it. The otters tagged outside the seismic survey area will be used as a baseline against which the behavior of the otters from within the survey area can be compared.

Each captured otter has a time-depth recorder and a VHF radio transmitter implanted within its abdominal cavity. The time-depth recorder logs how frequently and deeply the otter dives and how long it stays submerged. It also records the animal's body temperature, said Michelle Staedler, sea otter research coordinator with the Monterey Bay Aquarium.

The data will paint a detailed picture of the otter's behavior over a year and a half. After that time, the otter must be recaptured and the device removed to download the data. The radio transmitter allows researchers to track the movements of the otter and pinpoint its location for recovery of the time-depth recorder, Staedler said.

Tagging sea otters is complex

Capturing and tagging a sea otter is a complicated effort. Spotters locate groups of the animals resting atop kelp beds. They wait until one of the animals falls asleep.

Divers sneak up underneath the sleeping otter and scoop it up in a closable net called a Wilson trap. A boat ferries the otter to a mobile surgical laboratory on shore.

There, veterinarians implant the tracking devices and take a myriad of blood and tissue samples before the otter is taken back to its capture site and released. The blood and tissue samples contain as many as 14 chemical markers that will tell biologists what kind of stressors the otter is experiencing and what type of prey it is eating.

The surgery is tricky because the incision must be sutured closed without shaving the area around it. To shave the incision area would expose the otter to hypothermia, said Dr. Mike Murray, a wildlife veterinarian with the Monterey Bay Aquarium.”



Tagging of marine mammals always involves an ethical choice of how far to go in the name of science. This version of tagging involves capture, sedation, abdominal surgery, release, recapture and a second abdominal surgery of animals within a severely depleted population estimated at 2800, 12% of whom perished last year due to harmful algal toxins, parasites and infectious diseases, mating trauma, emaciation, bacterial infections, heart disease and boat strikes.

Further, the tagging project was ultimately forced to abandon the use of divers to capture the sea otters after a Great White shark attacked a harbor seal in proximity to the tagging. As a result, the taggers resorted to ‘tangle nets’ that are set and then collected once a sea otter is observed within it. The bottlenose dolphin that drowned (described above) was found in one of the ‘tangle nets.’ The CA Department of Fish and Game describes “tangle nets” as follows (*Emphasis added*):

“Tangle nets are modified gill nets approximately 3-9m deep and 33-100m long that are set at the water surface in areas of open water or in channel within the kelp. The nets are set to entangle otters as they travel/swim into the net. A large number of otters may be captured, but this method is the least selective capture technique. To avoid injury to the captured otters, the nets must be continuously monitored and entangled otters removed quickly. Caution must also be taken to avoid incidental capture of other marine mammals in the area.²³

While CCPN does not question the integrity or intentions of the researchers involved, what should be clear is that it is highly inappropriate for PG&E to include this kind of invasive monitoring program as part of the Revised Project and to institute it prior to the Coastal Commission voting on whether or not to approve the project. PG&E’s decision to move forward with this program removed the Commission’s ability to weigh in on whether or not this type of monitoring program was even appropriate given the significant adverse impacts on marine resources the project in and of itself will inflict on this population.

• **PG&E should be required to synthesize and review the seismic information it has already collected before embarking on a project of this scope and magnitude**

PG&E has been conducting low-energy onshore and offshore seismic studies for the past two to three years. Yet, PG&E has not paused to analyze the information already collected to determine if these additional high-energy 3D seismic studies are even necessary.

At a bare minimum, PG&E should be required to organize and analyze that information first to determine whether or not this project is actually necessary to fill in information gaps.

After a review of the data collected so far, an alternatives analysis should include:

- An evaluation of whether additional information is required or if an alternative study design would produce more valuable information.

²³ <http://www.dfg.ca.gov/ospr/Science/marine-wildlife-vetcare/seaottercapture.aspx>

- An evaluation of the potential for using Marine Vibroseis provided by Dr. Lindy Weilgart, one of the pre-eminent sperm whale researchers in the world and an expert on underwater acoustics and its impacts on marine mammals.²⁴
- An evaluation of using an "industry" ship other than the Langseth which is considered an "academic" ship. This proposal has been raised by Supervisor Bruce Gibson, but rejected by PG&E out of hand without a detailed rationale.²⁵

Conclusion:

This Commission is truly fortunate to have the expertise of its staff to assist in its review of the true impacts of this proposed project. CCPN believes that staff's knowledge of underwater acoustics surpasses that of staff in other resource related agencies in CA due to the difficult and controversial intense underwater acoustic projects they have had to review over the past two decades.

Certainly, any intense underwater acoustic project of this magnitude and longevity (multiple phases over several years), if allowed to proceed, must be carefully planned so that significant impacts can be monitored and minimized to the maximum extent possible. In contrast, PG&E is rushing to gain approval of this project without that level of careful planning and, as a result, has put together a hodge-podge of inadequate mitigation and monitoring efforts – some begun even before the Commission has acted.

While we cannot know in advance what staff's recommendation will be, we hope that they and the Commission will not embrace the air of inevitability that PG&E has tried to foster with other federal and state agencies. This project is not inevitable, it is not legal under the Coastal Act, and there are other potential alternatives to obtaining the information sought that must be explored first.

Sincerely,



Susan Jordan

- Director, California Coastal Protection Network, 1999-Present
- ATOC Marine Mammal Advisory Board, 1995-1999
- LFA Sonar Technical Advisory Group, 1997-1999
- MMS High Energy Seismic Survey Standards Review, 1996-1999

²⁴ Lindy Weilgart, Letter to Santa Lucia Sierra Club, Sierra Club Comment Letter Attachment 1. Review of Potential for Marine Vibroseis or MarVib, 10/23/12

²⁵ Cruise Report on **Marcus Langseth** http://steveholbrook.com/research/cascadia2d/coast_cruise_report.pdf. And quotes from Supervisor Gibson <http://www.newtimeslo.com/cover/8447/floating-the-marcus-langseth/>

| NOISE SOURCE | MAXIMUM SOURCE LEVEL | REMARKS | REFERENCE |
|-----------------------------------|--|--|--|
| UNDERSEA EARTHQUAKE | 272 dB | Magnitude 4.0 on Richter scale (energy integrated over 50 Hz bandwidth) | Weaz, 1962. |
| SEAFLOOR VOLCANO ERUPTION | 255+ dB | Massive steam explosions | Dietz and Sheehy, 1954; Kibblewhite, 1965; Northrop, 1974; Shepard and Robson, 1967; Nishimura, NRL-DC, pers. comm., 1995. |
| AIRGUN ARRAY (SEISMIC) | 255 dB | Compressed air discharged into piston assembly | Johnston and Cain, 1981; Barger and Hamblen, 1980; Kramer et al., 1968. |
| LIGHTNING STRIKE ON WATER SURFACE | 250 dB | Random events during storms at sea | Hill, 1985; Nishimura, NRL-DC, pers. comm., 1995. |
| SEISMIC EXPLORATION DEVICES | 212-230 dB | Includes vibroseis, sparker, gas sleeve, exploder, water gun and boomer seismic profiling methods. | Johnston and Cain, 1981; Holiday et al., 1984. |
| FIN WHALE | 200 dB (avg. 155-186) | Vocalizations: Pulses, Moans | Watkins, 1981b; Cummings et al., 1986; Edds, 1988. |
| CONTAINER SHIP | 198 dB | Length 274 meters; Speed 23 knots | Buck and Chalfant, 1972; Ross, 1976; Brown, 1982b; Thiele and Ødegaard, 1983. |
| ATOC SOURCE | 195 dB | Depth 980 m; Average duty cycle 2-8% | DEIS/EIR for the California ATOC Project and MMRE, 1994. |
| HUMBACK WHALE | ~192 dB (avg. 175-190) | Fluke and flipper slaps | Thompson et al., 1986. |
| SUPERTANKER | 190 dB | Length 340 meters; Speed 20 knots | Buck and Chalfant, 1972; Ross, 1976; Brown, 1982b; Thiele and Ødegaard, 1983. |
| BOWHEAD WHALE | 189 dB (avg. 152-185) | Vocalizations: Songs | Cummings and Holiday, 1987. |
| BLUE WHALE | 188 dB (avg. 145-172) | Vocalizations: Low frequency moans | Cummings and Thompson, 1971a; Edds, 1982. |
| RIGHT WHALE | 187 dB (avg. 172-185) | Vocalizations: Pulsive signal | Cummings et al., 1972; Clark 1983. |
| GRAY WHALE | 185 dB (avg. 185) | Vocalizations: Moans | Cummings et al., 1968; Fish et al., 1974; Swartz and Cummings, 1978. |
| OFFSHORE DRILL RIG | 185 dB | Motor Vessel KULLUK; oil/gas exploration | Greene, 1987b. |
| OFFSHORE DREDGE | 185 dB | Motor Vessel AQUARIUS | Greene, 1987b. |
| OPEN OCEAN AMBIENT NOISE | 74-100 dB (71-97dB in deep sound channel) | Estimate for offshore central Calif. sea state 3-5; expected to be higher (≥ 120 dB) when vessels present. | Urlick, 1983, 1986. |

Note: Except where noted, all the above are nominal total broadband power levels in 20-1000 Hz band. These are the levels that would be measured by a single hydrophone (reference 1 μ Pa @ 1 m) in the water.

Table 1.1.3-1 Natural and human-made source noise comparisons.

1-12

EXHIBIT NO. 12
APPLICATION NO.
OC-110-94

Appendix B

Excerpt from Commission Statement on Anthropogenic Noise and Marine Mammals, 2005, p. 9-11.

"It has taken 40 years to notice the connection between naval sonars and mass strandings of beaked whales, even though this is one of the most obvious connections. This underscores how easy it is to miss the connections between noise and a variety of impacts on marine mammals. Some members of the FACA committee have attempted to limit the listing of strandings to the four where there is very good evidence of the connection between strandings and anthropogenic noise. This paints a very deceptive picture of what may be happening. It is of particular importance

| Year | Location | Species (numbers) | Associated activity, when available |
|------|-------------------------|---|-------------------------------------|
| 1914 | New York, United States | Zc (2) | |
| 1960 | Sagami Bay, Japan | Zc (2) | US Fleet |
| 1963 | Gulf of Genoa, Italy | Zc (15+) | Naval maneuvers |
| 1963 | Sagami Bay, Japan | Zc (8-10) | US Fleet |
| 1964 | Sagami Bay, Japan | Zc (2) | US Fleet |
| 1965 | Puerto Rico | Zc (5) | |
| 1966 | Ligurian Sea, Italy | Zc (3) | Naval maneuvers |
| 1967 | Sagami Bay, Japan | Zc (2) | US Fleet |
| 1968 | Bahamas | Zc (4) | |
| 1974 | Corsica | Zc (3), Striped dolphin (1) | Naval patrol |
| 1974 | Lesser Antilles | Zc (4) | Naval explosion |
| 1975 | Lesser Antilles | Zc (3) | |
| 1978 | Sagami Bay, Japan | Zc (9) | US Fleet |
| 1978 | Suruga Bay, Japan | Zc (4) | US Fleet |
| 1979 | Sagami Bay, Japan | Zc (13) | US Fleet |
| 1980 | Bahamas | Zc (3) | |
| 1981 | Bermuda | Zc (4) | |
| 1981 | Alaska, United States | Zc (2) | |
| 1983 | Galapagos | Zc (6) | |
| 1985 | Canary Islands | Zc (12+), Me (1) | Naval maneuvers |
| 1986 | Canary Islands | Zc (5), Me (1), Ziphiid sp. (1) | |
| 1987 | Canary Islands | Me (3) | |
| 1987 | Italy | Zc (2) | |
| 1987 | Suruga Bay, Japan | Zc (2) | |
| 1987 | Canary Islands | Zc (2) | |
| 1988 | Canary Islands | Zc (3), bottlenose whale (1), pygmy sperm whale (2) | Naval maneuvers |
| 1989 | Sagami Bay, Japan | Zc (3) | US Fleet |
| 1989 | Canary Islands | Zc (15+), Me (3), Md (2) | Naval maneuvers |
| 1990 | Suruga Bay, Japan | Zc (6) | US Fleet |
| 1991 | Canary Islands | Zc (2) | Naval maneuvers |
| 1991 | Lesser Antilles | Zc (4) | |
| 1993 | Taiwan | Zc (2) | |
| 1994 | Taiwan | Zc (2) | |
| 1996 | Greece | Zc (12) | Naval LFAS trials |
| 1997 | Greece | Zc (3) | |
| 1997 | Greece | Zc (9+) | Naval maneuvers |
| 1998 | Puerto Rico | Zc (5) | |
| 1999 | Virgin Islands | Zc (4) | Naval maneuvers |
| 2000 | Bahamas | Zc (8), Md (3), Ziphiid sp. (2), minke whale (1), <i>Balaenoptera</i> sp. (2), Atlantic spotted dolphin (1) | Naval mid-frequency sonar |
| 2000 | Galapagos | Zc (3) | Seismic research |
| 2000 | Madeira | Zc (3) | Naval mid-frequency sonar |
| 2001 | Solomon Islands | Zc (2) | |
| 2002 | Canary Islands | Zc, Me, Md (15-17 whales) | Naval mid-frequency sonar |
| 2002 | Mexico | Zc (2) | Seismic research |

that we do not limit the list of strandings that may have a connection to sound sources in order to be more fully able to understand the magnitude of the problem and allow for an analysis to determine a statistical correlation of the relationship between noise and strandings. We have therefore included a more complete list of strandings than that proposed by some to be included in the FACA report.

Table 5.1 Mass Strandings of Beaked Whales

Zc=Ziphius cavirostris (Cuvier's beaked whale); Md= Mesoplodon densirostris (Blainville's beaked whale); Me= Mesoplodon europaeus (Gervais' beaked whale)

Range of species involved: beaked whales, other?

While marine mammal species other than beaked whales have been involved in mass strandings associated with anthropogenic sound, the connection is more readily apparent with beaked whales, in part because beaked whales are not known to regularly mass strand due to other causes (e.g. disease). In comparison to beaked whales, other species of cetaceans such as pilot whales mass strand more regularly, and these events are often attributed to causes other than anthropogenic sound exposure. Because beaked whale mass strandings are relatively more rare events, these strandings are more likely to lead to questions about their possible causes. However, while the connection is more obvious in the case of beaked whales, other cetaceans have also been involved in strandings associated with anthropogenic noise. Minke whales, (Bahamas 2000), pygmy sperm whales (Canary Islands 1988) bottlenose whales (Canary Islands 1988) have stranded concurrent with beaked whales. In other instances, melon-headed whales (Hawaii 2004), harbor porpoises (Haro Strait 2003), humpback whales (Brazil 2002) have stranded in events that did not involve beaked whales. In addition to these NMFS is still investigating whether the pilot whales, minke whales and dwarf sperm whales that stranded in N. Carolina (January 2005) had traumas consistent with acoustic impacts. It should be noted, that NMFS has not provided any report on the N. Carolina incident, which occurred over 10 months ago, and has not provided a final report on the Bahamas 2000 stranding almost five years after the event. This limits the ability to draw any conclusions about these events and the involvement of species other than beaked whales.

Table 5.2 Associated Mass Strandings Involving Species Other Than Beaked Whales

| Year | Location | Species (numbers) | Associated activity (when available) |
|------|-------------------------------|--|--|
| 1988 | Canary Islands | Pygmy sperm whale (2), Zc (3), bottlenose whale (1) | Naval maneuvers |
| 2000 | Bahamas | Minke whale (1), Balaenoptera sp. (2), Atlantic spotted dolphin (1), Zc. (8), Md. (3), Ziphiid sp. (2) | Naval mid-frequency sonar |
| 2002 | Brazil | Humpback whale (8) | Seismic exploration |
| 2003 | Washington, United States | Harbor porpoise (14), Dall's porpoise (1) | Naval mid-frequency sonar |
| 2004 | Hawaii, United States | Melon-headed whale (~200) | Naval mid-frequency sonar |
| 2005 | North Carolina, United States | Long-finned pilot whale (34), dwarf sperm whale (2), minke whale (1) | Naval maneuvers; investigation pending |



By Electronic Mail

October 25, 2012

Chair Mary Shallenberger and
Members of the California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

E-mail: cteufel@coastal.ca.gov; mdelaplaine@coastal.ca.gov

Re: *Coastal Development Permit and Federal Consistency Certification for the Central Coastal California Seismic Imaging Project—request denial*

Dear Chair Shallenberger and Members of the Commission:

On behalf of the Natural Resources Defense Council (NRDC), Ocean Conservancy and our over one million members and activists—more than 250,000 of whom reside in California— we are writing to comment on PG&E's revised project description for the Central Coastal California Seismic Imaging Project (CCCSIP or "seismic survey"), scheduled for your November 2012 meeting.

1. Summary

PG&E has now proposed to survey Zone 4 in 2012, leaving the other two zones for subsequent years under separate permits. We believe the proposed project, like the larger seismic survey of which it is a part, would have significant impacts on endangered and vulnerable marine mammals and on nearby marine protected areas, in violation of Coastal Act Section 30230. To our knowledge, a high-energy seismic survey of the contemplated duration and extent of that broader project has never been conducted in such important near-coastal habitat off California.

Furthermore, the project fails to meet the criteria for an "override" under Coastal Act Section 30260, specifically the criterion that not pursuing the project would adversely affect the public welfare. Much earlier in this process, we supported phasing as a preferable alternative to extended exposure of vulnerable marine mammals and other sea life to extreme noise levels. But the more we have learned about the overall earthquake study plan and the state of knowledge, the more convinced we have become that offshore seismic surveys are not necessary to ensure the safety of the Diablo plant. With help from agency reviewers, PG&E has designed a multi-faceted research program, of which offshore seismic surveys are just one part. Other surveys, including low-energy seismic and land-based seismic, will for the most part provide information with greater influence on the assessment of earthquake risk at the Diablo plant with far less environmental damage than offshore seismic surveys. Those other studies will fill data gaps and reduce assessment uncertainties, giving experts a much better sense of whether offshore seismic studies will be needed to assure the safety of the plant. Yet you are being asked to approve the first piece of a damaging project before new information from other sources has

been integrated into hazard assessments, and without a hard look at alternative means of procuring the information targeted by offshore seismic surveys. The public welfare will be best served by taking preliminary steps to determine if this harmful project is really necessary, not by permitting it now.

We fully support the goal of ensuring the safety of the Diablo Canyon nuclear reactor and recognize the value of reassessing its earthquake risk with improved data where possible. *However, we urge the Coastal Commission to deny the coastal development permit and federal consistency certification for the CCCSIP until experts have analyzed and integrated information from recently completed geophysical studies, have identified whether offshore seismic information targets are critical to assessing the safety of the plant in light of that new information, and have taken a hard look at alternatives to offshore seismic surveys for collecting such information.* At that point, Coastal Commission staff and members will be better able to assess whether the marginal benefits of additional information from offshore seismic surveys in Zone 4 and in the broader project outweigh their costs. If the Commission chooses to approve the project, we urge you to require comprehensive monitoring and mitigation, as discussed below in section 4.

2. The revised project will continue to have significant, unavoidable environmental impacts on marine resources, in violation of Coastal Act Section 30230.

Section 30230 of the California Coastal Act states that “[m]arine resources *shall* be maintained, enhanced, and, where feasible, restored. *Special protection shall be given to areas and species of special biological or economic significance.* Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain *healthy populations of all species of marine organisms* adequate for long-term commercial, recreational, scientific, and educational purposes.”¹ We believe the proposed seismic survey, though conducted in phases, will continue to have significant and unavoidable impacts on marine wildlife and MPAs, in violation of the Coastal Act.

PG&E’s updated proposal involves phasing the seismic survey over several years, with only Zone 4 occurring in 2012. The reduced survey footprint for this year is an improvement over previous proposals, but is still part of a larger *project* and should be evaluated as such. We are troubled that the revised project as well as the project as a whole would have significant, unavoidable impacts on endangered and vulnerable marine mammals, especially on the region’s small population of harbor porpoises and on recently established marine protected areas (MPAs).²

Reconfiguring the project in a piecemeal fashion will not eliminate significant impacts to marine resources. The Final Environmental Impact Report (FEIR) for the seismic survey evaluated impacts of the entire project, making it difficult for us to separate out impacts from each individual survey zone. We have therefore had to deduce impacts from that analysis and available scientific evidence. It appears that exposure to high-intensity impulsive sound with a peak level of 250 dB every 15 seconds for at least 9 days in 2012 (with the remaining 30+ days proposed in following years) will have significant biological and physiological effects on marine mammals, fish and other sea life.

¹ Pub. Res. Code § 30230 (emphases added)

² See Letter from Michael Jasny, NRDC, Kaitilin Gaffney, Ocean Conservancy, and Karen Garrison, NRDC to Chair Mary Shallenberger and Members of the California Coastal Commission (Sept. 24, 2012) (attached).

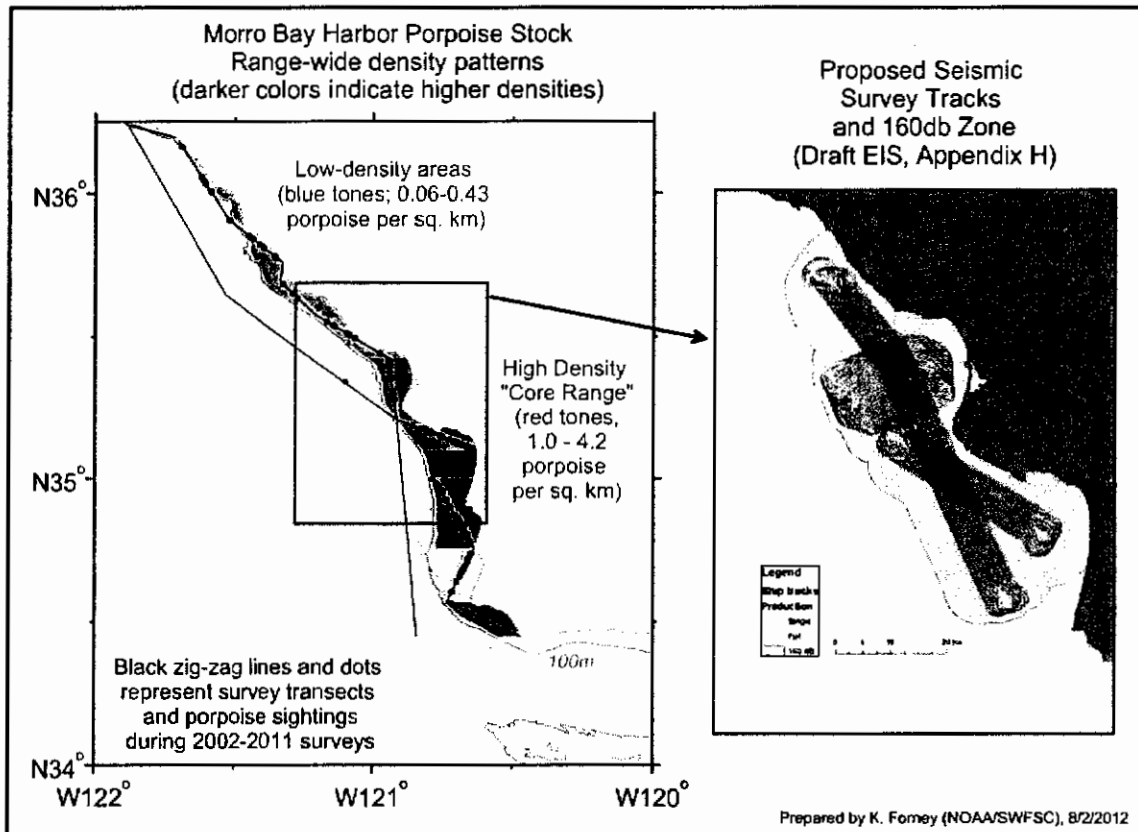


Figure 1. Map prepared by NMFS' Southwest Science Center showing distribution of core habitat of Morro Bay harbor porpoises (left) and CCCSIP tracklines and 160 dB ensonification zone (right).

We remain extremely concerned about the impact of the survey on the small, discrete population of harbor porpoises that resides in and around Morro Bay. Of all marine mammal species, harbor porpoises are the most acutely sensitive to man-made sound – the ones most vulnerable both to habitat abandonment and to hearing loss, which, given their dependence on sound for most life functions, can destroy their ability to survive and reproduce. Although phasing the project would reduce impacts to harbor porpoises in 2012, it does not eliminate the risk to this sensitive and range-limited species. A portion of the Morro Bay population's core habitat, within and adjacent to Estero Bay, will continue to be ensonified to levels expected to cause take on most if not every day of the survey in Zone 4, even using NMFS' non-conservative 160 dB threshold (See Figure 1).

We can assume that permanent hearing loss and other serious injury (impacts identified in the FEIR) will occur even with a reduced survey footprint in 2012.³ And impacts from behavioral disruption could be even more consequential. Given their extreme aversion to intense sound, it is reasonable to expect that a subset of the entire porpoise population will abandon a portion of their core habitat – at the height of their breeding season and during the first few months of nursing for mothers and calves – and crowd into sub-optimal areas unlikely to provide sufficient foraging.⁴ Harbor porpoises require substantial daily caloric intake to survive and cannot safely go more than a few days without adequate food, which is also vital to their reproduction. It is likely that the revised project will continue to cause significant, population-level harm to harbor porpoises.

³ FEIR at 4.4-75, 4.4-79

⁴ FEIR at H-101

[illegible]

3. The revised proposal fails to meet the criteria for an “override” under Coastal Act Section 30260.

⁷ The Coastal Act provides no indication that an activity such as the seismic testing proposed here should be considered a qualifying "facility" under Section 30260. To the contrary, the statutory language suggests that an "override" is not available here. The Coastal Act does not provide a general definition of "facility," but by way of illustration, Section 30107 defines an "energy facility" narrowly with reference to physical structures with

the project cannot reasonably be accommodated consistent with the other policies of the Coastal Act. It must then go on to show that all three of the conditions below are met:

- (1) alternative locations are infeasible or more environmentally damaging;
- (2) to do otherwise would adversely affect the public welfare; *and*
- (3) adverse environmental effects are mitigated to the maximum extent feasible.

The second condition—whether “to do otherwise would adversely affect the public welfare”—is the key test here. The Commission must ask whether the public welfare would be adversely affected if the survey did not proceed. In asking this question, it is appropriate for the Commission to weigh the significant ecological harm that the survey will likely cause against the public need for the survey to occur. For purposes of applying Section 30260, “a determination of what will adversely affect the public welfare requires consideration of the preservation and protection of the state’s natural resources and the ecological balance of the coastal zone *as well as* the need for a particular type of coastal-dependent development.” *Gherini v. California Coastal Commission*, 204 Cal. App. 3d 699 (1988) (emphasis added). We believe that the purported benefits of the survey will not justify the expected harm, for the following reasons.

A. PG&E itself has publicly stated the survey is likely not essential for resolving key questions regarding the safety and relicensing of Diablo Canyon. None of the proposed survey zones actually cover the Shoreline fault, the discovery of which is offered as the rationale for the survey. Moreover, in the environmental document that PG&E submitted with its license renewal application to the Nuclear Regulatory Commission, PG&E stated that “[a]lthough the presence of the potential Shoreline Fault offshore of DCPD is new information, based on the PG&E and NRC assessments of the potential Shoreline Fault, it is not significant information since the design and licensing basis evaluations of the DCPD structures, systems, and components are not expected to be adversely affected.”⁸

Similarly, in a 2010 report to the NRC, PG&E documented extensive land-based and low-energy seismic data collection that it had already conducted on the Shoreline fault. PG&E stated, on the basis of the new information, that discovery of the Shoreline fault “does not affect the seismic safety of DCPD.”⁹ And in multiple 2010 communications with the CPUC, PG&E argued that it already has sufficient information on the Shoreline fault to assess nuclear safety, and that the NRC “independently confirmed” PG&E’s assessment that Diablo Canyon is seismically safe.¹⁰ The Diablo Canyon Independent Safety Committee

particular functions, such as “a public or private processing, producing, generating, storing, transmitting, or recovering facility for electricity, natural gas, petroleum, coal, or other source of energy.” By contrast, Section 30106 of the Coastal Act defines “development” expansively to include many types of activities, such as construction, dredging, and waste disposal. The use of the narrower term “facility,” rather than the broader term “development,” in Section 30260 indicates that the provision is not meant to be used for activities such as seismic testing.

⁸ PG&E, undated. Diablo Canyon Power Plant License Renewal Application, Appendix E. Environmental Report, <http://www.nrc.gov/reactors/operating/licensing/renewal/applications/diablo-canyon/dcpp-er.pdf>. At Chapter 5-4

⁹ PG&E, 2010. Progress Report on the Analysis of the Shoreline Fault Zone, Central Coastal California, Report to the U.S. Nuclear Regulatory Commission.

¹⁰ PG&E, 2010. “Pacific Gas and Electric Company Response to Requests to Suspend Diablo Canyon License Renewal Proceedings,” Ex Parte Communications filed with the CPUC.

of the NRC stated, in a May 2012 annual report, "The preliminary results of the PG&E analysis of the Shoreline Fault rupture showed that the DCPD seismic design basis remained valid for any of three possible scenarios, either (1) as a single segment or (2) as all three segments together, or (3) as all three segments combined with a Hosgri rupture."¹¹ Most recently, on October 12, 2012, the NRC issued a letter to PG&E concluding that the existing design basis of the plant is already sufficient to withstand the ground motions predicted for all the Shoreline fault earthquake scenarios.¹²

B. The California Energy Commission's recommendations, per its AB 1632 report (2008), stated only that additional testing might enable better assessments of safety at DCPD. CEC did not make a case that high-energy testing is absolutely necessary to address the risks. Importantly, it does not appear that CEC or any other body undertook a comprehensive risk or cost/benefit analysis to determine whether, for each uncertainty the seismic testing aims to constrain, the marginal benefits of that additional information are worth the expected adverse costs in the form of impacts on local communities, protected species and MPAs, as well as financial costs. We believe the public and the ratepayers deserve to see such an analysis before decisions about permitting are made.

C. The survey is not expected to help resolve the most important geological uncertainties. We have continued to seek conclusive evidence on whether or not the offshore seismic survey is essential for ensuring the safety of the Diablo plant, without success. The Independent Peer Review Panel (IPRP) reviewed the geological targets of PG&E's seismic survey and the potential impact of the resulting information on seismic hazard analysis at the plant. Unfortunately, their focus did not include prioritizing information sources with respect the degree of influence each has on the hazard analysis, and more particularly with respect to issues that could affect the design of the plant. This prioritization is important because, to greatly oversimplify, the survey would have less justification if 50% of the uncertainty in a hazard assessment came from fault A and 5% from fault B, and the survey addressed key questions about Fault B, not fault A.

For lack of a more independent source, we turned to a sensitivity analysis in the SSHAC Report¹³ prepared by PG&E and other seismic experts, which prioritizes sources of uncertainty based on their influence on the assessment of earthquake hazard at the plant. We found that list generally parallel to the list of targets the IPRP found worth exploring with seismic surveys, except that the IPRP list also includes several characteristics of the Shoreline fault not ranked as important in the SSHAC report. A close look revealed that *only one of the eight most influential factors for the hazard assessment—the Hosgri fault dip—would be best addressed by seismic surveys, but new information on that factor would not affect the design basis of the Diablo plant* (see Table 1 and our Sept 24 comments, attached). The paucity of seismic targets among the most influential factors for hazard assessment is far from a ringing endorsement of the importance of the seismic survey.

D. The necessity of the revised project is even more questionable. That proposal includes the following specific objectives:

- Obtain improved deep imaging of the Hosgri and Shoreline fault zones near the Diablo plant;

¹¹ Diablo Canyon Independent Safety Committee Twenty-first Annual Report on the Safety of Diablo Canyon Nuclear Power Plant Operations, July 1, 2010--June 30-2011, p. 10.

¹² Letter from NRC to PG&E - Diablo Canyon Power Plant, Unit Nos. 1 and 2 - NRC Review of Shoreline Fault (TAC NOS. ME5306 AND ME5307). October 12, 2012.

¹³ PG&E's Senior Seismic Hazard Analysis Committee 2011. SSHAC Report, Sensitivity Analysis (O104) See especially pp. 5, 7, 56-58, and 90-92

- Obtain improved imaging of the intersection of the Hosgri and Shoreline fault zones northwest of Point Buchon; and
- Obtain improved imaging of the intersection of Hosgri and Los Osos fault zones in Estero Bay.

We question the imperative for a seismic survey with these objectives for a number of reasons. First, the IPRP itself cautions that surveys of the Hosgri-Shoreline and the Hosgri-Los Osos intersections (bullets 2 and 3) “have only a moderate chance of showing the faults at seismogenic depths because of the chaotic structure and lack of sharp seismic velocity contrasts in the Franciscan complex bedrock around the faults.”¹⁴ The IPRP made a similar statement with respect to deep imaging of the Hosgri near the plant.”¹⁵

Second, with respect to bullet 1, Zone 4 does not cover the Hosgri and Shoreline faults where the dip of those faults matters most, i.e. where they are closest to the Diablo plant (per the IPRP,¹⁶ “Fault geometry issues have the greatest impact on ground motion estimates when they affect distance from a fault plane to the site”). Some possibility exists that the survey could provide more information about the dip of the Hosgri and Shoreline faults within Zone 4, but other sources of information are available for those angles from studies of small quakes and, for the Hosgri, from gravity and magnetic data. The information on the Hosgri could be improved over time by installation of more seismometers. In any case, additional information on this subject is unlikely to affect the design of the plant.

Third, our understanding is that while seismic surveys may help characterize the geometry of the connection between faults (bullets 2 and 3), the more controversial question is whether and how a quake would move from one fault to another or to a branch fault. Those questions are better addressed by studying quakes on similar fault systems and developing more sophisticated models than currently available. The impact of a quake on the Los Osos fault will be highly influenced by that fault’s degree of dip near the plant, which requires an onshore, not offshore, seismic survey now underway. Once that information is available, experts can better assess the influence of various scenarios for the connection with the Hosgri fault on the design basis of the plant. Finally, we also note that improved imaging of the intersections of Hosgri and Shoreline, and of Hosgri and Los Osos faults, does not appear on the available list of targets with the greatest influence on the hazard assessment. And plausible scenarios for quakes involving the Hosgri-Shoreline connection have been modeled, accepted for publication in a peer reviewed journal¹⁷ and found to be at or within the design basis of the plant.

In summary, the objectives for a Zone 4 survey do not appear to be top priorities for improving the hazard assessment and assuring the safety of the Diablo Plant. It is conceivable that the proposed survey would maintain or enhance the public good if it could generate information that enabled a meaningful decision about whether to relicense Diablo Canyon as is, improve upon the existing seismic safety measures, or close the plant altogether. Yet it is clear today that the survey is not expected to help resolve the most important geological questions at issue, and even if it did, *it is not likely to change the calculation of whether the DCP is safe and should be relicensed*. Thus, the survey fails to meet the criteria for permitting under Section 30260, and should be denied.

¹⁴ IPRP Report #2, p.5

¹⁵ IPRP Report #2, p. 5-6

¹⁶ IPRP Report #4, p. 2

¹⁷ Hardebeck, Jeanne L., US Geological Survey, 2012. Geometry and Earthquake Potential of the Shoreline Fault, Central California. *To appear in Bulletin of the Seismological Society of America, 2012.*

4. It is essential that existing and new information be analyzed and alternative technologies considered before the offshore seismic survey is approved.

First, data from other geophysical studies, including recently completed land-based seismic and offshore low-energy surveys, are likely to address a number of high priority uncertainties in current hazard assessments and should be integrated into those assessments to help inform decisions about the necessity of offshore seismic surveys. To the extent the benefits of the proposed project are in doubt, it may be clearer whether its objectives are needed to assure plant safety once information from studies of higher priority targets has been analyzed and integrated into hazard assessments. As a matter of common sense, this integration should occur before the Commission decides whether to permit the revised proposal or the rest of this project.

Second, technological alternatives may be available to reduce the environmental footprint of offshore surveys. According to two reports, marine Vibroseis, an imaging technology that relies on controlled vibrations rather than broad impulsive noise, could both reduce sound levels by several orders of magnitude and eliminate noise output above 100 Hz – substantially reducing risk for harbor porpoises and other species.¹⁸ The State Lands Commission's EIR states that Vibroseis is not commercially available;¹⁹ in fact, a system developed by Geo-Kinetics and PGS,²⁰ two major industry services companies, is being scheduled for field-testing in the Gulf of Mexico this year and may well be available for use thereafter. Additionally, gravity gradiometry, an entirely passive (i.e., non-acoustic) technology licensed by Bell Geospace and other companies – which the EIR did not analyze – has reportedly allowed industrial clients to run fewer miles of airgun surveys by filling in gaps between tracklines.²¹ It is possible that neither marine Vibroseis nor gravity gradiometry will meet the specific needs of the Diablo Canyon project. Nonetheless, given the significant harm that will otherwise result, it is imperative that PG&E undertake a serious evaluation of both these options before the offshore survey begins.

Such a recommendation is consistent with the Commission's past approach to offshore seismic surveys. More than a decade ago, when the Commission last considered offshore airgun surveys on consistency review, it prevailed on USGS, the operator, to use the technology with the smallest practicable environmental footprint. After the Commission had objected to its consistency determination – for a survey posing far less potential for significant harm – USGS limited its acoustic source to a single airgun and, in a subsequent application, to an alternative seismic source (a mini-sparker) with an even lower source level.²²

Third, it is becoming increasingly clear that additional baseline biological data are needed. In particular, without additional data on seasonal distribution and habitat use, NMFS cannot readily establish clear standards for adaptive management of Morro Bay harbor porpoises – particularly to address the

¹⁸ Weilgart, L. ed., Report of the workshop on alternative technologies to seismic airgun surveys for oil and gas exploration and their potential for reducing impacts on marine mammals, 31 Aug. – 1 Sept., 2009, Monterey, Calif. (2010), available at www.oceanos-stiftung.org/oceanos/download.php?id=19; Spence, J., Fischer, R., Bahtiarian, M., Boroditsky, L., Jones, N., and Dempsey, R., Review of existing and future potential treatments for reducing underwater sound from oil and gas industry activities (2007) (NCE Report 07-001) (prepared by Noise Control Engineering for Joint Industry Programme on E&P Sound and Marine Life).

¹⁹ FEIR at 5-15.

²⁰ Tenghamn, R., An electrical marine vibrator with a flextensional shell, *Exploration Geophysics* 37:286-291 (2006).

²¹ Personal communication from John Mims, Bell Geospace, to Michael Jasny, NRDC (Oct. 2012).

²² See Consistency Reviews CD-14-02, CD-16-00, CD-32-99.

potential for massive dislocation of these porpoises, which could have significant adverse effects on a population level. Moreover, the monitoring effort as designed does not appear to provide adequate survey coverage of endangered baleen whales, given its limited coverage of areas beyond the near coast and shelf break.

Recommendations: *We urge the Coastal Commission to deny the coastal development permit and federal consistency certification for the revised project until:*

- *Data from recently completed geophysical studies can be analyzed and integrated into hazard assessments;*
- *An independent assessment is conducted to prioritize information critical to ensuring the safety of the plant, including an analysis of methods other than seismic airgun surveys to obtain that information; and*
- *At least one year of baseline biological data are acquired, in order to support monitoring and adaptive management of harbor porpoises.*

5. If the Commission decides to approve the revised project regardless of these considerations, stricter shut-down protocols, comprehensive monitoring and mitigation should be required.

As discussed in detail above, we believe that the Commission should deny the coastal development permit and federal consistency certification until various conditions are met. However, if the Commission chooses to approve the revised project for work proposed in 2012, we urge you to require PG&E to develop and implement a comprehensive monitoring program to assess the impact of the seismic survey on marine life as well as a mitigation plan to compensate for significant, unavoidable impacts to marine protected areas. We note, however, that planning and launching adequate programs in time for a 2012 survey poses a serious challenge.

Monitoring Program. We appreciate that PG&E has already committed to conducting or funding some monitoring activities including: the use of PODs and high-frequency acoustic recording packages (HARPS) to monitor harbor porpoise and other marine mammals; a stranding response plan; aerial surveys (including low level surveys to detect sea otters and harbor porpoise); and ROV and Catch Per Unit Effort (CPUE) surveys to examine impacts of fish abundance.

In addition to these measures, we urge that the Commission require PG&E to:

- Conduct scuba surveys in shallow water inside and outside MPAs and within the seismic survey footprint to monitor impacts to fish and other marine life;
- Conduct, upon completion of the Zone 4 survey, an independent review of biological and geophysical monitoring data to assess the level of impacts and inform adjustments of and/or necessity for subsequent phases of the project. Authorization of subsequent phases, which would include Zone 2 in more sensitive nearshore waters, should be denied if analysis from the Zone 4 survey indicates that certain levels of impacts to marine mammals are exceeded. Review of geophysical results should examine whether the data from Zone 4 are of sufficient quality to characterize the target objectives, and should determine whether alternative geophysical technologies (such as the Geo-Kinetics/PGS marine Vibroseis system and gravity gradiometry) could be used to satisfy the same objectives while eliminating or reducing the need for airguns;
- Conduct photogrammetry to refine our understanding of the peak calving and weaning seasons of harbor porpoises. Photogrammetry, which has recently been completed for common

dolphins off the California coast, involves acquiring high-resolution photos that can be analyzed for calf size and estimated age; and

- Conduct a photo-identification study of endangered blue, fin, and humpback whales to help determine turnover rates and establish a baseline for long-term impacts.

Protocols for suspension of the offshore survey. Adaptive management is not a panacea given our limited ability to detect impacts from human activities on marine mammals. In this case, the lack of baseline biological data, as well as the lack of time researchers have had to construct a monitoring program, further reduce the effectiveness of the adaptive management program now under consideration by NMFS. Indeed, for this reason alone, we believe the application should be denied, as noted above. Nonetheless, if the Commission approves the permit, we recommend that the Commission adopt the following requirements for adaptive management:

- Following data acquisition, including the conduct of aerial surveys, the data analysis and decision whether or not to suspend the project must occur within 24 hours. Summaries of the data and the results and rationale for any decisions taken must be made available to the Commission and the public within 24 hours thereafter.
- The activity must be suspended if aerial surveys are grounded due to adverse weather or other conditions. It is unlikely that passive acoustic monitoring can itself provide data sufficient to determine whether a trigger has been met, in part because of the time necessary to retrieve and analyze the information and in part because the information it obtains is unlikely to comport with the standards NMFS develops for suspension. PG&E must suspend the activity if aerial surveys cannot be conducted within 48-72 hours (reflecting the metabolic needs of harbor porpoises) after the survey commences.
- PG&E must suspend the offshore survey during necropsies of dead stranded animals, if the number of stranded animals otherwise exceeds the triggers set forth by NMFS. Under the scheme proposed by NMFS, the agency would first perform a "detailed necropsy with diagnostic imaging scans to rule out obvious cause of death," before deciding whether a Phase 2 investigation is performed – potentially triggering adaptive management. Yet such an analysis could take several days or more, quite possibly precluding results before the survey is completed. For obvious reasons of precaution, PG&E must suspend the offshore survey pending the results of the necropsy, if NMFS' numerical triggers are otherwise met.
- The activity must be suspended if the density levels for baleen whales set forth in the EIR – which correspond to significant impacts on endangered species – are exceeded. In making this determination, PG&E must use standard correction factors from NMFS surveys to account for unobserved whales.

Mitigation. MPAs safeguard sensitive habitats and create productivity hot spots by allowing fish and other creatures to grow large and prolific. They also provide a haven for a wide range of species, including depleted rockfish that have begun a still-fragile recovery. We hope the Commission will consider offsetting the impacts to the wildlife within these special places through appropriate mitigation measures.

The Commission has authority to protect marine resources and "healthy populations of all species of marine organisms" in state waters. It may also apply this authority to federally permitted activities that affect state waters and resources, even if those activities are outside of state boundaries. This authority provides a flexible means of protecting species within and close to the MPAs.

- Mitigation measures required by a regulatory agency must have a nexus—and must be roughly proportional—to a project's expected impacts.
- Under CEQA, mitigation is required for significant unavoidable impacts, and the Diablo Canyon FEIR finds impacts on MPAs to be significant and unavoidable. Further, the Coastal Commission may make additional findings under the Coastal Act if supported by substantial evidence. Based on scientific studies that find seismic activities have caused trauma in fish, kill larvae in the vicinity of the testing, and harm fish and squid in other ways, the nexus between the likely impacts of the proposed project and mitigation activities that compensate for those impacts by reducing additional take in marine protected areas is evident.
- The Commission should view this project from a highly precautionary perspective because the biological impacts of high-energy acoustic surveys are poorly understood. Although such surveys are becoming more common, companies are not investing in biological monitoring to understand the impacts, or in mitigation based on monitoring results.
- The Coastal Commission often uses a mitigation ratio to calculate mitigation requirements for loss of wetlands and other habitats (e.g. a 3:1 "area restored: area impacted" ratio). Application of a mitigation ratio, in this case extending the mitigation activity (e.g. improved MPA compliance) over a 5-year period, makes sense because of the time lag between the project and the mitigation, because impacts are likely to extend beyond the period of the actual project, and because of the need for precaution given that proponents cannot accurately quantify the impacts on protected areas.
- Describing and quantifying acoustic impacts to non-mammal marine species (adult, juvenile, and larval fish; benthic invertebrates; and plankton) is a challenge given limited available data.
 - At the very least, monitoring for this project should be designed to contribute to knowledge about acoustic impacts to marine species, particularly species with suspected (but not experimentally confirmed) sensitivities.

Incorporating new monitoring protocols is important, but likely not feasible in time for a 2012 survey. A delay in the project would allow time to conduct baseline monitoring and experimental research on seismic impacts.

Recommendation: *We ask the Commission to consider calling for mitigation for significant impacts to marine life in MPAs—specifically, for takings of sea life and resulting ecosystem disruption within MPA boundaries—under its authority to protect marine resources and "healthy populations of all species of marine organisms" in state waters.*

The State Water Resources Control Board's once-through cooling (OTC) policy includes an approach for identifying acceptable mitigation projects in order to compensate for ecosystem damage caused by OTC facilities.²³ Although impacts from OTC are different from those expected from seismic airguns, the State's approach can serve as a template for identifying appropriate mitigation for impacts to MPAs from the proposed project. The policy's definition of a "mitigation project" states that: "[r]estoration of marine life may include projects to restore and/or enhance coastal marine or estuarine habitat, and may also include protection of marine life in existing marine habitat, for example through the funding of implementation and/or management of Marine Protected Areas."

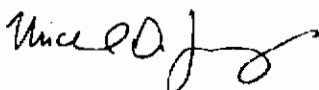
²³ State Water Quality Control Board. Amendment to the Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling. Adopted on July 19, 2011.

Examples of potential mitigation measures that are consistent with the "restoration" approach described above follow:

- Contribute funds for MPA enforcement, public engagement and compliance efforts. For instance:
 - Sponsor an MPA watch program at Point Buchon State Marine Reserve and other MPAs in the region. MPA watch protocols and programs already exist in other coastal areas and nonprofit organizations are interested in starting additional programs, but lack of funds currently limits their geographical reach.
 - Fund a non-profit aviation organization to do monthly aerial surveys to help identify potential MPA violations, enhancing enforcement, for a period of five years.
 - Sponsor additional MPA signage and public education activities, such as production and distribution of materials for use by local schools (over, for example, a five-year time span).
 - Provide one-time payment into a state fund for boats, enforcement technology, and/or warden training to ensure adequate enforcement of regulations limiting take in the Point Buchon State Marine Reserve.
- Contribute to activities that compensate for marine life injury and mortality from other sources.
 - Funds for marine mammal rescue and rehabilitation efforts in SLO County.
 - Funds for activities to control land-based impacts to the MPAs, e.g. point-source and non-point-source water pollution.
 - Funds for habitat restoration, including invasive species removal, in Morro Bay, or elsewhere in the vicinity of affected MPAs.
 - Fund enforcement of a vessel traffic agreement designed to minimize the threat of an oil spill in the Point Buchon area, where large vessels are currently cutting corners.
- Sponsor other regional conservation activities, such as expansion of PG&E's land stewardship activities at Point Buchon to better inform the public about local MPAs (e.g. training of trail guides and other on-site personnel, production of educational materials about MPAs). As a manager of the adjacent land, PG&E is well suited to support education and outreach for the Point Buchon Marine Reserve, possibly in partnership with the Monterey Bay and Channel Islands Marine Sanctuary Foundation.

We appreciate the opportunity to provide comments. For further discussion, please do not hesitate to contact Michael Jasny at 310-560-5536, mjasny@nrdc.org or Karen Garrison, 415-875-6160, kgarrison@nrdc.org.

Very truly yours,



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**Table 1. Sources of Uncertainty in Characterizing Seismic Hazard at Diablo Plant:
Ranked In Order of Greatest Influence on the Assessment of Earthquake Risk¹**
(With Type of Study Most Likely to Reduce or Resolve Uncertainty)

This table summarizes the top sources of uncertainty in the estimates of earthquake risk at the Diablo Canyon Power Plant, in **priority order**, along with the types of studies capable of reducing those uncertainties.

The table shows that **(1) ocean seismic surveys address only one of the top eight uncertainties** (one that is unlikely to affect the safety of the plant); and **(2) scientists are using a variety of other data sources to reduce these uncertainties**, without the degree of adverse environmental impacts of ocean seismic surveys.

| <i>Source</i> | <i>Type of Study Needed</i> |
|--|---|
| Choice of Model for Computing Ground Shaking | Scientific consensus-building through publication, review, discussion, debate and empirical evidence from future earthquakes |
| Hosgri Slip Rate | Low-energy studies (if datable offset rocks are found) and ocean-floor GPS ² (long-term) |
| Hosgri Location and Dip | Ocean seismic, ³ older seismic data, small earthquakes, and gravity and magnetic data; more seismometers near and west of the fault to better observe earthquakes could increase understanding without seismic surveys |
| Hosgri Rupture Length | Modeling and observation of earthquakes |
| Shoreline Slip Rate | Low-energy studies (if datable offset rocks are found) and ocean floor GPS (long-term) |
| Los Osos Dip | Onshore seismic, geology, small earthquakes, and gravity and magnetic data |
| Los Osos Slip Rate | Onshore geology and onshore GPS |
| San Luis Bay Slip Rate | Onshore geology and onshore/offshore GPS |

¹ Derived from PG&E's Senior Seismic Hazard Analysis Committee 2011. SSHAC Report Sensitivity Analysis (O104) p. 56, and Dr. Jeanne Hardebeck (personal communication, September 2012)

² Involves placing very sensitive global positioning system receivers around faults to track how they move relative to each other over several years. The data allow scientists to constrain uncertainties about the slip rate of a fault.

³ New information from ocean seismic would be unlikely to affect the design of the Diablo plant because the plant was upgraded when the fault was thought to angle closer to the facility than now known to be possible.



October 26, 2012

Chair Mary Shallenberger and
Members of the California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

By Electronic mail: cteufel@coastal.ca.gov; mdelaplaine@coastal.ca.gov

Re: *Letter from Independent Peer Review Panel regarding revised Seismic Imaging Project*

Dear Chair Shallenberger and Members of the Commission:

We are writing to provide our perspective on a letter you recently received from the Independent Peer Review Panel (IPRP) reporting that "The IPRP reached consensus that a 3D high energy seismic survey of Box 4 could provide valuable information about the faults that pose the greatest seismic hazard to Diablo Canyon Nuclear Power Plant."

We defer to the IPRP on the potential value of the survey information for developing an accurate picture of the faults in the area. However, we believe that the harm to marine life from intense noise produced by the project (see NRDC and OC October 25 comments, pp. 2-4) violates Section 30230 of the Coastal Act. To warrant an override under Section 30260, the project would have to meet the criterion that *not* pursuing it would adversely affect the public welfare. In other words, its public welfare benefits would have to outweigh its environmental and other costs.

Gathering additional information may be a good idea in principle, but it is difficult to make the case, on the basis of available information, that the "value" to be gained from the survey will outweigh the damage the project is likely to cause to endangered and vulnerable marine mammals and to sea life in marine protected areas. Remember that the Legislature's purpose when asking for available scientific information regarding seismic risks was to assure the safety of the Diablo Canyon nuclear plant and similar facilities. A more appropriate criterion, in our view, and one that links directly to this overall purpose, is thus whether the project will produce information **necessary** for assuring the safety of the Diablo plant. The IPRP has not provided you with guidance on that question.

Many other studies now wrapping up will provide information with greater influence than offshore seismic surveys on the Diablo earthquake hazard assessment. The attached table shows that of the eight most influential sources of uncertainty in the hazard assessment identified by PG&E and other experts, the proposed offshore seismic study will address only one—the Hosgri fault location and dip. But PG&E's revised proposal will *not even address that factar* near the Diablo Plant where it matters most.

We understand the desire of agencies on the IPRP to cover all the bases. But the information from offshore seismic surveys is not free; on the contrary, it comes with a high environmental price tag. The Commission needs to know not just whether information produced will be *valuable* but whether it is *necessary*. Before you make this decision, you need to know what has been learned from other studies,

how that knowledge affects the hazard assessment, and what if any information from the proposed project is essential to assure the safety of the plant. And finally, you need a hard look at alternatives to offshore seismic surveys, some of which may be available now or by next year (see NRDC-OC October 25 comments, p. 8).

Please don't hesitate to contact us with questions.

Very Truly Yours,

A handwritten signature in black ink, appearing to read "Karen Garrison". The signature is fluid and cursive, with the first name "Karen" and last name "Garrison" clearly distinguishable.

Karen Garrison
Co-Director, NRDC Oceans Program



October 24, 2012

Mary Shallenberger, Chair
California Coastal Commission
45 Fremont Street Suite 2000
San Francisco, CA 94105

RE: Opposition to Pacific Gas & Electric Seismic Survey: Consistency Certification and Coastal Development Permit (E-12-005 and CC-027-12).

Dear Chair Shallenberger and Honorable Commissioners,

On behalf of the Surfrider Foundation and the San Luis Obispo Chapter of the Surfrider Foundation (Surfrider), thank you for the opportunity to submit comments regarding Pacific Gas and Electric's (PG&E) proposal ("Project") to conduct seismic testing near the Diablo Canyon Power Plant (DCPP). Surfrider has identified significant impacts within PG&E's Final Environmental Impact Report (FEIR) and we have acquired outside information that leads us to highly question the value of the Project. While PG&E recently modified implementation of the Project (segmenting testing over the course of a few years) we are still bothered by the enormous impacts testing will have on marine life and ocean users. We urge you to carefully consider the below concerns and **deny both the Consistency Certification and the Coastal Development Permit.**

Recreational Impacts:

Surfrider's concerns about impacts to ocean users began when we first read the Draft Environmental Impact Report (DEIR). In May 2012, we submitted comments to California State Lands Commission (CSLC) and PG&E highlighting our concerns about recreational impacts. We pointed out measures were only being taken to protect divers in the area, but the DEIR did not consider potential impacts to surfers, swimmers and other ocean users. In Volume I of the FEIR, PG&E responded *directly to Surfrider's* concerns, with the below statement:

"In response to this and other related comments...MM LU-1 has been revised to include noticing beaches and local dive shops **regarding offshore areas closed to diving, surfing, and swimming.**"¹

Based on this statement, it seems clear that diving, surfing, and swimming will not be allowed within Project zone. However, in the FEIR, PG&E only addresses the prohibition of diving and is *clearly disregarding the safety of other ocean users* and is *obviously presenting contradictory information.*

¹[http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/FEIR_Comments/FEIR_RTCs_NGOs_\(13of14\)_Surfrider.pdf](http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/FEIR_Comments/FEIR_RTCs_NGOs_(13of14)_Surfrider.pdf)

Surfrider would like to highlight statements from PG&E's FEIR that clearly **acknowledge impacts to ocean users:**

"The proposed offshore activities *would* expose persons present in the water to harmful noise levels..."

"Studies have shown that high levels of underwater noise can cause dizziness, hearing damage, or other sensitive organ damage to divers and swimmers, as well as indirect injury due to startle responses"

"Noise levels in excess of 154 dB re 1 μ Pa could be considered potentially harmful to recreational divers *and swimmers* in the Project area".

"The potential exists that noise levels in water due to Project activities could be harmful to humans who ignore the notices and enter water in close proximity to the air guns while being *deployed within the an active survey area*" (*emphasis added*). ²

Yet within the same section of the FEIR, PG&E makes this contradictory declaration:

"Therefore, potentially harmful noise levels from the air guns would not be expected to affect swimmers and surfers because there would be a substantial distance between them and the noise source. In addition, they would not be fully submerged. Based on the above, the potential impacts to swimmers and surfers from seismic survey noise are Less than Significant". ³

Despite the contradictory statements, it's clear the Project will expose ocean users to harmful seismic testing impacts.

Determining Impacts to Ocean Users

From the beginning of Surfrider's investigation into the impacts of seismic testing on recreationalists, we have struggled to find detailed information contained within PG&E's FEIR. For example, Surfrider kept asking the following questions:

- 1.) How close will the vessel/air guns be to shore?
- 2.) What would be the instantaneous decibel (dB) exposure levels be to nearshore environments?

The below charts and maps (which *finally* answer the above questions) were not originally contained in the FEIR. Surfrider contacted Coastal Commission Staff asking for clarification; and in order to answer our questions, Coastal Commission Staff had to request additional information from PG&E.

It's important to reiterate the PG&E affirms 154 dB "could be harmful to swimmers and divers" ⁴.

² PG&E FEIR: http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.11_NOISE.pdf

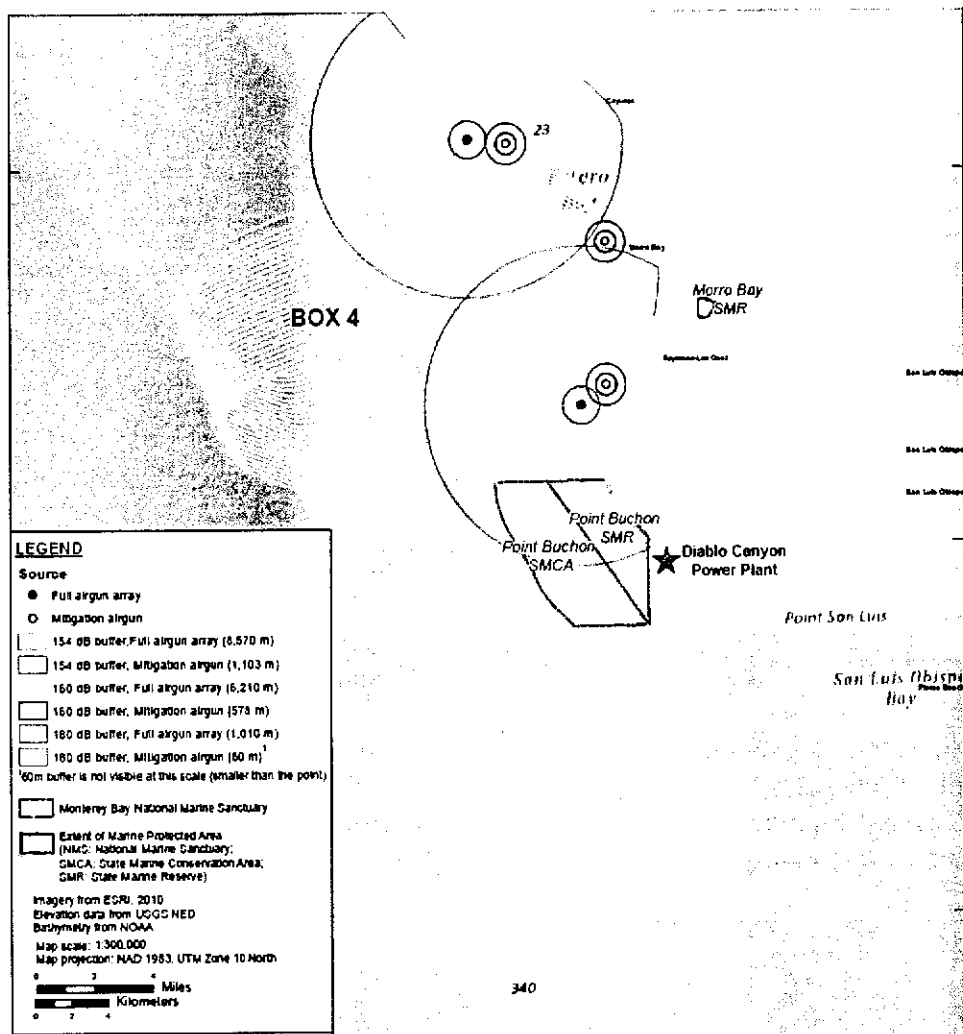
³ PG&E FEIR: http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.11_NOISE.pdf

⁴ PG&E FEIR: http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.11_NOISE.pdf

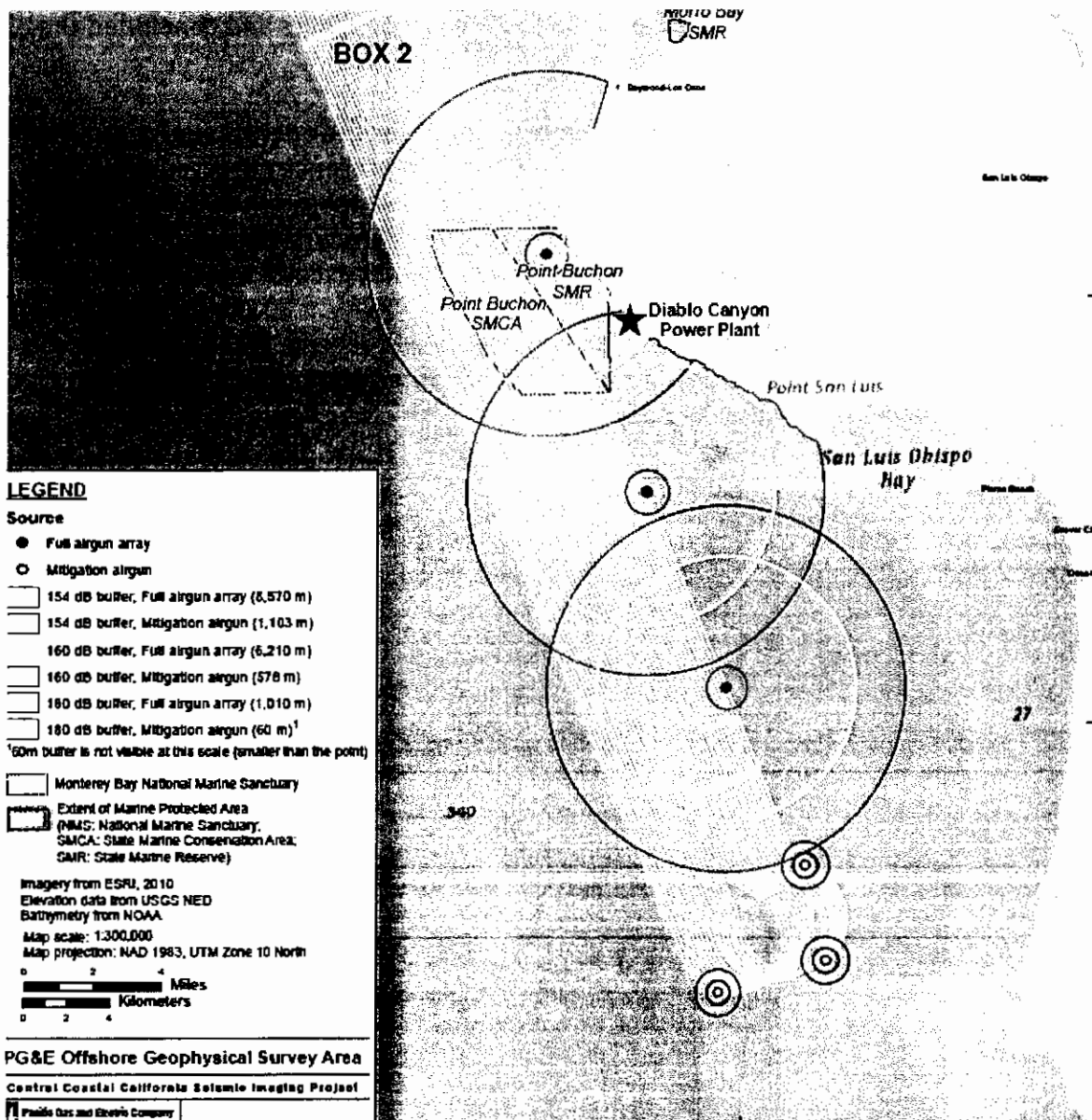
More importantly, the U.S. Navy conducted a study on divers and concluded that **145 dB is a safe level for humans**, stating:

"In June 1999 NSMRL set interim guidance for the operation of low frequency underwater sound sources in the presence of recreational divers at 145 dB... Based on this guidance, the operation of the SURTASS LFA sonar will be restricted in the vicinity of known recreational and commercial diving so that sound levels will not exceed 145 dB".⁵

The below Project maps illustrate some beaches will receive 160 dB (yellow circles). Since dB ratios are logarithmic, 160 dB is **30 times above the safety threshold** the Navy identified at 145 dB.



⁵ U.S. Navy Diver Study establishing safety threshold: <http://www.surtass-lfa-eis.com/DiverStudies/index.htm>



The below upslope sound propagation chart illustrates that dB levels could reach 190 at 0.13 nautical miles (which is approximately 789 feet from shore). That means that anyone who is recreating in the nearshore environment **would be exposed to decibel levels that are 1,000 times greater than the established safety threshold.**

| Sound Pressure Level (SPL) (dB re 1 uPa) | Upslope Distance (In Shore) | | | Downslope Distance (Offshore) | | | Alongshore Distance | | |
|---|--------------------------------|-----------------|-----------------|----------------------------------|-----------------|-----------------|---------------------|-----------------|-----------------|
| | M ¹ | SM ² | NM ³ | M ¹ | SM ² | NM ³ | M ¹ | SM ² | NM ³ |
| 190 | 250 | 0.16 | 0.13 | 280 | 0.17 | 0.15 | 320 | 0.20 | 0.17 |
| 187 | 390 | 0.24 | 0.21 | 370 | 0.23 | 0.20 | 410 | 0.25 | 0.22 |
| 180 | 1,010 | 0.63 | 0.55 | 700 | 0.43 | 0.38 | 750 | 0.47 | 0.40 |
| 170 | 2,990 | 1.86 | 1.61 | 1,760 | 1.09 | 0.95 | 1,760 | 1.09 | 0.95 |
| 160 | 6,210 | 3.86 | 3.35 | 4,450 | 2.77 | 2.40 | 4,100 | 2.55 | 2.21 |
| 154 | 8,570 | 5.33 | 4.63 | 7,820 | 4.86 | 4.22 | 6,780 | 4.21 | 3.66 |
| 120 | 24,650 | 15.32 | 13.31 | 251,320 | 156.16 | 135.70 | 94,870 | 58.95 | 51.23 |

¹M = Meters; ²SM = Statute miles; ³NM = Nautical Miles

Clearly, this Project will have significant impacts to ocean users. Surfrider is very troubled that PG&E is not applying the precautionary principle when analyzing seismic testing impacts to humans.

Documented Impacts to Ocean Users:

Dr. Marsha Green has been studying and documenting underwater acoustic impacts on humans and marine mammals for several decades. In 2004, she was appointed to the Federal Advisory Committee to make recommendations to the U.S. Congress regarding acoustic impacts on marine mammals. During the course of her research she has compiled the following impacts to humans from underwater acoustic noise.

- "On August 25, 1994 a scuba diver was accidentally exposed to testing of the US Navy's LFA sonar system. (Comments submitted at Public Hearing of California Coastal Commission, 12/12/97). The ship transmitting the sonar was over 100 miles northwest of the diver who reported distinct and disorienting lung vibration as a result.
- Pestorius and Curley (1996) exposed Navy divers to low frequency active sonar and reported that one of the divers had to be hospitalized and was later under treatment for seizures.
- A Hawaiian resident who was in the water when the Navy was conducting their low frequency active sonar test in Hawaii in March, 1998 was disoriented and nauseous afterward and had to see a physician who diagnosed her with symptoms comparable to acute trauma. (Declaration filed in court, March 25, 1998.) The Navy admitted that this swimmer was exposed to the sonar at 120 dB while she was in the water, far below the operational sonar at 240 dB. In her court declaration this woman also detailed the behavior of nearby dolphins while the broadcast was taking place. The dolphins' behavior, in her view as a naturalist and long term observer of dolphins, was abnormal, including staying close to shore, staying near the surface and vocalizing excessively."⁷

Ecological Impacts:

Impacts to ocean ecosystems due to seismic testing can be potentially significant; including harm to sensitive habitats and marine mammals (i.e. fish, sea birds, invertebrates, turtles, porpoise, sea otters, etc); and four endangered species. PG&E's FEIR openly admits there will be "significant and unavoidable" impacts to marine life, and their "takings analysis" shows thousands of marine mammals will be harassed and/or possibly killed.⁸ As mentioned above, Dr. Green has logged reports of impacts to marine mammals from underwater noise. She explains the following account of harm to marine mammals in her research compilation:

⁷ Compilation of Dr. Green's research regarding noise impacts to marine mammals and humans.

<http://www.oceanmammalinstitute.com/mgpaper.html#document>

⁸ PG&E's FEIR Marine Resources:

http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.04_BIOLOGICAL_RESOURCES-MARINE.pdf

"In a more recent statement in *Nature* (March 5, 1998), Alexandros Frantzis linked a stranding of Cuvier's beaked whales in the Mediterranean to military low frequency active (LFA) sonar trials the day before. Cuvier's beaked whales rarely strand. A Bioacoustics Panel investigated this stranding and it is clear that the NATO vessel transmitting the LFA sonar came within 10 km of the beach where the whales stranded. The panel concluded these whales were exposed to LFA sonar at 150-160 dB".⁹

Another well-cited article from *Canadian Journal of Fisheries and Aquatic Sciences* documents that fish catches, after air gun use, decreased 40%-80% (depending catch method).¹⁰ Finally a statement made the Marine Mammal Commission from former California Coastal Commissioner Sara Wan shows evidence of marine mammals stranding following anthropogenic noise activities saying:

"However, while the connection is more obvious in the case of beaked whales, other cetaceans have also been involved in strandings associated with anthropogenic noise. Minke whales, (Bahamas 2000), pygmy sperm whales (Canary Islands 1988), and bottlenose whales (Canary Islands 1988) have stranded concurrent with beaked whales. In other instances, melon-headed whales (Hawaii 2004), harbor porpoises (Haro Strait 200317), and humpback whales (Brazil 2002) have stranded in events that did not involve beaked whales. In addition to these, NMFS is still investigating whether the pilot whales, minke whales, and dwarf sperm whales that stranded in North Carolina (January 2005) had traumas consistent with acoustic impacts."¹¹

In addition to these discrete ecological impacts, Surfrider is also concerned about broader impacts to the newly developed network of Marine Protected Areas (MPA). *The State spent the better half of a decade working on establishing MPA and this project would clearly interfere with MPA productivity.*

It's equally concerning that this project would completely halt biological monitoring of MPAs and impair effective management of the network. The MLPA requires scientific monitoring of protected areas in order to evaluate MPAs as a tool for conservation and fisheries management. The EIR openly admits significant impacts to biological monitoring of MPAs. This Project would therefore have statewide implications since the monitoring of MPAs at Morro Bay is tied to larger statewide efforts to collect data (currently conducted by Monitoring Enterprise).

Finally, we are concerned that the FEIR does a poor job of considering the project's cumulative impacts on marine resources when combined with the impacts from the operation of the DCP, which include impacts from its seawater intake. We mentioned this in our DEIR comment letter in May and we believe both CSLC and PG&E are dismissing the cumulative impacts from once-through cooling of the DCNPP. As such we believe this dismissal is inconsistent with CEQA guidelines § 15130(a) and 14 CCR § 15130(b)(5).

⁹ Compilation of Dr. Green's research regarding noise impacts to marine mammals and humans. <http://www.oceanmammalinst.com/mgpaper.html#document>

¹⁰ Engås, A., Løkkeborg, S., Ona, E., and Soldal, A.V. (1996). Effects of seismic shooting on local abundance and catch rates of cod (*Gadus morhua*) and haddock (*Melanogrammus aeglefinus*). *Canadian Journal of Fisheries and Aquatic Sciences* 53(10), p. 2238-2249.

¹¹ Commission Wan Statement: http://awionline.org/sites/default/files/uploads/legacy-uploads/documents/CCC_Comments_12-05-1238105852-10137.pdf

Project Not Required by State Legislation

There have been incorrect statements made in the media that seismic testing at DCPD is required by state legislation (AB 1632). AB 1632 merely requires the California Energy Commission (CEC) to compile and evaluate existing scientific studies in order to determine the potential vulnerability of the State's nuclear power plants due to aging or from a major seismic event—but it does not mandate seismic testing.¹² There has also been some confusion regarding recommendations/directives from the California Energy Commission (CEC) and California Public Utilities Commission (CPUC) to conduct testing at DCPD.

Cited case law states both the PUC and the CEC must collaborate with other state agencies in fulfilling agency roles; and neither the PUC nor the CEC can overstep the jurisdiction of any other state agency that originally comes from a federally approved program, such as the California Coastal Commission (CCC)¹³. Therefore in order for CPUC to direct PG&E to conduct testing, the CCC *must* also approve. Most notably, the Nuclear Regulatory Commission (NRC) has exclusive jurisdiction over nuclear safety and operations and the NRC has not mandated the use of this seismic testing.

Flawed Scope of Work:

After careful review of the existing documentation, analysis of expert testimony and discussions with expert geophysical researchers, Surfrider questions the overall value of the PG&E's Project and believes testing is unnecessary. Simply put, the Project is unlikely to provide the information necessary to improve seismic safety estimates for DCPD and will not advance worst-case scenario modeling or address the most serious risks.

Upon speaking with an expert research geophysicist at the USGS, Surfrider learned that PG&E's seismic surveying **would not answer the two most critical questions required to understand seismic risk**. The first parameters are the geometry of the faults (which may be addressed by seismic surveys) and the relationship of adjacent faults to each other (do they intersect), which is partly based on geometry and partly on other factors such as how a particular earthquake behaves (not addressed by seismic surveys). The second parameters are how the faults behave (slip rate, frequency, return interval). The proposed study will not address both set of parameters and will only potentially and marginally reduce uncertainties related to the first parameter - fault geometry.¹⁴

Our concerns about Project necessity were compounded when we learned the Project would duplicate previous studies, and that existing data was not being synthesized to paint a full picture of fault lines near DCPD. A former PG&E geologist testified the following:

"A good deal of their planned work includes offshore and onshore geophysical programs that duplicate existing investigations and analyses completed by the USGS and others.... Nothing in the planned

¹²Legislation text: http://www.leginfo.ca.gov/cgi-bin/postquery?bill_number=ab_1632&sess=0506&house=B&author=blakeslee

¹³ See case law: *Orange County Air Pollution Control Dist. v. Pub. Util. Com.*, 484 P.2d 1361, 1367 (Cal. 1971) and *Voices of the Wetlands v. SWRCB*, 69 Cal Rptr 3d 487(2007)

¹⁴ Derived from personal communication with Dr. Jeanne Hardebeck Sept and Oct 2012;

additional surveys, both onshore and offshore, offers any prospect for any result beyond marginal improvement to what is already known...."

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Conclusion:

Surfrider questions the overall value of this Project because it will have devastating effects on ocean ecosystems and impact coastal and ocean recreation, tourism and the local economy. This Project jeopardizes marine life and ocean users while hoping to create a seismic profile that will not conclusively reduce uncertainties regarding earthquake hazards at DCP. PG&E has not conducted due diligence to justify the need for this project. Instead, PG&E should synthesize existing data (collected over the decades by several entities), utilize recent data (collected by PG&E both terrestrially and through offshore low energy testing) to better understand seismic risks, seek further independent review of the need for additional study, and only then propose a project using state of the art techniques that minimize environmental harm to estimate earthquake hazards.

The proposed project violates several sections of the Coastal Act that address marine life protection and recreational resources (specifically Sections: 30220, 30224, 30234.5, 30223, 30230, 30260, and 30210). The onus of stopping these precedent setting and harmful project resides squarely on the Coastal Commission and we respectfully urge you to deny this Project.

Thank you in advance for considering these comments.

Sincerely,

Stefanie Sekich-Quinn



Surfrider Foundation, HQ
California Policy Manager

Brad Snook



Surfrider Foundation, San Luis Obispo Chapter
Chair



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September 21, 2012

Cassidy Teufel
Coastal Analyst, California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105

Re: Central Coastal Seismic Imaging Project—Request for permit denial

Dear Mr. Teufel:

We are writing to supplement our previous comments as more information has come to light about Pacific Gas and Electric Company's (PG&E) Central Coastal California Seismic Imaging Project. In light of the doubts voiced by geologists and seismologists about the degree of usefulness of the proposed project, we would ask PG&E and the Commission to examine the potential for a suite of less harmful alternative methods to determine the seismic risk surrounding Diablo Canyon Nuclear Power Plant (DCPP).

We believe that Central Coast residents deserve to know the magnitude of the seismic risks around DCPP, however we want to ensure that these tests are done right the first time. We share the concerns of many of our colleagues about whether the proposed test would answer key questions about earthquake risk at the plant. The current project may provide an incomplete picture of the seismic risk. It may give us more information on fault geometry, but potentially exclude other important considerations for determining risk, such as the movement of faults, the direction and speed of such movement, and the "sidetrack" potential of the Hogsri and Shoreline faults.

A combination of more sophisticated modeling, low-frequency testing, or use of new technology currently in development were not fully examined in the Environmental Impact Report as alternatives. As established at the August 9 meeting of the State Lands Commission, PG&E's alleged March 2015 deadline for submission of seismic data to the NRC is a deadline of convenience, not necessity, hence technology expected to become commercially available in the next few years should be considered a viable alternative.

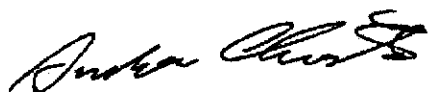
That is why we urge the Commission to deny the permit and consistency certification at this time and work with the applicant to fully examine alternatives that have the potential to produce more valuable data and greatly reduce impacts on the marine environment. Alternatively, we suggest the Commission issue a permit only for such portion of the project over which the Commission

may have jurisdiction that involves the study of onshore seismic areas, with no impacts to marine resources or mitigations for same required, while working with the applicant on the development of procedures that would yield useful data on offshore faults while minimizing harm to marine wildlife and environmentally sensitive areas.

Because we believe there are as yet too many unanswered questions regarding the geophysical data that the project would acquire, the long-term environmental impacts to marine resources and the effectiveness of any conceivable mitigation, which cannot be answered in a short timeframe, we urge the Commission to deny a permit and consistency certification for this project at this time.

Thank you for your attention to these concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrew Christie". The signature is fluid and cursive, with a large, stylized initial "A" and a long, sweeping underline.

Andrew Christie, Director
Santa Lucia Chapter of the Sierra Club



October 23, 2012

Cassidy Teufel
Coastal Analyst, California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105

Re: Central Coastal Seismic Imaging Project—Request for permit denial

Dear Mr. Teufel:

We are writing to supplement our comments of September 21 urging denial of the permit for PG&E's proposed Central Coastal Seismic Imaging Project.

Since we submitted those comments, the applicant has reconfigured the project. As the applicant has made no substantive changes in the project as originally proposed, the Sierra Club reiterates our opposition to your Commission issuing a Coastal Development Permit or a finding of consistency with the Coastal Zone Management Act.

Our objections on the basis of incomplete analysis of alternatives in the State Lands Commission's Environmental Impact Report (EIR) remain. For years, marine biologists have urged a transition from airgun technology to alternative means of geophysical survey due to the likely cumulative impacts of extremely loud sound pumped into the marine environment by airgun arrays, now ubiquitous in the world's oceans. (Weilgart, 2010).

Marine Biologist Dr. Lindy Weilgart's most recent comments on the viability of alternative technology with the potential for reduced or avoided impacts to coastal resources are attached.

We have grave concerns about impacts on marine mammals. Dr. Weilgart has noted that seismic noise is believed to contribute to some species' declines or lack of recovery (Weller et al. 2006a, 2006b; IWC 2007). The International Whaling Commission's Scientific Committee noted "...repeated and persistent acoustic insults [over] a large area...should be considered enough to cause population level impacts." (IWC 2005).

Dr. Weilgart further states that mitigation measures to safeguard whales against high noise exposures are invariably "very inadequate," largely due to the tendency of undersea noise to propagate far beyond the presumed impact boundaries of seismic surveys. Weilgart cites Madsen et al. (2006) which finds that "received levels can be as high at a distance of 12 km from

a seismic survey as they are at 2 km (in both cases >160 dB peak-to-peak). Received levels, as determined from acoustic tags on sperm whales, generally fell at distances of 1.4 to 6–8 km from the seismic survey, only to increase again at greater distances (Madsen et al. 2006).” Seismic airguns have damaged the ears of fish several kilometers from seismic surveys, with no evident recovery two months after exposure (McCauley et al. 2003).

The current project warrants a precautionary approach to marine mammal impacts, which has been the favored approach of this Commission in cases of uncertainty. In your Dec. 13, 2005, comments to the Marine Mammal Commission on the effects of anthropogenic sound on marine mammals, your Commission concluded:

Anthropogenic sound with the potential to harm marine life should be eliminated where possible or otherwise minimized (e.g., through source reduction and removal; geographic and seasonal restrictions).

Given the likelihood that anthropogenic sound may have significant impacts on marine mammals, the degree of uncertainty regarding the nature and extent of those impacts, and the need to consider cumulative and synergistic effects, a precautionary approach should be taken with respect to management of marine mammals.

Fundamentally, the primary goal of any management system must be to reduce or eliminate the intensity, and thus the potential for negative impacts, of noise sources by either not undertaking these activities to begin with, or through modifications to those activities (including the use of alternative, quieter technologies), and geographic and seasonal restrictions or exclusions.

The California Coastal Commission believes that protecting marine mammals, which it considers to be coastal resources, is important to this State... Under the Coastal Act, if there is uncertainty the Coastal Commission takes the position that the applicant must avoid or mitigate the impacts to a negligible level. If avoidance is not possible, or if mitigation is not possible, or if it is unknown whether mitigation will work, then the Coastal Commission may deny the project. In each case, the Coastal Commission applies the generally accepted legal principal that the applicant bears the burden of proof that the proposed project/action will *not* impact coastal resources.

- Coastal Commission Comments to the Marine Mammal Commission on the Effects of Anthropogenic Sound on Marine Mammals
Statement for The Report of the Advisory Committee on Acoustic Impacts on Marine Mammals , December 13, 2005

The project EIR admitted that there is insufficient research data to determine whether the project will have significant long-term impacts, but took the opposite of the precautionary approach, finding that the lack of research affirming long-term impacts was sufficient to support a finding of no significant long-term impacts. It is crucial in evaluating the proposed project that the Commission employs the precautionary approach rather than the approach of the EIR.

The uncertainty and the paucity of data also extends to the noise level that causes hearing loss in whales, which is based on the dubious practice of extrapolating the results of tests done on captive dolphins and applying them to baleen whales in the wild.

We urge the Commission to deny the permit for this project, which has the potential to cause significant short- and long-term harm to the central coast's marine wildlife, and encourage the applicant to fund the development of alternative technologies with the potential to significantly reduce or avoid impacts to coastal resources. Thank you for your consideration of these concerns.

Sincerely,



Andrew Christie
Director, Santa Lucia Chapter of the Sierra Club



Amanda Wallner
Organizer, Sierra Club California

Attachment 1: Letter from Lindy Weilgart to Andrew Christie

Attachment 2: State Lands Commission FEIR, *Alternatives: 5-15*

IWC (International Whaling Commission). 2005. Report of the scientific committee. Annex K. Report of the Standing Working Group on environmental concerns. *J. Cetacean Res. Manag.* 7 (Suppl.): 267–305.

IWC (International Whaling Commission). 2007. Report of the scientific committee. Annex K. Report of the Standing Working Group on environmental concerns. *J. Cetacean Res. Manag.* 9 (Suppl.): 227–296.

Madsen, P.T., Johnson, M., Miller, P.J.O., Aguilar Soto, N., Lynch, J., and Tyack, P. 2006. Quantitative measures of air-gun pulses recorded on sperm whales (*Physeter macrocephalus*) using acoustic tags during controlled exposure experiments. *J. Acoust. Soc. Am.* 120: 2366–2379. doi:10.1121/1.2229287.

McCauley, R. D., Fewtrell, J., and Popper, A. N. 2003. High intensity anthropogenic sound damages fish ears. *Journal of the Acoustical Society of America* 113: 638–642.

Weilgart, L.S. (ed) 2010. Report of the Workshop on Alternative Technologies to Seismic Airgun Surveys for Oil and Gas Exploration and their Potential for Reducing Impacts on Marine Mammals. Monterey, California, USA, 31st August – 1st September, 2009. Okeanos - Foundation for the Sea, Auf der Marienhöhe 15, D-64297 Darmstadt. 29+iii pp.

Weller, D.W., Rickards, S.H., Bradford, A.L., Burdin, A.M., and Brownell, R.L., Jr. 2006a. The influence of 1997 seismic surveys on the behavior of western gray whales off Sakhalin Island, Russia. Paper No. SC/58/E4 presented to the International Whaling Commission Scientific Committee, Cambridge, UK.

Weller, D.W., Tsidulko, G.A., Ivashchenko, Y.V., Burdin, A.M., and Brownell, R.L., Jr. 2006b. A re-evaluation of the influence of 2001 seismic surveys on western gray whales off Sakhalin Island, Russia. Paper No. SC/58/E5 presented to the International Whaling Commission Scientific Committee, Cambridge, U.K.



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13 October 2012

Andrew Christie, Director
Santa Lucia Chapter of the Sierra Club
P.O. Box 15755
San Luis Obispo, CA 93406

Dear Andrew,

Thank you for your inquiry regarding the potential of marine vibroseis (MV or MarVib) as an alternative to airgun-based seismic surveys.

I have reviewed the discussion of MV in the Environmental Impact Report on PG&E's Central Coastal Seismic Imaging Project as prepared for the California State Lands Commission. The EIR's elimination of marine vibroseis from consideration as an alternative technology is seriously flawed.

The EIR's discussion of the potential environmental impacts of MV on marine wildlife and claim that these impacts have not been established omits to state that whale biologists with expertise in marine noise have affirmed that the impacts would likely be less than that of airguns. Peak pressure and high rise time are two of the most biologically damaging characteristics of noise, both of which are much lower in MV than airguns. An environmental assessment (LGL and MAI 2011) commissioned by the Oil and Gas Producers (OGP) concluded that MV is likely to be much more environmentally benign than airguns, affecting perhaps only 1% (to 20%) of the whales that airguns would:

["...the radius of disturbance would be much lower with MarVib, and the number of animals disturbed by a survey of a given seismic line would be much reduced (probably to <10%...)". (p. 123). "The report concludes that MarVib methods implemented in the manner now anticipated, e.g., with strong suppression of unwanted higher-frequency components, should in most respects have less environmental impact than surveys using airgun arrays. (The report assumes that components above ~100 Hz, or if possible, above some frequency lower than 100 Hz, would be suppressed more strongly than is possible with airguns.)". (p. vii). "This would substantially reduce the biological effects, particularly on species that are most sensitive to higher frequency sounds and not very sensitive to low-frequency (LF) sounds, e.g., the odontocete cetaceans." (p. viii). "Use of MarVib sources rather than airguns is expected to reduce most types of environmental impacts in all habitats and environments." (p. vii). "Preliminary tests on fish and shrimp positioned adjacent to a MarVib indicated that this source did not cause deaths or

conspicuous injury (Linton 1995)." (p. 2). "[with MarVib]: No changes in activity level or swimming patterns were observed in • the 20 exposed mud minnows during the 24-hr period following exposure, • the 20 exposed channel catfish immediately after their exposure, or • the 10 exposed white sturgeon either immediately after exposure or during the next two weeks. Anecdotal observations from fisheries observers during a MarVib test in the southern Norwegian Sea suggested that MarVib did not have noticeable effects on a sandeel fishery, unlike the experience with airguns (M.R. Jenkerson, pers. comm.)." (p. 151). "the effects of MarVib sound on Gulf white shrimp *Penaeus setiferus*...No changes in activity level or swimming patterns were observed." (p. 158).]

The EIR's statement that "Recent testing has indicated that low-frequency marine vibroseis results are of poorer quality than those associated with air guns" is a dubious claim. It would depend on which of the many MV prototypes was tested. Many oil companies want lower frequencies than what airguns put out. MV has this potential, so the signal could well be geophysically better than airguns. Airguns are uncontrolled; a bubble released under great pressure, thus much more unpredictable and not able to be modified. As a controlled source, MV can be changed in loudness, frequency, etc., near real-time, depending on the circumstances, a considerable advantage:

["Tests and limited operational use have demonstrated that, at least in some situations, the MarVib is a satisfactory energy source from a geophysical perspective (Smith and Jenkerson 1998)." (p. 2).]

To EIR states "This technique is not yet considered to be commercially viable, and may not be applicable for use in the water depths required to evaluate the faults in the Project area." Right now, MV likely can handle shallower depths better than airguns, and can also function in deep water:

["MarVib systems may be operable at deeper depths in the water column, as compared to airguns, thus reducing potential near-surface impacts." (p. 2). "MarVibs have been used in deep water, shallow water, and transition zones. They can operate over a wider range of depth than airguns, including considerably deeper depths. MarVibs have been demonstrated to at least 100 m depth..." (p. 17).]

(Other controlled seismic sources, such as DTAGS, work in very deep water.) The reason MV is not yet commercially viable is because the industry has neglected to fund the building of prototypes. With enough money things can move very fast, and some models are very close to availability.

The EIR's arguments that this equipment could disturb sensitive seafloor habitat or degrade water quality by suspending seafloor sediments, or that "use of this technology could cause adverse effects on unknown cultural resources" are weak and unsubstantiated. Most of the proposed MV equipment can be towed at any depth, so would not be moving along or otherwise come into contact with the seafloor. I can't think of any adverse effects to cultural resources from MV that would be worse than the effects of airguns.

References

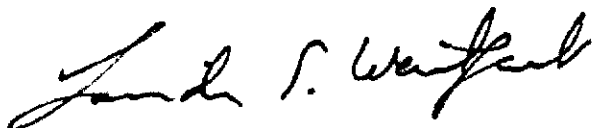
LGL and MAI. (2011): Environmental Assessment of Marine Vibroseis. LGL Rep. TA4604-1; JIP contract 22 07-12. Rep. from LGL Ltd., environ. res. assoc., King City, Ont., Canada, and Marine Acoustics Inc., Arlington, VA, U.S.A., for Joint Industry

Programme, E&P Sound and Marine Life, Intern. Assoc. of Oil & Gas Producers, London, U.K. 207 p.

Linton, T.L. 1995. Field tests to determine effects of the "marine vibrator" on white sturgeon and Gulf white shrimp. Texas A&M Univ., Dep. Wildl. & Fish. Sci., College Sta., TX. 17 p.

Smith, J.G. and M.R. Jenkerson. 1998. Acquiring and processing marine vibrator data in the transition zone. Soc. Explor. Geophys. Expanded Abstracts. 4 p.

Sincerely,

A handwritten signature in black ink, reading "Linda S. Weilgart". The signature is fluid and cursive, with the first name "Linda" being more prominent and the last name "Weilgart" following in a similar style.

Linda S. Weilgart, Ph.D.
Research Associate

5.0 Alternatives

1 times that would be required to meet the Project objectives of imaging faults at depths
2 up to 0.6 miles (1 km), this alternative technology would not be feasible, particularly
3 given that the technology would be applied along parallel survey tracks needed for a 3D
4 survey grid. Therefore, this alternative technology was eliminated from further
5 evaluation.

6
7 **Controlled-Source/Marine Vibroseis Technologies**

8 The air guns used in seismic surveys produce waste noise, which contributes to some
9 of the significant effects of the Project. There are techniques that use "controlled
10 sources" to reduce the amount of waste noise by more closely controlling the source of
11 the frequency. Marine Vibroseis, or marine vibrators, employ a similar approach as the
12 Vibroseis technique included as part of the Project for the onshore seismic investigation.
13 The vibrator technology, which can be either hydraulically or electrically powered,
14 spreads the net source energy over a longer period, which produces lower acoustic
15 power compared to that of the air guns. Under this technology, the sound produced
16 would be more controlled and targeted to the useful frequency range (less than 100 Hz)
17 that would be needed for the survey (Spence 2011; Weingart 2010).

18
19 The International Association of Oil & Gas Producers has established a joint industry
20 program to study the possibility of using marine Vibroseis in place of air guns as a
21 seismic source. Their study determined that marine Vibroseis should have reduced
22 environmental impacts relative to those associated with traditional air gun surveys.
23 However, the study noted a possibility that Vibroseis noise could mask ambient noise
24 for longer periods than air gun operations (LGL and Marine Acoustics 2011).
25 Furthermore, use of this equipment could disturb sensitive seafloor habitats or degrade
26 water quality by suspending seafloor sediments. There have been limited direct studies
27 of marine Vibroseis impacts on marine wildlife; therefore, the nature of associated
28 impacts has not been established. Recent testing has indicated that low-frequency
29 marine Vibroseis results are of poorer quality than those associated with air guns. This
30 technique is not yet considered to be commercially viable, and may not be applicable for
31 use in the water depths required to evaluate the faults in the Project area. In addition,
32 use of this technology could cause adverse effects on unknown cultural resources in the
33 Project area. Therefore, this alternative technology was eliminated from further
34 evaluation.

35
36 **Deep-Towed Acoustics/Geophysical System**

37 This technology is similar to the seismic survey proposed in the Project, in that a noise
38 source and receiver are towed from a ship to obtain high-resolution seismic data of the
39 ocean bottom and subsurface. However, in the case of DTAGS, both the source and
40 receivers are towed closer to the seafloor (approximately 1,000 feet [300 m] above the
41 seafloor). This deeper towing depth reduces noise impacts by reducing the water



the Otter Project

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October 23, 2012

Cassidy Teufel
Coastal Analyst, California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105

Re: Central Coast Seismic Imaging Project—Request for permit denial

Dear Mr. Teufel:

Thank you for the opportunity to comment on the Central coast Seismic Imaging Project. With over 3000 contributing members, 400 active advocates and over 100 volunteers, The Otter Project is the largest sea otter organization in the United States. Our members come from all 50 states plus Australia, Great Britain, and France.

We are very concerned by the rushed process to approve this permit. We believe the expedited process has led to a series of potentially harmful miscalculations. Specifically, we believe the impacts to sea otters – in terms of both degree and extent of harm – have been underestimated. In addition, we see a serious disconnect between what is needed to monitor sea otter impacts in real time and the monitoring and mitigation program being proposed – and implemented – by the US Fish and Wildlife Service and Department of Fish and Game.

We ask that the permit be denied. In addition, we ask the Coastal Commission to urge project proponents to take the proper time to review what will be learned from the project and to balance that with a proper evaluation of the risks.

Attached is our comment letter to the US Fish and Wildlife Service Draft Incidental Harassment Authorization (IHA) for sea otters. We conclude that the IHA is seriously flawed and the critical points are as follows:

- From Draft to Final EIR, the number of otters impacted by Level A harassment (potential to injure a marine mammal or marine mammal stock in the wild) changes from 74 to 0 with no explanation, new literature cited, or mitigation measures proposed.
- The Final EIR and the IHA conclude a sea otter will not be exposed to the airgun blasts because otters rest with their heads out of water. We conclude, while an otter's head is submerged, over 50-percent of some animal's daily activity, the otter will be exposed to the air gun blasts.

- A subset of 62 otters would be impacted by Level A noise (potential injury or permanent physiological damage) in Box 4.
- The IHA fails to consider the cumulative impacts of repeated and persistent ensonification of overlapping boxes, particularly Box 4.
- Sea otters will be displaced from their Box 4 home ranges and will cause additional unavoidable negative impacts to otters in nearby ranges. This impact will ripple out from Box 4.
- Due to the incorrect use of sea otter foraging habitat, Level A and B impacts to sea otters are underestimated.
- Together, the failure to consider Level A noise disturbance, lack of consideration of cumulative noise and disturbance impacts in Box 4, potential to displace otters from their home ranges and into adjacent ranges, and the incorrect assumption that otters are somehow restricted to the area within the 40m isobath leads to both an incorrect assessment of impact and an underestimation of the numbers impacted. Otters will be ensonified above 180 dB and be subjected to Level A harassment; otters will be ensonified much longer than anticipated – intermittently over a period of years in Box 4; more otters will be ensonified because otters rest in areas beyond the 40 m isobath; and otters in adjacent ranges, beyond the project area, will be impacted when otters are displaced from their home ranges and into adjacent ranges.
- The aerial survey protocol in the Final EIR flies at an altitude too high to see sea otters. The pre, during, and post project surveys (APM-6 and MM MarineBio 12b) will be meaningless for otters. In addition, the IHA monitoring relies on these ineffective surveys.
- As a result of the unreliability of detecting otters within the exclusion zone, both due to the issues of seeing an otter 1 km distant from a rolling boat in open water and due to the fact that no effort will be made to see otters offshore at night, otters will be ensonified at levels of 180 dB and possibly far greater. Level A harassment will inevitably occur.
- We find particularly disturbing that the US Fish and Wildlife Service appears to be mitigating what they consider a Level B take with a much more intrusive and high risk Level A take – trapping and repeated surgery on a large number of sea otters.
- The IHA is clearly deficient. No triggers have apparently been established to prompt a stoppage or pause in the project if unanticipated impacts occur. This is a fatal flaw. The proposed monitoring and mitigation plan does little to inform THIS project.

- We believe, by the US Fish and Wildlife Service's own measure, there will be Level A disturbance and these "takes" will be entirely undetected by the monitoring plan. All the while, the most significant measure of impact – dead animals on the beaches – will go un-monitored.

Further explanation of the above points can be found in the attached comment letter to the US Fish and Wildlife Service.

Sincerely,

A handwritten signature in black ink, appearing to read 'Steve Shimek', written in a cursive style.

Steve Shimek
Chief Executive / Founder

Attachment



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October 23, 2012

Diane Noda, Field Supervisor
Ventura Field Office
US Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, CA 93003

Via email: R8_SSO-IHA_Comment@FWS.gov

Re: Proposed Incidental Harassment Authorization – Sea otters near Diablo Canyon
FWS-R8-FHC-2012-N194
FRES48010810420-L5-FY12

Dear Ms. Noda and Ms. Carswell,

Thank you for the opportunity to comment on the sea otter Incidental Harassment Authorization (IHA). With over 3000 contributing members, 400 active advocates and over 100 volunteers, The Otter Project is the largest sea otter organization in the United States. Our members come from all 50 states plus Australia, Great Britain, and France.

We are very concerned by the process leading to this point and with the IHA. We believe, the Service has dramatically underestimated the risk to sea otters. Further, we believe the proposed monitoring program serves the Pacific Nearshore Project but is a poor fit for monitoring sea otters disturbed by the Seismic Imaging Project (SIP). We ask that the Service re-evaluate the IHA in light of our comments and new information.

We further urge the Service to stop and take a breath to fully evaluate the potential impacts to sea otters and the proposed monitoring and mitigation plan in this draft IHA. There seems a total disconnect between the impacts outlined in the Draft and Final EIRs and the IHA. And there seems another disconnect between monitoring the project risks and impacts in real time and the proposed monitoring program.

We will organize our comments as follows:

1. General comments and comments to the IHA
2. Proposed monitoring requirements and mitigation measures – Marine Mammal Monitoring

1. General comments and comments to the IHA

- a. Level of disturbance and take is underestimated. There is an extreme amount of “drift” in the level of impact to sea otters from the Draft Environmental Impact Report (DEIR), to the Final Environmental Impact Report (FEIR), and finally to the IHA. The DEIR states that a total of 74 southern sea otters will be taken by the project:

“Assessment of NMFS Level A: *Minimum* take and boat disturbance to sea otters resulted in values of 62 and 12 individuals, respectively, for the Project. The boat disturbance estimates are for one vessel only. If more vessels would be used for mitigation, then the numbers for boat disturbance should be increased proportionate to the number of vessels present and their proximity to sea otter habitat.” (Emphasis in original) DEIR 4.4-97.

With no additional evidence, literature cited, or mitigation measures the Project Proponents seem to walk back their estimates of take in their response to US FWS comments on the draft EIR stating:

The 180 decibel (dB) re: 1 micropascal (μPa) root mean square (rms) isopleth is typically used by the National Marine Fisheries Service (NMFS) as the threshold for Level A harassment (injury) of cetaceans. Sea otters have the ability to avoid immersion of their heads and ears, and have a limited range of acoustic responses (e.g., Malme et al. 1984). Although no Level A take is anticipated based on the above behavioral characteristics, because sea otters have special status (protected under the Endangered Species Act [ESA], the Marine Mammal Protection Act [MMPA], and the Fish and Game Code), the Level A threshold was used to assess the extent of disturbance (Level B harassment) to Southern sea otters due to noise. Malme et al. (1984) reported no foraging or behavioral change in Southern sea otters exposed to playbacks of seismic survey noise as close as 0.6 mile (900 meters [m]). Level B takes (takes caused by disturbance) were calculated for three stressors: noise from the air guns; the presence of the survey vessel; and the presence of vessels during the laying and recovery of the geophone lines. Therefore, the 180 dB re: 1 μPa rms isopleth radius was used for production lines (0.5 mile [856 m] inshore of site location 1) and mitigation single air-gun turns (150 feet [46 m]) to delineate a buffer around the survey tracks. In turn, this buffer area was overlain with sea otter density estimates for the Project area to determine Level B take estimates as summarized in Table 1 (from Appendix H Table 4.9; note that Alternatives IIb and IIc are identified as Alternatives 1 and 2 in that Appendix).

The Final EIR then seems to use the new commentary in their Final EIR stating:

“Sea otters appear insensitive to seismic noise (Malme et al. 1984) at ranges greater than 0.6 miles (900 m), but can be disturbed by close approaches from boats. There are limited available data on responses of sea otters to seismic air guns, as well as their hearing abilities, but the ability to raft without immersing their heads and ears would be considered enough to preclude injury from noise.

For this analysis the NMFS Level A threshold for cetaceans (180 dB) was used as the Level B threshold for sea otters. Because sea otters have the ability to avoid immersion of their heads and ears, this Level A noise level was considered to be appropriate for assessing the extent of disturbance (Level B harassment) to Southern sea otters due to noise. nNoise modeling results were used to determine the area corresponding to the 180 dB isopleth radius. This area was compared this with the expected sea otter density within this area. The 180 dB radius overlaps with sea otter habitat (including in the vicinity of Point Buchon); however, much of the overlap is in waters deeper than 98 feet (30 m) (i.e., out of the female and pup core areas). Overall, the overlap area was estimated to contain 62 animals (2.2 percent of population).

Assessment of Level B take regarding boat disturbance to sea otters resulted in values of 12 and 8 individuals, respectively, for the survey vessel and geophone line deployments. The boat disturbance estimates during the survey are for one vessel only. If more vessels would be used for mitigation, then the numbers for boat disturbance should be increased proportionate to the number of vessels present and their proximity to sea otter habitat.”

From Draft to Final the number of otters impacted by Level A harassment (potential to injure a marine mammal or marine mammal stock in the wild) changes from 74 to 0 with no explanation, new literature cited, or mitigation measures proposed.

The USFWS IHA appears to accept the argument advanced by the Project Proponent in the Final EIR that states:

“There are limited available data on responses of sea otters to seismic air guns, as well as their hearing abilities, but the ability to raft without immersing their heads and ears would be considered enough to preclude injury from noise.”

The IHA states:

“Because underwater behaviors constitute less than half of the total activity budget of southern sea otters along the central California coast, their exposure to underwater sounds is limited.”

This argument is both nonsensical and inaccurate: As noted in the IHA, sea otters have a high metabolic rate and must maintain a food intake of approximately 25-35 percent of body weight. While foraging, they are underwater (36.3 percent of their activity budget), swimming (8.5 percent), and grooming (9.1 percent). The activity budget percentages cited in the IHA are for a small and skewed sample of all male otters. Other studies have shown that reproductive aged female otters – the critical demographic segment -- can spend nearly 50-percent of their time foraging (Ralls and Siniff, 1990).

While an otter's head is submerged, over 50-percent of some animal's daily activity, the otter will be exposed to the air gun blasts.

The USFWS IHA accepts the NMFS Level B and Level A disturbance levels of 160 and 180 dB stating:

“Currently, NMFS uses 160 dB re 1 μ Pa at received level for impulse noises (such as air gun pulses) as the onset of behavioral harassment (Level B harassment) for all marine mammals that are under its jurisdiction, and 180 dB re 1 μ Pa at received level as the threshold for potential injury or permanent physiological damage (Level A harassment) for cetaceans (70 FR 1871, January 11, 2005). *In the absence of data on which to base thresholds specific to sea otters, we utilize the 160 dB re 1 μ Pa and 180 dB re 1 μ Pa thresholds for Level B and Level A harassment of sea otters.*” (Emphasis added)

The USFWS IHA is inconsistent in its evaluation of level of take. The IHA review and discussion of “Hearing Impairment and other physical effects” (pgs. 15-17) dismisses without any evidence whatsoever any physical impacts of the survey. Then, the Service accepts the 180 dB threshold for Level A disturbance (potential injury or permanent physiological damage).

Inexplicably, the IHA does not then acknowledge the 62 otters exposed to 180 dB noise in the Draft and Final EIRs. Note: The 62 impacted otters are for all four survey boxes while the IHA only considers boxes 2 and 4. The Final EIR further states this exposure is:

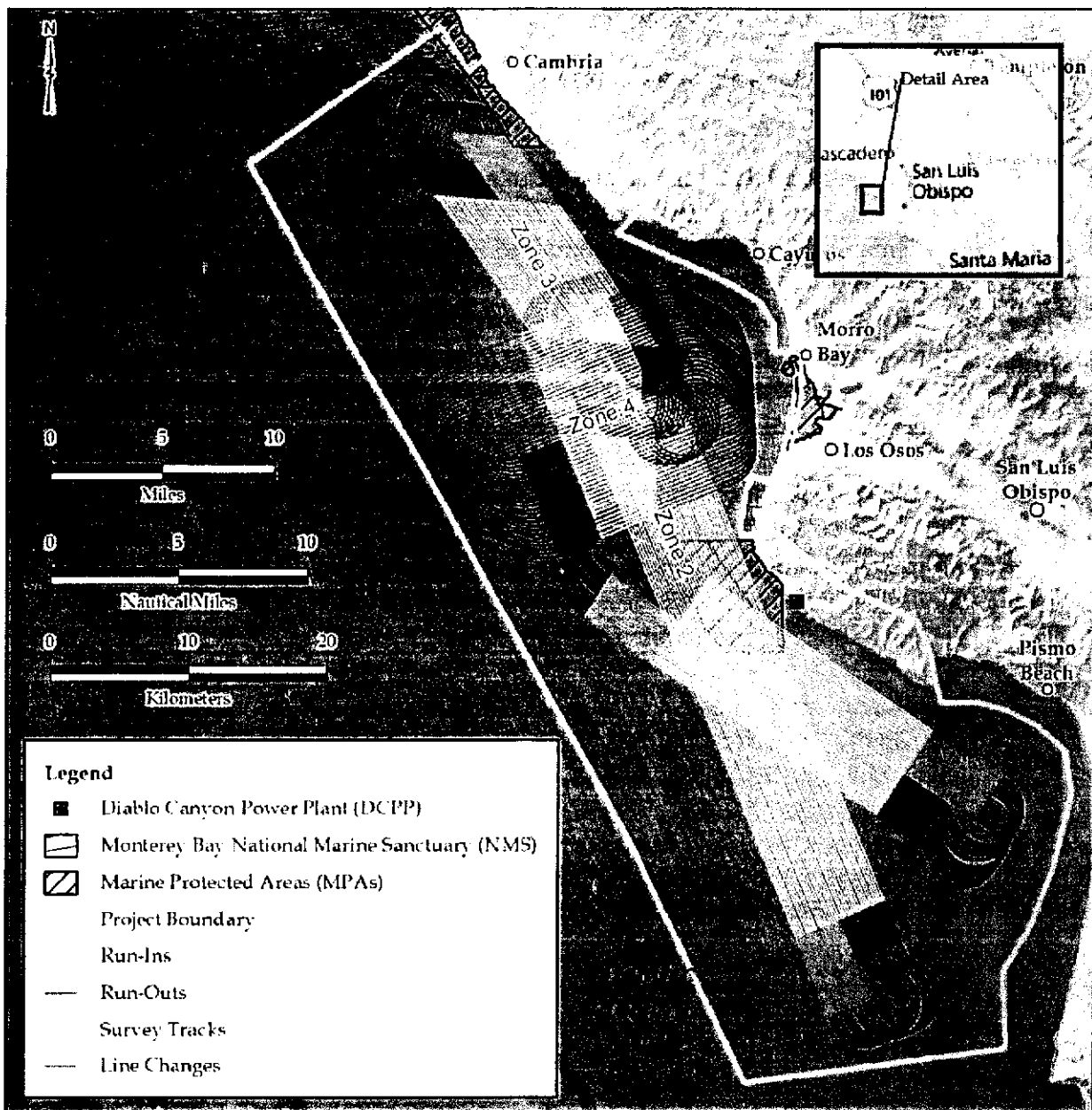
“Therefore, the impact is considered to be *Significant and Unavoidable* because of the proximity of the survey to sea otter habitat.” Emphasis in original.

A subset of 62 otters would be impacted by Level A noise (potential injury or permanent physiological damage) in Box 4.

- b. Cumulative impacts of surveys conducted in Boxes 1 thru 4 are not considered. The IHA fails to discuss or even acknowledge the potential of additive impacts from surveys being conducted over two years in the overlapping Boxes 1 thru 4. The most

recent project description proposes that Box 4 will be surveyed in late 2012. The project description in the Final EIR specifically states that at least one air gun will continue to fire thru turns, run-ins, and run-outs. Final EIR 2-37. According to the IHA, table 2, 263 sea otters inhabit Box 4. These otters will be ensounded not only during the survey of Box 4 but repeatedly during surveys of Boxes 1 thru 3 as shown in Final EIR figure 2.5-7. Boxes 2 and 3 will be blasting the full airgun array as they survey through the already surveyed box 4. Additive impacts will be significant and will persist literally over the course of two years.

Figure 2.5-7 Proposed Offshore Survey Track Map



The IHA fails to consider the cumulative impacts of repeated and persistent ensonification of overlapping boxes, particularly Box 4.

One study near Monterey found that sea otters have average size home ranges of 56 hectares (.56 sq. kilometer) with a range in size of 18.3 to 198.2 hectares (.183 – 1.982 sq. kilometers). The IHA contains no discussion of home range, nor any discussion of displacing otters entirely out of their home ranges.

Displacing otters from their home range (whether by Level A or Level B harassment) will cause a ripple impact to otters in adjacent ranges. This impact is essentially similar to impacts already considered in the Revised Draft Supplemental Environmental Impact Statement [for] Translocation of Sea Otters, August 2011. While the stress and risk of trapping and transport do not apply to this situation, the disruption to the otter social structure is “unavoidable.” The impact to sea otters in adjacent ranges from otters displaced from their Box 4 home range has not been considered. That document (DSEIS) states:

“Relocating sea otters from the management zone to the northern or central portion of the existing range would increase competition among sea otters, especially in areas of the central coast now thought to be food limited (see Tinker *et al.* 2008b), disrupt natural behaviors, and likely result in the deaths of otherwise healthy animals. The incidental injury or death of sea otters removed from the management zone would likely be unavoidable. The relocation of sea otters may result in increased risk of mortality due in part to the stress associated with capture, handling, and time out of water, and in part to the general lack of familiarity of the animals with their new environments (Estes *et al.*, n.d.). For males, there may be an added risk of death or injury from encountering territorial males in foreign habitats (Estes *et al.*, n.d.).”

Sea otters will be displaced from their Box 4 home ranges and will cause additional unavoidable negative impacts to otters in nearby ranges. This impact will ripple out from Box 4.

- c. Discussion of sea otter habitat is incomplete. The IHA states:

“Sea otters occasionally make dives of up to 328 ft (100 m), but the vast majority of feeding dives (more than 95 percent) occur in waters less than 131 ft (40 m) in depth (Tinker *et al.* 2006a). Therefore, sea otter habitat is typically defined by the 40-m (131-ft) isobath (Laidre *et al.* 2001).”

In rocky bottomed areas, sea otters often wrap themselves in kelp to keep from drifting while resting. However, in soft bottomed areas otters will often swim offshore to rest, this is especially true in embayments (even relatively open bays such as Monterey and Estero Bays). This behavior requires that offshore areas be

aerially surveyed during the annual sea otter census. The metadata for the aerial census states:

"1. Census Methods

During each census, the entire mainland range of the sea otter in coastal California is counted by one of two methods: aerial surveys or shore-based counts. The latter method is used in all areas that are accessible by ground-based observers, except in a few regions *where otters often move far off shore* (such as shallow, sandy embayments) and are therefore difficult to count reliably from the shore." Emphasis added. (found online at http://www.werc.usgs.gov/fileHandler.ashx?File=/project_91/shared%20documents/census_sum_2010_metadata.htm .

Estero Bay (the entirety of Box 4) is an area where there are numerous anecdotal reports of sea otters far from shore and outside 40m isobath. The IHA incorrectly uses the project overlap with the region inside the 40m isobath to calculate many types of disturbance including boat strike and noise impacts.

It could be incorrectly assumed that these otters are resting with their heads out of water and will not experience the noise. This is an incorrect assumption because as noted earlier, otters groom, swim, and interact intermittently with their heads underwater.

Due to the incorrect use of sea otter foraging habitat, Level A and B impacts to sea otters are underestimated.

Together, the failure to consider Level A noise disturbance, lack of consideration of cumulative noise and disturbance impacts in Box 4, potential to displace otters from their home ranges and into adjacent ranges, and the incorrect assumption that otters are somehow restricted to the area within the 40m isobath leads to both an incorrect assessment of impact and an underestimation of the numbers impacted. Otters will be ensonified above 180 dB and be subjected to Level A harassment; otters will be ensonified much longer than anticipated – intermittently over a period of years in Box 4; more otters will be ensonified because otters rest in areas beyond the 40 m isobath; and otters in adjacent ranges, beyond the project area, will be impacted when otters are displaced from their home ranges and into adjacent ranges.

- d. The marine mammal aerial surveys and Protected Species Observers (PSOs) will be ineffective at locating sea otters and avoiding disturbance. The Final EIR states that:

"Fixed wing aircraft (such as a Piper Seneca Twin or Cessna 172) would be used to monitor sea life activities within the proposed survey area prior to the survey, throughout the survey, and up to 1 week after the offshore survey is completed.

These flights would be conducted from approximately 850 feet (240 meters), following an established grid."

The Otter Project (together with our project partner LightHawk) regularly uses aircraft to monitor fishing activity in marine protected areas. Our survey altitude is 1000 feet. In addition, this writer (Steve Shimek) is a private pilot – in short, we have a great deal of experience flying and working from small planes and we are very familiar with what can be seen from 1000 feet altitude in a small plane. Sea otters are extremely difficult to spot from 850 feet; a sea otter survey from 850 is perhaps meaningless or is unreliable at best. This is exactly why the aerial survey protocol for the annual sea otter survey calls for use of a high visibility bubble-window plane and a survey altitude of 200 feet:

"For those portions of the range where ground counting is impossible or impractical, aerial surveys are conducted using a Partenavia PN68 "Observer" fixed-wing plane. The plane carries three observers and a pilot, and flies at an air speed of approximately 167 kilometers per hour (90 knots) at an altitude of approximately 60 meters (200 feet). Pilot and data recorder/observer occupy front seats; principal observers occupy middle seats viewing out through bubble-type viewing windows."

http://www.werc.usgs.gov/fileHandler.ashx?File=/project_91/shared%20documents/census_sum_2010_metadata.htm

The IHA relies on these same PGE marine mammal surveys to inform boat operations so as to avoid high concentrations of otters. The IHA states:

"PG&E would conduct an aerial survey approximately 1 week prior to the start of the seismic survey to obtain pre-survey information on the numbers and distribution of southern sea otters in the seismic survey area. Weekly aerial surveys would also be conducted throughout the survey program. Survey routes would be adjusted as feasible to avoid concentrations of sea otters"

The aerial survey protocol in the Final EIR flies at an altitude too high to see sea otters. The pre, during, and post project surveys (APM-6 and MM MarineBio 12b) will be meaningless for otters. In addition, the IHA monitoring relies on these ineffective surveys.

The IHA heavily relies on boat based Protected Species Observers (PSOs) to keep watch for otters and to power down the air gun array when otters appear to be nearing or are seen within the 1 km radius, 180 dB Exclusion Zone. The IHA states:

"Level A harassment (harassment that has the potential to injure southern sea otters) is not authorized. PSOs would ensure that sea otters are not exposed to sounds or activities that may result in Level A harassment. PSOs would be

present during all daylight survey activities and would have the authority to order a power-down or shut-down of the seismic air guns, and/or redirect survey activities to avoid observed sea otters if sea otters appeared to enter or approach the 180 dB re 1 μ Pa exclusion zone. If a sea otter were observed within or approaching the 180 dB re 1 μ Pa exposure area of 1,010 m (0.63 mi), avoidance measures would be taken, such as decreasing the speed of the vessel and/or implementing a power-down or shut-down of the air guns. Nighttime monitoring would be conducted with the aid of night-vision binoculars and a FLIR system when the R/V *Marcus G. Langseth* was inshore of the 40-m (131-ft) depth contour.”

We believe the PSOs will be ineffective at seeing otters at a distance of 1 km and forewarning the primary survey vessel. Boats roll and seas are choppy: Seeing an otter from an elevated coastal bluff at a distance of 1 km is difficult enough, seeing an otter from a rolling boat – even from an elevated observer platform will be ineffective or – at best – unreliable.

As a result of the unreliability of detecting otters within the exclusion zone, otters will be ensounded at levels of 180 dB and possibly far greater. Level A harassment will inevitably occur.

The difficulties of observing sea otters within the exclusion zone will be compounded at night when – within the 40 m isobath – observers will use night-vision equipment. Night vision equipment will be totally ineffective at observing a submerged or mostly submerged (swimming) otters. Nearshore areas with kelp canopy are also problematic as otters are often covered in kelp.

Outside the 40m isobath PSOs will not be watching for otters at all. The Final EIR and IHA state:

“During nighttime operations, whenever the vessel survey tracks were located inshore of the 40-meter depth contour (where physical encounters with sea otters are more likely), PSOs would visually monitor the area forward of the survey vessel with the aid of infra-red (night vision) goggles/binoculars and the forward-looking infra-red (FLIR) system available onboard the R/V *Marcus G. Langseth*. Mitigation measures, such as avoidance or power-downs/shut-downs, would be implemented if a sea otter were detected in the path of the survey vessel.”

As noted earlier, in embayments – especially those with soft bottoms – sea otters often move offshore to rest. It is a certainty that sea otters will be encountered in the offshore waters of Estero Bay.

Again, as a result of the unreliability of detecting otters within the exclusion zone, both due to the issues of seeing an otter 1 km distant from a rolling boat in open water and due to the fact that no effort will be made to see otters offshore at night, otters will be ensounded at levels of 180 dB and possibly far greater. Level A harassment will inevitably occur.

- e. "Small numbers" determination is not protective of the sea otter population. While we recognize the US FWS can use its discretion to interpret the phrase "small numbers" we can see no rationale in this case. Using the Service's estimate, 9.4 percent of the entire southern sea otter population will be disturbed by the survey of Box 4 alone – and we believe this is an underestimate both in terms of number and level of take. We cannot understand how this qualifies as a small number.

2. Proposed monitoring requirements and mitigation measures – Marine Mammal Monitoring

The Otter Project has always been generally supportive of recovery focused sea otter research. In fact, no other NGO, other than Monterey Bay Aquarium, has invested so heavily in research; The Otter Project has invested nearly \$750,000 of either its own funds or mitigation funds under its control in sea otter recovery focused research. In addition, The Otter Project is generally supportive of basic ecological research in order to better understand the dynamics of our Nearshore ocean ecosystems.

It is abundantly clear to any person familiar with current sea otter research that the Marine Mammal Monitoring program proposed in the IHA – and being prematurely implemented before the public comment period is closed – is simply backfill funding for the Pacific Nearshore Project (www.werc.usgs.gov/nearshoreproject).

In our opinion the Pacific Nearshore Project could certainly be considered as a possible mitigation, but cannot realistically be considered as monitoring for the Seismic Imaging Project. In our opinion, the merits – and impacts to sea otters -- of the Pacific Nearshore Project must stand on their own and should not be disguised as monitoring of the Seismic Imaging Project.

What we find disturbing is that the US Fish and Wildlife Service appears to be mitigating what they consider a Level B take with a much more intrusive and high risk Level A take – trapping and repeated surgery on a large number of sea otters.

We see nothing in the IHA that requires real-time feedback to the public and project proponents on the impacts of the seismic testing. Many many thousands of rate payer dollars are being spent to have high-tech rebreather equipped divers scoop dozens of sleeping otters up with Wilson traps, transported to a surgery suite to be anesthetized and surgically implanted with transmitter and data recorder, poked prodded and tissue samples taken, and then released dazed, confused, and undoubtedly stressed. Months later the

otter will be tracked, trapped, anesthetized, and cut open again. Prior to the Seismic Imaging Project start and for the many weeks of the project the otter will be tracked and its location and behavior monitored.

For all these rate payer dollars and effort, what will we gain? A paper. The paper possibly published in an obscure scientific journal, many months, maybe years, after the conclusion of the project. According to the IHA:

“Due to the lack of data on the effects of air guns on sea otters, in addition to project related mitigation monitoring, the Service has recommended that PG&E and LDEO use the survey as an opportunity to investigate the potential effects of air guns on sea otters.”

The monitoring plan is being conducted as a scientific study: Pre, during, and post position and activity will be statistically compared to see if and how much the project impacted sea otters. Instead, the monitoring should be a real time assessment of impact.

With all this effort and technology – perhaps misplaced – it seems there should be a set of defined triggers that could lead to a stop or pause in the seismic testing due to unanticipated project impacts if they occur.

According to a recent article in the San Luis Obispo Tribune, the US Fish and Wildlife Service could stop the project if:

- An inordinate number of sick or dead otters wash up on local beaches.
- A dead otter is found with damage to its brain or eardrums as a result of the sonic blasts.
- A significant number of female otters are displaced from the survey area”

We see nothing in the IHA referring to these potential triggers and we see nothing in the proposed monitoring and mitigation plan that would feed real-time information into these triggers. Inexplicably, points one and two above would be the simplest, least expensive, and most on-point monitoring exercise, yet it is not being implemented or even suggested. This is in spite of the fact that the sea otter stranding network has been recovering carcasses from Estero Bay beaches for over a decade and comparative data exists.

The IHA is clearly deficient. No triggers have apparently been established to prompt a stoppage or pause in the project if unanticipated impacts occur. This is a fatal flaw. The proposed monitoring and mitigation plan does little to inform THIS project.

We believe, by the Services own measure, there will be Level A disturbance and these “takes” will be entirely undetected by the monitoring plan. All the while, the most significant measure of impact – dead animals on the beaches – will go un-monitored.

We are very concerned by the process leading to this point and with the IHA. We believe, the Service has dramatically underestimated the risk to sea otters. Further, we believe the proposed monitoring program serves the Pacific Nearshore Project but is a poor fit for monitoring sea otters disturbed by the Seismic Imaging Project (SIP). We ask that the Service re-evaluate the IHA in light of our comments and new information.

We further urge the Service to stop and take a breath to fully evaluate the potential impacts to sea otters and the proposed monitoring and mitigation plan in this draft IHA. There seems a total disconnect between the impacts outlined in the Draft and Final EIRs and the IHA. And there seems another disconnect between monitoring the project risks and impacts in real time and the proposed monitoring program.

Sincerely,



Steve Shimek
Chief Executive / Founder

Cc: California Coastal Commission

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Tinker, M.T., G. Bentall, and J.A. Estes. 2008b. Food limitation leads to behavioral diversification and dietary specialization in sea otters. *PNAS* 105:560-565.

The Coastal Commission's Historic Role in Addressing Intense Underwater Acoustic Projects Proposed off the Coast of California

- **The Coastal Commission has played an influential role in evaluating and restricting intense underwater acoustic projects off the coast of CA.**

The California Coastal Commission has been a national leader when it comes to addressing the issue of anthropogenic (man-made) noise in the ocean and its impact on marine life and ocean users. Since the mid-1990s when underwater sound began to be recognized as a possible cause of marine life mortality, strandings, and habitat avoidance, the Commission has crafted a substantial legacy:

- **Acoustic Thermometry of Ocean Climate:** In 1994-95, the CCC reviewed and modified the controversial Scripps Acoustic Thermometry of Ocean Water (ATOC) project that proposed to transmit intense underwater sound from the coast of CA across the ocean basin to New Zealand. The project was substantially modified by the Commission from an *acoustic research project* to a *marine mammal research project* (ATOC Marine Mammal Research Project aka MMRP) that required Scripps to study the effects of the ATOC sound transmissions on marine mammals before any larger project was allowed to proceed. The ATOC project off CA was ultimately abandoned.¹ It should be noted that seismic surveys like those proposed by PG&E operate in the range of 252-255dB, roughly 500,000 to 1,000,000 times more powerful than ATOC at 195dB.²
- **Exxon High-Energy Seismic Testing:** In 1995, after scrutiny of Exxon's efforts to conduct seismic surveys off the coast of CA raised concerns about impacts to marine life, the Minerals Management Service (MMS) convened the High Energy Seismic Survey Team, one of the first stakeholder processes in the U.S. to examine the impact of high-energy seismic testing on marine life. The CCC was an active participant in devising operational guidelines for review procedures and for mitigation, avoidance and monitoring measures for seismic surveys. It was the first time that MMS officially acknowledged the adverse impacts posed by seismic surveys on marine life and proposed guidelines to attempt to minimize them. It was also the first seismic testing project to come under the new federal procedures that required the National Marine Fisheries Service to grant written approval for the "harassment" of protected species.³ The only other seismic surveys approved by the CCC since the mid-90s have been for the USGS and the scale of those studies were magnitudes smaller and quieter than what PG&E is proposing here.⁴
- **Mitsubishi Saltworks in San Ignacio Lagoon, Mexico:** In January 2000, the CCC signed a resolution opposing the construction and operation of the proposed Mitsubishi Saltworks in San Ignacio Lagoon in Baja, Mexico, the last pristine, undeveloped gray whale birthing lagoon along the Pacific coast. The CCC was concerned, in part, that acoustic impacts from the construction and operation of the

¹ Eugene H. Buck, CRS Report for Congress, "Acoustic Thermometry of Ocean Climate: Marine Mammal Issues", May 12, 1995. <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA466194>

² See Appendix A

³ Richard Paddock, "Oil Firm's Noise Threat to Whales Nears OK: Environment: Exxon plans to use underwater air gun blasts to search for oil off Santa Barbara coast. Foes seek safeguards for sea mammals", Los Angeles Times, 9/18/1995.

⁴ California Coastal Commission, *Consistency Determination for USGS Seismic Survey*, 2000. <http://www.coastal.ca.gov/cd/cd-16-00.pdf>

facility, including tanker traffic noise, would have an adverse impact on CA's marine resources; Pacific gray whales travel along the CA coast to and from the San Ignacio lagoon during their annual migration. After the Commission passed this resolution despite significant political pressure by the Davis Administration not to do so, the Government of Mexico declined to permit Mitsubishi's construction of the proposed salt plant at San Ignacio.⁵

- **Navy Low-Frequency Active Sonar:** In December 2000, the CCC staff recommended denial of the Navy's proposal to conduct Low-Frequency Active Sonar exercises off the coast of CA.⁶ Concerned about a likely denial from the CCC, the Navy withdrew its application. NRDC then sued the Navy over impacts to marine life and won and the Navy was not allowed to conduct its LFA low-frequency sonar exercises off the CA coast.
- **CCC Statement to Marine Mammal Commission on Anthropogenic Noise:** In 2005, the CCC, as a member of the Federal Advisory Committee on Acoustic Impacts on Marine Mammals, submitted formal comments to the Marine Mammal Commission urging a 'precautionary approach' to intense underwater acoustic projects. The report included a section specifically addressing concerns related to seismic testing as well as a longer list of adverse events associated with naval acoustic exercises.⁷
- **Navy Mid-Frequency Active Sonar:** In 2007, the CCC along with NRDC et. al. sued the Navy over its proposal to conduct Mid-Frequency Active Sonar exercises off the CA coast after the Navy refused to agree to specific conditions to minimize impacts to marine life. The suit was successful in the lower courts, but was ultimately overturned by the Supreme Court on the basis of national security. It should be noted that the Navy has not applied to conduct any sonar exercises off the CA coast since the Supreme Court decision.

⁵ California Coastal Commission, *Resolution in Opposition to the Construction and Operation of a Proposed Salt Factory at Laguna San Ignacio, Baja California*, 1/11/2000. <http://www.coastal.ca.gov/leginfo/Tu9b1-mm.pdf>

⁶ Coastal Commission Staff Report, CD-113-00, 12/12/00, <http://www.coastal.ca.gov/cd/CD-113-00.pdf>

⁷ California Coastal Commission, *Comments on the Effects of Anthropogenic Sound on Marine Mammals*, 12/13/2005. <http://www.coastal.ca.gov/energy/comments-mmcc-12-2005.pdf>

Marine Life Impacts from PG&E's Seismic Testing

Seismic testing has the potential to harm marine life that inhabits California's central coast or will be migrating through the area during active testing.

• Impacts to Marine Mammals:

The Environmental Impact Report (EIR) prepared by the California State Lands Commission found *significant and unavoidable* impacts to marine mammals in the Project area including several endangered species.

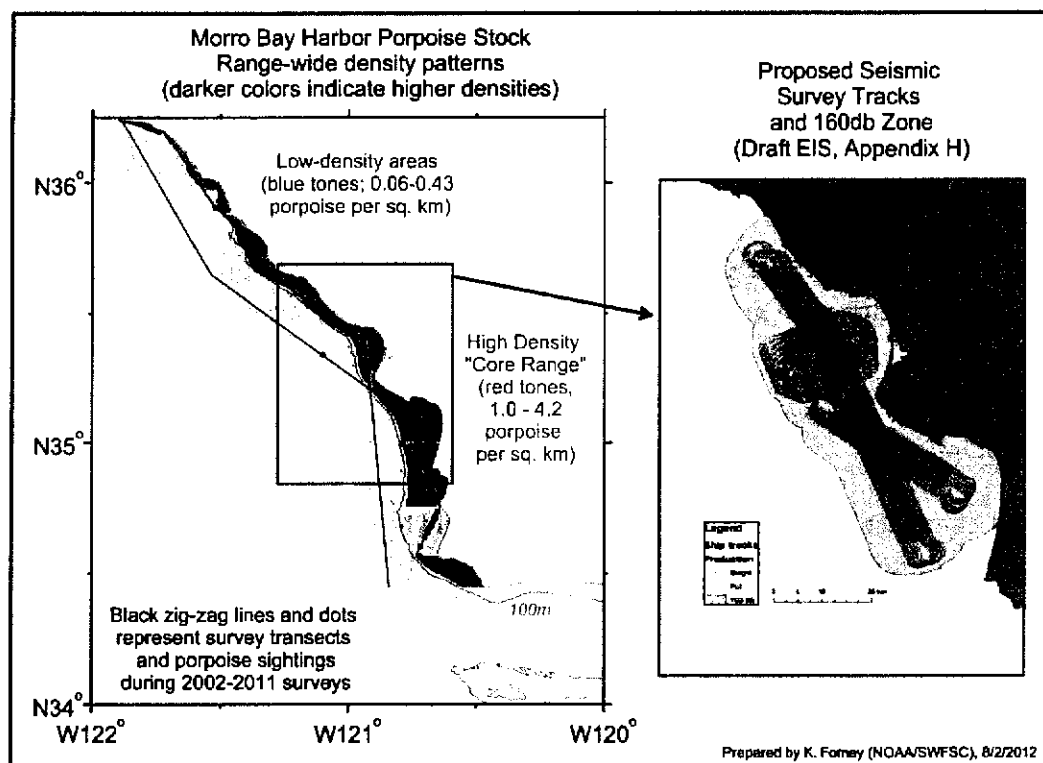
***"Injury or mortality to marine mammals would occur due to noise during seismic survey acquisition."*ⁱ**

The EIR concluded that impacts to marine mammals overall would be significant and went on to identify several species, including three endangered whale species (Blue, Fin and Humpback whales,) which would be especially vulnerable to the cumulative impacts from the Project:

***"Level B take for acoustic impacts of combined sources (air guns, echosounder, and profiler) was considered high under all density scenarios for harbor porpoise, fin whales, humpback whales, and blue whales."*ⁱⁱ**

Of greatest concern, however, is the small, discrete population of harbor porpoises that resides in and around Morro Bay. Of all marine mammal species, harbor porpoises are the most acutely sensitive to man-made sound – the ones most vulnerable both to habitat abandonment and to hearing loss, which, given their dependence on sound for most life functions, can destroy their ability to survive and reproduce. Most of the Morro Bay population's limited range, and nearly all of its core habitat, has the misfortune to coincide with the Project) and would be ensonified to levels causing take on most if not every day of the survey, including critical overlap with Zone 4 (see graphic on page 2.

The FEIR concludes that permanent hearing loss and other serious injury incurred as a result of the Proposed Project would exceed what the Morro Bay population can annually sustain, and that these injuries are "significant and unavoidable."ⁱⁱⁱ Yet impacts from behavioral disruption could be even more consequential. Given their extreme aversion to intense sound, it is reasonable to expect that virtually the entire porpoise population will abandon the majority of their habitat – at the height of their breeding season and during the first few months of nursing for mothers and calves – and crowd into sub-optimal areas (FEIR at H-101) unlikely to provide sufficient foraging. Harbor porpoises require substantial, daily caloric intake to survive and cannot safely go more than a few days without adequate food, which is also vital to their reproduction. As was the case with injury, the FEIR also considers behavioral impacts on harbor porpoises to be significant and unavoidable at the population scale.^{iv}



Map prepared by NMFS' Southwest Science Center showing distribution of core habitat of Morro Bay harbor porpoises (left) and CCCSIP tracklines and 160 dB ensonification zone (right).

Section 30230 of the California Coastal Act states that "uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes." The project does not do enough to avoid, reduce and mitigate the impacts to harbor porpoises and the four endangered species listed about and it is clear that the Project will violate the California Coastal Act.

The impact to the fourth endangered species cited in the EIR, the southern sea otter, is uncertain. The Draft EIR suggests 62 otters will experience high-level acoustic impacts (potential to injure a marine mammal or marine mammal stock in the wild). The Final EIR downgrades the impacts. The US Fish and Wildlife Service in their Draft Harassment Authorization states: "Based on the 160 dB re 1 μ Pa exposure area for survey box areas 2 and 4* and the average densities of sea otters in these areas, we estimate that approximately 352 sea otters will be exposed to underwater sound levels of 160 dB re 1 μ Pa **or greater.**" (Emphasis added) 352 otters are approximately 13% of the entire southern sea otter population.

* The FEIR did not break down incidental take numbers between Zone 2 and 4.

• **Impacts to Fish and Larva:**

The EIR also considered likely impacts on adult fish within the Project area:

"Injury or mortality to adult fishes would occur due to noise from air guns during the seismic survey."

"Effects [on fish] characterized in the studies reviewed include mortality, physical injury and hearing effects, and behavioral effects..."^{vi}

A 2003 study by McCauley et al. found alarming long-term impacts: "minor effects on the auditory sensory cells of pink snapper (*Pagrus auratus*) exposed to multiple shots of a 20-inch air gun. Effects were found up to 58 days after the exposure."^{vii} However, because the study methodology did not allow researchers to test for effects to fish hearing due to this loss, the EIR uses it to support their conclusion that there are "no long term physiological effects to fish hearing" – despite the fact that the fish auditory sensory cells never demonstrated a full recovery.

Additional short-term and long-term impacts on fish can be found in studies left out of the EIR.

Two Scandinavian studies not cited in the EIR (Lokkeborg and Sodal 1993, Engas et al 1996) found that seismic surveys resulted in 21-50 percent reductions in the catch of cod and haddock within an overall investigation area of 40 x 40 nautical miles, and a 45-70 percent reduction within the active seismic test area, with abundance and catch rates showing no sign of a return to previous levels five days after the end of the survey. Engas et. al. also reported that fish reacted to the airguns up to 100km from the source.^{viii}

According to an NRDC briefing paper, commercially harvested fish have also shown signs of "habitat abandonment, reduced reproductive performance, and hearing loss; and recent data suggest that loud, low-frequency sound also disrupts chorusing in black drum fish, a behavior essential to breeding..."^{ix}

The EIR also examined impacts to larva within the Project area:

"Injury or mortality to juvenile fishes, larval organisms, and planktonic resources would occur due to noise from air guns during the seismic survey."^x

"Based on the 1997 Diablo Canyon Power Plant larval density data, an estimated 3.99 million larvae would be killed within State waters using the conservative 5.5 m (18.0 ft) effects radius, with 1.17 million of those occurring within the Point Buchon MPA."^{xi}

• Failure to Address the Full Range of Fish Species:

The mitigation measures proposed in the EIR do not address the full range of fish species impacted by the seismic survey.

The Nature Conservancy addressed these concerns in a recent letter to PG&E, which they shared with the Commission:

"The proposed monitoring plan includes components (eg. acoustic surveys and catch per unit effort or CPUE surveys) to assess potential impacts to near-shore fish species in state waters and in state marine protected areas (MPAs). It is important to note, however, that fish species assemblages differ greatly by depth and the proposed monitoring will all occur in waters less than 30 meters deep. The near-shore and kelp-associated fish assemblage at <30m depth that will be the focus on the proposed monitoring is quite distinct from the assemblages in the 30-100m and >100m depth ranges. The proposed monitoring, therefore,

does not adequately address potential impacts to critical areas of concern in deeper water habitats nor the species assemblages associated with those habitats.”

• **Impacts to Cephalods:**

A 2010 study in the *Journal of Experimental Biology* documented that squid hearing is within the frequency range 30-500 Hz – well within the range of the proposed project’s maximum-over-depth broadband (10Hz-2kHz) sound pressure levels.^{xii} Since squid are a critical forage species for many seabirds, marine mammals, and fish, any adverse impacts to squid could also potentially impact their predators and the wider ecosystem.

A 2011 Scripps Incidental Harassment Authorization request to NMFS for a low-energy seismic survey left the door open for the possibility of population-level impacts, stating, “biochemical responses by marine invertebrates to acoustic stress...potentially could affect invertebrate populations by increasing mortality or reducing reproductive success.”^{xiii}

The EIR concluded that “the pathological (mortality) zone for cephalopods is expected to be within a few meters of the seismic source,” without noting that there is no proposed monitoring or shut-down protocol for cephalopods, nor does it contemplate the population-level effects of several thousand or more breeding male and/or gravid female squid caught within a few meters of an airgun blast.

The Draft Environmental Assessment (EA) prepared by the National Science Foundation noted that “André et al. exposed cephalopods, primarily cuttlefish, to continuous 50–400 Hz sinusoidal wave sweeps for 2 hours” and “reported morphological and ultrastructural evidence of massive acoustic trauma (i.e., permanent and substantial alterations of statocyst sensory hair cells).”^{xiv}

The EA also reports that Tenera Environmental “noted alarm response at 156 to 161 dB in caged squid subjected to a single air gun”^{xv} and that “Norris and Mohl observed lethal effects in squid (*Loligo vulgaris*) at levels of 246 to 252 dB after 3 to 11 minutes.”^{xvi}

In summary, the likelihood of repeated exposure appears high, and it seems likely that squid suffering “massive acoustic trauma” are unlikely to reproduce. We don’t feel that this impact was adequately examined in either the EIR or the EA. Given the size of the population that could be impacted and the implications for the entire food chain, this should be considered a significant impact of the project.

For Additional Information, see:

1. Coastal Commission Statement on Anthropogenic Noise to the Marine Mammal Commission, 2005:

<http://www.coastal.ca.gov/energy/comments-mmcc-12-2005.pdf>

2. Scientific Synthesis on the Impacts of Underwater Noise on Marine and Coastal Biodiversity and Habitats

<http://www.cbd.int/doc/meetings/sbstta/sbstta-16/information/sbstta-16-inf-12-en.pdf>

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<http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.04_BIOLOGICAL_RESOURCES-MARINE.pdf>
- ⁱⁱ Ibid. 4.4-89.
- ⁱⁱⁱ Ibid. 4.4-17, 4.4-79
- ^{iv} Ibid. 4.4-85
- ^v Ibid. 4.4-69.
- ^{vi} Ibid. 4.4-69
- ^{vii} Ibid. 4.4-70
- ^{viii} Engås, A., Løkkeborg, S., Ona, E., and Soldal, A.V. (1996). Effects of seismic shooting on local abundance and catch rates of cod (*Gadus morhua*) and haddock (*Melanogrammus aeglefinus*). *Canadian Journal of Fisheries and Aquatic Sciences* 53: 2238-2249.
- ^{ix} Jasney, Michael. "Boom, Baby, Boom: The Environmental Impacts of Seismic Surveys." May 2010: Natural Resources Defense Council.
- ^x SLC. EIR. 4.4-72
- ^{xi} CLSC. EIR. "Appendix K - PG&E's Larval Mortality Modeling Report and Proposed Long-Term Fish Monitoring Program."
<[http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_Appendix_K_\(1of2\).pdf](http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_Appendix_K_(1of2).pdf)>
- ^{xii} T. Aran Mooney et al. "Sound detection by the longfin squid (*Loligo pealeii*) studied with auditory evoked potentials: sensitivity to low-frequency particle motion and not pressure." *Journal of Experimental Biology*, 2010 21 3: 3748-3759.
- ^{xiii} Department of Commerce: National Oceanic and Atmospheric Administration. "Incidental Takes of Marine Mammals During Specified Activities; Marine Geophysical Surveys in the Eastern Tropical Pacific Ocean in 2008." <<http://www.gpo.gov/fdsys/pkg/FR-2008-05-02/html/E8-9717.htm>>
- ^{xiv} National Science Foundation. "Draft Environmental Assessment: Marine Geophysical Surveys by the R/V *Langseth* for the Central Coastal California Seismic Imaging Project." June 2012.
<http://www.nsf.gov/geo/oce/envcomp/pge_draft_ea.pdf>
- ^{xv} Ibid. 93.
- ^{xvi} Ibid. 93

A Review of the Impacts of Seismic Air-Gun Surveys on Marine Life

The attached paper by Dr. Lindy Weilgart of Dalhousie University, Halifax, provides an overview of the current state of scientific knowledge - and lack of knowledge - about the impacts of airgun surveys on coastal resources.

Dr. Weilgart's main points:

- Noise from a single seismic airgun survey, used to discover oil and gas deposits hundreds of kilometers under the sea floor, can blanket an area of over 300,000 km², 4,000 km from the sound source, raising background noise levels 100-fold (20 dB), continuously for weeks or months.
- Seismic surveys can obliterate all biological sounds at times, forming a ubiquitous, dominant part of the background noise.
- Seismic noise is believed to have contributed to the decline or lack of recovery of several species.
- Impacts from airgun surveys on marine species from mammals to fish can range from hearing or organ damage, displacement from important feeding or mating areas, reductions in fisheries catch rates, masking or obscuring of sounds, to behavioral effects.
- Seismic air guns have extensively damaged fish ears at distances of 500m to several kilometers from seismic surveys, with no recovery was apparent 58 days after exposure.
- The determination of "safe" exposure levels for marine mammals and what noise level from airguns is sufficient to cause hearing loss in whales is extremely uncertain, with multiple unknowns.
- Contrary to the conclusions of the Diablo Canyon seismic survey project's environmental review, the International Whaling Commission concluded in 2005 that "repeated and persistent acoustic insults [over] a large area...should be considered enough to cause population level impacts."

A Review of the Impacts of Seismic Airgun Surveys on Marine Life

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14 August 2012

Noise from a single seismic airgun survey, used to discover oil and gas deposits hundreds of kilometers under the sea floor, can blanket an area of over 300,000 km², raising background noise levels 100-fold (20 dB), continuously for weeks or months (IWC 2005, IWC 2007). Seismic airgun surveys are loud enough to penetrate hundreds of kilometers into the ocean floor, even after going through thousands of meters of ocean. Since this exposes large portions of a cetacean population to chronic noise, the International Whaling Commission's Scientific Committee noted "...repeated and persistent acoustic insults [over] a large area...should be considered enough to cause population level impacts." (IWC 2005). A recent report by the Convention on Biological Diversity noted that "...there are increasing concerns about the long-term and cumulative effects of noise on marine biodiversity..." and "...there is a need to...take measures [to] minimise our noise impacts on marine biodiversity..." and "...effective management of anthropogenic noise in the marine environment should be regarded as a high priority for action at the national and regional level..." (CBD 2012).

Nieukirk et al. (2012) analyzed 10 years of recordings from the Mid-Atlantic Ridge, finding that seismic airguns were heard at distances of 4,000 km from survey vessels and present 80-95% of the days/month for more than 12 consecutive months in some locations. When several surveys were recorded simultaneously, whale sounds were masked (drowned out), and the airgun noise became the dominant part of background noise levels.

To compare the total energy output per year (in joules) of the various human-made underwater noise sources, the highest is 2.1×10^{15} J, representing the contribution from nuclear explosions and ship-shock trials (explosions used by the Navy to test the structural integrity of their ships). Immediately following in contribution are seismic airgun arrays at 3.9×10^{13} J. Next, are military sonars (2.6×10^{13} J) and supertankers, merchant vessels, and fishing vessels at 3.8×10^{12} J (Hildebrand 2005).

Marine mammals

Gordon et al. (2004) found that marine mammals can be impacted by the intense, broadband pulses produced by seismic airguns through hearing impairment (temporary or permanent threshold shift, TTS or PTS), physiological changes such as stress responses, indirectly by impacting their prey, behavioral alterations such as avoidance responses, displacement, or a change in vocalizations, or through masking (obliterating sounds of interest). Humpback and fin whales appear to communicate over distances of at least tens of kilometers (e.g. Watkins and Schevill 1979), so reducing this distance would compromise their ability to communicate. Endangered baleen whales make sounds in the frequency ranges where airguns have most of their energy, the low frequencies, and this overlap probably represents masking.

Especially the highly endangered North Atlantic right whale is vulnerable to masking from noise sources, due to the characteristics of its calls (Clark et al. 2009). Even though airgun shots only occur every 10 s or so, at distance the energy spreads over time, making the noise virtually continuous.

Commensurate with the large geographic scale of the acoustic footprint of seismic surveys, the impacts are also far-ranging. Baleen whales can abandon their habitat over these large spatial scales due to seismic surveys (MacLeod et al. 2006). Around 250 male fin whales appeared to stop singing for several weeks to months during a seismic survey--as mentioned above, over areas of 300,000 km²--resuming singing within hours or days after the survey ended (IWC 2007). Assuming male fin whale songs have a reproductive function, such as attracting and finding mates (Croll et al. 2002), it would be difficult to believe that such an effect would not be biologically significant. McDonald et al. (1995) noted that a blue whale stopped calling in the presence of a seismic survey 10 km away.

A different blue whale population showed the opposite reaction. Even a seismic survey using a low-to-medium power sparker caused blue whales in the St. Lawrence Estuary to modify their vocalizations (Di Iorio and Clark 2010). Blue whales called consistently more on days when the seismic survey was operating than when not, and more during periods within those days in which the sparker was on vs. off. The number of blue whale calls increased within the 1-hr block after sparker onset. The authors postulated that the blue whales were attempting to compensate for the additional introduction of noise, and noted that whales probably received a fairly low level of noise (131 dB re 1 mPa (peak to peak) over 30–500 Hz, with a mean sound exposure level of 114 dB re 1 $\mu\text{Pa}^2 \text{ s}$). Thus, they suggested that even low source level seismic survey noise could interfere with important signals used in social interactions and feeding (Di Iorio and Clark 2010).

Marine mammals also avoid seismic noise by vacating the area. Castellote et al. (2012) showed extended displacement of fin whales by a seismic survey which lasted well beyond the survey length. Weir (2008) found that Atlantic spotted dolphins showed stronger responses to seismic airgun exposure than humpback or sperm whales. These dolphins were found significantly farther away from the airguns when they were on vs. off and only approached the seismic vessel when the airguns were silent. An analysis of cetacean responses to 201 seismic surveys in UK waters exhibited evidence of disturbance (Stone and Tasker 2006). During active seismic surveying, all small odontocetes, killer whales, and all mysticetes were found at greater distances from the seismic vessel than when it was not shooting. Small odontocetes showed the greatest horizontal avoidance, which reached to the limit of visual observation. Sighting rates for mysticetes, sperm whales, pilot whales, and killer whales did not decrease when airguns were off vs. on, but mysticetes and killer whales showed localized avoidance. During seismic shooting, fewer animals appeared to be feeding, smaller odontocetes seemed to swim faster, and mysticetes appeared to remain longer at the surface where sound levels are lower. Reactions were stronger to larger volume seismic arrays. Stone and Tasker (2006) theorized that smaller odontocetes may vacate the area entirely during exposure to seismic, whereas slower-moving mysticetes may remain in the area, simply increase their distance from the noise.

Responses can differ according to context, sex, age class, or species. Bowhead whales avoided seismic air-gun noise at received levels of 120–130 dB (rms over pulse duration) during their fall migration, though they were much more tolerant of noise when feeding in the summer, staying away from levels of 158–170 dB, which are roughly 10 000 times more intense (Richardson et al. 1995, 1999). Humpback cows and calves in key habitat evaded seismic air guns at 140–143 dB re 1 μPa mean squared pressure, which was lower than the reaction of migrating humpbacks at 157–164 dB re 1 μPa mean squared pressure (McCauley et al. 2000). Species with similar hearing capabilities and audiograms showed

markedly different responses to airgun noise off British Columbia, with harbor porpoises appearing to be the most sensitive, responding to seismic noise at distances of >70 km, at received levels of <145 dB re 1 μ Pa rms (Bain and Williams 2006; IWC 2007).

Reactions to seismic airguns can also be quite subtle and hard to detect. Sperm whales in the Gulf of Mexico did not appear to avoid a seismic airgun survey, though they significantly reduced their swimming effort during noise exposure along with a tendency toward reduced foraging (Miller et al. 2009). Miller et al. (2009) tagged 8 sperm whales with tags recording sounds and movement while exposing them to operating airgun arrays. The longest resting bout ever observed in any sperm whale (265 min.) happened to the whale most closely approached by the actively firing seismic survey vessel, with the whale finally diving 4 min. after the final airgun pulse. Whales significantly reduced their fluke stroke effort by 6% during exposure to seismic noise compared with after, and all seven sperm whales studied reduced their fluke strokes on foraging dives in the presence of seismic noise. Moreover, there were indications that prey capture attempts were 19% lower during airgun noise exposure (Miller et al. 2009). The authors note that even small reductions in foraging rate could result in lower reproductive rates and have negative consequences for the population.

Though summering bowheads showed no detectable avoidance of seismic surveys, no change in general activities or call types, and no obvious alteration of calling rate, they dove for shorter periods and their respiration rate was lower than non-exposed bowheads (Richardson et al. 1986). Such changes were observed up to 54–73 km from seismic surveys at received levels that could be as low as <125 dB re 1 μ Pa (Richardson et al. 1995).

Seismic noise has been thought to at least contribute to some species' declines or lack of recovery (Weller et al. 2006a, 2006b; IWC 2007). Critically endangered western gray whales off Sakhalin Island, Russia, were displaced by seismic surveys from their primary feeding area, returning only days after seismic activity stopped (IWC 2005). This change in distribution closely followed the timing of the seismic surveys (IWC 2005, 2007; Weller et al. 2006a). Whales exposed to seismic noise levels of about 153 dB re 1 μ Pa zero-to-peak and 159 dB peak-to-peak on their feeding grounds also swam faster and straighter over a larger area with faster respiration rates during seismic operations (Weller et al. 2006b; IWC 2007).

Parente et al. (2007) discovered a reduction in cetacean species diversity with increasing numbers of seismic surveys during 2000 and 2001 off Brazil, despite no significant oceanographic changes in this period. Between 1999 and 2004, there was a negative relationship between cetacean diversity and the intensity of seismic surveys.

When exposed to a single airgun or small airgun array, gray seals showed avoidance and switched from foraging to transiting behavior. They also began hauling out, possibly to escape the noise. Harbor seals exhibited a slowing of their heart rate together with dramatic avoidance behavior and stopped feeding (Thompson et al. 1998).

Seismic air guns are a probable cause of whale strandings and deaths as well, especially in beaked whales (Hildebrand 2005). A stranding of two individuals was tied very closely in space and time to a seismic survey in the Gulf of California. Even if impacts are fatal, only 2% of all cetacean carcasses are detected, on average (Williams et al. 2011). The authors state that for cryptic mortality events such as acoustic trauma, analytical methods are necessary to take into consideration the small percentage of carcasses that will be recovered.

A pantropical spotted dolphin suffered rigidity and postural instability progressing to a catatonic-like state and probable drowning within 600 m of a 3D seismic survey firing at full power (Gray and Van Waerebeek 2011). The authors explained the initial aberrant behavior by a possible attempt by the dolphin to shield its sensitive rostrum and hearing structures from the intense acoustic energy of the airguns, by lifting its head above the water's surface. They believed the seismic survey could have caused this observed behavior, presumably resulting from severe acoustic distress and even injury. Other explanations were examined and considered less likely (Gray and Van Waerebeek 2011). It may be of significance that Weir (2008) found the closely related Atlantic spotted dolphin to be the species "with the most marked overt response" to airgun noise of the three cetacean species examined.

Stress effects or physiological changes, if chronic, can inhibit the immune system or otherwise compromise the health of animals. These can be very difficult to detect in cetaceans. Indications of increased stress and a weakened immune system following seismic noise broadcasts were shown for a whale and dolphin (Romano et al. 2004). Loud, impulsive noise produced from a seismic water gun caused significantly increased mean norepinephrine, epinephrine, and dopamine levels immediately after a high, but not low-level exposure in a captive beluga whale (Romano et al. 2004). All three of these stress hormones increased significantly with increasing noise levels. These hormone levels remained high even 1 hour after noise exposure, which is surprising given their short half-life, according to the authors. In a captive bottlenose dolphin, the seismic water gun produced significant neuro-immune values, namely increases in aldosterone and a decrease in monocytes. Aldosterone is one of the principal stress hormones in cetaceans and may surpass cortisol as a more sensitive indicator of stress (Romano et al. 2004).

Mitigation

Mitigation measures to safeguard whales against high noise exposures are very inadequate. Generally, only the area within 500 m of the seismic vessel is observed, yet high noise levels can occur at much greater distances. Madsen et al. (2006) discovered that in the Gulf of Mexico received levels can be as high at a distance of 12 km from a seismic survey as they are at 2 km (in both cases >160 dB peak-to-peak). Received levels, as determined from acoustic tags on sperm whales, generally fell at distances of 1.4 to 6–8 km from the seismic survey, only to increase again at greater distances (Madsen et al. 2006).

Moreover, determining an exposure level that is "safe" for marine mammals is fraught with difficulty. For instance, a harbor porpoise exposed to airgun pulses was found to have lower (more sensitive) masked TTS levels than any other cetacean that has been tested, namely 164.3 dB re 1 μ Pa²-s SEL or 199.7 dB pk-pk re 1 μ Pa (Lucke et al. 2009). The noise level required to cause hearing loss (temporary threshold shift or TTS) in whales is still very uncertain, especially for seismic airguns, as there are so few empirical measurements. Between-individual variability, the population's average sensitivity (how representative of the population was the tested animal), and the validity of extrapolating between species, particularly between captive small dolphins or porpoises (on which the few tests have been done) to free-ranging large baleen whales are all unknown. Gedamke et al. (2011) model how various factors and assumptions can change the percentage of whales exposed to damaging levels. When factoring in uncertainty and sources of variability, 29% (10-62%) of whales within 1-1.2 km of a seismic survey would experience levels sufficient to produce TTS onset. Without considering these factors, no whales beyond 0.6 km would be at risk for TTS, showing how even fairly small degrees of uncertainty can have a large effect on risk assessment (Gedamke et al. 2011). If management decisions are to be based on so little data, uncertainty must be taken into consideration. At close ranges, avoidance by

whales of the seismic survey actually increased their exposure slightly as their speed was slower than the seismic vessel. Overall, Gedamke et al. (2011) concluded that TTS in baleen whales is plausible at ranges up to several kilometers.

Many (36-57%) of the stranded or entangled dolphins or toothed whales have been shown to have profound hearing loss, implying that impaired hearing could have led to their stranding/entanglement (Mann et al. 2010).

Marine Turtles

Marine turtles show a strong initial avoidance response to air-gun arrays at a strength of 175 dB re 1 μ Pa rms or greater (O'Hara and Wilcox 1990; McCauley et al. 2000; Lenhardt 2002). Enclosed turtles also responded progressively less to successive airgun shots which may indicate reduced hearing sensitivity (TTS). One turtle experienced a TTS of 15dB, recovering two weeks later (Lenhardt 2002). McCauley et al. (2000) estimated that a typical airgun array operating in 100–120 m water depth could impact behavior at a distance of about 2 km and cause avoidance at around 1 km for marine turtles. DeRuiter and Doukara (2010) found that 51% of turtles dived at or before their closest point of approach to an airgun array.

Fish

A wide range of acoustic impacts on fish has been observed. Seismic air guns extensively damaged fish ears at distances of 500 m to several kilometres from seismic surveys. No recovery was apparent 58 days after exposure (McCauley et al. 2003). Behavioral reactions of fish to anthropogenic noise include dropping to deeper depths, milling in compact schools, "freezing", or becoming more active (Dalen and Knutsen 1987; Pearson et al. 1992; Skalski et al. 1992; Santulli et al. 1999; McCauley et al. 2000; Slotte et al. 2004). Reduced catch rates of 40%–80% and decreased abundance have been reported near seismic surveys in species such as Atlantic cod, haddock, rockfish, herring, sand eel, and blue whiting (Dalen and Knutsen 1987; Løkkeborg 1991; Skalski et al. 1992; Engås et al. 1996; Hassel et al. 2004; Slotte et al. 2004). These effects can last up to 5 days after exposure and at distances of more than 30 km from a seismic survey. The impacts of seismic airgun noise on eggs and larvae of marine fish included decreased egg viability, increased embryonic mortality, or decreased larval growth when exposed to sound levels of 120 dB re 1 μ Pa (Kostyuchenko 1973; Booman et al. 1996). Turbot larvae showed damage to brain cells and neuromasts (Booman et al. 1996). Neuromasts are thought to play an important role in escape reactions for many fish larvae, and thus their ability to avoid predators. Increases in stress hormones have been observed in fish due to noise (Santulli et al. 1999).

Invertebrates

Invertebrates also do not appear to be immune from the effects of anthropogenic noise. Nine giant squid mass stranded, some of them live, together with geophysical surveys using air guns in 2001 and 2003 in Spain (Guerra et al. 2004). The squid all had massive internal injuries, some severe, with internal organs and ears badly damaged. Another species of squid exposed to airgun noise showed an alarm response at 156-161 dB rms and a strong startle response involving ink ejection and rapid swimming at 174 dB re 1 μ Pa rms (McCauley et al. 2000). Caged squid also tried to avoid the noise by moving to the acoustic shadow of the cage. McCauley et al. (2000) suggest that the behavioral threshold for squid is 161-166 dB rms. A bivalve, *Paphia aurea*, showed acoustic stress as evidenced by hydrocortisone, glucose, and lactate levels when subjected to seismic noise (Moriyasu et al. 2004). Catch rates also

declined with seismic noise exposure in *Bolinus brandaris*, a gastropod, the purple dye murex (Moriyasu et al. 2004). In snow crab, bruised ovaries and injuries to the equilibrium receptor system or statocysts were also observed (DFO 2004). Seismic noise-exposed crabs showed sediments in their gills and statocysts, and changes consistent with a stress response compared with control animals.

Conclusions

It is clear that a human-caused modification that extends across 300,000 km² or distances of 4,000 km from the noise source 80-95% days of the month, year-round, is an ecosystem-wide impact. That seismic airguns are the second highest contributor of human-caused underwater noise in total energy output per year, following only nuclear and other explosions, should underline this point. At least 37 marine species have been shown to be affected by seismic airgun noise. These impacts range from behavioral changes such as decreased foraging, avoidance of the noise, and changes in vocalizations through displacement from important habitat, stress, decreased egg viability and growth, and decreased catch rates, to hearing impairment, massive injuries, and even death by drowning or strandings. Seismic airgun noise must be considered a serious marine environmental pollutant.

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"Take" and "Harassment" Under the MMPA

Take – As defined under the MMPA, to "harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect."





Harassment – Harassment is defined under the MMPA as any act of pursuit, torment, or annoyance that:

- **(Level A Harassment)** has the potential to injure a marine mammal or marine mammal stock in the wild; or,
- **(Level B Harassment)** has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, but which does not have the potential to injure a marine mammal or marine mammal stock in the wild.

Table 4.4-14 Level A Take Estimates for Project

| <i>Species</i> | Residual PBR | Injury SEL | NMFS Minimum ¹ Threshold (Individual Exposure) | NMFS Maximum ² Threshold (Repeated Exposures) | Ratio: NMFS Maximum/Minimum ³ |
|------------------------------------|--------------|------------|---|--|--|
| <i>Fin whale</i> ⁴ | 15 | 2.5 | 0.5 | 5.2 | 9.9 |
| <i>Humpback whale</i> ⁴ | 7.7 | 1.2 | 0.2 | 2.4 | 9.9 |
| <i>Blue whale</i> ⁴ | 2.1 | 0.9 | 0.2 | 2.0 | 10.7 |
| Minke whale | 2 | 0.1 | <0.1 | 0.2 | 9.9 |
| Short-beaked common dolphin | 3,376 | 14.8 | 36.9 | 365.2 | 9.9 |
| Long-beaked common dolphin | 151 | 0.5 | 1.1 | 11.2 | 9.9 |
| Small beaked whale species | 25 | <0.1 | <0.1 | 0.2 | 14.1 |
| Harbor porpoise | 15 | | 3.3 | 35.3 | 10.7 |
| Dall's porpoise | 257 | 0.9 | 0.1 | 1.8 | 14.1 |
| Pacific white-sided dolphin | 178 | 1.6 | 3.9 | 38.7 | 9.9 |
| Risso's dolphin | 39 | 0.7 | 1.7 | 16.7 | 9.9 |
| Northern right whale dolphin | 43.2 | 0.6 | 1.3 | 18.8 | 14.1 |
| Bottlenose dolphin – CA coastal | 2.4 | <0.1 | 0.6 | 2.7 | 4.4 |
| <i>Sperm whale</i> ⁴ | 1.5 | <0.1 | <0.1 | 0.3 | 14.1 |
| Harbor seal | 1,569 | 7.8 | 1.7 | 5.6 | 3.3 |
| California sea lion | 8,766 | 501.0 | 109.9 | 361.7 | 3.3 |

COLOR KEY: Level of Magnitude as percent of PBR

| | | | |
|--|--|---|---|
|  Red – Major (100%) |  Orange – Moderate (50-99%) |  Yellow – Minor (10-49%) |  No color – negligible (<10%) |
|--|--|---|---|

¹ Area ensonified excluding overlap in acoustic radii; represents the minimum number of takes of animals.

² Area ensonified including the overlap in acoustic radii; represents potential multiple takes of animals.

³ The ratio NMFS Maximum/Minimum quantifies the "intensity" of the survey within the Project footprint related to multiple exposures.





⁴ Listed as endangered under the ESA (in *italics*).

Note: Take estimates have been modified to account for group-specific behavioral avoidance responses (90-99%) whereby animals avoid the area ensonified to the Level A threshold.

Table 4.4-15 Level B Take Estimates for Project

| Species | Minimum Population estimate ¹ | Probabilistic Disturbance ² (rms m-Weighted) | NMFS Minimum ^{2,3} (Individual Exposure) | NMFS Maximum ⁴ (Repeated Exposures) | Ratio: NMFS Maximum/Minimum ⁵ |
|------------------------------------|--|---|---|--|--|
| <i>Fin whale</i> ⁶ | 2,624 | | 14.4 | 484.4 | 33.7 |
| <i>Humpback whale</i> ⁶ | 1,878 | | 6.8 | 227.7 | 33.7 |
| <i>Blue whale</i> ⁶ | 2,046 | | 4.8 | 137.1 | 28.6 |
| Minke whale | 202 | 2.5 | 0.5 | 15.3 | 33.7 |
| Short-beaked common dolphin | 343,990 | 1,047.1 | 1,012.1 | 34,116.8 | 33.7 |
| Long-beaked common dolphin | 17,127 | 32.2 | 31.1 | 1,049.9 | 33.7 |
| Small beaked whale species | 2,498 | 50.9 | 2.9 | 61.9 | 21.6 |
| Harbor porpoise | 1,478 | | | 19,379.5 | 26.4 |
| Dall's porpoise | 32,106 | 270.4 | 26.8 | 577.1 | 21.6 |
| Pacific white-sided dolphin | 21,406 | 111.0 | 107.3 | 3,616.6 | 33.7 |
| Risso's dolphin | 4,913 | 47.8 | 46.2 | 1,557.5 | 33.7 |
| Northern right whale dolphin | 6,019 | 44.3 | 35.6 | 784.0 | 22.0 |
| Bottlenose dolphin – CA coastal | 290 | 19.8 | 41.4 | 1,838.4 | 44.4 |
| <i>Sperm whale</i> ⁶ | 751 | 0.8 | 0.6 | 13.3 | 22.0 |
| Harbor seal | 26,667 | 48.7 | 38.8 | 1,279.8 | 33.0 |
| California sea lion | 153,337 | 3,137.4 | 2,496.0 | 82,392.8 | 33.0 |

COLOR KEY: Level of Magnitude as percent of Minimum Population Estimate.

| | | | | | | | |
|---|-------------|---|-------------------|---|----------------|---|-----------------------|
|  | Red – Major |  | Orange – Moderate |  | Yellow – Minor |  | No color – negligible |
|---|-------------|---|-------------------|---|----------------|---|-----------------------|

Notes:

¹ See Table 4.4-7 for explanation of population estimates.

² Based on a percentage of the minimum population estimate, red indicates high magnitude (Listed species >2.5%, non-listed species >25%), orange indicates moderate magnitude (Listed species 1.25-2.5%, non-listed species >15-25%), yellow indicates low magnitude (Listed species >1 individual, non-listed species 5-15%) and no color is negligible.

³ Area ensounded without any overlap in acoustic radii; represents the minimum number of takes of animals.

⁴ Area ensounded including the overlap in acoustic radii; represents potential multiple takes of animals.

⁵ The ratio NMFS Maximum/Minimum quantifies the "intensity" of the survey within the Project footprint.

⁶ Species listed as endangered under the ESA (in *italics*).

Level B Take of Endangered Southern California Sea Otters

The impact to the fourth endangered species cited in the EIR, the southern sea otter, is unclear. The Draft EIR suggests 62 otters will experience high-level acoustic impacts (potential to injure a marine mammal or marine mammal stock in the wild).

The Final EIR then, without a clear explanation, downgrades those impacts. The US Fish and Wildlife Service in their Draft Harassment Authorization states: "Based on the 160 dB re 1 μ Pa exposure area for survey box areas 2 and 4* and the average densities of sea otters in these areas, we estimate that approximately 352 sea otters will be exposed to underwater sound levels of 160 dB re 1 μ Pa **or greater.**" (Emphasis added)

Level B Take of 352 otters equals approximately 13% of the entire southern sea otter population.

Source: Project Proponents response to USFWS comments.

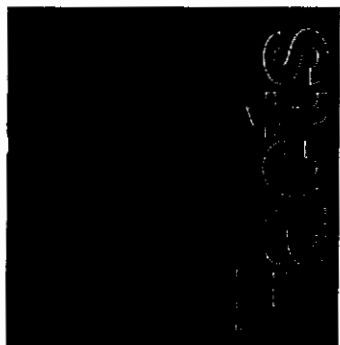
Table 1. Estimates of Southern Sea Otter Level B Takes

| Assessment Level | Project | Alternative IIIb | Alternative IIIc |
|---|---------|------------------|------------------|
| Noise disturbance from air guns | 62 | 56 | 8 |
| Disturbance from seismic survey vessel (within 100 meters) | 12 | 11 | 1 |
| Disturbance from geophone line deployments and recovery (within 100 meters) | 8 | 8 | 8 |
| Total number of animals disturbed (Level B harassment) | 82 | 75 | 17 |

It should be noted that the DEIR used 160 dB as the threshold for Level B take and 180 dB for the threshold of Level A take. With no new information presented, the FEIR changed the Level B threshold to 180 dB and declared that there would be no Level A takes.

USFWS says that they will use the 160/B and 180/A thresholds, but they think the mitigations will work to avoid any 180 exposures. PGE is saying that 62 180dB Level A Take exposures will occur. In contrast, USFWS is saying that all the 352 otters (Zones 2 & 4) will be disturbed by Level B Take, but NO Level A take).

* Separate take numbers were not provided for Zone 2 vs. Zone 4



Ocean



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Boom, Baby, Boom: The Environmental Impacts of Seismic Surveys

For offshore exploration, the oil and gas industry typically relies on arrays of airguns, which are towed behind ships and release intense impulses of compressed air into the water about once every 10 to 12 seconds. Although most of the energy from these acoustic "shots" is intended to search downward for evidence of oil and gas deep beneath the seafloor, a significant amount of the energy travels outwards and can be heard throughout vast areas of the ocean. The environmental problems created by these noise invasions are not fully understood, but we do know that these intense sounds threaten the habitats of endangered whales and commercial fisheries, and cannot remotely be confined to the waters off individual states that approve offshore production. Seismic surveys have been shown to disrupt essential behavior in endangered whales and cause catch rates of some commercial fish to plummet—in some cases over enormous areas of ocean. To mitigate these impacts, NRDC recommends that airguns be kept out of sensitive areas and that greener alternatives be promoted, some of which are already well into development and could be made commercially available within a few years.

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Airguns and Ocean Life

The ocean is an acoustic world. Unlike light, sound travels extremely efficiently in seawater, and marine mammals and many fish depend on sound for finding mates, foraging, avoiding predators, navigating, and communicating—in short, for virtually every vital life function. When we introduce loud sounds into the ocean, we degrade this essential part of the environment. Some biologists have likened the increasing levels of noise from human activities to a rising tide of "smog" that has urbanized and in some

areas industrialized major portions of the marine environment off our coasts. This "acoustic smog" is shrinking the sensory range of marine animals.¹ A substantial and growing body of research now indicates that ocean noise pollution negatively affects at least 55 marine species, including several endangered species of whales and 20 commercially valuable species of fish.^{2,3}

Seismic surveys have a staggering environmental footprint. A large seismic array can produce peak pressures of sound higher than those of virtually any other man-made source

Boom, Baby, Boom: The Environmental Impacts of Seismic Surveys

save explosives;⁴ and though its airguns are pointed downwards towards the sea floor, their sound travels outward so widely as to significantly raise noise levels literally thousands of miles away.⁵ The director of Cornell's Bioacoustics Research Program once described these surveys as possibly "**the most severe acoustic insult to the marine environment.**" Unfortunately for the whales, airgun surveys last anywhere from weeks to many months and, in many coastal areas that represent vital feeding and breeding grounds, cause animals harm by depriving them access to their normal acoustic habitats.

Impacts on a Population Scale

The impacts of seismic surveys are felt on an extraordinarily wide geographic scale. For example, a single seismic survey can cause endangered fin and humpback whales to stop vocalizing—a behavior essential to breeding and foraging—over an area *at least 100,000 square nautical miles in size.*^{6,7} The few animals that persist in calling seem to abandon the entire area, which is larger than the state of New Mexico. Seismic surveys can also drown out mating and other calls of endangered whales over enormous distances. Beyond several miles, the periodic blasts of airguns can sound virtually continuous, making it impossible for species that use low-frequency sound—like the endangered great whales—to communicate, feed, and find mates.^{8,9}

Alarming, one of the species most vulnerable to these impacts, according to the latest research from NOAA and Cornell, is the critically endangered North Atlantic right whale, whose only known calving grounds occur off Florida and Georgia.^{10,11}

Given the scales involved, surveys taking place off the coast of Virginia could well affect endangered species off southern New England, and right whales could be disrupted throughout their east-coast migratory range.

Airguns have also been shown to affect a broad range of other marine mammal species beyond the endangered great whales. For example, sperm whale foraging appears to decline significantly on exposure to even moderate levels of airgun noise,¹² and harbor porpoises have been seen to engage in strong avoidance responses fifty miles from an array.¹³ Seismic surveys have been implicated in the long-term loss of marine mammal biodiversity off the coast of Brazil.¹⁴

Impacts on Fish and Fisheries

Airgun surveys also have serious consequences for the health of fisheries. For example, airguns have been shown to dramatically depress catch rates of various commercial species (by 40 to 80 percent) over thousands of square kilometers around a single array,^{15,16} leading fishermen in some parts of the world to seek industry compensation for their losses. These compensations are already occurring

The Seismic Footprint

Noise from a single seismic survey, operating in the direction of the upper right corner, saturates an area in the North Atlantic larger than the state of West Virginia (10,000 square nautical miles), masking low frequencies used by endangered baleen whales. Red signifies noise several orders of magnitude higher than the prevailing background noise in the region. In fact, biologists have found that airguns cause endangered fin and humpback whales to go silent over an area at least 10 times larger than this.



Image credit: Clark and Gagnon, 2006.

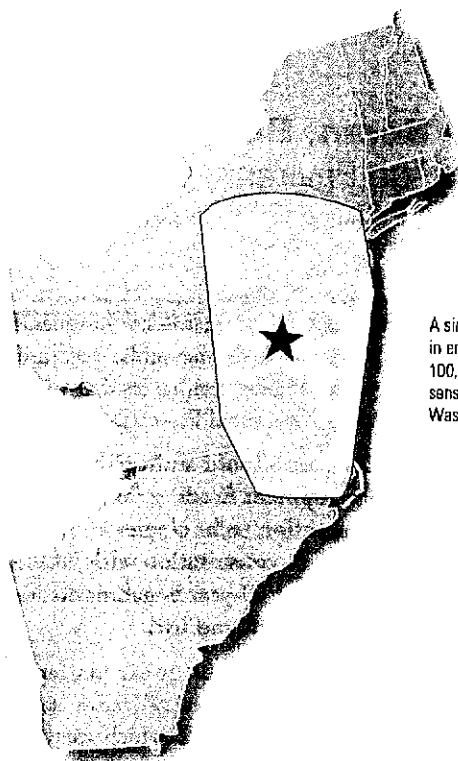
in Norway. Other impacts on commercially harvested fish include habitat abandonment—one possible explanation for the fallen catch rates—reduced reproductive performance, and hearing loss;¹⁷⁻¹⁹ and recent data suggest that loud, low-frequency sound also disrupts chorusing in black drum fish, a behavior essential to breeding in this commercial species.²⁰

What's in Store for the Atlantic

How much seismic surveying are we likely to see in the former moratorium areas? Within months after the Minerals Management Service (MMS) issued its scoping notice for the Atlantic region, Spectrum Geo proposed shooting 112,500 line miles of surveys from Massachusetts down to Florida, Western Geco another 54,900 miles between New Jersey and Georgia, and CGG Veritas more than 42,000 miles running southwards from Maine. In all, more than 285,000 line miles were proposed in the initial flurry of applications.²¹ Industry will conduct more surveys as areas are opened for leasing, and will send ships back time and again to certain areas of interest to see how geologic features there change over time. On top of this, some companies are making more and more use of "wide azimuth" surveys, in which up to four airgun arrays run side-by-side and fire in tandem.

The Way Forward

The mitigation measures typically prescribed by MMS require little more than visual monitoring for marine mammals within a small "safety zone" immediately around the seismic vessel. But that approach is completely inadequate to redress the large-scale environmental harm that science has identified.²² The only effective ways to mitigate these serious longer-range impacts are to keep airguns out of sensitive environmental areas (and the areas nearby), to cap the number of activities allowed each year by region, to bar redundant surveys, and to promote the use of greener alternatives—some of which are already well into development and could be made commercially available within a few years.



A single airgun array can disrupt vital behavior in endangered whales over an area at least 100,000 square nautical miles in size. For a sense of scale, here is that area centered over Washington, D.C.

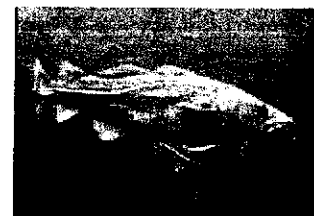
NRDC makes the following recommendations:

- **Congress should not introduce new "seismic inventory" language into the pending climate and energy bills.**

A provision in the Senate's energy bill would mandate that MMS conduct a seismic inventory of the OCS and authorize more than \$750 million for the purpose. In addition to unnecessarily subsidizing the industry, such a provision would result in significant environmental harm to marine mammal and fish habitat in regions, like the northeast and west coasts, that strongly oppose OCS development on environmental grounds and will certainly not figure in any government lease plan for at least 7 years.

- **Congress should strengthen environmental review of seismic surveys on the Outer Continental Shelf.**

Allowing airgun surveys to proceed across ocean regions without even considering their harmful impacts, and how to mitigate them, is simply irresponsible and could result in needless harm to commercial fisheries and endangered species on a wide scale. Yet in some regions, like the Gulf of Mexico, neither MMS nor industry have obtained legally required permits under the Marine Mammal Protection Act or satisfied environmental review requirements of other laws. As one important step, Congress



Atlantic cod



Haddock

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Boom, Baby, Boom: The Environmental Impacts of Seismic Surveys

should amend the Outer Continental Shelf Lands Act to let the public seek judicial redress against companies that violate the Marine Mammal Protection Act.

- **Congress should authorize research and development funding for lower-impact exploration technologies and require MMS, in consultation with NOAA, to set 5- and 10-year benchmarks for their development and use.**

According to industry experts, airguns produce a great deal of "waste" sound and generate peak levels (which are thought to be one of the dangerous characteristics of airgun noise) substantially higher than those actually needed for exploration. Lower-impact technologies that would substantially shrink the environmental footprint of airguns in many areas could be available for commercial use within 3 to 5 years. Marine vibrators, for



North Atlantic right whale

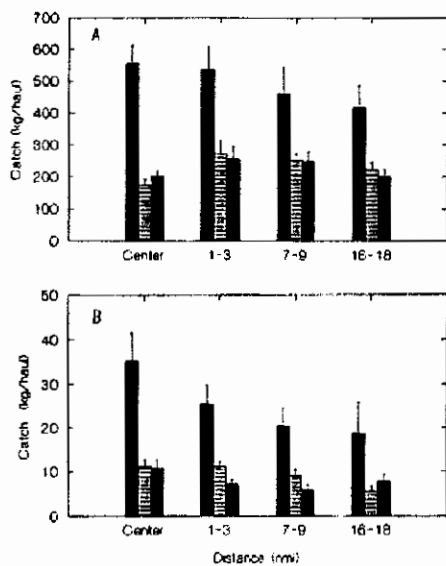
example, have the potential to reduce peak sound levels by 30 to 50 decibels, at least in shallow water, turning an extraordinarily powerful airgun array into the equivalent of a very large ship.²³ But increased funding and regulatory involvement are essential to realizing these lower-impact alternatives.²⁴

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SEISMIC AIRGUNS AND FISHERIES

While most of the attention has centered on marine mammals, seismic surveys also have serious consequences for the health of fisheries. Commercial fishermen in various parts of the world have complained about declining catch rates during seismic survey operations (McCauley et al. 2000), spurring a number of controlled experiments that compare fishing success at various distances from the source.



Average trawl catch rates of cod and haddock before (solid), during (striped), and after (gray) seismic shooting, by distance in nautical miles from the shooting area. (Engas et al. 1996)

Airguns have been demonstrated in Norwegian studies to dramatically depress catch rates of cod and haddock by as much as 40 to 80 percent (depending on catch method) over thousands of square kilometers around a single array (Engas et al. 1996; Løkkeborg 1991); and to displace two other commercial species, blue whiting and herring, on a similar spatial scale (Slotte et al. 2004), an area roughly the size of Rhode Island. These impacts were found to last for some time beyond the survey period—catch rates had not fully recovered during the five post-survey days monitored by researchers (Engas et al. 1996)—and researchers have characterized the impacts as “long term” (Slotte et al. 2004). Airguns have also been shown to substantially reduce catch rates of rockfish (Skalski et al. 1992) and possibly pollock (Løkkeborg et al. 2010).

Other impacts on commercially harvested fish include reduced reproductive performance and hearing loss (McCauley et al. 2000, 2003); and recent data suggest that loud, low-frequency sound causes severe acoustic trauma in cephalopods and disrupts chorusing in black drum fish, a behavior essential to breeding in this commercial species (Andres et al., 2011; C. Clark, pers. comm.). Furthermore, emerging research has found that juvenile Chinook salmon exposed to high-intensity impulsive sound suffer from tissue injuries associated with barotrauma (Halvorsen et al. 2012). A recent review cited stress-response data primarily from other species as reason for concern about long-term consequences for fish (Slabbekoorn et al. 2010).

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Haddock and Atlantic cod



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Impacts to Marine Protected Areas from PG&E's Seismic Testing

- **The recent completion of the network of California's Marine Protected Areas is the culmination of an eight-year effort to protect, enhance and restore California's marine resources.**

This summer, California celebrated a major milestone with the unanimous approval of the North Coast Marine Protected Areas (MPAs), completing a statewide network of MPAs in California's open coastal waters that stretch from Mexico to the Oregon state line. According to the Department of Fish and Game's (DFG) press release, "The network of MPAs is the first in the United States to be designed from the ground up as a science-based network, rather than a patchwork of independent protected areas without specific goals and objectives."¹

The Central Coast MPAs were the first component of this network to be adopted. The Point Buchon State Marine Reserve, located just offshore from the Diablo Canyon Power Plant, is an essential component of this portion of the MPA network. Coupled with the offshore Point Buchon State Marine Conservation Area, this MPA cluster serves as a "backbone MPA," scientifically designed to protect a diversity of underwater habitats and marine species and ensure that larvae produced in one protected place can settle in another.² The area is particularly productive and ecologically diverse, as it is located between two upwelling zones and includes unique pinnacle habitat and shallow coldwater corals.³

- **PG&E's high-energy seismic testing poses significant, adverse impacts to the Point Buchon MPAs and beyond.**

PG&E's full seismic survey would result in the disturbance, harassment, and killing of marine resources throughout the Project Area and would undermine the ecosystem protection and restoration goals of these newly established MPAs, as the Final Environmental Impact Report (EIR) for the project expressly acknowledges.⁴

Even though PG&E has revised the project description for 2012 to address Zone 4 only, the intense noise generated by the seismic survey will still propagate into the northern portion of the Point Buchon MPAs, reaching sound levels that will exceed 160 decibels (dB) and likely resulting in significant biological and physiological effects on marine mammals, fish and other sea life (see Figure 1). Seismic testing in Zone 2, which directly overlaps with the MPAs and is expected to begin next year, would be even more harmful, exposing marine life to sound levels as high as 250 dB. Because California's new system of MPAs have been explicitly designed to function as a network,

¹ California Department of Fish and Game. "North Coast Marine Protected Areas Adopted in Final Coastal Ocean Region." June 6, 2012. <<http://cdfgnews.wordpress.com/2012/06/06/north-coast-marine-protected-areas-adopted-in-final-coastal-ocean-region/>>

² California Department of Fish and Game, California Marine Life Protection Act Master Plan for Protected Areas: Revised Draft January 2008, at 34-40 (2008) (available at <http://www.dfg.ca.gov/mlpa/masterplan.asp>).

³ California Department of Fish and Game, Preferred Alternative for Implementation of the Marine Life Protection Act in the Central Coast Region (Pigeon Point to Point Conception) (2007) (available at www.dfg.ca.gov/mlpa/pdfs/isor632_att2.pdf).

⁴ Central Coast California Seismic Imaging Project (CCCSIP) Final Environmental Impact Report (FEIR) at 4.10-22. (available at: http://www.slc.ca.gov/division_pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.10_LAND_USE_AND_RECREATION.pdf)

any impacts to MPAs near the Diablo Plant may also affect the success of MPAs in a much broader region.

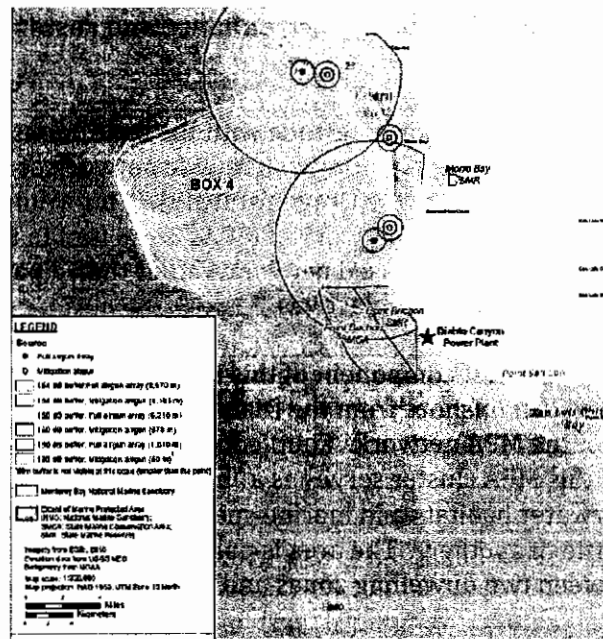


Figure 1. Sound propagation map prepared by PG&E for the Coastal Commission illustrating the 160 dB (yellow lines) and 154 dB (green lines) ensonification zones overlapping with the Point Buchon State Marine Reserve and Point Buchon State Marine Conservation Area.

MPAs are primarily intended to protect or conserve marine life and habitats.⁵ The proposed seismic survey, though conducted in phases, stands in direct conflict with this intent. Specifically, the project directly conflicts with the State Marine Reserve designation at Point Buchon, which explicitly prohibits activities within the reserve that injure, damage, take, or possess living, geological, or cultural marine resources (with the exception of permitted research, restoration and monitoring activities)⁶ and will likely result in the take of unauthorized species within the Point Buchon State Conservation Area, in conflict with section 36710(c) of the Marine Managed Areas Improvement Act (MMAIA).⁷

- **MPAs and the Coastal Act share similar goals of marine ecosystem and species protection.**

The Point Buchon MPAs are designed to address substantially similar ecosystem and species protection goals as Coastal Act Section 30230. Section 30230 states:

"Marine resources shall be maintained, enhanced, and, where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all

⁵ See Marine Managed Areas Improvement Act; Pub. Res. Code § 36700; and Marine Life Protection Act, Fish and Game Code section 2853

⁶ Pub. Res. Code § 36710(a); 14 C.C.R. § 632

⁷ State Lands Commission (SLC). FEIR. "Land Use and Recreation" 4.10-21. (available at http://slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.10_LAND_USE_AND_RECREATION.pdf)

species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes."

The relevant goals of the MLPA are to: (1) protect the natural diversity and abundance of marine life, and the structure, function, and integrity of marine ecosystems; (2) help sustain, conserve, and protect marine life populations, including those of economic value, and rebuild those that are depleted; and (4) protect marine natural heritage, including protection of representative and unique marine life habitats in California waters for their intrinsic value.⁸

MLPA goal (2), in particular, mirrors Coastal Act language regarding sustaining the biological productivity of coastal waters, as well-designed marine protected areas increase productivity relative to fished areas by providing a haven for large prolific fish. Indeed, the Point Buchon MPAs are known to provide refuge for economically valuable but depleted rockfish, aiding in their recovery by protecting "big old fecund female fish." Similarly, MLPA goal (4) mirrors Coastal Act language regarding areas of special biological significance; and goal (1) mirrors Coastal Act language regarding healthy populations of all species.

The protections afforded marine ecosystems and species in the Point Buchon MPAs are not only consistent with the policies of Section 30230, but should draw special attention consistent with the Commission's charge to protect "healthy populations of all species" and to provide "special protection to areas of special biological or economic significance." An activity like the proposed high-energy 3-D seismic survey, which so clearly undermines the purpose of the MPAs, should be found inconsistent under the Coastal Act.

- **PG&E's high-energy seismic surveys are likely to interfere with ongoing MPA monitoring.**

PG&E's seismic survey will likely interfere with ongoing monitoring efforts aimed at measuring the effectiveness of these MPAs in protecting, restoring and enhancing these areas. Studies that could be affected include those conducted by the California Collaborative Fisheries Research Program since 2007. Goal 5 of the MLPA requires scientific monitoring of protected areas in order to evaluate MPAs as a tool for conservation and fisheries management.⁹ These scientific activities are critical to understanding the success of individual MPAs and of California's entire protected area network. As such, interference of these monitoring efforts by the proposed project may confound both the local and statewide assessment of MPA efficacy, which will have implications for future management decisions.

- **The Department of Fish and Wildlife and the Fish and Game Commission have weighed in with significant concerns about the impacts of the Project on MPAs.**

The Department of Fish and Wildlife concurs with the findings of significant and unavoidable impacts in the EIR and specified the ways in which the Project is incongruous with the laws pertaining to MPAs. In the Department's letter to State Lands Commission, and again at hearings on the Project, Fish and Game makes clear its commitment to upholding the integrity of California's MPAs:

"The Project is in direct conflict with the California Marine Life Protection Act (MLPA) (Title 14 Section 632)."¹⁰

⁸ Fish and Game Code section 2853(b)

⁹ Fish and Game Code section 2853 (c)(3)

¹⁰ Department of Fish and Wildlife. Comments on Draft Environmental Impact Report for the Central Coastal California Seismic Imaging Project. May 18, 2012. (available at: Comments

"It is important the Project does not take, adversely affect, or disrupt living marine resources or habitats within the MPAs, especially the SMR, pursuant to the goals of the MLPA and the definition of an SMR outlined in the Marine Managed Areas Improvement Act (MMAIA) and MLPA."¹¹

The Fish and Game Commission has refused to endorse the seismic survey project. "They are marine life protected areas, not marine life killing areas. As long as I am here, we are not ever going to recommend anything to the [Fish and Wildlife] department that kills fish,"¹² said Jim Kellogg, chair of the Fish and Game Commission at the September 24 hearing. Commissioner Sutton echoed the chair's concerns, saying, "I can't make a recommendation to the Department to issue a permit."¹³

[http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/FEIR_Comments/FEIR_RTCs_Agencies_\(06of13\)_CDFG.pdf](http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/FEIR_Comments/FEIR_RTCs_Agencies_(06of13)_CDFG.pdf)

¹¹ Ibid.

¹² Ethan Stewart. "Staring Down a Sound Gun: Fish and Game Trashes Diablo Canyon Seismic Testing." *Santa Barbara Independent*: September 26, 2012. (available at <http://www.independent.com/news/2012/sep/26/staring-down-sound-gun/>)

¹³ Dan Bacher. "Big turnout against PG&E seismic testing at Commission meeting." *San Francisco Bay Area Independent Media Center*: September 25, 2012. (available at <http://www.indybay.org/newsitems/2012/09/25/18722386.php>)

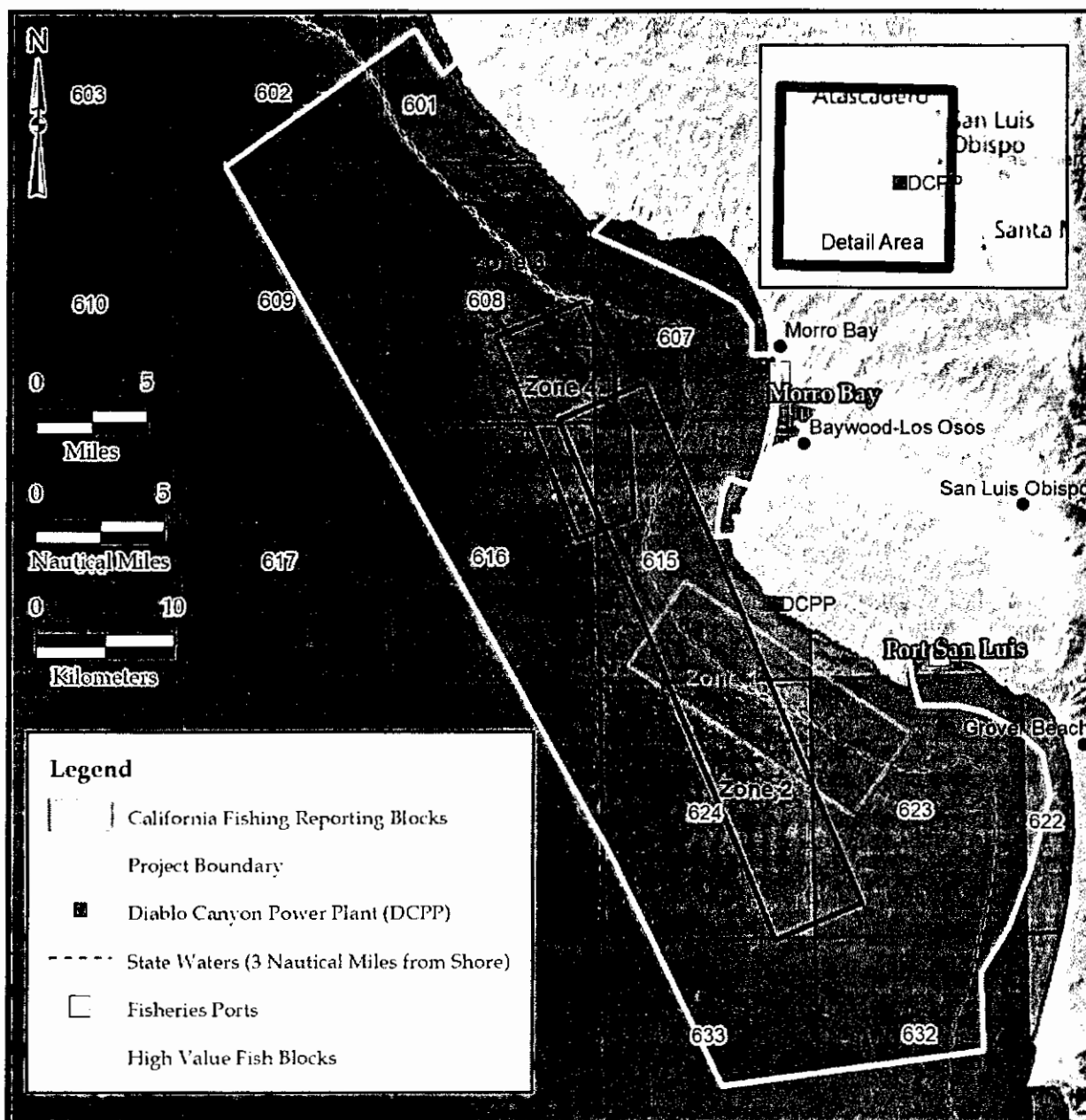
Commercial Fishing Impacts from PG&E's Seismic Testing

- Seismic testing off the Central Coast has the potential to devastate the regional commercial fishing industry, which is one of the most important economic engines for Morro Bay.

PG&E's Environmental Impact Report clearly states the immediate, and significant impact to commercial fishing.

The FEIR details those areas where fishing would be precluded. Many of these represent high value fish blocks for Morro Bay commercial fishermen and fall within the Project Boundary.

High Value Catch Block Locations Relative to Proposed Project – EIR, Fig. 4.13-12



The EIR also outlines several ways in which the Project will disproportionately impact certain fisheries and the potential long-term impacts of the Project.

"Fisheries that rely on set gear may be disproportionately affected because it would be either impractical or unreasonable to attempt to move gear around the survey's planned timetable and tracklines, or to seek other areas outside of the Project area."

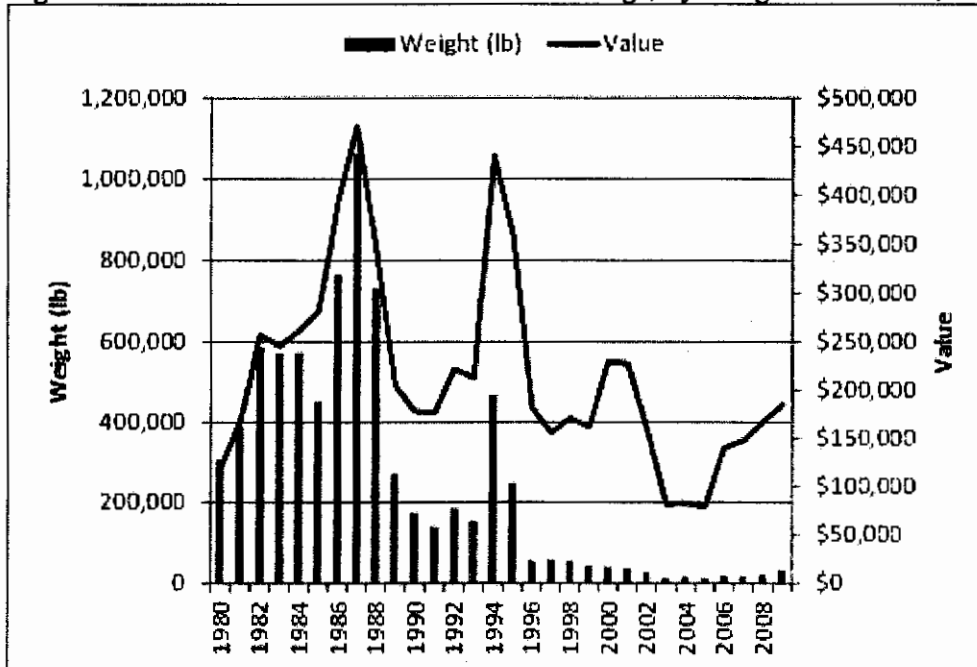
"Offshore Project activities would adversely impact Essential Fish Habitat."

"Offshore Project activities would have long-term adverse effects on commercial fishing through fish population impacts."

In addition to physical impacts to fish and habitats, air-gun surveys are known to significantly affect the distribution of some fish species and dramatically depress catch rates of commercial fish far beyond the boundaries of the surveys. Vertical and horizontal displacement in the water column has the potential to influence foraging and reproductive success and result in broader impacts to fish populations.^{iv}

"The last high-energy seismic survey conducted in state waters was off the coast of Santa Barbara in 1995; local commercial fishermen during the public comment period for this EIR that the 1995 survey resulted in significant losses to the rockfish population."^v (see chart below)

Figure 4.13-14 Santa Barbara Rockfish Landings, by Weight and Value, 1980 to 2009



- **The EIR understates the impacts to commercial fishing by relying on outdated data and fails to adequately account for economic losses or mitigation to offset those losses.**

Even with the finding of significant and unavoidable impacts, the EIR actually understates the impacts on commercial fishing by relying on outdated data. The city of Morro Bay, in their comments on the DEIR, pointed out that between 2007 – the last year for which data is cited in the EIR – and 2010, earnings for fishermen at the dock (EVV) in Morro Bay increased by over 250 percent, and the number of fishing trips increased approximately 36 percent. The Final EIR does not account for the more recent 2010 data, and continues to understate the impacts of the Project to local fisheries and the local economy.^{vi}

Also absent from the EIR are estimates for economic losses or economic mitigation measures. They explain in Master Response 3, Treatment of Economic Losses in the EIR, that, “potential economic losses from the Project are not quantified and compensation is not developed as part of the CEQA documentation.”^{vii} The mitigation measures offered by PG&E would only offset losses to fishing days lost due to exclusion from areas during active testing. Local and regional fishermen are concerned about how long term impacts on fish stocks will be addressed through the claims process. The local fishermen from Morro Bay and Port San Luis have expressed dissatisfaction with their negotiations with PG&E about the disbursement of the initial \$1.2 million for mitigation and long term monitoring.^{viii}

However, the FEIR does list examples of potential economic losses that were provided by the commenters, but were not evaluated during the environmental review process:

- “Lost fishing opportunity caused by preclusion during the survey and survey related activity (such as geophone deployment and retrieval), resulting in reduced catch and revenue. This would apply to commercial fishing as well as (sic) commercial passenger fishing vessels.
- Increased costs for fuel, supplies, and effort required if fishing activity is diverted outside of the Project area because of survey and survey-related activity. Other increased costs could include fuel and effort required to remove set gear from the Project area to avoid interference with the survey and support vessels.
- Indirect impacts on fishing-dependent industries, such as processors, distributors, concessions at the ports and other vendors dependent on fishing activity.
- Potential effects on the value of individual fishing quotas in future years resulting from lost fishing opportunity during the Project.
- Reduction in catch per unit effort (CPUE) in the Project area and vicinity during and after the survey. The duration of reduced CPUE is expected to be short-term, but the duration is unknown and would vary with the fishery.
- Lost opportunity and advance bookings for commercial passenger fishing vessels caused by preclusion and uncertainty of the areas available for fishing, as well as the concern that the seismic activities would drive away the fish that the groups and individuals are seeking to catch.
- Reduced value of sport-fishing and related licenses resulting from lost opportunity to fish during the Project.
- Reduced revenues for Morro Bay Harbor and Port San Luis Harbor District resulting from reduced sales of fuel, and other concessions and user fees that generate revenue. The survey vessel and related activity may offset some of the loss caused by reduced fishing activity, but this is not quantified.”^{ix}

- **The project poses short and long term adverse impacts to the local commercial fishing economy and is inconsistent with Coastal Act Section 30234.**

Section 30234. Economic and Recreational Importance of Fishing. The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.

The short-term impacts to commercial fishing are identified as significant and unavoidable. We believe that the long-term economic impacts for commercial fishing have the potential to be equally devastating. However, neither short nor long-term impacts are appropriately mitigated in the FEIR. Mitigation measures primarily consist of a Communication Plan to alert fishermen where they will be forbidden from fishing. Economic mitigation has been delegated to PG&E, which, according to the testimony of local fishermen, has failed to negotiate in good faith.

ⁱ California State Lands Commission (CSLC). "Existing Environment and Environmental Impact Analysis: Commercial Fishing ." Final Environmental Impact Report (EIR) for the Central Coastal California Seismic Imaging Project, 2012, 4.13-24.

<http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.13_COMMERCIAL_FISHING.pdf>

ⁱⁱ Ibid. 4.13-29.

ⁱⁱⁱ Ibid. 4.13-29.

^{iv} Natural Resources Defense Council. "Seismic Airguns and Fisheries."

^v Ibid. 4.13-30.

^{vi} CSLC. "Responses to Comments Received on the Draft EIR – Agencies: City of Morro Bay (Mayor William Yates)." FEIR, (2012), II-167.

<[http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/FEIR_Comments/FEIR_RTCs_Agencies_\(12of13\)_MorroBay.pdf](http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/FEIR_Comments/FEIR_RTCs_Agencies_(12of13)_MorroBay.pdf)>

^{vii} CSLC. "Responses to Comments: Introduction and Master Responses." FEIR< (2012), II-16.

<http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_0.3_SectionII-Intro.pdf>

^{viii} Conversation with Christopher Kubiak, Liaison Officer, Central California Joint Cable Fisheries Liaison Committee. October 26, 2012.

^{ix} Ibid.

MR-3 Treatment of Economic Losses in the EIR

A number of commenters asked why the EIR did not specifically address compensation or include mitigation for economic losses, particularly related to commercial and recreational fishing. Examples of potential economic losses these commenters stated would directly or indirectly result from the Project are:

- Lost fishing opportunity caused by preclusion during the survey and survey-related activity (such as geophone deployment and retrieval), resulting in reduced catch and revenue. This would apply to commercial fishing as well as commercial passenger fishing vessels.
- Increased costs for fuel, supplies, and effort required if fishing activity is diverted outside of the Project area because of survey and survey-related activity. Other increased costs could include fuel and effort required to remove set gear from the Project area to avoid interference with the survey and support vessels.
- Indirect impacts on fishing-dependent industries, such as processors, distributors, concessions at the ports and other vendors dependent on fishing activity.
- Potential effects on the value of individual fishing quotas in future years resulting from lost fishing opportunity during the Project.
- Reduction in catch per unit effort (CPUE) in the Project area and vicinity during and after the survey. The duration of reduced CPUE is expected to be short-term, but the duration is unknown and would vary with the fishery.
- Lost opportunity and advance bookings for commercial passenger fishing vessels caused by preclusion and uncertainty of the areas available for fishing, as well as the concern that the seismic activities would drive away the fish that the groups and individuals are seeking to catch.
- Reduced value of sport-fishing and related licenses resulting from lost opportunity to fish during the Project.
- Reduced revenues for Morro Bay Harbor and Port San Luis Harbor District resulting from reduced sales of fuel, and other concessions and user fees that generate revenue. The survey vessel and related activity may offset some of the loss caused by reduced fishing activity, but this is not quantified.

As described in Section 7.1 in the EIR, economic losses are not quantified and compensation for such losses is not proposed for the following reasons:

- Economic effects are not considered to be significant effects pursuant to the State CEQA Guidelines (§ 15131, subd. (a)).

- CEQA requires that "an EIR shall describe feasible measures which could minimize *significant* adverse impacts" [emphasis added] (§ 15126.4, subd. (a)(1)).
- Therefore, no mitigation (compensation) was proposed for economic losses.

Commercial fishing is not a "standard" CEQA resource area, in that it is not listed as a separate resource area in the State CEQA Guidelines (CEQA Appendix G). However, commercial fishing activity is a recognized and important use of the ocean in the Project area, and the EIR addresses it as a separate section (Section 4.13). Project impacts on commercial fishing are considered to be significant because of the restrictions that would be placed on fishing opportunity as well as reduced effectiveness (CPUE). Mitigation, therefore, is aimed at reducing the area and uncertainty of the restrictions to reduce the impact on the use of the Project area for fishing.

Similarly, recreational fishing is evaluated as an important marine use of the Project area in Section 4.10, Land Use and Recreation. Restrictions on access to the area during the Project would also have significant effects on recreational fishing.

Socioeconomic effects are described in Section 7, Socioeconomic Effects and Environmental Justice. This analysis does not include development or application of significance criteria, and does not quantify impacts. As noted in Section 7.1, social and economic effects may be considered if those effects have the potential to cause a physical change to the environment; however, the EIR does not find evidence of this. Also, because the EIR is intended to be an informational document, a description of the socioeconomic setting and potential effects are considered to be important information to be disclosed for decision-making, even if those effects do not result in physical changes to the environment.

Therefore, commercial and recreational fishing are evaluated as important activities in the Project area, but the potential economic losses from the Project are not quantified and compensation is not developed as part of the CEQA documentation.

Recreational Impacts from PG&E's Seismic Testing

- **PG&E's seismic testing will interfere with offshore recreation and poses risks to ocean users who may be exposed to high decibel levels while in the water.**

PG&E's Final Environmental Impact Report (FEIR) clearly states seismic testing can negatively impact humans:

"The proposed offshore activities *would* expose persons present in the water to harmful noise levels..."

"Studies have shown that high levels of underwater noise can cause dizziness, hearing damage, or other sensitive organ damage to divers and *swimmers*, as well as indirect injury due to startle responses"

"Noise **levels in excess of 154 dB re 1 μ Pa** could be considered potentially harmful to recreational divers *and swimmers* in the Project area".

"The potential exists that noise levels in water due to Project activities could be harmful to humans who ignore the notices and enter water in close proximity to the air guns while being deployed within the an active survey area". ¹

- **Scientific studies and accounts from ocean users demonstrate that intense underwater acoustics can adversely impact humans.**

In the 1990s, the U.S. Navy, in conjunction with university and military laboratories, conducted studies on divers for the purpose developing guidelines for exposure limits to underwater noise. One study concluded that 145dB is a safe level of exposure for recreational divers saying:

"In June 1999, NSMRL set interim guidance for the operation of low frequency underwater sound sources in the presence of recreational divers at 145 dB... Based on this guidance, the operation of the SURTASS LFA sonar will be restricted in the vicinity of known recreational and commercial diving so that **sound levels will not exceed 145 dB**".²

An example of underwater acoustics causing harm to a human comes from a Hawaiian swimmer who was exposed to Navy active sonar. In a court declaration (filed in court March 25, 1998), the swimmer said she was disoriented and nauseous after being exposed to the underwater noise and subsequently saw a physician who diagnosed her with symptoms similar to acute trauma. The Navy acknowledged the swimmer was exposed to 120 dB while in the water.³

At a recent San Luis Obispo Board of Supervisors meeting on Oct 30, 2012, a PG&E representative claimed that harm to ocean users from underwater noise is only caused when the person is fully submerged. This statement is clearly in conflict with the FEIR where PG&E says divers and swimmers exposed to 154 dB could be harmed. Moreover, the example of the

¹ PG&E FEIR: http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_4.11_NOISE.pdf

² U.S. Navy Diver Study: <http://www.surtass-lfa-eis.com/DiverStudies/index.htm>

³ Compilation of Dr. Green's research regarding noise impacts to marine mammals and humans.
<http://www.oceanmammalinst.com/mgpaper.html#document>

Hawaiian swimmer proves an ocean user does not need to be fully submerged to experience negative impacts.

- **PG&E has failed to acknowledge the clear risks to ocean users and presented contradictory information about what recreational uses will be allowed during seismic testing.**

For example, in May 2012, the Surfrider Foundation submitted comments to the California State Lands Commission (CSLC) and PG&E pointing out measures were only being taken to protect divers in the Draft EIR, and that PG&E was not considering potential impacts to surfers, swimmers and other ocean users. In Volume I of the FEIR, PG&E replied to all Non Governmental Organizations who submitted letters, and *directly responded to Surfrider's* concerns saying:

"In response to this and other related comments...MM LU-1 has been revised to include noticing beaches and local dive shops ***regarding offshore areas closed to diving, surfing, and swimming.***"⁴

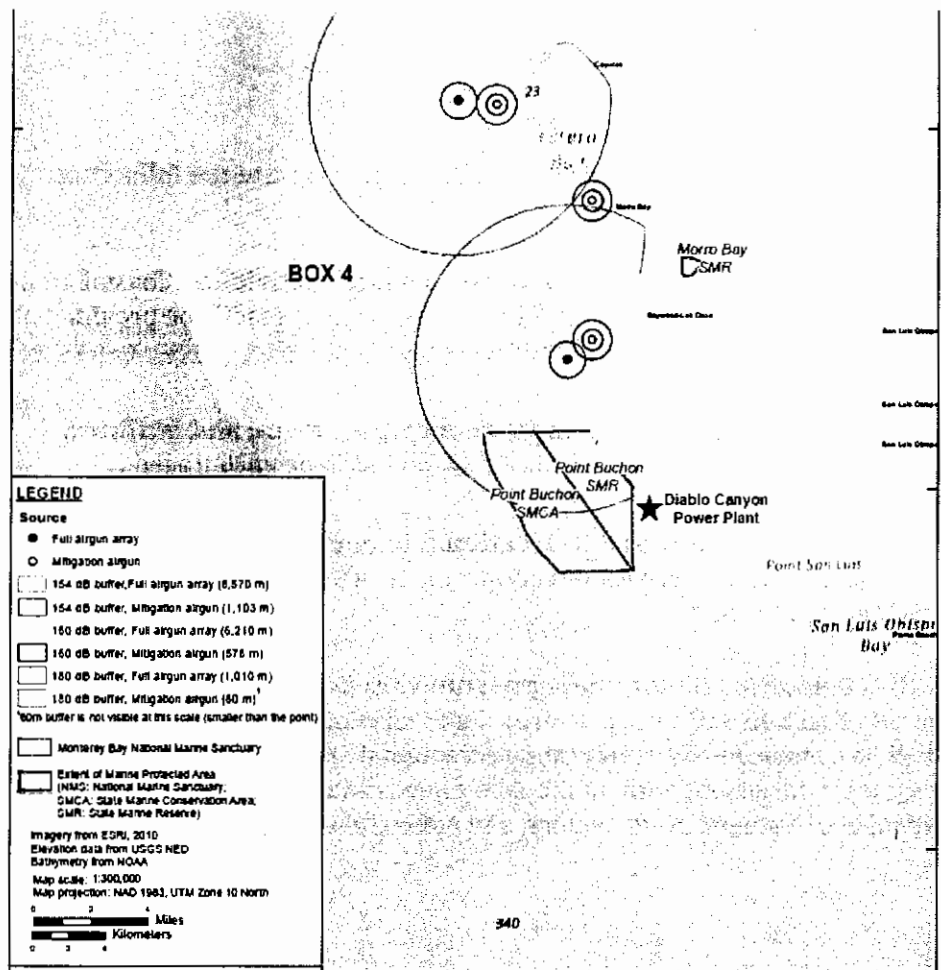
Based on this statement, it seems clear that diving, surfing, and swimming will not be allowed within the Project zone. However, in the FEIR, PG&E only addresses the prohibition of diving.

PG&E also failed to include in the FEIR data and maps illustrating what dB levels would reach areas where people recreate. Concerned ocean users questioned how close air guns would be to shore and what decibel (dB) levels would be at nearshore environments. Since the information was not apparent in the FEIR, Coastal Commission Staff was contacted for clarification.

In order to answer the questions, Coastal Commission staff had to request additional information from PG&E. The Project map (finally provided by PG&E) shown below illustrates that some beaches will receive 160 dB (yellow circles). Since dB ratios are logarithmic, 160 dB is **30 times above the safety threshold** the Navy identified at 145 dB.

It's critical to reiterate that PG&E's FEIR says: "Noise levels in excess of 154 dB could be considered potentially harmful to recreational divers *and swimmers*". **Not only is PG&E admitting that receiving 154 dB could be dangerous, but their own map shows ocean users will be exposed to 160 dB levels (which is four times greater than 154 dB).**

⁴ PG&E's Response to Surfrider's comment letter in their FEIR:
[http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/FEIR_Comments/FEIR_RTCs_NGOs_\(13of14\)_Surfrider.pdf](http://www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/FEIR_Comments/FEIR_RTCs_NGOs_(13of14)_Surfrider.pdf)



A final example of PG&E not providing adequate information is reflected by the fact that Volume I of the FEIR originally lacked an updated Expanded Project Description. Once again, it was the Coastal Commission staff who had to obtain this information.

The Project Description (seen below) shows calculations on sound propagation models. When analyzing the upslope sound propagation, it's clear that dangerous dB levels could come close to nearshore environments. For example, the chart illustrates that dB levels could reach 190dB at 0.13 nautical miles (which is equivalent to 789 ft. from shore.) This would expose ocean users to decibel levels that are 1,000 times greater than the established safety threshold of 145dB.

| Sound Pressure Level (SPL) (dB re 1 uPa) | Upslope Distance (In Shore) | | | Downslope Distance (Offshore) | | | Alongshore Distance | | |
|---|--------------------------------|-----------------|-----------------|----------------------------------|-----------------|-----------------|---------------------|-----------------|-----------------|
| | M ¹ | SM ² | NM ³ | M ¹ | SM ² | NM ³ | M ¹ | SM ² | NM ³ |
| 190 | 250 | 0.16 | 0.13 | 280 | 0.17 | 0.15 | 320 | 0.20 | 0.17 |
| 187 | 390 | 0.24 | 0.21 | 370 | 0.23 | 0.20 | 410 | 0.25 | 0.22 |
| 180 | 1,010 | 0.63 | 0.55 | 700 | 0.43 | 0.38 | 750 | 0.47 | 0.40 |
| 170 | 2,990 | 1.86 | 1.61 | 1,760 | 1.09 | 0.95 | 1,760 | 1.09 | 0.95 |
| 160 | 6,210 | 3.86 | 3.35 | 4,450 | 2.77 | 2.40 | 4,100 | 2.55 | 2.21 |
| 154 | 8,570 | 5.33 | 4.63 | 7,820 | 4.86 | 4.22 | 6,780 | 4.21 | 3.66 |
| 120 | 24,650 | 15.32 | 13.31 | 251,320 | 156.16 | 135.70 | 94,870 | 58.95 | 51.23 |

M¹ = Meters; SM² = Statute miles; NM³ = Nautical Miles

5

It is negligent and risky that PG&E is ignoring potential impacts to ocean users—instead, PG&E ought to be applying the precautionary principle to ensure they are avoiding harm to humans.

- **Adverse recreational impacts created by PG&E's Project violate the following sections of the Coastal Act:**
 - **Section 30220—Protection of certain water-oriented activities--** Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.
 - **Section 30224—Recreational boating use; encouragement; and facilities.** Increased recreational boating use of coastal waters shall be encouraged...
 - **Section 30234.5—Economic and Recreational Importance of Fishing.** The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.
 - **Section 30210 Access; recreational opportunities; posting** In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Necessity of PG&E's Seismic Survey Not Demonstrated

After careful review of available documentation, review of expert testimony and discussions with scientists, we find the necessity of PG&E's project for the safety of the Diablo Plant has not been demonstrated.

- The high-energy seismic surveys are unlikely to provide information **necessary** to improve seismic safety at the Diablo Canyon Power Plant.
- Specifically, information from the proposed seismic survey will not address most of the uncertainties with the greatest influence on the hazard assessment at the Diablo Canyon Power Plant,
- Other recently completed studies **will** address the most influential sources of uncertainty. Results of those studies must be analyzed and integrated into the hazard assessment before the necessity of additional seismic survey data for the plant's safety can be determined.
- To qualify for an "override" under Section 30260 of the Coastal Act, public welfare benefits of the project must outweigh its costs. Serious costs from the project to marine life and recreation have been documented, but those benefits have not been demonstrated and less damaging alternatives exist.

The high-energy seismic surveys are unlikely to provide the information necessary to improve seismic safety at the Diablo Canyon Power Plant.

According to expert geophysical researchers, two sets of parameters are required to determine seismic risk.

The first involves the geometry of the faults (which may be addressed by seismic surveys) and the relationship of nearby faults to each other (whether a rupture through travel through both faults), which partly depends on geometry and partly on factors such as how a particular earthquake behaves (not addressed by seismic surveys).

The second set of parameters involves how the faults behave (slip rate, frequency, return interval).

The proposed study will not address the second set of parameters and will only potentially and marginally reduce uncertainties related to the first parameter.

According to the FEIR (Section 5-4):

Among the questions to be answered about the faults in the Project area, the following are the most critical for gaining an understanding of the expected type, magnitude, frequency, and duration of ground motion in the project area:

- The slip rate of the Hosgri fault;
- The dip angle of the Hosgri fault;
- The slip rate of the Shoreline fault; and
- The dip angles of the Los Osos fault.

That is, although other fault parameters... affect seismic hazard modeling results and warrant further study, uncertainties in the above for four characteristics potentially have the greatest effect on model results (PG&E 2011c). But PG&E's proposal will address none of these factors in

2012, and would only address one parameter, the dip of the Hosgri fault, if subsequent phases are approved.

Sensitivity analysis from a recent Senior Seismic Hazard Analysis Committee (SSHAC) report shows for any reasonable scenario for Hosgri dip, ground shaking is within the design specifications of the plant (see presentation, "GENERAL 0104 Wooddell - Sensitivity¹"). Page 7 shows that for any reasonable dip of the Hosgri fault, the modeled shaking is within the design of the plant (the black line labeled 1977 HE). This sensitivity analysis indicates that worst case scenario modeling can be accomplished using existing data, and additional information on the Hosgri dip from seismic surveys is unlikely to affect determination of the safety of the plant.

Information obtained from the proposed seismic survey will not address most uncertainties with the greatest influence on the hazard assessment at the Diablo Canyon Power Plant

Table 1 below presents a longer list of top sources of uncertainty in the assessment of earthquake risk at the Diablo plant, **in priority order**, along with the types of studies capable of reducing those uncertainties. The table shows that (1) *ocean seismic surveys address only one set of uncertainties out of the top eight*; and (2) *scientists are using a variety of other studies to reduce these sources of uncertainty, without the adverse environmental impacts of ocean seismic surveys*.

Table 1: Sources of Uncertainty in Characterizing Seismic Hazard at Diablo Power Plant: Ranked In Order of Greatest Influence on the Assessment of Earthquake Risk²

| <i>Source</i> | <i>Type of Study Needed</i> |
|--|--|
| Choice of Model for Computing Ground Shaking | Scientific consensus-building through publication, review, discussion and debate |
| Hosgri Slip Rate | Low-energy studies (if datable offset rocks are found), ocean-floor GPS ³ (long-term) |
| Hosgri Location and Dip | <u>Ocean seismic</u> , small earthquakes, gravity and magnetic data |
| Hosgri Rupture Length | Modeling, observation of earthquakes |
| Shoreline Slip Rate | Low-energy studies (if datable offset rocks are found), ocean floor GPS ⁴ (long-term) |

¹ <http://www.pge.com/mybusiness/edusafety/systemworks/dcpp/SSHAC/workshops/index.shtml>

² Derived from PG&E's Senior Seismic Hazard Analysis Committee 2011. SSHAC Report Sensitivity Analysis (0104) p. S6, and Dr. Jeanne Hardebeck (personal communication, September 2012)

³ Involves placing very sensitive global positioning system receivers around faults to track how they move relative to each other over several years. The data allow scientists to constrain uncertainties about the slip rate of a fault.

⁴ Involves placing very sensitive global positioning system receivers around faults to track how they move relative to each other over several years. The data allow scientists to constrain uncertainties about the slip rate of a fault.

| | |
|------------------------|--|
| Los Osos Dip | Onshore seismic, geology, small earthquakes, gravity and magnetic data |
| Los Osos Slip Rate | Onshore geology, onshore GPS |
| San Luis Bay Slip Rate | Onshore geology, onshore/offshore GPS |

The table shows that the information obtained from offshore seismic surveys is unlikely to significantly improve the understanding of risk, and therefore is unlikely to materially affect the safety of the plant.

This opinion is shared by Dr. Douglas H. Hamilton who has over 40 years of experience as a geologic consultant for PG & E at the Diablo Canyon Power Plant. Dr. Hamilton recently testified that:

“Nothing in the planned additional surveys, both onshore and offshore, offers any prospect for any result beyond marginal improvement to what is already known....”⁵

Further, the 2011 Independent Peer Review Panel (IPRP) report finds that a number of proposed project activities have only a **moderate chance** of successfully meeting the survey objectives, because the Franciscan formation in the fault area has a geologically “chaotic” structure without good seismic markers.⁶ In sum, there is no consensus regarding the ability to successfully survey in the Franciscan formation.

Other recently completed studies will reduce the most influential sources of uncertainty. Results of those studies must be analyzed and integrated into the hazard assessment before the necessity of additional seismic survey data for the plant’s safety can be determined.

Low-energy, not high-energy seismic studies best address key uncertainties about slip rates of the Hosgri, Shoreline and Los Osos faults. *Land-based* seismic studies best address uncertainties about the dip rates of faults like Los Osos, because the dip is most important near the plant where that fault is underground, not under the ocean. Even for factors like the Hosgri dip, where offshore seismic can be useful, a multitude of other studies also contribute valuable information (see table above). The results of these *other* studies will greatly reduce uncertainties regarding the safety of the plant. It makes little sense to proceed with damaging offshore high-energy surveys before more influential information has been incorporated into hazard assessments, so the marginal value of additional surveys can be determined.

To qualify for an “override” under Section 30260 of the Coastal Act, public welfare benefits of the project must outweigh its costs. Serious costs from the project to marine life and recreation have been documented, but benefits have not been demonstrated.

⁵ Direct Testimony of Douglas H. Hamilton before the CPUC, February 10, 2012

⁶ Central Coastal California Seismic Imaging Project. FEIR, July 2012.

In conclusion, the proposed seismic surveys have only a moderate chance of success, will not answer most of the most influential questions required to assess seismic hazard such as slip rates of faults near the plant, and will only slightly reduce uncertainty regarding fault geometry. We believe an "override" would be necessary in order to permit this project, requiring a finding that the public benefit of the project exceeds its environmental and other costs. But no demonstration has yet been made that the proposed survey will make an appreciable difference in the hazard assessment for the Diablo Canyon reactor or in the safety of the plant. We therefore conclude that an override is not justified.

Legal Authority Regarding Seismic Testing at Diablo Canyon Nuclear Power Plant (DCPP)

- **Neither the State of California nor the Federal Government has legislatively mandated seismic testing at DCPP. Moreover, neither the California Energy Commission (CEC) nor the California Public Utilities Commission (CPUC) has the legal authority to mandate seismic testing at DCPP, especially when considering the jurisdiction of the California Coastal Commission.**

Some proponents of seismic testing have inaccurately suggested that legislation (AB 1632--Blakeslee) mandates seismic testing. AB 1632 requires the California Energy Commission (CEC), as part of its energy forecasting, to compile and evaluate existing scientific studies in order to determine the potential vulnerability of the State's nuclear power plants to a major disruption (due to aging or from a major seismic event). This assessment is to include an analysis of the impact of a major disruption on public safety, the economy, and the reliability of the State's electrical generation and transmission system. ***However the legislation does not mandate seismic testing.***¹

The CEC's evaluation found that shutting down DCPP would have economic and system reliability implications. CEC then recommended that Pacific Gas and Electric (PG&E) update DCPP's seismic hazard profile by using "3D geophysical seismic reflection mapping and other advanced techniques" to supplement previous and ongoing seismic research programs.² In reaction to the CEC recommendations, the California Public Utilities Commission (CPUC) directed PG&E to complete seismic studies and submit the results as part of the CPUC's review of the Nuclear Regulatory Commission license renewal applications for the DCPP (important note: DCPP's license does not expire for over 12 years).

It is imperative to stress that neither the CEC nor the CPUC can mandate PG&E to conduct seismic testing. Both the CEC and the CPUC must "share jurisdiction" over existing regulations and must cooperatively work with other state agencies. More specifically, neither entity can usurp the jurisdiction of other state agencies that flow from a federally approved program, such as the California Coastal Commission (CCC). ***The CCC exercises independent jurisdiction over the Project and retains the responsibility to review it for consistency with the California Coastal Act. Therefore, even if the CPUC were to direct PG&E to conduct testing, the CCC must also concur.***

The lack of legal teeth behind CPUC mandating seismic testing is reinforced by the following sentence included in PG&E's EIR:

"On August 12, 2010, the CPUC concluded: "It is reasonable to provide for independent peer review of [PG&E's] study plans and of the findings/results of the seismic studies approved and funded through this decision. Therefore, the Commission will convene its own IPRP to conduct a review and provide written comments on the study plans prior to implementation and to conduct a review and provide written comments on the findings and/or results of the studies.... ***The scope and authority of the IPRP is limited to review and comment on the study plans for the seismic prior to implementation of those studies...*** and to review and comment on the findings and/or results of the seismic studies approved and funded through

¹ Language of AB 1632:

http://www.leginfo.ca.gov/cgi-bin/postquery?bill_number=ab_1632&sess=0506&house=B&author=blakeslee

² PG&E FEIR:

http://www.slc.ca.gov/division_pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_1.0_INTRODUCTION.pdf

this decision." (emphasis added). ³

Finally, and perhaps most importantly, the Nuclear Regulatory Commission (NRC) has not mandated seismic testing. In wake of the malfunction at Fukushima, the NRC released recommendations that require nuclear power plants to re-evaluate the seismic hazards.

The NRC recommendations commonly known as "Letter 50.54 (f)" **do not** mandate the use of seismic testing. In part, the letter states the following:

"50.54(f) ...all licensees reevaluate the seismic and flooding hazards at their sites using updated seismic and flooding hazard information and present-day regulatory guidance and methodologies and, if necessary, to request they perform a risk evaluation. The evaluations associated with the requested information in this letter do not revise the design basis of the plant". ⁴

In conclusion, the use of seismic testing is not mandated by state legislation or by the federal government.

In order for CEC or the CPUC to direct PG&E to conduct testing, the California Coastal Commission must also concur.

³PG&E's FEIR

http://www.slc.ca.gov/division_pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/PDF/FEIR_1.0_INTRODUCTION.pdf

⁴Letter 50.54 from NRC <http://pbdupws.nrc.gov/docs/ML1205/ML12053A340.pdf>

Alternative Quieter Technologies to Seismic Airguns for Collecting Geophysical Data

The attached paper by Dr. Lindy Weilgart of Dalhousie University, Halifax, makes clear that there are alternatives to the proposed project that could be quickly brought into commercial production and could produce the necessary data while resulting in significantly less impacts to coastal resources than the technology proposed by the applicant.

Dr. Weilgart's main points are:

- High peak pressure is a characteristic of sound believed to be harmful to organisms. The air-gun alternative of marine vibroseis (MV), uses signals of drastically lower peak pressure, representing a 1,000-fold reduction in intensity, and about a 10,000-fold reduction in the area of impact.
- The energy from air-gun impulses, an uncontrolled sound source, is concentrated in the lower frequencies, but includes substantial energy in the tens of kiloHertz (kHz). Geophysicists do not make use of, nor even record, any energy over circa 100 Hz. This energy needlessly impacts marine life, especially animals with mid- or high-frequency hearing.
- An MV system can suppress unwanted higher frequencies (> 100 Hz) while still producing satisfactory geophysical results.
- The necessary seismic information can be extracted using lower levels of energy through improved signal processing, again reducing environmental impact. MV can be used over a broader range of depths than air-guns -- in deep water, shallow water, and transition zones.
- In general, MV surveys would be expected to have less impact (behavioral, physiological, auditory) than air-gun surveys in all habitats and environments regardless of water depth or environmental conditions.
- Stephen Chelminski, the inventor of the air-gun, believes MV to be more benign. He states, "Though air-guns have been an improvement over high explosives to the well-being of marine life, I would very much like to see a more benign sound source such as the MV come into use."
- Deep Towed Acoustic Geophysical Systems (DTAGS) is also a controlled source, like MV, being developed at the Naval Research Laboratory, Stennis Space Center. DTAGS can achieve commercially useful sound pressure levels in the sea floor while keeping sound levels in the ocean to a minimum, especially in the shallower parts of the water column where sensitive marine life is concentrated.
- While there is currently no commercial technology available to replace seismic air-guns, adequate funding could quickly change this. We owe it to the marine environment to keep impacts from seismic surveys to an absolute minimum.

"Alternative Quieter Technologies to Seismic Airguns for Collecting Geophysical Data"

Lindy Weilgart

Department of Biology, Dalhousie University, Canada

and

Okeanos Foundation, Germany

Undersea noise pollution is a growing problem for marine life, with shipping, seismic surveys, and naval sonar being the main sources of noise. The most straightforward and effective mitigation is to: 1) spatially or temporally separate the noise sources from biologically rich areas or concentrations of sensitive species; and 2) quiet the noise sources, through, e.g. technological modifications or quieter alternatives. Here, I explore some possible technological alternatives to seismic airgun surveys, used by the industry to find oil and gas deposits under the sea floor or by academic geophysical researchers, to study geological features of the ocean bottom.

Seismic airgun surveys generate sharp onset (high rise time), loud, intense broadband impulses. These can raise ambient background noise levels 10-30 dB (especially in the very low frequencies of around 20 Hz) over areas covering 35,000-70,000 sq. km. for months at a time (CLARK and GAGNON 2006). Singing humpback or fin whales often stop vocalizing within an hour or less of the survey's start, staying quiet for weeks at a time, resuming only once the survey ends. Exposing a large portion of the population to such noise for several weeks, i.e. having 250 male fin whales collectively not singing during this time, or alternatively, leaving an area of high food resource value (CLARK and GAGNON 2006), is likely to be biologically significant. CASTELLOTE et al. (2012) also found that fin whales changed their songs and moved away from a seismic airgun array for 2-3 weeks after the 10-day seismic survey ended. In over a decade of recordings, bottom-mounted hydrophones detected airguns 4,000 km away, and surveys were heard 80-95% of the days per month, throughout the year, in some areas (NIEUKIRK et al. 2012). Seismic surveys obliterated any biological sounds at times, forming a ubiquitous, dominant part of the background noise.

Since most marine animals rely on sound for their vital life functions, such as communication, mating, prey and predator detection, orientation, and sensing their surroundings, it is not surprising that impacts from airgun surveys on marine species from mammals to fish are well-documented (e.g. GORDON et al. 2004; WEILGART 2007). These can range from hearing or organ damage, displacement from important feeding or mating areas, reductions in fisheries catch rates, masking or obscuring of sounds, through to behavioral effects (e.g. WEILGART 2007).

While the energy from airgun impulses is mostly concentrated in the lower frequencies, there is still substantial energy in the tens of kiloHertz (kHz), which explains why cetaceans with higher frequency sensitivities react to the noise (GOOLD and FISH 1998). Geophysicists and the oil and gas industry do not make use of, nor even record, any energy over ca. 100 Hz, however. This energy therefore needlessly impacts marine life, especially animals with mid- or high-frequency hearing. As a result, Bolt Technology Corporation and WesternGeco have attempted to design an airgun, the E-source airgun, which reduces the output of high-frequency energy while optimizing it in the seismic band of interest, in order to minimize the effects on marine animals.

This approach may be too piecemeal and not comprehensive enough, however, as other potentially damaging characteristics of airgun pulses remain.

Likely a better, more far-reaching and thorough alternative is marine vibroseis (MV). MV uses signals of drastically lower peak pressure than airguns. High peak pressure is a characteristic of sound thought to be harmful to organisms. Most airgun arrays have an effective source level of 255 dB (0-p) in the downward direction, compared with a MV array of about 223 dB rms (BIRD 2003)—a difference of 32 dB. Since the decibel scale is logarithmic, this is more than a 1,000-fold difference in intensity. Peak pressure can be lower with MV at any given distance because the same geophysically useful energy in an airgun pulse is spread over a longer duration, i.e. whatever energy is lost in pressure can be compensated for in the time domain. This means that a 10-ms airgun pulse can be lengthened, by a factor of 100, to a 1-s MV signal, so that it can be 100 times quieter, resulting in about a 10,000-fold reduction in the presumed area of impact in the near field (WEILGART 2010, 2012). A MV survey is estimated to only expose roughly 1-20% of whales and dolphins to high noise levels when compared to those exposed to an airgun survey, based on models (LGL and MAI 2011). Mitigation would be easier, as mitigation radii would be substantially smaller.

MV, as a non-impulsive seismic source, does not have the rapid rise time (sounds quickly increasing in loudness) of airguns. Rapid rise time, along with high peak pressure, is considered to be injurious to tissues. According to SOUTHALL et al. (2007), for cetaceans, a non-pulse sound such as MV would have to be about 12-17 dB louder than an impulse such as airguns produce, to cause the same injury, because of the rapid rise time of an impulse. Thus, the MV technology has a higher likelihood of being more benign toward marine life, with a lower potential to cause hearing damage (WEILGART 2010, 2012).

As mentioned previously, airguns produce wasteful energy in the form of geophysically unwanted higher frequencies (> 100 Hz). MV signals can suppress these frequencies while still producing satisfactory geophysical results. A future MV system is expected to operate between 5-10 Hz to 90-100 Hz, with higher frequencies, such as harmonics, being minimized (LGL and MAI 2011). This substantially reduces the biological effects in species not sensitive to low-frequency sounds (most odontocetes).

MV is considered to be a controlled source, which means it has well-controlled spectral properties. This allows for the necessary seismic information to be extracted using lower levels of energy, e.g. through improved signal processing (LGL and MAI 2011), again reducing environmental impact.

MV can be used over a broader range of depths than airguns can, in deep water, shallow water, and transition zones. The MV sound source can also be operated substantially deeper in the water column than airguns. MV has been demonstrated to operate at a source depth of at least 100 m depth (LGL and MAI 2011) vs. the typical 3-12 m source depth for airguns, but could theoretically operate at 0-1,000 m source depth (WEILGART 2010). The operating depth can be more easily adjusted in MV than airguns, and this can further reduce exposure to key species. For instance, by operating at deeper depths, exposures near the water's surface, where most animals are, are minimized. In shallow water, a MV source would generate a considerably lower peak pressure on the sea floor than airguns, to the benefit of bottom-dwelling marine life (LGL and MAI 2011).

Finally, MV can use either frequency-modulated (FM) sweeps or frequency-coded signals (pseudo-random noise, PRN) as output (LGL and MAI 2011). This makes it more flexible than airguns which are limited to impulses. Both signal types have their advantages: PRN allows use of specially coded patterns to facilitate signal processing, enabling a lower source level; FM sweeps, because they are narrowband, may reduce masking effects (LGL and MAI 2011).

In summary, MV can lower the environmental impact, compared with airguns by:

1. lowering peak pressure levels by increasing the signal's duration, keeping the energy input into the sea floor equivalent, but reducing mitigation radii and exposing only a fraction of animals to high sound levels;
2. eliminating the rapid rise time, which can be biologically damaging;
3. strongly suppressing the unwanted, high-frequency components of the MV signal;
4. having well-controlled spectral properties, so lower levels of energy can be used;
5. operating at deeper depths, reducing the potential for exposing animals nearer the water surface; and
6. being more flexible, using either FM or PRN signals.

The greatest drawback of MV compared with airguns is the greater potential for masking, since the MV signal is of longer duration (seconds vs. tens of milliseconds for an airgun pulse), and MV will likely have a higher duty cycle (percentage of time it is "on"). Some estimates of MV signal duration range from 5-12 s (LGL and MAI 2011). This would impact mainly low-frequency hearing specialists such as baleen whales and some fish. Slight masking effects could extend to a few tens of kilometers from the MV source. As previously mentioned, narrow-band FM sweeps might ameliorate the potential for masking somewhat.

Airgun pulses are also not always as short in duration as they appear, if heard over larger distances from the source. Reverberation and multi-paths "stretch" the signal from its original 10 ms to sometimes seconds, at long ranges. Sometimes, noise levels do not have a chance to return to ambient in the 10 s between airgun shots, since there is still reverberation from the previous shot (WEILGART 2010). MV signals can also be lengthened or stretched in time with increasing distance from the source, but such stretching would be proportionally less than for airgun pulses, since MV signals are longer in duration initially, close to the source (LGL and MAI 2011).

Preliminary research indicates that MV does not cause obvious injury to fish and shrimp (LGL and MAI 2011). More studies on the most important ecosystem components need to be undertaken, however, to show more definitively whether MV is indeed more environmentally benign than airguns. If MV does have a lower impact overall, options for the MV signals (PRN vs. FM sweeps) should be tested to determine which would be best tolerated by the most species.

In general, however, MV surveys would be expected to cause less of an impact (behavioral, physiological, auditory) than airgun surveys in all habitats and environments regardless of water depth or environmental conditions (LGL and MAI 2011). Also, "...tests and limited operational use have demonstrated that, at least in some situations, the MV is a satisfactory energy source from a geophysical perspective..." (SMITH and JENKERSON 1998). Airguns have some

geophysical disadvantages as well, in addition to being more limited in which depths they can be used in. Airguns can become unreliable because of the wear and tear caused by the high pressures they use to operate (LGL and MAI 2011).

As oil and gas exploration extends into ever more sensitive habitat such as the Arctic, MV may have a competitive advantage over airguns, especially if government regulators demand that the least potentially harmful technology be chosen. In fact, national laws often require that an analysis of alternatives be undertaken, to ensure the environment is not needlessly subjected to negative impacts. If MV is shown to be better tolerated by marine life, mitigation measures for MV may be less restrictive than for airguns, and MV surveys may be allowed in situations where airgun surveys are not.

Currently, MV is arguably the most likely technology to eventually replace airguns. Seismic surveys on land used to be accomplished using dynamite, until this became socially and environmentally unacceptable. Explosions were replaced with Vibroseis on land. A commercial electrical MV system, developed in 2008, could be available as early as 2014. It is being commercialized by Geokinetics, which has a license from PGS to use it for shallow water applications. Some mechanical design issues remain, causing unwanted harmonics, however (RUNE TENGHAMN, pers. comm.).

The Global Petroleum Research Institute (GPRI), Department of Petroleum Engineering at Texas A&M University, has a Joint Venture with ExxonMobil, Shell, Total, and Statoil as partners, to investigate alternatives to airguns, mainly MV, for certain seismic surveys. They hope to improve seismic imaging in shallow waters.

Stephen Chelminski, the inventor of the airgun and primary founder of Bolt Technology Corporation, manufacturer of most airguns, and the inventor and designer of almost all of the products the company has made, has also developed a design for a MV prototype. His "seavibe" is 53 cm in diameter, 3.5-6 m in length, fully stream-lined, and towable at any speed. It is pressure-balanced, so it can run on the bottom or be towed at any depth. The signal can be either pulse-coded or a swept signal or even a mix, without any high frequencies (5-100 Hz or can range from 2 to 200 Hz). The signal emitted by the source is dictated by the program controlling it, so the same construction will work and mimic (within its mechanical constraints), all input signals, so it could conceivably switch between the two signal types. The signal can be any duration, and the duration can be changed real-time. It is very reliable, and takes much less horsepower (only 20-50 hp) to tow than airguns. More than 50% of the power to compress air for an airgun array is lost as heat, so overall airguns are only about 5% efficient. The input power to the "seavibe" can be 150 kW or more, and might be close to 80% efficient. Seavibes can be used as arrays, and the design is modular, so one can add length to add power. Seismic surveys could be undertaken with 1-4 units. Chelminski believes MV to be more benign than the airguns he invented. He states, "Though airguns have been an improvement over high explosives to the well-being of marine life, I would very much like to see a more benign sound source such as the MV come into use." (STEPHEN CHELMINSKI, pers. comm.).

Deep Towed Acoustic Geophysical Systems (DTAGS) is also a controlled source, like MV, being developed at the Naval Research Laboratory, Stennis Space Center. The sound source is towed at depth and is insensitive to changes in depth. It produces nearly identical signals at the sea surface to full ocean depth (6000 m). Almost any kind of waveform can be used as output, at almost any sound level under 200 dB (WEILGART 2010). By keeping the source close

to the target of interest, deep water sources such as DTAGS can achieve commercially useful sound pressure levels in the sea floor while keeping sound levels in the ocean to a minimum, especially in the shallower parts of the water column where sensitive marine life is concentrated (WEILGART 2010). DTAGS was tested in the Gulf of Mexico in the summer of 2011, and will undergo another trial off Oregon in September 2012. Though the frequency range of DTAGS is currently 200-4,000 Hz, it may be extended down to about 100 Hz (WARREN WOOD, pers. comm.).

Finally, the U.S.'s Bureau of Ocean Energy Management (BOEM), which manages the exploration and development of the U.S.'s offshore energy resources, intends to hold a workshop on airgun alternatives in early 2013. Alternatives to technologies associated with renewable energy, such as pile driving, will also be discussed.

While there is currently no commercial technology available to replace seismic airguns, with a combination of sufficient regulatory pressure and funding, this could change quickly. We owe it to the marine environment, especially sensitive areas such as the Arctic, to do our utmost to keep impacts from seismic surveys to an absolute minimum.

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November 11, 2012

California Coastal Commission
45 Fremont Street
San Francisco, CA 94105-2219

RE: W13b

Honorable Commissioners

The accusations, emotion and chaos surrounding the Diablo Canyon Seismic Tests have clouded the only issue the Coastal Commission has jurisdiction over... Section 30230 (Protection of Marine Resources). Because I wanted to be very clear about this I have searched many sources for information on the effects of underwater Seismic Testing on marine environments. It is very clear that the current technology for underwater Seismic Testing is detrimental to marine mammals but there is not much research on the invertebrates/fish larvae or the rest of the marine food chains. PGE has tried to mitigate and limit its Seismic Testing to accommodate some of the known impacts. But the truth is we do not know the cumulative impacts on the marine food chain. PGE has stated that this is a mandate, We need to be very clear on this point. PGE is mandated to do Seismic Testing by the Energy Commission before applying for relicense, it is not stipulated how this is to be done. They are also required by the NRC to update all seismic data by 2014, again it is not stipulated how this is to be done. The current method of sonic blasting in the ocean proposed by PGE will cause multiple disruptions of sensitive ecosystems, the cumulative impacts of the disruption are unknown. Because the Commission is charged with protecting marine resources a precautionary approach is necessary. Our oceans and their marine life are under constant threat. Can we afford to allow more threats to these living systems when we don't know what the outcome will be? PG&E has an enormous amount of data collected with 2D studies that has yet to be analyzed. This may provide the information needed for the mandated tests making the 3D tests unnecessary. This distinction is made clear in your excellent staff report. Please follow the staff's recommendation; deny the CDP and object to the consistency certification.

Thank you for saving the California Coast, one step at a time,

Nancy Graves
Board Director, Coastwalk California
San Luis Obispo County, CA
PO Box 109 Grover Beach, CA 93483

Carter, Wetch & Associates

Government Relations • Legislative Advocacy

November 9, 2012

Mary Shallenberger, Chair
California Coastal Commission
45 Fremont Street
San Francisco, CA 94105

Dear Chair Shallenberger:

On behalf of the **California State Association of Electrical Workers and the California State Pipe Trades Council**, I write to urge the Coastal Commission's approval of Pacific Gas and Electric Company's (PG&E) application for coastal development permit and federal consistency certification to conduct a narrowly tailored, fully mitigated and robustly monitored seismic survey off the coast of the company's Diablo Canyon power plant.

As you may know, many of our members work either directly for PG&E or are contracted by PG&E members directly benefit from Diablo Canyon's operations, and wish to underscore the importance of the plant in generating 22% of PG&E's electricity at reasonable and stable cost to customers. As California heads into a scheme of carbon regulation under a cap-and-trade market, the importance of Diablo's GHG-free, base-load generation cannot be overstressed.

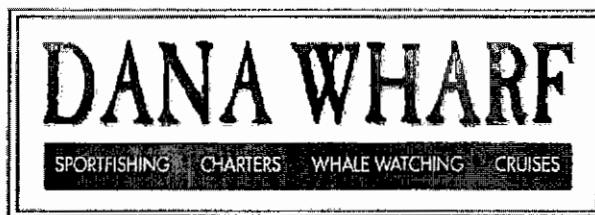
According to a 2003 Nuclear Energy Institute (NEI), Diablo Canyon at that time had a total economic impact of approximately \$642 million. The plant directly employed 1,405 county residents and was responsible for a total of 2,287 jobs—"among the best-paying jobs in the county." According to a report by CalPoly's Orfalea School of Business that studied the economic impact of Diablo Canyon continuing to operate beyond its current license, the plant's contribution to the local economy in 2027 would be 1,578 direct jobs and 3,200 total jobs, for a total annual economic impact of \$1.6 billion to the state and local economy in that year.

It is crucial to the employment base and economic vitality of both San Luis Obispo County and the State of California that Diablo Canyon continues to operate. The studies you are asked to permit will help inform both the Nuclear Regulatory Commission and California Public Utilities Commission as those regulators consider Diablo Canyon's operations beyond its current license. We urge your approval of those permits.

Sincerely,



SCOTT WETCH



November 9, 2012

California Coastal Commission
45 Fremont Street Suite 2000
San Francisco, CA 94105-2219

Re: 13b Application No. E-12-005 and CC-027-12 (Pacific Gas & Electric Co., San Luis Obispo Co.)

Honorable Commissioners:

We write to you as a concerned recreational fishing company that has been in business in Dana Point for over 40 years. Your decision on the Diablo Canyon issue will set precedent for other seismic studies along the California coast, specifically the study scheduled for San Onofre.

Seismic testing off the Central Coast has the potential to devastate the regional commercial fishing industry, which is one of the most important economic engines for Morro Bay. PG&E's Environmental Impact Report (EIR) clearly states the immediate and significant impact to commercial fishing. The EIR also understates the impacts to commercial fishing by relying on outdated data and fails to adequately account for economic losses or mitigation to offset those losses.

The project poses short and long term adverse impacts to the local commercial fishing economy and is inconsistent with Coastal Act Section 30234 which clearly states that both commercial and recreational fishing activities shall be recognized and protected.

We urge you to support your staff's well-researched and documented recommendation for denial.

Thank you for upholding the Coastal Act and working to protect and preserve our finite coastal resources.

Sincerely,



Donna Kalez
General Manager
Dana Wharf Sportfishing
34675 Golden Lantern
Dana Point, CA 92629
949-496-5794

DCISC

DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

COMMITTEE MEMBERS

WEBSITE - WWW.DCISC.ORG

ROBERT J. BUDNITZ
PETER LAM
PER F. PETERSON

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Original will follow by mail

November 9, 2012

Mary Shallenberger, Chair
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

Re California Coastal Commission's Consideration of
Application No. E-12-005 and CC-027-12 (PG&E);
November 14, 2012, Agenda Item 13.b.

Dear Chair Shallenberger and Honorable Commissioners:

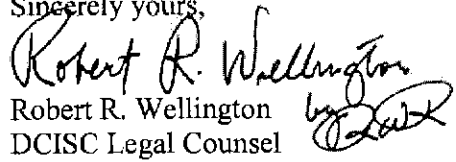
The Diablo Canyon Independent Safety Committee (DCISC) was established by the California Public Utilities Commission in 1989 and its three members are appointed by the Governor, the Attorney General, and the Chairperson of the California Energy Commission respectively. The Committee's charge is to review Diablo Canyon Power Plant (DCPP) operations for the purpose of assessing the safety of operations.

For some time now the DCISC has been following the efforts by PG&E to better understand the seismic hazard at the DCPP site. In August 2012, during the San Luis Obispo County Board of Supervisors' consideration of this important matter, the Committee provided the enclosed letter to the Board. Because the DCISC Members understand the Commission at its meeting on November 14, 2012, is to consider PG&E's Application to conduct offshore high energy three-dimensional studies the Committee respectfully requests that this letter, together with the Committee's letter of August 8, 2012, be included with the comments and correspondence received by the Commission when the matter is taken under consideration next week.

Letter to California Coastal Commission
November 9, 2012
Page 2.

On behalf of the Committee, thank you for your attention to the enclosed comments and please do not hesitate to contact me should you have any questions or require anything further concerning this request. The DCISC is of course available to provide any additional information that you or any member of the Commission might want, or to answer any questions either about our Committee more generally or about this specific technical issue.

Sincerely yours,


Robert R. Wellington
DCISC Legal Counsel

RRW:rwr

cc: DCISC Members
Pacific Gas & Electric Company
Mr. Edward D. Halpin - Senior Vice President & Chief Nuclear Officer, PG&E
Mr. Mark Krausse, Senior Director, State Agency Relations
Mr. Jearl Strickland - DCPD Director of Nuclear Projects, DCPD
Mr. Peter Bedesem - DCPD Technical Asst. to Site Services Director

DCISC

DIABLO CANYON INDEPENDENT SAFETY COMMITTEE

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ROBERT J. BUDNITZ
PETER LAM
PER F. PETERSON

ENCLOSURE

Copy to ahill@co.slo.ca.us
Original will follow by mail

August 8, 2012

The Honorable Adam Hill
County Supervisor, District 3
San Luis Obispo County Board of Supervisors
1055 Monterey
San Luis Obispo, CA 93408-1003

Dear Supervisor Hill:

The Diablo Canyon Independent Safety Committee (DCISC) was established by the California Public Utilities Commission in 1989, and its three members are appointed by the Governor, the Attorney General, and the Chairperson of the California Energy Commission respectively. All DCISC members are required to have professional stature and expertise in the field of nuclear power plant safety. The Committee's charge is to review Diablo Canyon Power Plant (DCPP) operations for the purpose of assessing the safety of operations and suggesting any recommendations for safe operations in its annual reports. The Committee conducts numerous fact-finding visits to the station annually, has access to and reviews extensive documentation about the safety of DCPP operations, and holds three public meetings annually in the vicinity of Diablo Canyon.

For some time and as part of our broader charter, the Committee has been following the work by PG&E to understand the seismic hazard at the DCPP site. The US Nuclear Regulatory Commission (NRC) has regulations governing how the plant is to be designed, built, and operated to assure that the risk of an accident initiated by an earthquake is within their regulatory criteria. Our Committee has studied both those regulations and the technical information about the seismicity at and near the DCPP site, in an effort to reach our own independent understanding.

As is widely known, a few years ago some sensitive measurements of nearby seismic activity revealed that a previously unknown seismic source exists, which is now known as the "Shoreline Fault Zone." This zone is located just offshore of the DCPD site and the fault traces run roughly parallel to the coastline. Since the zone's discovery, our Committee has closely followed the evolution of the understanding of the Shoreline Fault Zone. Our work has included meetings with PG&E and NRC staff, as well as periodic presentations on the subject during our public meetings. The evolution in understanding is ongoing, and has occurred because extensive new seismic data sets have been gathered and analyzed in addition to the original data set that revealed the existence of this zone.

The NRC has reviewed all of the extant data and analyses, and in 2009 the staff reached an interim (tentative) conclusion that the ground motion at the DCPD site arising from a potential earthquake from the Shoreline Fault Zone would not be larger than the seismic ground motion for which the DCPD plant has already been designed – and hence, that there is no need for any changes to the plant's design. In 2011, PG&E submitted to the NRC an extensive set of data and analyses to support its position that the plant as it sits is adequately designed against earthquake risks. The NRC staff has been reviewing that report since then, and although the staff review is well under way, no further NRC report on this topic has emerged.

Our Committee has reviewed all of the extant information, and concurs with both of the important conclusions of the NRC staff. First, we concur that currently there is no information that would require the plant to perform any safety backfits or upgrading. But second, *this is an interim conclusion*, and we concur with the broad view of essentially everyone that *this needs to be more fully supported than it is now*, which can only be accomplished by making certain additional seismic measurements at and around the DCPD site.

Some new measurements and analyses are now under way, but one crucial set of measurements, known as the "high-energy three-dimensional seismic survey," is not yet under way. *These data are urgently needed.* Until these additional measurements are made and studied, neither the NRC nor our Committee will be satisfied that the Shoreline Fault Zone is as well understood as we all would like – more crucially, as assuring public safety requires.

A technically sound plan to gather the required new data has been developed by PG&E, as is their responsibility, and has been reviewed and endorsed by the NRC staff. Our Committee has also reviewed it, and we concur that it is both technically sound and reasonably complete. This latter word ("complete") means to us that until the new measurements are made and analyzed, the community of technical experts does not now believe that any other measurements will be required, except to continue over the very long-term with the network of existing seismic monitoring stations at the site and in its environs.

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Of course, if these new "3-D" measurements reveal any information in the way of a surprise that goes against the thrust of our current understanding, then perhaps even more measurements may then be needed urgently.

There is another reason for desiring to gather this important seismic information urgently, as follows: In March 2012, the NRC issued a generic letter under their regulation 10CFR50.54(f), based on a requirement in the Congressional Appropriations Act PL 112-074 (2011), that requires each operating nuclear power plant to perform a reassessment of the seismicity situation at the plant site. This generic letter is one of several NRC initiatives based on lessons-learned from the Fukushima accident in Japan in March 2011, which of course was caused by a tsunami that was in turn caused by a major earthquake. There is an NRC-imposed schedule for this seismic reassessment work, and in response the DCPD team is planning another comprehensive review of the seismicity at their site.

The basis for the current seismic design of the plant (which the NRC uses for regulatory purposes) accounts for scientific understanding of (i) each of the relevant seismic sources, (ii) transmission of seismic energy from the earthquake source to the site, and (iii) local site effects as the energy enters buildings and affects them and their contained equipment. The reassessment question that the NRC is asking each nuclear plant can be paraphrased as follows: *Is this basis still valid, in light of current scientific understanding?* DCPD needs to begin this reassessment very soon, and in fact is planning to do so. The DCISC is following this closely. The new 3-D data set that DCPD plans to obtain is a vital piece of new information that is necessary to obtain the full picture that the NRC is requesting. A delay in obtaining this data set will mean a delay in the ability of DCPD to meet the NRC's schedule, or alternatively will mean that the upcoming reassessment will not have the benefit of the "latest" information. That would be unfortunate.

All of the above is a preamble to the reason for this letter. As noted, there is a set of important seismic measurements near the DCPD site that both the NRC and our Committee believe are urgently needed. These have been planned, approved technically, and are now "ready to go." However, it is our understanding that certain permits are required that come under the purview of San Luis Obispo County.

In the DCISC's opinion, it is now urgent that the approval process for this technical work should be given high priority, so that an orderly and prompt approval can occur, so that the technical work can then proceed. We are in no position to understand nor to comment on any non-technical issues that may need resolution before such an approval is granted, nor is it our place to discuss those here. However, we are in a position to share with you, and this letter is our vehicle for informing you, that *in our opinion these measurements are very important in order to advance everyone's understanding of the seismicity situation at and near the DCPD site, and that taking them is urgent.* The measurement campaign should not be unnecessarily delayed. If there is a surprise out there, we all want to know about it urgently; and if not --- if in fact the new

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measurements confirm the interim conclusion that the Shoreline Fault Zone does not pose a seismic safety threat to the DCPD plant above that for which DCPD has already been designed --- then knowing that is very important too.

I have sent this letter to your attention as it is my understanding that the DCPD is located within your supervisorial district and ask that the secretary for the Board enter this letter into the official record of correspondence received. The DCISC is of course available to provide any additional information that you or any member of the Board might want, or to answer any questions either about our DCISC Committee more generally or about this specific technical issue.

Sincerely yours,

Peter Lam
Peter Lam
DCISC Chair *[Signature]*

PL:rwf

cc: Supervisor Frank Mecham, District 1
Supervisor Bruce S. Gibson, District 2
Supervisor Paul Teixeira, District 4
Supervisor James Patterson, District 5

California State Lands Commission

Mr. Cy R. Oggins - Chief, Division of Environmental Planning & Management

Pacific Gas & Electric Company

Mr. Edward D. Halpin - Senior Vice President & Chief Nuclear Officer, PG&E

Mr. Jearl Strickland - DCPD Director of Nuclear Projects, DCPD

Tagab, Clarita@Coastal

From: Teufel, Cassidy@Coastal
Sent: Thursday, November 08, 2012 9:37 AM
To: Tagab, Clarita@Coastal
Subject: FW: Say NO to PG&E Central Coastal California Seismic Blasting

From: Sierra Club [information@sierraclub.org] on behalf of Martin Hewitt [camelothis@charter.net]
Sent: Monday, November 05, 2012 6:37 PM
To: Teufel, Cassidy@Coastal
Subject: Say NO to PG&E Central Coastal California Seismic Blasting

Nov 5, 2012

California Coastal Commission

Dear Commission,

At November's meeting, you will be asked to make an important decision about the PG&E Central Coastal California Seismic Imaging Project which, if approved as is, could wreak havoc on the stunning marine wildlife of the central coast. The Coastal Act requires the protection of marine and biological resources as well as prevention of impacts to environmentally sensitive habitat areas (ESHA).

In keeping with the mandate of the California Coastal Act, I urge you to:

- Deny the project at this time, and work with the applicant to fully examine alternatives with the potential to greatly reduce impacts on the marine environment. This project should not move forward until alternative methods such as low-impact studies, better modeling, and technology currently in development have been fully examined as alternatives which may provide essential information on slip rates and earthquake risks that the proposed studies may not provide.

Alternatively, if the project does move forward, I urge you to take all necessary and available steps to:

- Avoid impacts where possible: Dr. Douglas Hamilton, a former PG&E geologist, testified before the California Public Utilities Commission that much of the offshore testing simply duplicates previous work.

Please fully examine the need to test in areas identified by Dr.

Hamilton and delete those that are redundant and unnecessary.

- Reduce impacts where possible: In those areas where offshore testing will take place, the Commission must make every effort to reduce its impacts on marine life, especially threatened and endangered marine mammals. We ask the Commission to deny the extension of the survey to the end of December, when gray whales are migrating through the central coast. We also hope you will fully consider alternative configurations and technologies that could reduce impact to coastal resources.

- Fully account and mitigate for damage to marine resources: The Environmental Impact Report understates the impacts to fisheries and invertebrates. We urge the Commission not to repeat the unfounded assumptions of the EIR and mandate rigorous long-term monitoring and mitigation measures for fish, invertebrates and habitat protection as a condition of any offshore seismic testing.

While I believe that we need to know the real seismic risk of to the Diablo Canyon Power Plant, I think PG&E needs to do this project right the first time.

Thank you for considering my comments.

Sincerely,

Martin Hewitt
1260 De Mar Drive
Los Osos, CA 93402

Tagab, Clarita@Coastal

From: Teufel, Cassidy@Coastal
Sent: Thursday, November 08, 2012 9:36 AM
To: Tagab, Clarita@Coastal
Subject: FW: Comment Letter from Marinet, UK

From: Carol Georgi [cdgeorgi@hotmail.com]
Sent: Tuesday, November 06, 2012 3:10 PM
To: Teufel, Cassidy@Coastal
Cc: David Levy
Subject: Comment Letter from Marinet, UK

Date: Thu, 13 Sep 2012 12:28:27 +0200
From: Levy@dr52.fsnet.co.uk
To: cdgeorgi@hotmail.com

Mary Shallenberger, Chair
California Coastal Commission
45 Fremont Street Suite 2000
San Francisco, CA 94105

**RE: Opposition to Pacific Gas & Electric Seismic Survey:
Consistency Certification and Coastal Development Permit
(E--12--005 and CC--027--12)**

Dear Chair Shallenberger and Honorable Commissioners,

PG&E's proposed permit for high energy seismic survey off California's coast must be denied. A nuclear plant in Central California is seismic testing along fault lines on the Pacific rim. Not only is this playing Russian roulette with earthquakes and tsunamis but the testing at 260 decibels will kill marine life. This is seen as acceptable, the precautionary principle out of the window. As a human being I hope that nothing happens, but Japan demonstrates what could. Remember also the fracking that caused minor earthquakes in the UK.

This extended series of intense seismic tests could precipitate the very earthquake that they are trying to avoid - which means catastrophe for humans. Catastrophe for humans is a game stopper. You must consider the precautionary principle and the uncertainty of science in your decision.

Marinet is the marine network of Friends of the Earth. We are talking to marine organisations throughout the world, and what we can tell you is that people around the world are experiencing the breakdown of their fish stocks and have very real concerns about what industries are doing

to the marine world. It seems so vast endless and because of this, a genuine mind set exists that we cannot affect this out of sight world, but we can and have done so.

In Madagascar European Fishing fleets are exploiting Indian Ocean tuna at well below the world market price, paying a fraction of value to the government and depriving local fishermen of a living and a way of feeding local coastal communities.

Here in Great Britain we have a similar problem; the majority of the fishing quotas go to the off shore fishing fleets that give poor value for the fish they catch whilst the inshore fishermen only get 5% of the quotas but make each fish they catch of real value. Take for example the mackerel fishing boats that bring in a seasonal income and provide such recreational pleasure for thousands of young people and families every year.

With the melting of the Artic icecaps oil companies are lining up for deep water oil and gas exploration. Have we forgotten Deepwater Horizon and the way flags of convenience were abused to avoid safety procedures? Can we not provide the same protection as we do for the Antarctic? Can we not provide protection for our oceans and back it up with a global marine police force?

Faithfully,
David Levy
Chair Marinet
<http://www.marinet.org.uk>

Tagab, Clarita@Coastal

From: Teufel, Cassidy@Coastal
Sent: Thursday, November 08, 2012 9:37 AM
To: Tagab, Clarita@Coastal
Subject: FW: Effects of HESS on Morro Bay National Estuary

From: mandy davis [wildheartcomm@hotmail.com]
Sent: Tuesday, November 06, 2012 8:23 AM
To: Miller, Vanessa@Coastal; Teufel, Cassidy@Coastal
Cc: Susan Jordan; coastalliance@yahooogroups.com; snookbw@yahoo.com; Lucy J Swanson; Santa Lucia Chapter of the Sierra Club; Jack Elwinger
Subject: Effects of HESS on Morro Bay National Estuary

Dear California Coastal Commissioners;

Healthy estuarine systems are one of the most productive ecosystems in the world...second only to a healthy rain forest in bio diversity and bio mass. The Morro Bay National Estuary is one of the few remaining healthy estuaries on the west coast and one of the remaining 10% of viable wetland areas in the state of California.

In 2005, after months of contentious and difficult deliberations, the Central California MPA system was established including the Morro Bay Estuary as an MPA. This action established the estuary as a "no take" zone to ensure protection of this one-of-a-kind estuary and its inhabitants

The estuary is permanent home and rookery to a variety of fish, invertebrates, shellfish, marine mammals and bird of all kinds. Many of these species are specially adapted to a life in an estuarine environment, while others start their lives within its confines and move out into near and offshore areas. It is a nursery to countless species including commercially valuable fish stocks

Morro Bay Estuary is an important interface of fresh and salt water and varied coastal habitats. Its unique geology, configuration and placement on the California coast make it a one of a kind location, one that is valued by thousands of migratory birds that stop here to rest and feed on their long journeys from their northern and inland breeding grounds. It is a perfect and safe place for Harbor Seals to live and pup, a haven for several habitual and permanent Sea Otters and their offspring, and a bountiful smorgasbord for the foraging Sea Lions that migrate here after breeding season.

This incredibly rich place is now in jeopardy of being impacted by acoustic blasts of 250 dbs just outside the entrance to the Morro Bay Harbor. According to all acoustic maps generated in the permitting process by PG&E, the decibel levels reaching into the expanse of the Morro Bay Estuary will reach 160dbs...a level of sound that can destroy fish eggs, injure invertebrates, deafen fish, damage sharks and bat rays, disrupt feeding and gritting behaviors of Brant Geese and waterfowl, potentially injure all diving birds and surface foragers, and

force all marine mammals out of the water to avoid the constant barrage of noise and its negative impacts to their sensitive hearing structures and their unborn babies.

The fact that the Morro Bay Estuary and the impacts of hi level decibels on its inhabitants, including human live-aboard residents, is not even mentioned by any of the permitting agencies is a huge and frankly unacceptable oversight. The permit's EIR does not address any of the protected and sensitive species visiting and resident in the Estuary, the DFG does not list the Morro Bay MPA in its considerations, and the CCC staff has failed to recognize sound impacts to a variety of protected marine mammals, fish, birds, reptiles and amphibians that live in this rich "no-take" zone. The cumulative impacts to our local fisheries and coastal ecosystem as a result of jeopardizing the larval forms and fry growing and transitioning in the eelgrass nurseries has, as of yet, been completely ignored as well.

Additionally, the CCC staff has failed to list the impacts of 160db's to the human live-aboard residents of the Morro Bay Harbor and the displacement that would be certain if the HESS project were to be permitted for the Estero Bay region. 160db sound levels day in and day out transmitted through a boat hull would make for a completely unlivable environment and would be injurious to the resident's health. None of these significant, direct impacts to the human mammals that live in Morro Bay has been addressed in the public health and safety considerations cited in the permitting process.

The affects of high intensity acoustic testing outside the harbor mouth will quite literally make the harbor and estuary a dangerous and potentially lethal trap...an acoustic prison with little to no opportunity for escape. As you will see on the maps provided, the Morro Bay Harbor is long and relatively narrow with an entrance that is narrow and surrounded by volcanic dacite revetment and jetties. In the early 1930's major changes in the Morro Bay Harbor included construction of the dacite causeway, and building of the Embarcadero rocky shore structures.

The changes to the natural shoreline in the harbor and entrance into the estuary has for all intents and purposes created a very dense, rocky amphitheater; one that will not increase attenuation, but potentially increase the impacts of sound entering into the estuary. The uniqueness of the estuary geology and its rocky shoreline just serves to enhance the amphitheatre effect. As the maps show, the decibel levels will remain 160db's all the way back into Shark Inlet and into the reaches of the creeks that empty into the delta.

These creeks, and associated wetlands and ponds are home to steelhead trout and various amphibians and reptiles that are sensitive and threatened species as well. There will be no escape for creatures that are endemic and for animals that are adapted to this specialized habitat.

The estuary, once the testing has begun, will be a place of no escape. Attempt to exit from the estuary will bring the animals just that much closer to the sound source and will put their lives in just that much more jeopardy. Swimming out the harbor entrance will increase the sound levels that they will be exposed to...not a wonderful choice or one that any creature would chose to do.

It is time to bring the Morro Bay National Estuary into the mix. It is time to recognize that the PG&E permit will violate a "no-take" zone, harass and potentially kill numerous protected and sensitive species, drive migratory birds from the estuary and away from crucial feeding and resting areas, negatively impact the harbor residents, have far reaching cumulative impacts to the recreational and commercial fish stocks, and have negative impacts on our tourism based economy.

The negative impacts to a protected bio-system, and a tourism and fishing based economy could alone be the grounds for a complete denial of the PG&E HESS project now before you. Please do not let this ill conceived and unnecessary project harm what many people know to be the jewel of the Central Coast, The Morro Bay National Estuary and MPA.

Below is a partial list of the sensitive species in and around the Morro Bay Estuary that will be impacted by 160db sound levels:

Mammals: Harbor Seals, Southern Sea Otter, California Sea Lion, Harbor porpoises

Resident and migratory birds (diving, surface foraging and plunging feeders): Double Crested Cormorant, Common Loon, Clarks Grebe, Harlequin Duck, California Brown Pelican, American White Pelican, Elegant Tern, Black Skimmer, Marbled Murrelet, Rhinoceros Auklet, Cassin's Auklet, Ancient Murrelet,

Reptiles and amphibians: Southwestern Pond Turtle, California Red Legged Frog

Fish: Tidewater Goby, Steelhead Trout.

Respectfully; Mandy Davis/COAST Alliance and local naturalist and guide

941 993-0996



Northern Chumash Tribal Council

*A Native American Corporation - NorthernChumash.org
67 South Street, San Luis Obispo, CA 93401 805-801-0347*

Cassidy Teufel
California Coastal Commission
Energy, Ocean Resources and
Federal Consistency Division
45 Fremont St., Suite 2000
San Francisco, CA 94105

November 7, 2012

Re: Staff Recommendations PG&E Seismic Testing, Section J, Cultural Resources

Dear Cassidy:

Since the beginning of time for the Chumash Peoples we have been taught by Mother Earth, she is our guide through our magical life. For us we have always known that we are connected to all things, for we understand that without space nothing would be. For us the space between all things is magical, the stuff all things are made of, "white man's God Particle" as talked about this year at CERN labs in Switzerland.

For the Chumash Peoples our magical universe is a song of being, a vibration, we understand the magical nature of vibrations, for us our Sacred Ancient Sites still to this day vibrate with all the ancient time and occurrences, lock in a vibrator world of very special essences, this is our ancestors life, and they live on in these vibrations of life at all of our Sacred Sites, onshore and offshore today. For us there is a magical presents at all of our Sacred Places and Sites, we have always understood to respect these sacred places for they hold great energies and can bring healing and understanding for the future generations.

Science is just beginning to understand the effects of sound <http://youtu.be/CsjV1gjBMbQ> , now in the physical world of matter, vibration often manifests most obviously and clearly in the form of sound. Sound is vibration a fundamental characteristic of energy by far the most important creative Principle in the Universe in all spheres of life and reality. Quantum mechanics, which shows us that not only is "solid" matter made up mostly of energy and "empty" space but what makes a solid a chair vs. you sitting on it is the vibration of its energy. Quantum science has demonstrated that light and matter are made of both particles and waves (New Scientist, May 6, 2010) and can exist in two simultaneous states. Let's consider, for instance, "entanglement" (quantum non-local connection), and the notion that particles can be linked in such a way that changing the quantum state of one instantaneously affects the other, even if they are light years apart.

NCTC firmly understands that the 250db carpet bombing of our Sacred Sites will affect the very core energies of these Sacred Places and Sites.

Fred Collins
NCTC

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OF SAN LUIS OBISPO COUNTY

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November 6, 2012

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CALIFORNIA
COASTAL COMMISSION

Cassidy Teuffel
California Coastal Commission
45 Fremont Street
Suite 2000
San Francisco, CA 94105-2219

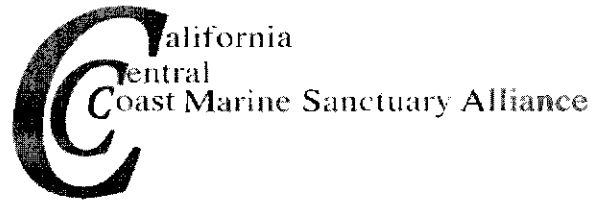
The Environmental Center Of San Luis Obispo (ECOSLO) thanks the Coastal Commission staff for their recommendation for denial of the P G & E seismic blasting project, and urges your Commission to cleanly deny this application. While you are likely to be entreated by the applicants to take an action that is more ambiguous, and that might allow harm to sea creatures in the guise of a "pilot project," it is important to completely foreclose the possibility of violations of Coastal Act sections 30230 and 30231 until all the tests in section 30260 have been met.

We are doubtful that P G & E could ever meet those tests. Since license extension would also extend the damage to sea creatures already caused by their once-through cooling system, their "coastal-dependent use" is actually a coastal-resource-destroying use.

We also support a clean, unambiguous denial because of the terrible precedent that would be set by keeping the current application alive in any form. The overriding considerations adopted by the lead agency, the State Lands Commission, invoked "safety" as the rationale for countenancing serious Class I biological impacts, but without requiring that ANYTHING be done to make us safer. No matter what the "studies" might find, there is no result that would force P G & E to make any physical changes to the source of the danger. If you keep alive an application that allows blatant violations (or waivers) of not only the California Coastal Act, but the Endangered Species Act, the Marine Mammal Protection Act, the Magnuson-Stevens Fishery Conservation and Management Act, and other laws, you set a precedent for meaninglessly and symbolically invoking "safety" or "security" as an excuse for disregarding those laws, and in so doing, render those laws as powerless as if they had been repealed.

For all these reasons, ECOSLO supports a flat, clear denial of the application before you, and urges you to closely scrutinize any future applications from the same source.

Sandra Marshall, Chair
ECOSLO Board of Trustees



November 6, 2012

Mary Shallenberger, Chair
California Coastal Commission
45 Fremont Street Suite 2000
San Francisco, CA 94105

**RE: Opposition to Pacific Gas & Electric Seismic
Survey:**

**Consistency Certification and Coastal Development
Permit (E--□12--□005 and CC--□027--□12)**

Comments on Proposed High Energy Seismic Survey
(HESS) off California's coast

Dear Chair Shallenberger and Honorable Commissioners,

We urge you to deny both the Consistency Certification and the Coastal Development Permit that PG&E is requesting.

We are concerned PG&E's Final Environmental Impact Report using high intensity acoustic blasting between the Channel Islands and the Monterey Bay Sanctuaries are based on false assumptions.

1. False - PG&E is mandated to perform a seismic survey with high intensity acoustic seismic blasting.

The California Energy Commission (CEC) was directed by AB 1632 "to assess the vulnerability of the state's operating nuclear power plants." The bill did not require the kind of seismic studies that PG&E is proposing.

PG&E is not mandated to use high energy seismic testing. Alternative technologies need to be considered

2. False – There are no alternative technologies to use for a seismic survey.

"Alternative Technologies to Seismic Airgun Surveys...", edited by Dr. Weilgart, professor at Dalhousie University discusses many alternative technologies. Lindy Weilgart, PH.D. - Areas of expertise include cetacean, effects of military sonar/seismic on whales, marine noise pollution, vocal behavior, and whales.

3. False – Statistical comparisons of 'take' between many studies and EIRs are statistically comparable

"Take" is defined by the Marine Mammal Protection Act of 1972 (MMPA) as "harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect."

Karl Kempton earned a minor in mathematics with a statistical emphasis and was a former paid statistician. He will address perhaps the most glaring false assumption, in his opinion.

This glaring false assumption is the use of various sonic research papers and conclusions based upon these studies to forecast the numbers of 'take' for various mentioned and unmentioned marine life species, especially mammals. The

sited studies, statistically speaking, are not in the same 'statistical universe' as the proposed seismic imaging project.

PG&E's proposed intensities and durations of the sonic waves exponentially far exceed any sited study or studies; the proposed intensities and durations of the sonic waves are unprecedented in scope compared to any referenced study. Thus, the predictive model is useless other than a significantly understated guess. □□ Moreover, PG&E's EIR ignored the conflict between the federal government's assumed lower standards or assumptions of sonic impacts to marine life, especially mammals, and those of the California Coastal Commission's Report on Acoustic Impacts on Marine Mammals that are stated significantly higher. (See: Coastal CA / Energy / Comments)

The differences between these two standards are of statistical significance. □□ There are major concerns regarding the documents prepared by NSF and the EA prepared by Padre Associates, Inc. Both contradict the high levels of 'take' forecasted by both the DEIR and EIR of PG&E by stating that there will not be significant impact on the environment.

4. False – PG&E's (HESS) will have insignificant impacts on people – Human Mammals

Humans who recreate in the ocean during testing periods will be in danger of receiving internal tissue damage from high intensity decibel shock pressure waves.

PG&E plans to create a 160dB received sonic wave safety radius around the blasting area, including coming to the shoreline where people are recreating in the ocean. The US Navy determined a man's threshold is 145 dB before internal tissue damage occurs. (See: Navy Study)

Brad Snook, Chair San Luis Obispo Chapter of the Surfrider Foundation, gives complete information on the recreational impacts in his letter to the California Coastal Commission.

5. False – PG&E will manage both the Low Energy Seismic Survey (LESS) and the HESS With Integrity and Credibility

According to PG&E, they began the first phase of the LESS in 2010, and completed the second portion in 2011. During the week of August 20, 2012, PG&E resumed LESS research work off portions of California's Central Coast.

PG&E has not announced more LESS research work. However, according to Steve McGrath, Harbor Manager of Port San Luis, The M/V Chinook will be in operation from November 5-16th, daylight hours only. Equipment used is multi-beam and side scan sonar with a length of tow at approximately 500'. The survey area on the permit is Estero Bay, by Toro Creek. This is sea floor mapping sonar not penetrating sound.

Recent events with PG&E's low intensity seismic survey (LESS) lead us to believe PGE is lacking credibility and accountability. There may be many violations with their contractor whose survey vessels were not properly permitted, mitigated, or monitored. Therefore, we are concerned about PG&E's attempt to perform a high intensity seismic survey (HESS).

Several fishermen have reported difficulties with the PG&E's implementation of the LESS. Many believe their interests were overlooked when PG&E hired Fugro as their contractor of the LESS.

Brian Stacy, Vice President Port San Luis Commercial Fishermen's Association, reported the fishermen problems

compounded when they learned CSLC granted Fugro a 1984 geophysical survey general permit.

The companion Negative Declaration, ND 358 was not updated to include today's regulations and expectations, such as protection of the Marine Protected Areas.

There was no mitigation for lost catch meetings, failure to enforce mitigation measures, 50% loss catch rates, failure to address Marine Protected Areas no take regulations, no compensation issues, and more.

Stacy said their main concern for the marine environment and for the financial survival of their fishing businesses is that no baseline data was collected before the LESS began. Since the fish catch rates went down 50% and since many birds, mammals, and fish disappeared either by their death or by leaving the area, we cannot know the abundance and diversity of marine life before the LESS began.

6. False – No mammals will die.

PG&E's EIR Does Not Explain How Air Guns Can Injure and Kill Mammals

Sonic blasting with air guns creates acoustic shock waves that travel underwater in the ocean. When the wave reaches your skin, it would pass through you. Little of its power would be reflected because your body's density is similar to that of the water.

The shock wave would hit the air-filled pockets of your body and instantly compress the gases there, possibly resulting in blocked blood vessels, ruptured lungs, torn internal tissues and even brain hemorrhaging. Waves hitting the surface of the water or the bottom ground would bounce back, inflicting

even more damage. (See: How Stuff Works - Anatomy of an Underwater Explosion)

□ Please read "Underwater Blast Injuries" by Dr. P. G. Landsberg MD for more details of injury and death caused by acoustic shock waves.

PG&E must consider public safety and more recent research showing 160 dB are not safe for most marine mammals.

PG&E's proposed seismic survey for box 4 uses arrays of 18 air guns pulled behind a boat following a grid pattern blasting 250 dB every 15 seconds around the clock for 12 days.

Decibels are logarithmic, meaning every 10dB increase translates into roughly ten times more intensity. The air guns will be firing up to 260 decibels (dB) every 15 seconds day and night for 12 days in Estero Bay in 2012. Also, more seismic surveys are planned for 2013.

Four impacts a minute, 40 impacts in 10 minutes, 240 impacts in 1 hour, 5760 impacts in 1 day (24 hours), and 69,120 in 12 days would mean sea otters could not dive to gather their food.

7. False - Fish and other marine life will survive because they will leave the blasting area, and we will provide a safety limit radius.

To call 160 decibels the safety limit belies the science of damage caused between 159 and 120 decibels. Further, note that 160dB radius enters the Morro Bay National Estuary.

This statement implies staying in the blast area will result in death, and ignores the shellfish, such as abalone and other marine life that cannot move quickly and leave. Thus, the marine life, including fish eggs, larvae, plankton, etc. will be destroyed within the blasting area.

The most glaring omission is that neither a general nor detailed description of the marine web of life can be found. We note a total lack of narrative and study related to the complex web of life. The sonic blasts will greatly impact and in many cases either scatter or destroy populations critical to the web of life — or food chain — thereby causing a much greater and significant number of injured and overall damage than predicted by mere sonic waves. The most glaring contradiction is that the only species of concern are threatened, endangered and commercial while at the same time admitting, though understating, the impact on the Marine Protected Areas.

Cummings found that harbor porpoises can only withstand up to 120dB and may not be able to get out of the bay inlet. Beluga whales are also are sensitive to more than 120dB.

Jim Cummings, Executive Director, The Acoustic Ecology Institute, Santa Fe, New Mexico, US. E-mail Web: AcousticEcology.org

The January-February 2010 MPA News Article

"The 160-dB "safe" criterion noted in the article and widely used in mitigation plans likely represents roughly the sound level at which half the population will be expected to change its behavior in noticeable ways. Unfortunately, the correlation between sound level and behavioral disruption is not at all linear. Many individuals (and some species, particularly

harbor porpoises and beluga whales) respond with aversion or foraging disruptions at much lower levels, down to 120dB. There will always be a subset of a population that is more sensitive to noise."

Lindy Weilgart, Research Associate, Department of Biology, Dalhousie University, Halifax, Nova Scotia, Canada. E-mail: Lindy.

The November-December 2009 MPA News article (MPA News 11:3) on seismic surveys and MPAs resulted in a letter from Lindy Weilgart, PhD stating that "whale and fish disturbance is well documented at receive levels of 130 decibels (dB) and below—in contrast to the 160-dB threshold used at Endeavour, which is 1,000 times louder."

"It is time to seriously research and promote more benign air gun alternatives such as, perhaps, controlled sources, passive seismic [the detection of natural low-frequency earth movements], electromagnetic surveys, etc. - especially in sensitive habitats."

8. False – Sea Otters will be fine because their ears are mostly out of the water.

Southern Sea Otter - PG&E's request for Incidental Harassment Authorization (IHA) and permit for incidental take of Sea Otters

We are seriously concerned for the welfare of Southern Sea Otters during PG&E's proposed Central Coastal California Seismic Imaging Project.

We find the Sea otter study paid for by PG&E unacceptable with its treatment of sea otters because they are not being protected. Evidently, the researchers will monitor how the

sea otters may move away or experience injury or stress while trying to dive for food in the testing area.

We are seriously concerned that 60 sea otters have already been captured, tested, tagged, surgically implanted with two devices, and returned to the testing area for a dangerous experiment: "How they are going to react is the million-dollar question," said Tim Tinker, lead researcher for the tagging project with the U.S. Geological Survey. Read full article by David Sneed.

A 2005 permit, #MA672624-16 USFWS, was used for this recent harassment of 60 sea otters. This is a general permit reauthorized from 2005 for Sea Otter research. We do not understand how this permit can be used for this specific project. Does this permit authorize the large cell-phone-size surgical implants? Watch implanting procedure in this KSBY TV video.

For us, this is an ongoing illustration of problems with the various documentation and testimony for and by PG&E. They state as fact the number of sea otter "take," but then fund research to find out what actually will occur in real time.

We find the CA State Lands Commission response to the welfare of the Southern Sea Otters unacceptable, and as written, will put about 702 (25% of state's total) of the Southern Sea Otters in jeopardy from the proposed seismic tests, EIR page 4.4-23 states 702 sea otters in project area.

Sea otters have been protected by law since 1911 and are protected as a threatened species under the 1972 Endangered Species Act. There is a small population of sea otters along the coast of central California.

If the sea otters are to remain within the testing area, the question is: What intensity (decibels – dB) of seismic testing can sea otters tolerate when diving for food.

We find the following statement unacceptable and lacking knowledge and concern of sea otters diet and behavior.

"The NMSF Level A threshold for cetaceans (180dB) was used as the Level B threshold for sea otters. Because sea otters have the ability to avoid immersion of their heads and ears, this Level A noise level was considered to be appropriate for assessing the extent of disturbance (Level B harassment) to Southern sea otters due to noise."

The above response assumes sea otters can tolerate the 180 dB level because that is what they expect cetaceans to tolerate. Sea otters are not cetaceans, and their level of decibel tolerance is probably closer to that of humans when diving, about 140 dB or less.

We are concerned that PG&E does not fully understand the impacts of acoustic pressure waves created by 18 air guns hitting mammals every 15 seconds day and night for 12 days. All parts of a mammal's body will receive internal tissue damage, especially the torso and head, damage is not restricted to loss of hearing.

One only needs to learn about the sea otters' diet and behavior to understand that leaving them within the high seismic testing zone will result in their death. Death will occur from the 250dB sonic blasts every 15 seconds, 24-hours a day for 12 days. Or death will occur from hyperthermia or starvation because of behavioral changes caused by the blasting.

Since the Southern Sea Otter's common habitat is within kelp forests. It is imperative to protect the kelp forests. We are also concerned about the female sea otters, many of which will be pregnant in December. Pregnant sea otters and pups cannot tolerate high intensity seismic pressure waves hitting them every 15 seconds day and night for 12 days.

According to the Central Coastal CA Seismic Imaging Project EA # 3.6.4.1 Southern Sea Otter: Sea otters are most common in and around kelp beds and open water areas support substantially fewer adults. Kelp habitat provides territories and home range areas for male and females and sea otters will regularly be found in the same area over an extended period. Open water areas can and do have large numbers of otters on a regular basis, but the distributions can shift. It is believed that some of the highest densities continue to be found in open water habitat, such as Estero Bay, Monterey, and offshore of Pismo Beach (Figure 3-11) (M. Harris, pers. comm., 2011). (See PGE NSF (Coastal) EA)

Death by Seismic Testing

Sea otters are not comparable to whales in determining the level of seismic blasts they can withstand. They should be exposed to less intensity than would be recommended for humans.

Death by Hyperthermia

Sea otters need to eat about 25% of the weight in food each day in order to retain their body temperature as they have no blubber. Not being able to dive to get their food due to intense seismic blasting will result in them not eating enough to maintain their body temperature.

Death by Starvation

Sea otters spend much of their lives in the water and can dive up to 330 feet when foraging for food. The reason they dive is that the food is on the bottom of the ocean. Therefore, the intensity of the seismic blasts will determine if the sea otters can tolerate diving for their food.

Sea otters eat many kinds of invertebrates, including clams, snails, sea stars, sea urchins, crabs, squid, octopuses and abalone. This food lies at the bottom of the ocean, where they also pick up a rock. They carry the food and the rock up to the surface. Then they use the rock or other objects to pry and to hammer them open.

We are seriously concerned that the monitoring plans allow the high intensity seismic decibels to be increased if the sea otters appear undisturbed. □ We are seriously concerned about the lack of post-activity monitoring plans. Tissue damage to mammals may not be noticed immediately, and the bodies may wash ashore during the weeks following the seismic testing. For example, during and in the weeks following the low energy seismic testing, many birds died, and many mammal's bodies washed ashore — -dolphins, seals, sea otters. However, no monitoring was in place to collect data.

9. False - PG&E's proposed acoustic blasting will not harm marine sanctuary resources.

The testing area has been approved eligible for marine sanctuary designation since 1990, and sits between the Channel Islands Sanctuary and the Monterey Bay Sanctuary. PG&E states in their EIR, "Sound will travel hundreds of

miles and still be 120dB as far away as 58.95 miles according to PGE report." The damaging acoustic pressure waves will travel into both National Marine Sanctuaries and be 120dB or stronger. (See: The Monterey Bay National Marine Sanctuary comments to the draft EIR)

Not rushing forward with these high intensity seismic tests will give the peer group and PG&E time to review and evaluate the land tests and the low level ocean tests. After this review, scientists can learn what alternative technology can be used to protect our marine life ocean resources, especially sea otters.

Our ocean life and marine food supply are too valuable to recklessly destroy. The Precautionary Principle MUST be the guide for decisions that are made regarding threats to marine life.

Conclusion

If you allow the permit, then the only acceptable mitigation is the restoration of the marine damage and the losses to the coastal communities. The condition of PG&E paying \$2.5 million per year for 20 years to provide funds for a basic marine sanctuary for the restoration of sustainable fishing. Rockfish need to be about 20 years old to reproduce.

This condition would save the City of Morro Bay and other coastal communities, as well as give back to the ocean.

The EIR states that commercial fishing will end for an unknown length of time. The Morro Bay and San Luis Harbor fishermen have worked for decades to create sustainable locally "branded" fishing. They now stand to lose their livelihoods. The fish stocks and their web-of-life will need to be restored.

Thank you for considering these comments,
Sincerely,

Carol Georgi, Coordinator

Email- cdgeorgi@hotmail.com

And

Karl Kempton, Researcher

California Central Coast Marine Sanctuary Alliance

<http://themsa.org/themsa/Welcome.html>

Address: P.O. Box 13222

San Luis Obispo, CA 93406---3222

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By Electronic Mail

November 6, 2012

Chair Mary Shallenberger and
Members of the California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

E-mail: cteufel@coastal.ca.gov; mdelaplaine@coastal.ca.gov



Re: *Diablo Canyon Seismic Testing*

Dear Chair Shallenberger and Members of the Commission:

On behalf of the undersigned organizations of Whales Need US, a coalition of environmental and conservation organizations representing tens of millions of members and activists, we write to express our opposition to PG&E's Central Coastal California Seismic Imaging Project ("seismic survey"), which we understand is now scheduled for discussion at your November 2012 meeting in Santa Monica, California.

Although we support safety at the Diablo Canyon nuclear reactor in San Luis Obispo County – and understand the importance of assessing the earthquake risk at the plant given the disaster at the Fukushima Daiichi Nuclear Power Station last year – we cannot support the seismic survey. The seismic survey will have highly significant, unavoidable impacts on endangered and vulnerable marine mammals and on recently established marine protected areas. It will also affect a wide range of other species and the human communities that depend on ocean ecosystems.

As proposed, the seismic survey will not provide information that is either essential for assessing earthquake risk at the plant or likely to result in improvement in the plant's safety. It will, however, result in high environmental costs.

According to the Final Environmental Impact Report (FEIR) prepared by the California State Lands Commission, the proposed seismic survey will impact over two dozen different species of marine mammals, including four endangered species: blue whales, fin whales, humpback whales, and California sea otters.¹ It will also impact gray whales in the area. While the Eastern North Pacific gray whales are not listed as endangered, Western North Pacific gray whales – one of the most critically endangered species on the planet – could be impacted if a whale migrated early in the season. Although not addressed in the FEIR, recent studies have shown that Western North Pacific gray whales do migrate through these waters.²

The proposed seismic survey will also impact a small, discrete population of harbor porpoises that resides in and around Morro Bay.³ Harbor porpoises are acutely sensitive to man-made sound, making them the most vulnerable both to habitat abandonment and to hearing loss. Given their dependence on sound for most life functions, this could destroy their ability to survive and reproduce. The FEIR concludes that permanent hearing loss and other serious injury incurred as a result of the proposed seismic survey would

¹ Final Environmental Impact Report for the Central Coastal California Seismic Imaging Project, available at http://www.slc.ca.gov/division_pages/DEPM/DEPM_Programs_and_Reports/CCCSIP/CCCSIP.html.

² Oregon State University, Marine Mammal Institute, available at <http://mmi.oregonstate.edu/Sakhalin2011>.

³ FEIR at Section 4.4.

exceed what the Morro Bay population of harbor porpoises can annually sustain, and that these injuries are "significant and unavoidable."⁴ Moreover, impacts from behavioral disruption – such as habitat abandonment and the interruption of breeding, nursing and feeding – could have long term consequences on the population. The FEIR considers behavioral impacts on harbor porpoises would be significant and unavoidable at the population scale.⁵

In addition, the proposed seismic survey would have major impacts on fish and other non-mammal species. The seismic survey will also undermine the ecosystem protection and restoration goals of newly established marine protected areas (MPAs) in San Luis Obispo County, including the State Marine Reserve and State Marine Conservation Area at Point Buchon.

For all these reasons, we urge the Coastal Commission to deny the coastal development permit and federal certification for the proposed seismic survey.

We appreciate your consideration of this important issue.

Sincerely,

Susan Millward, Executive Director
Animal Welfare Institute

Hardy Jones, Executive Director
BlueVoice

William Rossiter, President
Cetacean Society International

David Phillips, Director, International Marine Mammal Project
Earth Island Institute

Allan Thornton, President
Environmental Investigation Agency

Mary Whitney, Founder/Director
Fluke Foundation

Phil Kline, Oceans Campaigner
Greenpeace USA

Tami Drake, Board of Directors
Green Vegans

Sharon Young, Marine Issues Field Director
The Humane Society of the United States

Scott Leonard, Director of Operations
Nantucket Marine Mammal Conservation Program

⁴ FEIR at 4.4-75, 4.4-79.

⁵ FEIR at 4.4-85, H-101.

Peggy Oki, Founder & Director
Origami Whales Project

Lauren E. Campbell, Conservation Manager
Pacific Whale Foundation

Jeff Pantukhoff, President & Founder
The Whaleman Foundation

Sue Rocca, Biologist
Whale and Dolphin Conservation Society

Elizabeth Hogan, Campaign Manager for Oceans & Wildlife
World Society for the Protection of Animals USA

Cc: Governor Jerry Brown
Senator Barbara Boxer
Senator Diane Feinstein
Jolie Harrison, National Marine Fisheries Service
Becky Ota, California Department of Fish and Game
Cy Oggins, California State Lands Commission

Morro Bay Commercial Fishermen's Organization Inc.



P.O. BOX 450, MORRO BAY, CALIFORNIA 93443
(805) 772-4893 • FAX (805) 772-4893 • fish@fix.net

November 1, 2012

California Coastal Commission
45 Fremont Street Suite 2000
San Francisco, CA 94105-2219
(415) 904-5200
FAX (415) 904-5400

Dear Mr. Teufel and commissioners:

The Morro Bay Commercial Fishermen's Organization would like to ask, in the event that a permit is granted to PG&E, that you would include, as a condition of the permit, a memorandum of understanding with the Morro Bay Commercial Fishermen's Organization and the Port San Luis Fishermen's Association.

We feel that without your assistance in this matter, it will not be accomplished. We in our talks with the Department of Fish & Game, the City of Morro Bay, the San Luis Obispo County Board of Supervisors, and the Morro Bay Harbor Department, as well as many others, agree that this step needs to be taken. In fact, a permit is granted.

This in no way is meant to detract from the fact that we would rather see this project not be permitted at all as we are extremely concerned for the resources we depend on for our livelihoods.

Sincerely,

Jeremiah O'Brien
Director of Morro Bay Commercial Fishermen's Organization



Seventh Generation Fund

for Indian Development

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CALIFORNIA
COASTAL COMMISSION

October 31, 2012

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Ms. Cassidy Teufel
California Coastal Commission
Energy, Ocean Resources and Federal Consistency Division
45 Fremont St., Suite 2000
San Francisco, CA 94105

RE: Proposed PG&E Seismic Testing

Dear Ms. Teufel,

In recognition of the significant cultural and biological impacts and the threat of destruction of fallen and submerged sacred sites, the Seventh Generation Fund requests for the California Coastal Commission not to pass the permit for 3D Geophysical Seismic Testing that Pacific Gas and Electric proposes for seismic mapping. The PG&E high-intensity seismic imaging project violates at least 15 laws, regulations, plans, and a number of articles of the United Nations Declarations on the Rights of Indigenous Peoples, including violating the Chumash Peoples' human right to free, prior and informed consent.

The Seventh Generation Fund is a 35-year old Indigenous Peoples' organization dedicated to the self-determination and well-being of Native Peoples and cultures and the vitality of traditional homelands and ecosystems. We recognize that the region targeted for seismic testing is the traditional homelands and waterways of the Chumash People. These are the lands, coastline, and waterways which the Chumash People have lived/occupied, used, and have continued to maintain their distinct cultural relationships from time immemorial.

Our organization supports the Chumash Peoples' position against the proposed testing. We echo their urgent concerns about the impacts of such testing in their traditional territories. Seventh Generation Fund stands in solidarity with them for the protection of their cultural resources, sacred sites, marine relatives, public safety, and express concern for the expenses being passed to ratepayers for this testing.

Pursuant to the UN Declaration on the Rights of Indigenous Peoples, endorsed by the United Nations in September 2007, and by the U.S. under Obama's administration, December 2010, we encourage you to note Articles 25, 26, 27, and 28. These outline the minimum human rights standards to which Indigenous Peoples are entitled under this instrument and pertains to this issue for the Chumash. This includes their human right to fully participate in any decision making in their territories and their right to free, prior and informed consent to any activity in their traditional territories.

Regarding Marine Life:

Numerous studies correlate devastating marine animal deaths in regions where seismic testing has occurred.

From noyoneews.net:

"Each of these underwater blasts will be at the volume level of a shock wave, that will instantly deafen, maim and possibly kill everything unfortunate enough to be in its path. A 240 dB blast is reportedly like being one foot away from the mouth of a large cannon. For a human, your ears, or what's left of your ears, would probably never stop ringing. The consequences of experiencing this level of sound can only be presumed to be immediate and permanent deafness – if not worse. For sea life, beyond just broken eardrums, the transfer of low-frequency shock waves from water-air-water causes hemorrhaging of lungs and air-sacks, and will result in the death of marine mammals – whales, dolphins, seals, sea lions and otters – and fish."

The Natural Resources Defense Council has put out a warning stating that the loud blasts could deafen porpoises and other marine animals, which rely heavily upon their sense of hearing for survival.

Financial Impact on PG&E Ratepayers:

On Sept 13, 2012, the California Public Utilities Commission approved a PG&E request to pass along the \$64 million dollar price tag for the seismic studies to its California customers through rate increases

Perpetuation of Tribal Genocide:

The disturbance to submerged or fallen Chumash Sacred Sites and Chumash Cultural Resources with the anchoring of a very large vessel along the coastline and laying cables and nodes upon the ocean floor. The 260db sonic blasts, which will travel through the water and 10 miles into the earth's crust, will devastate the local marine ecosystem and disturb fragile and sensitive Sacred Chumash Cultural Sites that have been known as spiritually significant to the Chumash people for thousands of years.

As Indigenous Peoples we have great reverence for the sea and we recognize its power to create all life. The vitality of the world's oceans is essential for the health of the earth and all peoples. As with many Indigenous peoples, our culture is intertwined with our land and our waters. Our guardians are the animals and we share a connection with all living things in the natural world.

Public Safety Concerns:


"If you are in the water too near the airguns while they are being deployed for the surveys, your hearing could be severely damaged, or worse." excerpts from PG&E's EIR (Chapter 4.10 – Land Use and Recreation) about the following impacts to recreational activities on the Central Coast during testing. The PG&E high-intensity seismic imaging project violates at least 15 laws, regulations, plans, and several articles of the United Nations Declaration on the Rights of Indigenous Peoples.

Considering the above mentioned concerns and information provided, Seventh Generation Fund would like to again extend our full support of the Chumash Peoples' in opposition of the 3D Geophysical Seismic Testing that Pacific Gas and Electric is proposing as a means for seismic mapping off the coast of southern California. Seventh Generation Fund supports the Chumash and their endeavors to protect

and preserve the oceans and all living things from harm inflicted upon them by practices such as seismic testing.

Our organization is very concerned with the proposed seismic actions and seeks your immediate attention to this matter, and to not grant the permit. If you have any questions regarding this letter please contact our office at (707) 825-7640.

Thank you,



Tia Ofos Peters
Executive Director

cyo/TPO

United Nations Declaration
on the Rights of Indigenous Peoples





Resolution adopted by the General Assembly

[without reference to a Main Committee (A/61/L.67 and Add.1)]

61/295. United Nations Declaration on the Rights of Indigenous Peoples

The General Assembly,

Taking note of the recommendation of the Human Rights Council contained in its resolution 1/2 of 29 June 2006,¹ by which the Council adopted the text of the United Nations Declaration on the Rights of Indigenous Peoples,

Recalling its resolution 61/178 of 20 December 2006, by which it decided to defer consideration of and action on the Declaration to allow time for further consultations thereon, and also decided to conclude its consideration before the end of the sixty-first session of the General Assembly,

Adopts the United Nations Declaration on the Rights of Indigenous Peoples as contained in the annex to the present resolution.

*107th plenary meeting
13 September 2007*

Annex

United Nations Declaration on the Rights of Indigenous Peoples

The General Assembly,

Guided by the purposes and principles of the Charter of the United Nations, and good faith in the fulfilment of the obligations assumed by States in accordance with the Charter,

Affirming that indigenous peoples are equal to all other peoples, while recognizing the right of all peoples to be different, to consider themselves different, and to be respected as such,

¹ See *Official Records of the General Assembly, Sixty-first Session, Supplement No. 53 (A/61/53)*, part one, chap. II, sect. A.

Affirming also that all peoples contribute to the diversity and richness of civilizations and cultures, which constitute the common heritage of humankind,

Affirming further that all doctrines, policies and practices based on or advocating superiority of peoples or individuals on the basis of national origin or racial, religious, ethnic or cultural differences are racist, scientifically false, legally invalid, morally condemnable and socially unjust,

Reaffirming that indigenous peoples, in the exercise of their rights, should be free from discrimination of any kind,

Concerned that indigenous peoples have suffered from historic injustices as a result of, inter alia, their colonization and dispossession of their lands, territories and resources, thus preventing them from exercising, in particular, their right to development in accordance with their own needs and interests,

Recognizing the urgent need to respect and promote the inherent rights of indigenous peoples which derive from their political, economic and social structures and from their cultures, spiritual traditions, histories and philosophies, especially their rights to their lands, territories and resources,

Recognizing also the urgent need to respect and promote the rights of indigenous peoples affirmed in treaties, agreements and other constructive arrangements with States,

Welcoming the fact that indigenous peoples are organizing themselves for political, economic, social and cultural enhancement and in order to bring to an end all forms of discrimination and oppression wherever they occur,

Convinced that control by indigenous peoples over developments affecting them and their lands, territories and resources will enable them to maintain and strengthen their institutions, cultures and traditions, and to promote their development in accordance with their aspirations and needs,

Recognizing that respect for indigenous knowledge, cultures and traditional practices contributes to sustainable and equitable development and proper management of the environment,

Emphasizing the contribution of the demilitarization of the lands and territories of indigenous peoples to peace, economic and social

progress and development, understanding and friendly relations among nations and peoples of the world,

Recognizing in particular the right of indigenous families and communities to retain shared responsibility for the upbringing, training, education and well-being of their children, consistent with the rights of the child,

Considering that the rights affirmed in treaties, agreements and other constructive arrangements between States and indigenous peoples are, in some situations, matters of international concern, interest, responsibility and character,

Considering also that treaties, agreements and other constructive arrangements, and the relationship they represent, are the basis for a strengthened partnership between indigenous peoples and States,

Acknowledging that the Charter of the United Nations, the International Covenant on Economic, Social and Cultural Rights² and the International Covenant on Civil and Political Rights,² as well as the Vienna Declaration and Programme of Action,³ affirm the fundamental importance of the right to self-determination of all peoples, by virtue of which they freely determine their political status and freely pursue their economic, social and cultural development,

Bearing in mind that nothing in this Declaration may be used to deny any peoples their right to self-determination, exercised in conformity with international law,

Convinced that the recognition of the rights of indigenous peoples in this Declaration will enhance harmonious and cooperative relations between the State and indigenous peoples, based on principles of justice, democracy, respect for human rights, non-discrimination and good faith,

Encouraging States to comply with and effectively implement all their obligations as they apply to indigenous peoples under international instruments, in particular those related to human rights, in consultation and cooperation with the peoples concerned,

Emphasizing that the United Nations has an important and continuing role to play in promoting and protecting the rights of indigenous peoples,

² See resolution 2200 A (XXI), annex.

³ A/CONF.157/24 (Part I), chap. III.

Believing that this Declaration is a further important step forward for the recognition, promotion and protection of the rights and freedoms of indigenous peoples and in the development of relevant activities of the United Nations system in this field,

Recognizing and reaffirming that indigenous individuals are entitled without discrimination to all human rights recognized in international law, and that indigenous peoples possess collective rights which are indispensable for their existence, well-being and integral development as peoples,

Recognizing that the situation of indigenous peoples varies from region to region and from country to country and that the significance of national and regional particularities and various historical and cultural backgrounds should be taken into consideration,

Solemnly proclaims the following United Nations Declaration on the Rights of Indigenous Peoples as a standard of achievement to be pursued in a spirit of partnership and mutual respect:

Article 1

Indigenous peoples have the right to the full enjoyment, as a collective or as individuals, of all human rights and fundamental freedoms as recognized in the Charter of the United Nations, the Universal Declaration of Human Rights⁴ and international human rights law.

Article 2

Indigenous peoples and individuals are free and equal to all other peoples and individuals and have the right to be free from any kind of discrimination, in the exercise of their rights, in particular that based on their indigenous origin or identity.

Article 3

Indigenous peoples have the right to self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.

Article 4

Indigenous peoples, in exercising their right to self-determination, have the right to autonomy or self-government in matters relating to

⁴ Resolution 217 A (III).

their internal and local affairs, as well as ways and means for financing their autonomous functions.

Article 5

Indigenous peoples have the right to maintain and strengthen their distinct political, legal, economic, social and cultural institutions, while retaining their right to participate fully, if they so choose, in the political, economic, social and cultural life of the State.

Article 6

Every indigenous individual has the right to a nationality.

Article 7

1. Indigenous individuals have the rights to life, physical and mental integrity, liberty and security of person.
2. Indigenous peoples have the collective right to live in freedom, peace and security as distinct peoples and shall not be subjected to any act of genocide or any other act of violence, including forcibly removing children of the group to another group.

Article 8

1. Indigenous peoples and individuals have the right not to be subjected to forced assimilation or destruction of their culture.
2. States shall provide effective mechanisms for prevention of, and redress for:
 - (a) Any action which has the aim or effect of depriving them of their integrity as distinct peoples, or of their cultural values or ethnic identities;
 - (b) Any action which has the aim or effect of dispossessing them of their lands, territories or resources;
 - (c) Any form of forced population transfer which has the aim or effect of violating or undermining any of their rights;
 - (d) Any form of forced assimilation or integration;
 - (e) Any form of propaganda designed to promote or incite racial or ethnic discrimination directed against them.

Article 9

Indigenous peoples and individuals have the right to belong to an indigenous community or nation, in accordance with the traditions and customs of the community or nation concerned. No discrimination of any kind may arise from the exercise of such a right.

Article 10

Indigenous peoples shall not be forcibly removed from their lands or territories. No relocation shall take place without the free, prior and informed consent of the indigenous peoples concerned and after agreement on just and fair compensation and, where possible, with the option of return.

Article 11

1. Indigenous peoples have the right to practise and revitalize their cultural traditions and customs. This includes the right to maintain, protect and develop the past, present and future manifestations of their cultures, such as archaeological and historical sites, artefacts, designs, ceremonies, technologies and visual and performing arts and literature.
2. States shall provide redress through effective mechanisms, which may include restitution, developed in conjunction with indigenous peoples, with respect to their cultural, intellectual, religious and spiritual property taken without their free, prior and informed consent or in violation of their laws, traditions and customs.

Article 12

1. Indigenous peoples have the right to manifest, practise, develop and teach their spiritual and religious traditions, customs and ceremonies; the right to maintain, protect, and have access in privacy to their religious and cultural sites; the right to the use and control of their ceremonial objects; and the right to the repatriation of their human remains.
2. States shall seek to enable the access and/or repatriation of ceremonial objects and human remains in their possession through fair, transparent and effective mechanisms developed in conjunction with indigenous peoples concerned.

Article 13

1. Indigenous peoples have the right to revitalize, use, develop and transmit to future generations their histories, languages, oral traditions, philosophies, writing systems and literatures, and to designate and retain their own names for communities, places and persons.
2. States shall take effective measures to ensure that this right is protected and also to ensure that indigenous peoples can understand and be understood in political, legal and administrative proceedings, where necessary through the provision of interpretation or by other appropriate means.

Article 14

1. Indigenous peoples have the right to establish and control their educational systems and institutions providing education in their own languages, in a manner appropriate to their cultural methods of teaching and learning.
2. Indigenous individuals, particularly children, have the right to all levels and forms of education of the State without discrimination.
3. States shall, in conjunction with indigenous peoples, take effective measures, in order for indigenous individuals, particularly children, including those living outside their communities, to have access, when possible, to an education in their own culture and provided in their own language.

Article 15

1. Indigenous peoples have the right to the dignity and diversity of their cultures, traditions, histories and aspirations which shall be appropriately reflected in education and public information.
2. States shall take effective measures, in consultation and cooperation with the indigenous peoples concerned, to combat prejudice and eliminate discrimination and to promote tolerance, understanding and good relations among indigenous peoples and all other segments of society.

Article 16

1. Indigenous peoples have the right to establish their own media in their own languages and to have access to all forms of non-indigenous media without discrimination.

2. States shall take effective measures to ensure that State-owned media duly reflect indigenous cultural diversity. States, without prejudice to ensuring full freedom of expression, should encourage privately owned media to adequately reflect indigenous cultural diversity.

Article 17

1. Indigenous individuals and peoples have the right to enjoy fully all rights established under applicable international and domestic labour law.

2. States shall in consultation and cooperation with indigenous peoples take specific measures to protect indigenous children from economic exploitation and from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development, taking into account their special vulnerability and the importance of education for their empowerment.

3. Indigenous individuals have the right not to be subjected to any discriminatory conditions of labour and, inter alia, employment or salary.

Article 18

Indigenous peoples have the right to participate in decision-making in matters which would affect their rights, through representatives chosen by themselves in accordance with their own procedures, as well as to maintain and develop their own indigenous decision-making institutions.

Article 19

States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them.

Article 20

1. Indigenous peoples have the right to maintain and develop their political, economic and social systems or institutions, to be secure in the enjoyment of their own means of subsistence and development, and to engage freely in all their traditional and other economic activities.

2. Indigenous peoples deprived of their means of subsistence and development are entitled to just and fair redress.

Article 21

1. Indigenous peoples have the right, without discrimination, to the improvement of their economic and social conditions, including, inter alia, in the areas of education, employment, vocational training and retraining, housing, sanitation, health and social security.
2. States shall take effective measures and, where appropriate, special measures to ensure continuing improvement of their economic and social conditions. Particular attention shall be paid to the rights and special needs of indigenous elders, women, youth, children and persons with disabilities.

Article 22

1. Particular attention shall be paid to the rights and special needs of indigenous elders, women, youth, children and persons with disabilities in the implementation of this Declaration.
2. States shall take measures, in conjunction with indigenous peoples, to ensure that indigenous women and children enjoy the full protection and guarantees against all forms of violence and discrimination.

Article 23

Indigenous peoples have the right to determine and develop priorities and strategies for exercising their right to development. In particular, indigenous peoples have the right to be actively involved in developing and determining health, housing and other economic and social programmes affecting them and, as far as possible, to administer such programmes through their own institutions.

Article 24

1. Indigenous peoples have the right to their traditional medicines and to maintain their health practices, including the conservation of their vital medicinal plants, animals and minerals. Indigenous individuals also have the right to access, without any discrimination, to all social and health services.
2. Indigenous individuals have an equal right to the enjoyment of the highest attainable standard of physical and mental health. States shall take the necessary steps with a view to achieving progressively the full realization of this right.

Article 25

Indigenous peoples have the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources and to uphold their responsibilities to future generations in this regard.

Article 26

1. Indigenous peoples have the right to the lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired.
2. Indigenous peoples have the right to own, use, develop and control the lands, territories and resources that they possess by reason of traditional ownership or other traditional occupation or use, as well as those which they have otherwise acquired.
3. States shall give legal recognition and protection to these lands, territories and resources. Such recognition shall be conducted with due respect to the customs, traditions and land tenure systems of the indigenous peoples concerned.

Article 27

States shall establish and implement, in conjunction with indigenous peoples concerned, a fair, independent, impartial, open and transparent process, giving due recognition to indigenous peoples' laws, traditions, customs and land tenure systems, to recognize and adjudicate the rights of indigenous peoples pertaining to their lands, territories and resources, including those which were traditionally owned or otherwise occupied or used. Indigenous peoples shall have the right to participate in this process.

Article 28

1. Indigenous peoples have the right to redress, by means that can include restitution or, when this is not possible, just, fair and equitable compensation, for the lands, territories and resources which they have traditionally owned or otherwise occupied or used, and which have been confiscated, taken, occupied, used or damaged without their free, prior and informed consent.
2. Unless otherwise freely agreed upon by the peoples concerned, compensation shall take the form of lands, territories and resources

equal in quality, size and legal status or of monetary compensation or other appropriate redress.

Article 29

1. Indigenous peoples have the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. States shall establish and implement assistance programmes for indigenous peoples for such conservation and protection, without discrimination.

2. States shall take effective measures to ensure that no storage or disposal of hazardous materials shall take place in the lands or territories of indigenous peoples without their free, prior and informed consent.

3. States shall also take effective measures to ensure, as needed, that programmes for monitoring, maintaining and restoring the health of indigenous peoples, as developed and implemented by the peoples affected by such materials, are duly implemented.

Article 30

1. Military activities shall not take place in the lands or territories of indigenous peoples, unless justified by a relevant public interest or otherwise freely agreed with or requested by the indigenous peoples concerned.

2. States shall undertake effective consultations with the indigenous peoples concerned, through appropriate procedures and in particular through their representative institutions, prior to using their lands or territories for military activities.

Article 31

1. Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.

2. In conjunction with indigenous peoples, States shall take effective measures to recognize and protect the exercise of these rights.

Article 32

1. Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources.

2. States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources.

3. States shall provide effective mechanisms for just and fair redress for any such activities, and appropriate measures shall be taken to mitigate adverse environmental, economic, social, cultural or spiritual impact.

Article 33

1. Indigenous peoples have the right to determine their own identity or membership in accordance with their customs and traditions. This does not impair the right of indigenous individuals to obtain citizenship of the States in which they live.

2. Indigenous peoples have the right to determine the structures and to select the membership of their institutions in accordance with their own procedures.

Article 34

Indigenous peoples have the right to promote, develop and maintain their institutional structures and their distinctive customs, spirituality, traditions, procedures, practices and, in the cases where they exist, juridical systems or customs, in accordance with international human rights standards.

Article 35

Indigenous peoples have the right to determine the responsibilities of individuals to their communities.

Article 36

1. Indigenous peoples, in particular those divided by international borders, have the right to maintain and develop contacts, relations and cooperation, including activities for spiritual, cultural, political, economic and social purposes, with their own members as well as other peoples across borders.
2. States, in consultation and cooperation with indigenous peoples, shall take effective measures to facilitate the exercise and ensure the implementation of this right.

Article 37

1. Indigenous peoples have the right to the recognition, observance and enforcement of treaties, agreements and other constructive arrangements concluded with States or their successors and to have States honour and respect such treaties, agreements and other constructive arrangements.
2. Nothing in this Declaration may be interpreted as diminishing or eliminating the rights of indigenous peoples contained in treaties, agreements and other constructive arrangements.

Article 38

States, in consultation and cooperation with indigenous peoples, shall take the appropriate measures, including legislative measures, to achieve the ends of this Declaration.

Article 39

Indigenous peoples have the right to have access to financial and technical assistance from States and through international cooperation, for the enjoyment of the rights contained in this Declaration.

Article 40

Indigenous peoples have the right to access to and prompt decision through just and fair procedures for the resolution of conflicts and disputes with States or other parties, as well as to effective remedies for all infringements of their individual and collective rights. Such a decision shall give due consideration to the customs, traditions, rules and legal systems of the indigenous peoples concerned and international human rights.

Article 41

The organs and specialized agencies of the United Nations system and other intergovernmental organizations shall contribute to the full realization of the provisions of this Declaration through the mobilization, inter alia, of financial cooperation and technical assistance. Ways and means of ensuring participation of indigenous peoples on issues affecting them shall be established.

Article 42

The United Nations, its bodies, including the Permanent Forum on Indigenous Issues, and specialized agencies, including at the country level, and States shall promote respect for and full application of the provisions of this Declaration and follow up the effectiveness of this Declaration.

Article 43

The rights recognized herein constitute the minimum standards for the survival, dignity and well-being of the indigenous peoples of the world.

Article 44

All the rights and freedoms recognized herein are equally guaranteed to male and female indigenous individuals.

Article 45

Nothing in this Declaration may be construed as diminishing or extinguishing the rights indigenous peoples have now or may acquire in the future.

Article 46

1. Nothing in this Declaration may be interpreted as implying for any State, people, group or person any right to engage in any activity or to perform any act contrary to the Charter of the United Nations or construed as authorizing or encouraging any action which would dismember or impair, totally or in part, the territorial integrity or political unity of sovereign and independent States.

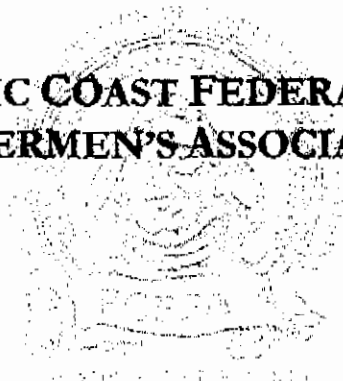
2. In the exercise of the rights enunciated in the present Declaration, human rights and fundamental freedoms of all shall be respected. The exercise of the rights set forth in this Declaration shall be subject only to such limitations as are determined by law

and in accordance with international human rights obligations. Any such limitations shall be non-discriminatory and strictly necessary solely for the purpose of securing due recognition and respect for the rights and freedoms of others and for meeting the just and most compelling requirements of a democratic society.

3. The provisions set forth in this Declaration shall be interpreted in accordance with the principles of justice, democracy, respect for human rights, equality, non-discrimination, good governance and good faith.

David Birts
President
Larry Collins
Vice-President
Duncan MacLean
Secretary
Mike Stiller
Treasurer

**PACIFIC COAST FEDERATION
of FISHERMEN'S ASSOCIATIONS**



W.F. "Zeke" Grader, Jr.
Executive Director
Glen H. Spain
Northwest Regional Director
Vivian Helliwell
Watershed Conservation Director
In Memoriam:
Nathaniel S. Bingham
Harold C. Christensen

Please Respond to:

☒ **California Office**

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Fax: (541) 689-2500

26 October 2012

Mr. Rod McInnis
Southwest Regional Administrator
National Marine Fisheries Service
501 W. Ocean Blvd., Suite 4200
Long Beach, CA 90802-4213

RE: Incidental Take Permit for Central Valley Winter and Spring-Run Chinook Salmon
California Central Coast Coho Salmon by Pacific Gas & Electric

Dear Administrator McInnis:

The Pacific Coast Federation of Fishermen's Associations (PCFFA) represents working men and women in the West Coast commercial fishing fleet. Among our members are the vast majority of California's organized salmon trollers whose livelihoods depend directly on the health and abundance of our salmon stocks.

As you know, California's salmon fisheries are constrained in part to protect the Endangered Species Act (ESA) listed Central Valley winter-run and spring-run chinook salmon and California central coast stocks of coho salmon. These stocks may be found in ocean waters along California's south-central coast to as far south as Point Conception, sometimes further. As you are also aware, Pacific Gas & Electric (PG&E) currently has a permit application to conduct seismic surveys in ocean waters along the south central coast as part of testing to determine the seismic safety of its Diablo Canyon nuclear power plant located near Avila Beach (Port San Luis).

Studies have shown that offshore seismic testing, for oil exploration or other purposes, can harm marine mammals and likely harm marine fishes. PCFFA, for example, was part of an oversight committee ("Eggs & Larvae Committee") approximately two decades ago where researchers found significant mortality caused anchovy populations by seismic testing. Since juvenile salmon in the ocean may be of a size approximating an adult anchovy, it is reasonable to expect they will be harmed by any seismic testing within their proximity.

STEWARDS OF THE FISHERIES

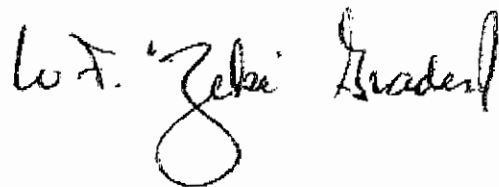
Mr. Rod McInnis
26 October 2012
Page Two

For the reasons stated above, PCFFA asks to know the following:

- 1) Has PG&E made a request for an incidental take permit, pursuant to the ESA, for winter or spring-run chinook, or coho salmon, for the conduct of the proposed seismic surveys?
- 2) Has NMFS notified PG&E that an incidental take permit for these stocks may be required if there is a likelihood of harm or mortality to the fish from the proposed seismic survey operation?
- 3) Has PG&E applied for an incidental take permit from NMFS for the proposed seismic survey?
- 4) Has PG&E offered any conditions to be imposed on an incidental take permit to lessen or mitigate the impacts of the proposed seismic survey?
- 5) Has NMFS granted PG&E an incidental take permit to cover the above fish species and, if so, what, if any, conditions were placed on that permit?

As you know, the California Fish & Game Commission has already expressed concern about the potential impact of this survey on the marine environment; the permit application will next be heard by the California Coastal Commission, most likely on 15 November. PCFFA would appreciate therefore an answer at the earliest possible date on the status of an incidental take permit for PG&E to cover possible take of ESA-listed salmon stocks from this operation.

Sincerely,

A handwritten signature in black ink that reads "W.F. 'Zeke' Grader, Jr." The signature is written in a cursive, flowing style.

W.F. "Zeke" Grader, Jr.
Executive Director

cc: Ms. Mary Shallenberger, Chair, California Coastal Commission
Dr. Don McIsaac, Executive Director, Pacific Fishery Management Council

E-12-005 / CC-027-12
PG&E SEISMIC SURVEY

OPPOSITION LETTERS FROM
INTERESTED INDIVIDUALS

Dear California Coastal Commissioners,

I am a long time resident of the Central Coast, a naturalist and eco guide, mother of two and more importantly a voice for the 100's of marine species that will be impacted by PG&E's proposed Central Coast seismic imaging project. I am requesting that you deny the permit to PG&E for the following reasons.

1. It is my understanding that there is already sufficient data on the Hosgri, Shoreline, Los Osos and San Luis Bay faults that conclude that continued operation of the Diablo Canyon Nuclear Power Point is unsafe.
2. Further seismic testing using the airgun technology may not produce any further findings. There are several unanswered questions regarding the proposed data acquisition and processing. The monitoring and mitigation plans are inadequate. I urge the CCC and PG&E to be 100% certain that the testing methodology used be the best methodology available and that needed data be obtained in the least harmful way possible.
3. The proposed surveys will have catastrophic affects on the marine life within two State Marine Conservation and Protected areas and the proposed Marine Sanctuary boundaries. It is also adjacent to the Monterey Bay National Marine Sanctuary, the largest national marine sanctuary. This project will further damage endangered species and will be a direct violation of the Marine Mammal Protection Act and the Coastal Act.
4. The local fishing and tourism industry will be severely affected. Together they make up the majority of the economy of Morro Bay and surrounding areas. I personally will not be able to conduct my work as a nature and kayak guide when the ecosystem is destroyed. The proposed project does not include an adequate claims process for those affected.

Thank you for considering my concerns. I urge you to deny the permit to PG&E.

Sincerely,

Kyla Grafton
Morro Bay, CA

Attn: Coastal Commission

Loss of fishing income

After PG&E seismic imaging ship "Pacific Star" arrived off of the coast of Morro Bay, unannounced and started running over fisherman's gear, I noticed all of my black cod traps were gone. Just the week prior to it arriving, I had tried to find out when it needed to be moved. None of the fishermen knew that the ship would be here.

With my traps gone, I was out of business without an income. My deckhand was also out of business. Without a job now, and no way to pay rent, both of us had to move to cut expenses. My cat also needed to find a new home.

The money that was to come into the U.S. from foreign sales of the fish did not come into the country. The owner of the dock where I unload my fish did not earn any money, nor his workers. The truck driver who gets paid for delivering my fish to the fish processor did not earn that money, nor the owner of the fish processing plant or its workers. Again the truck driver who was to drive my fish to the airport didn't get paid. The airliner or ship and its workers did not get paid. The fish auction house and its workers in Japan did not get paid. The auction house buyer could not buy those fish. His truck driver could not get paid for trucking those fish. The supermarket could not sell those fish or their workers sales people or cashiers get paid for selling them. And lets not forget all of the accounting services. The fuel dock didn't get their money.

I almost forgot: I did not get paid

In an economy such as that which exist in the U.S. I imagine that finding good tenants that can continue to pay the rent and care for the apartment is questionable.

Without a job boat slip rent will be in arrears until I start to generate an income again. Of course, I can get more fishing gear and go back to work, but investing in fishing on the eve of PG&E seismic (correction--- in the midst of PG&E seismic testing) seems like a poor investment.

Regardless of how ,why ,where my fishing gear is gone, What PG&E plans and has done has influenced my decision of not replacing my gear, and is in my mind responsible for influencing that decision. It does not matter if my decision is right or wrong thinking.

I hear a lot about fishermen having very poor catches since PG&E seismic imaging and vibrational science started. Yes, fish counts have fallen drastically. Dead dolphins, whales, starving birds. More now than ever before. I wonder why? Apparently there were prior seismic acoustical ships before the "Pacific Star". I wondered about those bright lights all night long for months on end in the same area every night out in deep water. Huh. Fish count was down during those months also. Huh

PG&E says sound can't hurt fish nor will cause fishermen or the communities much damage. Apparently, my not having a job or any income matters to them. I wonder if your property devalues or if you fall, they will care? Perhaps I'm the only one who will be effected or maybe an escalating effect will ripple through the economy as an earthquake or tsunami travels with devastation everywhere it goes.

With such little regard for us ants, I couldn't even imagine PG&E paying anyone back for the trouble they cause. And of course any damages that ripple through the economy would be denied by PG&E as well as all entities that are hoping and pushing for this to pass.

The Coastal Commission has the decision now. Create good Karma or Create bad Karma. The future is now in your hands.

With best wishes to you all,
Mark Hamerdinger

PG&E'S PENDING SEISMIC ASSAULT ON THE SEA, open letter to our citizenry with 'cc' to California Coastal Commission.

Why pretend that the real players who hide behind their false corporate facade, conceal their identities behind their public spokespeople, and never tell the whole truth, the ones Romney famously called just regular folks like you and me (to counter the claim that corporations are not people), are going to suddenly change their anti-environmental ways with their pending seismic testing proposal?

Have you ever tried to get an honest answer out of what some call the PG&E 'white collar corporate criminal' on any matter regarding its unending stream of environmental damage deceit? anyone who has, can tell you, it can not be done. but hey, don't take our word for it. Contact PG&E yourself and ask about its constant, careful, environmental stewardship.

You will be assured that its ever vigilant, unending monitoring by marine biologists provides a complete record of how it never fails to protect every aspect of the environment. then ask about the seawater it sucks from the ocean and the contaminated cooling waters it then discharges back into the near shore marine environment. does PG&E add any toxic chemicals to keep their cooling water pipes cleaned of minute marine life buildup? what is it? what effect does it have on the environment?

Try it yourself. make it even simpler. ask PG&E to share with you the number of marine lives it kills every year, in all the ways it does so, even ways you don't yet know about, broken down by categories, everything from the marine mollusk and crustacean larvae at the bottom of the food chain, to sea otters and anadromous salmon toward the top. they claim they gather and keep all that information as a critical part of their operation. then start counting the days you have to wait to get this 'critical information' from this government protected monopoly, private energy giant.

After a month of hoping it will come clean and 'fess-up,' contact your democratic government agency representatives, you know, the ones pretending to protect you and the environment, while secretly insuring that this 'government corporate crony' gets whatever it wants. share the utter futility of trying to pry any environmental information out of PG&E, and ask why they, your government, keep pretending to believe whatever PG&E says about its unending guarantees of environmental protection.

---r. andriola, Cambria
cc: California Coastal Commission

Teufel, Cassidy@Coastal

From: Hilary Stamper <hilstamper@gmail.com>
Sent: Monday, November 12, 2012 12:21 PM
To: Teufel, Cassidy@Coastal
Subject: Seismic testing

I already sent an email via a web form, but in case you are blocking messages from your inbox, I wanted to reiterate that I am absolutely opposed to seismic testing off California's coast. I live too far from Santa Monica to attend your meeting on the 14th, but it's just crazy to do tests that threaten our marine mammals when so many other man-made threats are already in the picture. Pollution, overfishing and climate change are all more than enough for these creatures to cope with. Please do not go forward with this testing plan.

To be perfectly honest, as a PG&E customer, I am completely underwhelmed by their performance. Allowing them to bring any projects -- which have been somewhat careless and poorly conducted in my experience -- to the oceans is a terrible idea.

Hilary

Teufel, Cassidy@Coastal

From: lincalderon@roadrunner.com
Sent: Monday, November 12, 2012 2:57 PM
To: Teufel, Cassidy@Coastal
Subject: Decision re the PG&E proposed seismic testing

Dear Cassidy Teufel:

I cannot make the meeting this week in Santa Monica, but wanted to submit my opinion re the testing by PG & E. I hope that you will take this email input as part of the comments.

I am completely against PG&E doing this very harmful seismic testing for several reasons:

1. Harmful, beyond what even our scientists may be able to predict, to the wildlife and fisheries. It's already been proven what Navy sonar does to dolphins and I believe to whales and other ocean "animals". Porpoises, whales, sea otters are all at risk. If sonar can confuse them and harm them, I am sure this can also. PG&E has a vested interest in underestimating the impacts, let's face it. Literally thousands of marine mammals could be killed by this testing.
2. The project could harm people using the ocean who may not be aware that this testing is going to go on. No matter how hard the entities involved try to notify everyone, you can be sure that everyone will not know and some may take unnecessary risks even if they do know - out of curiosity.
3. Do we know that there will not be any bad after-effects from this testing such as an earthquake triggered by man's interference? Maybe this is far-fetched, but why take a chance?
4. A former PG&E geologist and current USGS geologist have already concluded that the proposed testing does not add that much to what is already known, that this won't give them some of the most important information for determining what they want to know. PG&E is not even using existing geologic data to fully understand seismic hazards so afterward, if this testing is done, why do we think they will use the new data? Also, nature has a way of surprising even when we or experts think they know everything.
The earth is in constant change. If they won't get the information geologists feel they really need from this testing, why harm or put at risk all kinds of marine life?
5. I have grandchildren and want to not have all of our planet messed up for them as it seems we've been doing. I want them to be able to enjoy the same beautiful sea animals and land animals that I've had the pleasure of seeing. I also am an amateur photographer who has taken hundreds of photos along the coast, including pelicans, dolphins, seals, etc. and want to continue to be able to capture this sea life.

Please deny this testing which is, I'm told, 100,000 times more intense than jet engine and will be done every 15 seconds for weeks on end. Please protect our coast and its marine life. Thank you for taking the time to read this email and thank you for voting with your conscience.

--
Linda Daly Calderon
P.O. Box 2732
Oxnard, CA 93034

Teufel, Cassidy@Coastal

From: Sharon Ponsford <slrponsford@yahoo.com>
Sent: Monday, November 12, 2012 12:21 PM
To: Teufel, Cassidy@Coastal
Subject: Opposition to PG&E High Energy Seismic Survey

As one who works with wildlife and who enjoys on a daily basis the incredible wildlife we have here in Northern California, i was shocked to learn that the California Coastal Commission is considering granting PG&E a permit to do a high energy seismic study. Why? You already have enough information on this topic saying that you do not need this study.

Has anyone there thought about how damaging it would be to marine life to have a 250db sounds every 15 seconds for two months? Months that are critical to whale migration. This is truly an outrageous plan and there is no way PG&E should be getting this permit.

One of the most wonderful spectacles we have here in Northern California is the whale migration. Just to know it is happening is enough, but also many people from around the world come here to see this. These majestic creatures don't deserve to have their lives disrupted any more than we humans have already disrupted them.

Please, please, please think of our marine life and deny PG&E a permit to destroy so much of it with their study.

Thank you.

Sharon Ponsford
Glen Ellen, CA

Teufel, Cassidy@Coastal

From: Erica Konrad <mail@change.org>
Sent: Monday, November 12, 2012 4:46 PM
To: Teufel, Cassidy@Coastal
Subject: 250 more people signed: Grażyna Briscoombe, Joep Ingen...

250 more people just signed Save The Whales's petition "California Coastal Commission: Protect Whales~ Stop Seismic Testing off the Coast of Central California!" that has you designated as a target.

There are now 6250 signatures on this petition. Read reasons why people are signing, and respond to Save The Whales by clicking here:

<http://www.change.org/petitions/california-coastal-commission-protect-whales-stop-seismic-testing-off-the-coast-of-central-california?response=9bee44c8f0b3>

Dear Mary Shallenberger, Chair (California Coastal Commission),

I just signed the following petition addressed to: California Coastal Commission and California State Lands Commission. ----- Protect Whales ~ Stop Seismic Testing off the Coast of Central California! To: Mary Shallenberger, Chair, California Coastal Commission and Jennifer Deleon, Project Manager, California State Lands Commission Central Coastal California Seismic Imaging Project--Whales Need Your Help NOW! Pacific Gas & Electric (PG&E) is posed to conduct seismic testing in a grid pattern over a large area off the Central Coast of California from Cambria to the Santa Maria River. Tests could begin as early as September 2012 and last until the end of the year. The research ship would emit blasts of very loud noise into the ocean. Streamers four or five miles long would be towed behind the vessel, which would pick up the sound waves as they penetrate several miles into the Earth's crust and reverberate back to the surface. Tests would last for 24 hours and would kill or injure marine mammals, including whales, dolphins, porpoises, seals and otters. A deaf marine mammal is a dead one as this is the sense they rely on to communicate, navigate and find food. Seabirds and other species such as endangered sea turtles, could be affected as well, with little or no way of mitigating the impacts. Great potential harm is highly possible to the small population of harbor porpoises in the Morro Bay area. They are most sensitive to loud man-made sound and the mammal most vulnerable to habitat abandonment and to hearing loss. PG&E's position is that the tests are necessary to map the ocean floor so geologists can better understand the earthquake faults near Diablo Canyon nuclear power plant, close to San Luis Obispo, California. Earthquake faults were known at the time the plant was built. PG&E states these tests are essential in the aftermath of the Fukushima earthquake and subsequent tsunami, and the potential for a nuclear disaster. If an earthquake happened within the near future, what could be done to ensure that the Diablo Canyon plant would not have a meltdown? How will these tests prevent that scenario? The nuclear plant was constructed knowing that faults were nearby and that earthquakes were a potential danger. Wouldn't it make more sense to spend the millions of dollars the tests will cost to instead begin plans to shut down the plant and find ways to shift to safe energy? Wouldn't this be wiser than destroying untold numbers of animals within a Marine Protected Area, particularly when the necessary safeguards have not been implemented? ----- Sincerely,

Sincerely,

- 6001. Grażyna Briscoombe Warsaw, Poland
- 6002. Joep Ingen Paredes de Coura, Portugal
- 6003. Michael Plommer , Germany
- 6004. cornet xavier , France
- 6005. Brandi DePinho Pennsboro, West Virginia

6006. Eve Andrews UCKFIELD, United Kingdom
 6007. dylan worsley oakdale, California
 6008. Andrea Jojic Belgrade, Serbia
 6010. mike peake salford, United Kingdom
 6010. tina davis East Islip, New York
 6011. Cena Knowles Milan, Georgia
 6012. Michelle Contois Gardner, Massachusetts
 6013. Debra Doll Opelousas, Louisiana
 6014. francine lengele Houtain le Val, Belgium
 6015. nina tens mont royal, Canada
 6016. Maureen Hannaway san francisco, California
 6017. Anita Youabian Beverly Hills, California
 6018. LISA BELZER Sedalia, Missouri
 6019. Iris Mommaerts bierbeek, Belgium
 6020. Lida Paulat Borstel, Delaware
 6021. Thérèse Lepigeon , France
 6022. Jessie Walls Mt. Pleasant, Michigan
 6023. Valerie Bloem Seattle, Washington
 6024. Melissa Wilson Weston, Florida
 6025. elke zeich backnang, Delaware
 6026. Roma Ceasre Athens, Greece
 6027. norma statello buenso aires, Alabama
 6028. Marcela Posada Bogota, Colombia
 6029. Elaine Stroh Pretoria, South Africa
 6030. gabriela arnold salzburg, Austria
 6031. carol ord liverpool, United Kingdom
 6032. Brian von kuba , Denmark
 6033. jorge ferro willemstad, Curaçao
 6034. Sif Madsen Hillerød, Denmark
 6035. Kimberly Nicholls Mt Morris, Illinois
 6036. Tom Pitman Burbank, California
 6037. Bettina Antle Sun City, Arizona
 6038. Nina Pap de Pesteny Voecklabruck, Austria, Alabama
 6039. christine henderson Chester, South Carolina
 6040. Ann-Marie Bruce Erickslund, Sweden
 6041. Margreet Barentsz Baambrugge, Netherlands
 6042. Emily Radisich Kealakekua, Hawaii
 6043. Birgit Graedler , Germany
 6044. Karen Tucker Pensacola, Florida
 6045. Guylaine Labonté Saint-Jérôme, Canada
 6046. mary jones oxford, Pennsylvania
 6047. Luís Elias Sines, Portugal
 6048. Debra Moody Santa Fe, New Mexico
 6049. BRUCE PAPIER Santa Fe, New Mexico
 6050. Jesus Gonzalez Fontana, California
 6051. Marianne Widmalm Ann Arbor, Michigan
 6052. susan haughey essington, Pennsylvania
 6053. Benoit Alf ANDENNE, Belgium
 6054. Jill Turco Philadelphia, Pennsylvania
 6055. theresia widyaningtyas jakarta, Indonesia
 6056. Evelyn Arevalo Le Lignon, Switzerland

6057. mary mc Guinness Belfast, United Kingdom
6058. Arevalo Mara Geneva, Switzerland
6059. Diane Hichwa The Sea Ranch, California
6060. Patricia St August Wenatchee, Washington
6061. Jessie Wong Pleasanton, California
6062. Michael Snyder Carlsbad, California
6063. Mafalda Cinque Napoli, Italy
6065. Joselynn Burton Santa Cruz, California
6066. Kelli Poist Atascadero, California
6067. Joshua Coroa Tiverton, Rhode Island
6068. Ava Stern Mill Valley, California
6069. Dan Malloy Salem, Oregon
6070. giulia king fitchburg, Massachusetts
6071. NATIVIDAD JOHANSEN WATSONVILLE, California
6071. Eve Hart San Francisco, California
6072. Kiana Quiroga Virginia Beach, Virginia
6073. Donna Wies Fremont, California
6074. Jenny Perron West Jordan, Utah
6075. Stefani Hendry Easton, Washington
6076. James H Acosta Huntington Beach, California
6077. Anita Delelles Saint George, Utah
6078. Jacquilyn Gillespie Menifee, California
6079. Elizabeth Trimmer Henderson, Nevada
6080. Shawn Brown West Palm Beach, Florida
6081. Jennifer Lavelle Brooklyn, New York
6082. Patrice Brunelle Montreal, Canada
6083. Anna Johnson Carlsbad, California
6084. Danny Gray Dana Point, California
6085. Mark McClenny Phoenix, Arizona
6086. John Demasse Chula Vista, California
6087. Michelle Hulstrom Lodi, California
6088. Linda Williams Rancho Cucamonga, California
6089. Corinne Oppito Narragansett, Rhode Island
6090. Ralph Zuanich Rancho Palos Verdes, California
6091. Ryan Mitchell Myrtle Beach, South Carolina
6092. Rachel Foster Longmont, Colorado
6093. Anna Lucas La Crescenta-Montrose, California
6094. Brian Cook Salinas, California
6095. Douglas Ihde Menlo Park, California
6096. Lindsay Williams Fairhaven, Massachusetts
6097. Sharyn Rose Malden, Massachusetts
6098. Yvonne Markiewicz Bradenton, Florida
6099. steph ball derby, United Kingdom
6100. linda morgan crossville, Tennessee
6101. Mike Sciarra West Chester , Pennsylvania
6102. sara kamibayashi Volcano, Hawaii
6103. Evan Remash Brooklyn , New York
6104. Lauren Jenkins Williamsburg, Virginia
6105. Lauri Rainwater-Quinn Pismo Beach, California
6106. shelby madden san diego, California
6107. tiana row El Cajón, California

6108. Amanda Nichols Wichita Falls, Texas
6109. Nicole Gaines Mooresville, North Carolina
6110. Lauryn Argyelan Tinton Falls, New Jersey
6111. Michelle Smith Brighton, Michigan
6112. Kim Bennett Murray, Utah
6113. Aimee Schwab Columbus, Ohio
6114. Irene White Manhattan Beach, California
6115. Leah Smith Markleeville, California
6116. heather stephens jefferson, Wisconsin
6117. Anthony Hill San Francisco, California
6118. Kyle Hess Barrington, Rhode Island
6119. Tina Rizzo Jemison, Alabama
6120. Corrine Foster Agoura Hills, California
6121. Elise McKinnon Memphis, Tennessee
6122. Sonja Homa Seaside, California
6123. Malia Geary San Lorenzo, California
6124. Dawn Henry Santa Cruz, California
6125. marina fortel Van Nuys, California
6126. Kristin Sargent santa fe, New Mexico
6127. Judy Lindholm Marshalltown, Iowa
6128. Tara power Vermilion, Canada
6129. Susie Floros Longmont, Colorado
6131. Andrea Faucett San Francisco, California
6132. Susan Quinland-Stringer Lancaster, California
6132. Janette Amodeo Napa, California
6133. Aaron Leiper , Japan
6134. Jack Eldredge Petaluma, California
6135. Cassandra Mishler , Germany
6136. Matthew Dutra Middletown, Rhode Island
6137. Jarrett Price Beverly Hills, California
6138. James Nestor San Francisco, California
6139. amanda seymour san francisco, California
6140. Mary-Anne McTrowe Lethbridge, Canada
6141. Ammi inostroza boise, Idaho
6142. Lauren Byrne Denver, Colorado
6143. Cherie chrockett Neelyc Honolulu, Hawaii
6144. Humberto Braga Mar Vista, California
6145. Katherine Needles Brooklyn, New York
6146. Celeste Dillon San Antonio, Texas
6147. virginia kelly wilmington, North Carolina
6148. Andrew Jakubiz Calgary, Canada
6149. Helen Winter Bournemouth, United Kingdom
6150. Kristin Jensen Citrus Heights, California
6151. Lindsay Dreger North Ridgeville, Ohio
6152. Dena Horeff SUNNYVALE, California
6153. Frank Bush covington, Washington
6154. William delGiudice Boston, Massachusetts
6155. JESSIE Gonzalez San Francisco, California
6156. Jacob Bryan Owasso, Oklahoma
6157. Kelly Shoumate West Palm Beach, Florida
6158. Brian Thompson San Marcos, California

6159. Teresa Williams Los Angeles, California
 6160. Lisa Mellberg El Dorado Hills, California
 6161. Avery Prommer los angeles, California
 6162. Jed MacArthur Denver, Colorado
 6163. Michelle Black Argyle, Texas
 6164. Clare Hopgood London, United Kingdom
 6165. Enid Quinn Columbus, Ohio
 6166. Michael Jacobson Oakland, California
 6167. Lauralea Gaona Seaside, California
 6168. Aaron Padula Gorham, Maine
 6169. Allyson Goldbach lake worth, Florida
 6170. Tiffany McCaffrey Fairlawn, Ohio
 6171. Lauren Weiss Sioux City, Iowa
 6172. Susan Otten Austin , Texas
 6173. Allison B San Diego, California
 6174. Angela Brown montreal, Canada
 6175. Jason miller santa cruz, California
 6176. tim rubalcaba san diego, California
 6177. Tony Terho Lake Worth, Florida
 6178. Troy McGee Delmar, Maryland
 6179. Riannon Griego Oakland, California
 6180. Amanda Curry oceanside, California
 6181. Desiree Shuey Victorville, California
 6182. Rodan Orden Los Angeles, California
 6183. Vanessa Trijoulet Glasgow, United Kingdom
 6184. Robin Rush Aptos, California
 6185. Erin Hamilton Grand Forks B.C., Canada
 6186. Marilyn Horsley Hesperia, California
 6187. Cole Lemke Aptos, California
 6188. Nicole Gaitan Scotts valley, California
 6189. Jennifer Nielson Saba Sheridan, Wyoming
 6190. erik zak Hampton, New Hampshire
 6191. Cliff Wells Annapolis, Maryland
 6192. Rachel Woodard Fernandez Plumsted Township, New Jersey
 6193. Racquel Cross Washington, District Of Columbia
 6194. Rachel Gallant Vancouver, Canada
 6195. Nick Hershey Albany, California
 6196. Steve Sawitz Laguna BEach, California
 6197. Kimberly Langon Santa Cruz, California
 6198. din martin Vancouver, Canada
 6199. Brad Morgan Calgary, Canada
 6200. Cara Graca Portland, Oregon
 6201. john chung Ventura, California
 6202. Christie Hemmerling Santa Cruz, California
 6203. Dysmar Cordero Boca Raton, Florida
 6204. Denis Popovic Rijeka, Croatia
 6205. Scott Hadden Long Beach, California
 6206. Suzanne Baxter San Francisco, California
 6207. Jamie Jameson Laguna Beach, California
 6208. cameron sims Edmonton, Canada
 6209. Mary Hawkins Burnaby, Canada

- 6210. Scott Espenshade Venice, California
- 6211. Shayne Amaral providence, Rhode Island
- 6212. Rob Roberts ANNAPOLIS, Maryland
- 6213. Nathan Hunter Rosetown, Canada
- 6214. martin klimes Montreal, Canada
- 6215. Rebecca Siggelkoe Boston, Massachusetts
- 6216. Lisa Atkins Sunnyvale, California
- 6217. Nate Roman Clinton, Massachusetts
- 6218. Kathleen Cascone Pacifica, California
- 6219. Erica Kohl Toronto, Canada
- 6220. ilana diamond San Francisco, California
- 6221. Elizabeth Castaneda SF, California
- 6222. Serena Rascon Brooklyn, New York
- 6223. Niloufar Lohrasebi San Francisco, California
- 6224. Christopher Dodson Palo Alto, California
- 6225. Diana Robbins San Francisco, California
- 6226. Elias Castaneda Spokane, Washington
- 6227. Anne Middleton Toronto, Canada
- 6228. Daniel Levin Manhattan Beach, California
- 6229. melissa castaneda SF, California
- 6230. Mark Nichols Bellingham, Washington
- 6231. Marlene Thomas Aptos, California
- 6232. Kathryn Kenney Astoria, New York
- 6233. Belen Vance Oakland, California
- 6234. Kristin Rust Ladera ranch, California
- 6235. Candice Ashby Newfield, New Jersey
- 6236. Jamie Bond San Francisco, California
- 6237. yukteswar perez santa cruz, California
- 6238. Alison Williams Sam Francisco , California
- 6239. Dawn Clayman Los Alamitos, California
- 6240. Alyssa Holstock Cambridge, Canada
- 6241. greg Self Brazil, Indiana
- 6242. Chris Herman Watsonville, California
- 6243. scott levkoff San Francisco, California
- 6244. Ceri Loaring Los Angeles, California
- 6245. krista fatka san francisco, California
- 6246. Genevieve Gremling Indpls, Indiana
- 6247. Debbie spafford N Hollywood, California
- 6248. ricardO Hubbs Winlaw, Canada
- 6249. Paul Rodriguez Franklin, Indiana
- 6250. Erica Konrad Nelson, Canada



by the Ocean I live

and when I go with my
dad I would hate to not see
amazing mammals in the ocean.

The whales population is ~~the~~ already
threatened and by making the
testing in the bay

Sincerely

Your DISAGREE

I am 10 years old, and our school got a homework assignment it is (how can you help your community?) and I chose this power plant that you want to build. In this letter I am telling you that I think that your Idea is horrible and mean I do not think you should do the Seismic testing to build the power plant. I do not want you to hurt the animals. you will hurt the seals, dolphins, whales and otters. I don't want you to! I told my dad about this and got him to sign a petition.

Sincerely,
Sydney

P.S. I think
your Idea is a
flagrant and
disastrous
Idea

Teufel, Cassidy@Coastal

From: Elenita <elenitam@comcast.net>
Sent: Sunday, November 11, 2012 8:52 AM
To: Teufel, Cassidy@Coastal
Subject: Seismic testing in Morro Bay

Is this going to be another example of damage we do to life on this planet that is irreversible?

Elenita Q. Mathew
517 Alta Dr.
Aptos, CA 95003

aka elenitam@comcast.net.

Teufel, Cassidy@Coastal

From: Chris Jones <cagjones@yahoo.com>
Sent: Sunday, November 11, 2012 12:22 PM
To: Teufel, Cassidy@Coastal
Subject: PG & E High Energy Study - against

Dear Commissioner Teufel:

I urge you to follow the Commission's staff report, and deny the application by P G & E to commence the high energy seismic study.

Sincerely,

Chris Jones
Glen Ellen
California

Teufel, Cassidy@Coastal

From: Linda Reichel <lindareichel@comcast.net>
Sent: Sunday, November 11, 2012 2:37 PM
To: Teufel, Cassidy@Coastal
Subject: November 14th hearing

Please do not grant PG and E the ability to hold offshore seismic tests at the November 14th meeting. The future of the California Grey Whales is in jeopardy should those the seismic project go forward.

A concerned citizen,
Linda Reichel

Teufel, Cassidy@Coastal

From: Nina Monasevitch <oceanmana@hawaiiantel.net>
Sent: Saturday, November 10, 2012 9:43 PM
To: Teufel, Cassidy@Coastal
Subject: Please use common sense and compassion

To California Costal Commission,

The PG & E High Energy Seismic study is a disaster to multiple marine mammal species and all marine life. As well, the test is unnecessary as years of intensive seismic studies have already been done and provide all needed information. Even the Nuclear Regulatory Commission has stated the test is unnecessary. Stop this insanity. Without a healthy ocean ecosystem none of us will be able to survive.

Sincerely,
Nina Monasevitch
Lihue, Hawaii

Teufel, Cassidy@Coastal

From: Suzana <gulmertsd@gmail.com>
Sent: Sunday, November 11, 2012 10:55 AM
To: Teufel, Cassidy@Coastal
Subject: no on Seismic Testing

to: Cassidy Teufel, and the Coastal Commission
From: Susan Gulmert , 3140 Studio Drive, Cayucos, California 93430
Date: Nov. 10, 2012

Re: 3-D Acoustic Seismic Testing off Central Coast proposed by PG &E

Please stop this unnecessary, reckless destruction of a thriving marine sanctuary with a NO vote to Seismic testing of any decimals.

The tests are a death sentence to a thriving fishing and tourist industry that money will not be able to buy back.

This is an isolated coastal community and to create a dead ocean will cause the loss of livelihood and distress to a fragile human population.

It is unacceptable to have a take/kill in a designated marine sanctuary off the central coast.

The stress to the otter population has already been noted by me personally.

I live in Cayucos on the beach taking care of my 85 year old father. I came a year ago to watch a family of otters every day through 2012. I do not see them at all now.

Ever since, the preliminary intervention of marine scientist in their pursuit to mitigate the effects of Seismic Testing has captured them?

The attempt to study the sanctuary otters and the effects of Seismic testing has I believe already disturbed the population.

How much stress by surgery to get their blood in order to analysis what has happened to them , when they find them later dead?

Some marine life is migratory , but for many it is their home/habitat. Marine mammals are dealing with human poisons, accidents of oil, chemicals for cleaning up the spills, radiation which are already in ocean currents.

The ocean creatures need this Sanctuary.

Please, and I speak for many more people who live in this community , please stop this madness .

The pretense of labeling an obsolete dangerous and unsafe Nuclear Power Plant, Diablo Canyon, SAFE by killing what is living in the heart of this Marine Sanctuary is complete insanity.

California is trying harder than any other state in the country to preserve our environment. We the people are trying to curb our plastic bag use, conserve electricity, pay for cleaner gas and drive with alternative fuels.

Diablo Canyon should be turned into Power that befits a Marine Sanctuary a perfect location for wave and wind power that will not harm all life after an inevitable earthquake and possible tsunami.

Please pave the way to a vision of the California Coast alive and protected.

The people of the Central Coast and California are counting on the Coastal Commission to protect the well being and health and all the life of our coastline.

Please to not give the green light to PGE.

Sincerely,
Suzana Gulmert

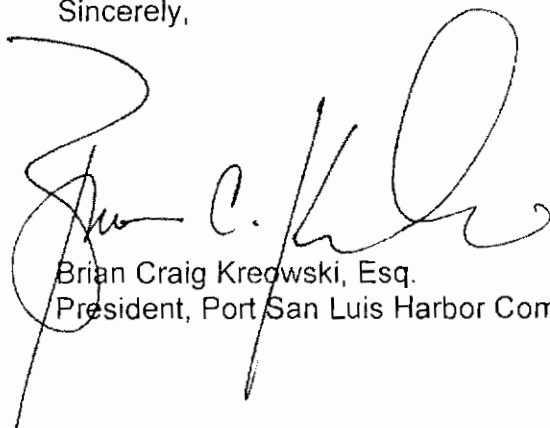
of accurate geological data and information, through seismic studies, prior to an application for relicensing of the Diablo Canyon Power Plant.

On August 10, 2012 the District submitted comments to the National Science Foundation on the draft Environmental Assessment (EA). The comments questioned the clear and apparent inconsistency between the finding of significant and unavoidable impacts in the EIR and the EA's determination that there would be no significant impact. The comments also noted the failure to address the impacts of the project on humans recreating in the water, and the absence of any meaningful comments on the economic impacts of the project. Additionally, the comments questioned why the project was not considered significant enough to warrant a more comprehensive Environmental Impact Statement.

On November 8, 2012, this Commission again discussed the project. The discussion was re-framed in light of a much smaller proposed project, comprising only 'Box 4' in Estero Bay. The 120 dB zone of impact of the project (Exhibit 7A, p. 107 of the staff report) extends however into San Luis Obispo Bay and reaches the beaches of Port San Luis and Avila Beach. The Commission's discussion addressed the failure of the applicant to reach consensus with the fishing community upon mitigation compensation; questioned the value of conducting such a limited study and the true value of any of the data derived; and whether currently sufficient data exists to address the long term seismic safety of the plant, without the proposed impact to the environment. It was also noted that there is no specific regulatory requirement to conduct the proposed seismic surveys and, in light of that, the project constitutes a potentially significant unnecessary cost to the ratepayers within the Harbor District.

Thank you for your consideration of the District's request that you deny PG&E's request for the project as proposed.

Sincerely,

A handwritten signature in black ink, appearing to read 'Brian C. Krepowski', is written over a circular stamp. The signature is fluid and cursive.

Brian Craig Krepowski, Esq.
President, Port San Luis Harbor Commission

Teufel, Cassidy@Coastal

From: kortney lillestrand <jentza@aol.com>
Sent: Saturday, November 10, 2012 3:59 PM
To: Teufel, Cassidy@Coastal
Subject: Reject PG&E's Proposal for Seismic Testing in Central Coast

Dear Commissioners

Dear California Coastal Commissioners:

I'm writing to express my opposition to PG&E's Proposal for Seismic Testing in Central Coast.

This project could have dangerous impacts on ocean ecosystems and recreational ocean users.

PG&E's own EIR clearly states unavoidable impacts to marine life. As an ocean enthusiast, I'm deeply concerned about the impacts to marine life during the testing. California is known for its rich ocean waters and we need to protect every level of our ocean ecosystem from risky and arguably unnecessary projects, such as seismic testing.

I'm also concerned that PG&E is disregarding the health and safety of ocean users. Their EIR clearly says the proposed activities would expose persons present in the water to harmful noise levels. And a recent PG&E map shows that dB levels could reach upward of 160 at some beaches. This is well over the threshold for human safety.

Finally, I'm concerned that PG&E is not analyzing decades of data collected by several sources to paint a full picture of geologic hazards near the power plant, new testing will only provide marginal improvement to what is already known.

Please deny this project. The Coastal Act was created to protect ocean resources and recreation. We believe this project does not conform to following sections of the Coastal Act:

****Section 30220--Protection of certain water-oriented activities--** Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

****Section 30224--Recreational boating use--**Increased recreational boating use of coastal waters shall be encouraged...

****Section 30230-- Marine resources; maintenance** Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

****Section 30210-- Access; recreational opportunities; posting** In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs...

We urge you to deny this project and send PG&E "back to the drawing board" in order to protect marine life and ocean users from this unnecessary project.

Thank you in advance for your thoughtful consideration.

Sincerely,

kortney lillestrand
32221 Coast Highway
32221 coast highway
laguna beach, CA 92651

Dettmer, Alison@Coastal

From: Miller, Vanessa@Coastal
Sent: Friday, November 09, 2012 9:55 AM
To: Luster, Tom@Coastal; Dettmer, Alison@Coastal
Subject: FW: Letter of opposition to seismic testing SLO County coast

From: John Flaherty [mailto:john@centralcoastoutdoors.com]
Sent: Friday, November 09, 2012 8:47 AM
To: Miller, Vanessa@Coastal
Subject: Letter of opposition to seismic testing SLO County coast

To whom it may concern,

My name is John Flaherty and I am the owner of a small eco-tourism business (Central Coast Outdoors) located in San Luis Obispo County. I am writing to express my opposition to the proposed high intensity acoustic seismic testing for Diablo Canyon off the SLO County coast.

My main concern is the potential negative impact to marine life in the area. Our tours in and around Morro Bay are very popular because of the amount and variety of wildlife we see. I am very concerned that the proposed testing will have significant negative impacts on the wildlife in the area and thus my business. Although there have been proposals to compensate fisherman for the potential loss of income, there have been no such proposals for tourism related businesses that may be affected.

I am also concerned that this testing might move forward without a full and up to date analysis of seismic testing for Diablo Canyon done in the recent past. Why are we contemplating moving forward with high intensity acoustic seismic testing to gather better information when we haven't even fully analyzed the information collected from previous surveys?

For the reasons above I am opposed to the proposed high intensity acoustic seismic testing for Diablo Canyon.

Sincerely,

JOHN FLAHERTY

John Flaherty, Owner
Central Coast Outdoors
PO Box 6893, Los Osos, CA 93412
p 805-528-1080
f 805-528-5209
john@centralcoastoutdoors.com
www.centralcoastoutdoors.com
Check us out on [Tripadvisor!](#)

11/9/2012

Dettmer, Alison@Coastal

From: Harvey Sherback [harveysherback@yahoo.com]
Sent: Friday, November 09, 2012 7:46 AM
To: Dettmer, Alison@Coastal
Subject: Re: The Real Story Behind PG&E's Seismic Survey
California Coastal Commission
North Coast District Office
Alison Dettmer
Deputy Director

November 9, 2012

Dear Deputy Director Dettmer,

Thanks for your many good works, they are very much appreciated.

October 28, 2012 - Headline: Drs. Gibson, Blakeslee And Their Amazing Underwater Seismic MRI Machine

"How an ex-oil executive and seismic test inventor, along with an ex-oil industry seismologist, sold an environmentally and economically devastating seismic test off the coast in Estero Bay to the State. Major organizations from around the state have unified to stop it before it starts."

<http://www.rockofthecoast.com/2012/10/28/drs-gibson-blakeslee-and-their-amazing-underwater-seismic-mri-machine/>

Just say no to PG&E's offshore "oil and gas" seismic survey. It puts us and our marine friends in harm's way while opening California's coast to offshore drilling.

May 28, 2012 - Headline: Expert Links Dolphin Deaths To Sonar Testing

A marine veterinarian and conservationist who examined many of the nearly 900 dolphins corpses found off of the northern Peruvian coast contends they were probably harmed by sound waves from seismic tests used to locate oil deposits.

<http://green.blogs.nytimes.com/2012/05/28/expert-links-dolphin-deaths-to-sonar-testing/?ref=science>

Very few people know that PG&E is also in the oil and gas exploration business.

October 15, 1991 - PG&E To Buy Oil/Gas Exploration Company From British Petroleum For About \$400 Million.

BP Exploration Inc. said it would sell its American "exploration and production" operations to Pacific Gas & Electric Company's PG&E Resources for about \$400 million. PG&E Resources will acquire the Tex-Con Oil & Gas Company of Houston, Texas.

<http://articles.latimes.com/keyword/tex-con-oil-gas-co>

Please stop PG&E's "Marine Holocaust" in the name of public safety!

11/9/2012

Harvey Sherback
Berkeley, California

PS: Earthquake Report - Too Close For Comfort!

Headline: Magnitude 7.7 Earthquake Hits British Columbia: Canada's Largest Quake In Over Six Decades

<http://www.themanitoban.com/2012/11/magnitude-7-7-earthquake-hits-british-columbia-canadas-largest-quake-in-over-six-decades/12536/>

The Diablo Canyon Nuclear Power Plant was originally designed to withstand a 6.75 magnitude earthquake but was later upgraded to survive a "7.5 magnitude quake". Now that we have experienced a "7.7 magnitude earthquake" up the coast in British Colombia it's time to close PG&E's Diablo Canyon nuclear power plant so as to avoid another Fukushima-like nuclear disaster.

Teufel, Cassidy@Coastal

From: Lester, Charles@Coastal
Sent: Friday, November 09, 2012 9:45 AM
To: Teufel, Cassidy@Coastal
Subject: FW: The Real Story Behind PG&E's Seismic Survey

Charles Lester

Executive Director
California Coastal Commission
www.coastal.ca.gov
45 Fremont Street, Suite 2000
San Francisco, CA 94105
415-904-5202

From: Harvey Sherback [<mailto:harveysherback@yahoo.com>]
Sent: Friday, November 09, 2012 7:42 AM
To: Lester, Charles@Coastal
Subject: Re: The Real Story Behind PG&E's Seismic Survey

California Coastal Commission
Charles Lester
Executive Director

November 9, 2012

Dear Executive Director,

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<http://articles.latimes.com/keyword/tex-con-oil-gas-co>

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Berkeley, California

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Teufel, Cassidy@Coastal

From: Cavaliere, Madeline@Coastal
Sent: Friday, November 09, 2012 2:41 PM
To: Teufel, Cassidy@Coastal
Subject: FW: The Real Story Behind PG&E's Seismic Survey

From: Harvey Sherback [harveysherback@yahoo.com]
Sent: Friday, November 09, 2012 7:58 AM
To: Cavaliere, Madeline@Coastal
Subject: Re: The Real Story Behind PG&E's Seismic Survey

California Coastal Commission
North Central Coast District Office
Madeline Cavaliere
District Manager

November 9, 2012

Hello Madeline,

Thanks for your many good works, they are very much appreciated.

October 28, 2012 - Headline: Drs. Gibson, Blakeslee And Their Amazing Underwater Seismic MRI Machine

"How an ex-oil executive and seismic test inventor, along with an ex-oil industry seismologist, sold an environmentally and economically devastating seismic test off the coast in Estero Bay to the State. Major organizations from around the state have unified to stop it before it starts."

<http://www.rockofthecoast.com/2012/10/28/drs-gibson-blakeslee-and-their-amazing-underwater-seismic-mri-machine/>

Just say no to PG&E's offshore "oil and gas" seismic survey. It puts us and our marine friends in harm's way while opening California's coast to offshore drilling.

May 28, 2012 - Headline: Expert Links Dolphin Deaths To Sonar Testing

A marine veterinarian and conservationist who examined many of the nearly 900 dolphins corpses found off of the northern Peruvian coast contends they were probably harmed by sound waves from seismic tests used to locate oil deposits.

<http://green.blogs.nytimes.com/2012/05/28/expert-links-dolphin-deaths-to-sonar-testing/?ref=science>

Very few people know that PG&E is also in the oil and gas exploration business.

October 15, 1991 - PG&E To Buy Oil/Gas Exploration Company From British Petroleum For About \$400 Million.

BP Exploration Inc. said it would sell its American "exploration and production" operations to Pacific Gas &

Electric Company's PG&E Resources for about \$400 million. PG&E Resources will acquire the Tex-Con Oil & Gas Company of Houston, Texas.

<http://articles.latimes.com/keyword/tex-con-oil-gas-co>

Please stop PG&E's "Marine Holocaust" in the name of public safety!

Harvey Sherback
Berkeley, California

PS: Earthquake Report - Too Close For Comfort!

Headline: Magnitude 7.7 Earthquake Hits British Columbia: Canada's Largest Quake In Over Six Decades

<http://www.themanitoban.com/2012/11/magnitude-7-7-earthquake-hits-british-columbia-canadas-largest-quake-in-over-six-decades/12536/>

The Diablo Canyon Nuclear Power Plant was originally designed to withstand a 6.75 magnitude earthquake but was later upgraded to survive a "7.5 magnitude quake". Now that we have experienced a "7.7 magnitude earthquake" up the coast in British Colombia it's time to close PG&E's Diablo Canyon nuclear power plant so as to avoid another Fukushima-like nuclear disaster.

Teufel, Cassidy@Coastal

From: Mary Martinez <frogterr@vom.com>
Sent: Friday, November 09, 2012 7:07 PM
To: Teufel, Cassidy@Coastal
Subject: Stop the P.G. & E. Seismic Project!

To the California Coastal Commissioners:

Please **stop** the P.G. & E. HIGH ENERGY Seismic Study NOW.

Save the California Grey Whale and the California Sea Otter from extinction!

I strongly protest this project and the irreversible damage it will cause to these species during this migratory season.

Stop the experimental surgery and tagging of defenseless California Sea Otters! The sea otter population is in decline and cannot afford to suffer further losses that will occur as a result of this hideous experiment.

This is an urgent plea to urge you to vote NO against this project.

Your staff has recommended denial of any permit for this project.

You have a responsibility to stop this project with a NO vote on November 14, 2012.

California voters do not support this project.

Sincerely yours,

Mary Martinez

- a concerned California voter

Teufel, Cassidy@Coastal

From: Paul O'Connor <happyhiker2006@yahoo.com>
Sent: Friday, November 09, 2012 10:24 PM
To: Teufel, Cassidy@Coastal
Subject: Opposition of proposed seismic testing

Dear California Coastal Commissioner,

I am an outdoor guide and steward of our land and its inhabitants. I am in strong opposition of the proposed high intensity acoustic seismic testing for Diablo Canyon in San Luis Obispo County.

The Morro Bay National Estuary is considered the nursery of the ocean because of its safe, clean refuge and rich environment needed for breeding and sustaining wildlife. The potential impact of the wildlife in our estuary and ocean will not be completely known for generations to come. We owe it to our children, the wildlife and the environment, to protect and preserve this fragile ecosystem already suffering from human interference and natural changes.

In making your decision regarding the seismic testing, please consider the damage this will have on our environment both immediately and in future generations. We need to be the voice for the many silent innocent creatures that will be affected in this invasion of their environment.

Thank you in advance for your consideration in this sensitive decision ahead,

Paul O'Connor

1600 8th St
Los Osos, CA 93402

Sent from my iPad

Dear Coastal Commission,

11/9/2012

My name is Benjamin Terra, and I have grown up in Morro Bay my whole life, and fished on the ocean for 21 years, 17 of which has been commercial fishing. Commercial fisherman aside, I am writing this letter as a citizen who is extremely concerned with the well being of the local waters off of Avila and Morro Bay. I am also writing on behalf of C.O.A.S.T. (Citizens Opposing Acoustic Seismic Testing). In my 17 years of commercial fishing, I have gotten to intimately know, respect, and love the ocean to a degree which most people do not have the opportunity. The ocean off of Morro Bay and Avila is so full of amazing life, that almost 9 times out of 10 when I go fishing, I see something that I have never seen before. I can tell you from my experience, that qualitative time, experience, and observation offers a look into the ocean that quantitative scientific data collection cannot give.

Having fished extensively from Vandenberg Air Force Base up to Año Nuevo Lighthouse in the near shore zone, I can assure you that the reef systems specifically from Avila Harbor up to Monterey Bay comprise the most concentrated area of marine biodiversity on the west coast. This is partially due to the extremely rugged and dense rocky underwater structure not found extensively north, or south of these two points, which creates amazing habitat. In addition, the slope of the shelf is very gradual, from Avila to just above Piedras Blancas Lighthouse, which contributes to a huge and rare amount of exceptional shallow water marine habitat. The highest concentration of biodiversity in the ocean exists on the rockiest reefs from 40 feet deep to the shoreline. The reef provides the base for physical habitat, the sunlight penetration allows for photosynthesis, the base energy provider for biodiversity, and the waves further oxygenate the shallow waters. Furthermore, underwater canyons off our local coastline create upwelling that feeds the food chain base with vital nutrients, which are the beginning of a flourishing and extensive marine ecosystem. Finally, the Central Coast waters are nestled above the warmer waters South of Point Conception, and below the more frigid waters North of San Francisco.

Therefore, we have a convergence of species that do not venture further south or north of here, known as an "edge effect." As Toby Hemenway, revered Permaculture scientist explains, in regard to ecological edges: "All the species that thrive in each of the two environments are present, plus new species that live in the biological systems." The entire West Coast's marine ecosystem gains critical resilience from the edge phenomenon that exists off of the Central Coast, and this highly valuable ecological asset is severely threatened by the proposed PG&E seismic testing. The amount of biodiversity off our coast is almost equal to what is found in the rainforest. A big problem with the whole seismic testing scenario is that most people can not see below the surface of the ocean, and therefore do not realize how much life is there, under the surface.

I am shocked that I am even writing this letter because it is so outrageous that the 250-decibel testing would even be considered as a possible option, in light of the 'significant and unavoidable impacts,' to marine life outlined in the California State Lands Commission certified EIR. That EIR, by the way, is a joke in itself, when considering how much critical information was omitted. For example, very endangered western gray whales were not even mentioned, public safety concerns to surfers, divers, swimmers, and live aboard residents of the local harbors were completely ignored, and economic impacts to Morro Bay's ocean based, tourism dependent economy was unmentioned.

I have been surfing for 17 years, and I can assure you that most surfers do not pay much attention to signs regarding safety. If the waves are good, they go out. Most surfers would not realize the actual potential of death from entering the water during the testing, and this factor would therefore create a likely hazardous situation for many regular "temporary marine mammals." Most tourists who come to Morro Bay are generally ignorant of the potential dangers surrounding ocean activities. Deadly underwater blasting would likely harm or kill unlucky, and unaware tourists. Furthermore, consider how, when I was younger, I used to free dive at random reef locations along our coast, where one might not expect to ever see anyone entering the water. How would adventurous people be prevented from entering the water, at every single possible access point along the coast? In addition, the best time of year for diving along our coast is during the months of November and December because of great visibility. Section 30220 of the Coastal Act aims to protect "water-oriented recreational activities." Seismic testing would completely inhibit those activities, and in fact, make them potentially lethal for the unknowing adventurer. Furthermore, there is a whole community of people who live on their boats in Morro Bay and Avila. Those people would be exposed to very harmful sound levels in their homes during the testing. This reality has been totally unacknowledged by the testing proposal.

As far as Morro Bay's economy, it is completely dependent on revenue produced from the tourism industry. That tourism is based entirely on people who come to our community to enjoy the ocean, and all of the life surrounding it. They come here to go to the beach, to eat fish, to kayak, whale watch, and to go fishing in the ocean. Understand that a huge percentage of the tourists who come to Morro Bay, regularly, do so in part, to go sport fishing. They spend money at hotels, restaurants, and shops while they are in town, and if those people were not spending money here, many small businesses would close. They wouldn't come here if the fishing wasn't worth their time anymore, but would instead go to Santa Barbara or Monterey.

Many of the tourists also just come for the small coastal town atmosphere, and over the last few years I have noticed a huge increase of international tourists who spend time in Morro Bay, and that number grows every year. I have seen over and over, the wonder and amazement on tourist's faces as they watch seagulls, California sea lions, southern sea otters, harbor seals, brown pelicans, and dolphins in our waters. I have watched them sit for a half-hour taking pictures, laughing, and smiling in amazement of the marine life that I have often personally taken for granted because of growing up here,

and all of it just blending in as part of the scenery. However, recently, as I have pondered a possible future reality, if the testing effects were as bad as some say it could be, I have really come to thoroughly appreciate all of the life surrounding the sea more than ever. Even those damn seagulls, that I have hated in the past, because of their pestering, and pooping on me, I have now come to greatly appreciate. Morro Bay is blessed with such a huge amount of constantly visible animal life, that all depends on the healthy, whole, ecosystem to sustain it. I lived on the pacific coast of Nicaragua for almost two years, and their ocean was almost completely void of life, partially because of the environmental exploitation caused by their troubled history. Thinking back on that place, it becomes clear that the ocean off of Morro Bay is a very special place that is FULL OF LIFE. Morro Bay would be in economic shambles, and the spirit of our community would be greatly affected, if the life that spills fourth out of the ocean onto the land were no longer present.

The biggest reason I am so concerned about serious consequences to the marine ecosystem is because of the potential for the testing to severely damage the lower trophic levels of the food chain, which are the plankton, larvae, and bait fish. Those organisms inhabit the upper water column, down to 300 feet, where the sunlight shines, which places them close to the air guns. It is clear that anything close to the air guns will die. Therefore, a very real potential exists for a local marine ecosystem collapse from the testing. If you lose a huge part of the base of a food chain, the entire ecosystem is devastated. If our marine ecosystem is devastated, then our economy will greatly suffer, because people will no longer want to come here, when they could go somewhere else, where there is still much ocean life to see.

The seismic testing would be a total violation of multiple laws that protect our local waters, and done so in complete disregard for the huge amount of work previously put fourth to create those laws. For example, testing would be done in, and in close proximity to two Marine Protected Areas, both part of the Marine Life Protection Act Initiative, both a result of a 7-year process to implement them, and both "no take" for 4 years at this point in time. Testing would also be conducted in a very large Rockfish Conservation Area that is part of the Magnuson-Stevens Fishery Conservation and Management Act, that has been a "no take" fishing zone for 9 years. These reserves have so much value to them at this point in time, only because of the fact that fishermen have not been taking fish from them for years. Allowing this testing would be violating a treaty that thousands of commercial and sport fishermen have been participating in for years, by not fishing in those areas. The fishermen have acted in good faith for years, so as to protect resources for future generations. Will the commission not do the same, and uphold section 30234.5 of the Coastal Act, which intends to recognize and protect the economic, commercial, and recreational importance of fishing activities? The testing would also violate the Marine Mammal Protection Act, and the Endangered Species Act. The air cannons blasting at 250 decibels would harm and mortally injure a massive amount of supposedly protected marine life, and would blatantly violate section 30230 of the Coastal Act, which requires, at the very least, maintaining and enhancing marine resources. Seismic testing would damage and destroy marine resources, and is therefore completely unable comply with the Coastal Act.

250 decibels is the same sound intensity as the atomic bomb that we dropped on Hiroshima: <http://www.makeitlouder.com/Decibel%20Level%20Chart.txt>. Consider human death is caused instantly at 200 decibels, and that because of the logarithmic nature of the decibel scale, 250 decibels is 32 times louder than the former. A healthy adult male begins to experience severe pain at 145 decibels, which could quickly worsen to deadly levels from increased number of blast exposure, as sound damage is cumulative. Consider that sound travels 5x faster and 25x further in water than it does in air. Take a look at this article posted in SLO Coast Journal of the cumulative decibel levels that will be reached in the Estero Bay: http://www.slocoastjournal.com/docs/marine_sanctuary.html. 160 decibels, which instantly ruptures human ear drums, will reach the beaches surrounding Morro Bay for 12 days. It is worth mentioning that fish and marine mammals are much more sensitive to vibrations than humans, because they use vibrations in the water around them to hunt, to navigate, communicate, and to avoid predation. Even though many fish and mammals would not likely die instantly from the blasting, it is very likely that they would die within the following weeks or month of the testing because of serious effects to their vibration sensitive systems.

PG&E claims that the blasting will not harm marine life. They say that they will "ramp up" the air guns to scare the fish away before reaching 250 decibels. This technique might not work as well as they hope, because I don't think fish can swim faster than the speed of sound. They say the observers on the boats and in the air will make sure no harm is done to marine mammals. However, it has been scientifically documented that only 2% of mortality in the ocean becomes visible on beaches, or floating on the surface. We will not see 98% of what is decimated from the blasting. Furthermore, with blasting taking place 24 hours a day, how will they see anything at night? Blasts every 12-15 seconds, 24 hours a day, for 12 days adds up to almost 70,000 blasts! To illustrate likely effects on local marine life, consider that similar seismic testing done 50 to 80 miles off the coast of Peru was followed by the suspicious deaths of at least 900 dolphins: <http://green.blogs.nytimes.com/2012/05/28/expert-links-dolphin-deaths-to-sonar-testing/>. The dolphin deaths in Peru are but one of many cases of suspicious mass die-offs of marine life related to seismic testing.

Whatever happens regarding this testing off of the central coast of California will set a precedent for this type of testing around the entire world forever. California is a champion of marine protection in the world. Therefore, if it is allowed here, then it will be allowed everywhere, without question. This is a scary thought, because as far as I know, it is very common knowledge that our oceans are in big trouble as it is. This has big implications considering that the photosynthetically active plants and bacteria in the ocean fix as much carbon and produce as much oxygen as all of the land plants even though they only make up one two-hundredth of the biomass of land plants. It seems like a very bad choice for our planet to open the door to worldwide testing that could potentially damage a SYSTEM that fixes half of the carbon, and produced half of the oxygen on earth.

PG&E's permit request must be denied completely. There are no acceptable conditions that would make 250 decibel testing in our ocean allowable. There is no such thing as acceptable mitigation for the potential damage that could be done to our marine environment, our community, and the livelihoods of fishermen. There is no way to know how much potential long term damage could be done, and furthermore, there are no good baseline studies in existence that could even be used to give perspectives of what the effects would be. AB 1632 requires the CEC to "compile and assess existing scientific studies." There are over two years worth of "low energy" testing data that has not been assessed. I request that AB 1632 is followed, and that the "low energy" data is assessed. The big push for high energy testing, without even having assessed the data from low energy testing, is absurd.

This is the most significant decision that you will ever make during your time as Coastal Commissioners. You each have personal responsibility to do what is morally right, and also to act in accordance with the formerly mentioned sections of the Coastal Act. PG&E representatives claim that this testing will not harm the marine environment, yet their very own EIR states that the testing will have devastating impacts on the marine environment. How can both be true simultaneously? PG&E is the same company that the movie "Erin Brokovich" is about. PG&E lied to the people of the southern California town of Hinkley that their water was safe, and those people ended up getting cancer at a rate 256% greater than the expected value. Are they lying about what this testing would do to our ocean and our local community? Do they really care? As a critical and logical thinker, I am forced to conclude that there is no way they sincerely give a damn about our ocean, or our community. They only care about their bottom line, just like most big corporations. However, the only question that matters here and now, is do you care? And what are you going to do about it? The fate of so much rests in your hands. Please use your mind, AND your heart in making this decision. Loosing touch with our hearts is nothing short of losing touch with what it is to be human. It is a very sad thing to see, and I do see it happening all the time in this messed up world. However, you have the chance to make that very atrocity not be what takes place here this time. You have the chance to help stop that from taking place in the future as well, because as I mentioned, this will set precedent.

Sincerely,



Ben Terra

Tagab, Clarita@Coastal

From: Teufel, Cassidy@Coastal
Sent: Thursday, November 08, 2012 9:38 AM
To: Tagab, Clarita@Coastal
Subject: FW: Stop Seismic Testing at Diablo Canyon Nuclear Powerplant

From: Carl, Dan@Coastal
Sent: Monday, November 05, 2012 10:11 AM
To: Teufel, Cassidy@Coastal
Subject: FW: Stop Seismic Testing at Diablo Canyon Nuclear Powerplant

From: Judy Reitman [<mailto:mail@change.org>]
Sent: Friday, November 02, 2012 6:36 PM
To: Carl, Dan@Coastal
Subject: Stop Seismic Testing at Diablo Canyon Nuclear Powerplant

Greetings,
I just signed the following petition addressed to: California Coastal Commission.

Stop Seismic Testing at Diablo Canyon Nuclear Powerplant
The extremely large sound blasts of around 250 decibels to measure fault lines in 3D will destroy sea life. It will also negatively affect our Commercial Fishing Industry and waterfront businesses such as restaurants. Please stop the testing until a better system is in place.

Sincerely,
I lived in Los Osos and Cambria for 7 years and I came to love the natural beauty of the area and I want to protect marine mammals from being destroyed with seismic testing.
Judy Reitman
Carlsbad, California

Note: this email was sent as part of a petition started on Change.org, viewable at <http://www.change.org/petitions/california-coastal-commission-stop-seismic-testing-at-diablo-canyon-nuclear-powerplant>. To respond, [click here](#)

Tagab, Clarita@Coastal

From: Teufel, Cassidy@Coastal
Sent: Thursday, November 08, 2012 1:56 PM
To: Tagab, Clarita@Coastal
Subject: FW: PG&E seismic testing off the shores of CA . . . ludicrous, inhumane and unnecessary waste of resources and money ~

From: montaraspeaks@juno.com [montaraspeaks@juno.com]
Sent: Thursday, November 08, 2012 12:59 PM
To: Teufel, Cassidy@Coastal
Subject: PG&E seismic testing off the shores of CA . . . ludicrous, inhumane and unnecessary waste of resources and money ~

NO SEISMIC TESTING! And here is why . . .

The offshore component of the Project would consist of operating a geophysical survey vessel, its associated survey equipment, and support/monitoring vessels . . . The survey would be conducted along the central coast from approximately Cambria to Guadalupe (including marine protected areas around Cambria and elsewhere). . . 18 active air guns . . . would discharge once every 15 to 20 seconds. In other words, huge underwater cannons would blast ear-shattering sounds under the water in an area from Guadalupe to Marin County. (These same measures are used to search for offshore oil reserves — hmmmmmm . . . smell something fishy?)

The environmental impact report indicates these tests would kill or injure marine mammals, including seals, dolphins, whales and otters. They could make them go deaf which would mean a lingering death. Already depleted fishing resources would be impacted as well as crustaceans. Seabirds would be affected with little or no way of mitigating the impacts. Migratory birds would be affected as the tests would go on 24 hours a day and lights at night would be required. Air quality would be impacted and the project would contribute to climate change.

It is already known where the faults are and which faults are there. This is not new information and that is right out of PG&E's mouth. They want to do this because a study is required (or so they say) to re-license the plant. It doesn't mean they have to do Seismic Testing, there are other ways to do the study that is needed for their re-licensing issue. This one just comes with benefits, and those are the location to our Off shore Oil and Gas locations. There is a larger picture many are not seeing . . . if you rely only on what the news reports and not what the licensing agencies involved are saying you are not fully informed on the issue.

Many of us care enough about this issue to make sure we get both sides of the story and as much information as we can to help us come to our own conclusions about the concerns of Seismic Testing. Local reporting like KSBY (video), New Times, The Rock, The Tribune are also in support. It's all over the news and other places like Facebook.

WE are not a bunch of Environmental activists. We are people of this community from many different backgrounds; upset with the facts and concerned for our Marine Life and our local economy along with our fishing industry. Seismic testing is a waste of time and money. PG&E will not act on the small amount of additional information these tests will provide and they certainly are not going to shut down Diablo Canyon based on the results of these tests. It is a complete waste and will harm the marine environment. 3D testing has not been done in this area before and that includes Santa Barbara. It is much more powerful than the low level testing that has been done but will provide a relatively small amount of additional information about the faults

in this offshore area. It will, however, identify potential sources of oil and natural gas (the testing ruse). Guessing the oil companies will appreciate us paying for this information since the 64 million (without our consent) has already been approved to put back of the taxpayers back eventho we are saying, "No seismic testing!"

The only way to make us safe is shut that nuke plant down for good and clean up the mess because these tests will do nothing/zip to cause PG&E to make any improvements to the plant. Parkfield and the San Andreas fault have been being studied for years and the studies still haven't saved anyone. It didn't stop the earthquake from killing anyone when it damaged Paso a few years ago; it didn't save those people who died then.

It's been said dozens of times . . . seismic testing will benefit NO ONE but PG&E, plain and simple. Diablo will not be safer and sea animals will be murdered in droves. Plz, we've done our homework, eventho it oftentimes feels like a dead (sea) horse to those advocating. . . plz do your duty to this planet and say, "No!" to seismic testing.

Most all of us that have been involved for months here in our own ways for the same cause have it all on our Timelines here on FB. At least pick one or two of us, take the time, and go in and read previous posts.

If we want Diablo safe the only solution is to shut it down and clean it up. Until then, let's all make a joint decision to save our otters, dolphins, whales, elephant seals, sea lions, harbor seals, our local economy and eco system from destruction.

There is no bargain with the devil. Once you've sold your soul, damage done~ Plz make the right decision: NO SEISMIC TESTING!

Peace on Earth and its oceans ~

Dion Schwulst
Concerned Citizen

An e-mail confirming you rec'd this would be much appreciated! Thanx so much ~

"Truth has no special time of its own. Its hour is now -- always." 

Tagab, Clarita@Coastal

From: Teufel, Cassidy@Coastal
Sent: Thursday, November 08, 2012 1:55 PM
To: Tagab, Clarita@Coastal
Subject: FW: Reject PG&E's Proposal for Seismic Testing in Central Coast

From: Michael McNamara [mmc18700PCH@verizon.net]
Sent: Thursday, November 08, 2012 12:33 PM
To: Teufel, Cassidy@Coastal
Subject: Reject PG&E's Proposal for Seismic Testing in Central Coast

Dear Commissioners

Dear California Coastal Commissioners:

I'm writing to express my opposition to PG&E's Proposal for Seismic Testing in Central Coast.

This project could have dangerous impacts on ocean ecosystems and recreational ocean users.

PG&E's own EIR clearly states unavoidable impacts to marine life. As an ocean enthusiast, I'm deeply concerned about the impacts to marine life during the testing. California is known for its rich ocean waters and we need to protect every level of our ocean ecosystem from risky and arguably unnecessary projects, such as seismic testing.

I'm also concerned that PG&E is disregarding the health and safety of ocean users. Their EIR clearly says the proposed activities would expose persons present in the water to harmful noise levels. And a recent PG&E map shows that dB levels could reach upward of 160 at some beaches. This is well over the threshold for human safety.

Finally, I'm concerned that PG&E is not analyzing decades of data collected by several sources to paint a full picture of geologic hazards near the power plant, new testing will only provide marginal improvement to what is already known.

Please deny this project. The Coastal Act was created to protect ocean resources and recreation. We believe this project does not conform to following sections of the Coastal Act:

****Section 30220--Protection of certain water-oriented activities--** Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

****Section 30224--Recreational boating use--**Increased recreational boating use of coastal waters shall be encouraged...

****Section 30230-- Marine resources; maintenance** Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

****Section 30210-- Access; recreational opportunities; posting** In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs...

We urge you to deny this project and send PG&E "back to the drawing board" in order to protect marine life and ocean users from this unnecessary project.

Thank you in advance for your thoughtful consideration.

Sincerely,

Michael McNamara
15137 Trail View Ct
Sylmar, CA 91342

Tagab, Clarita@Coastal

From: Teufel, Cassidy@Coastal
Sent: Thursday, November 08, 2012 9:38 AM
To: Tagab, Clarita@Coastal
Subject: FW: Concern about testing

From: carolja [carolja@gotsky.com]
Sent: Thursday, November 08, 2012 7:51 AM
To: Teufel, Cassidy@Coastal
Subject: Concern about testing

We wish no testing in our ocean waters off the central coast The big problems are too numerous to list Just stop!! Carol Alexander Cayucos ph 805 995 1109

Tagab, Clarita@Coastal

From: Teufel, Cassidy@Coastal
Sent: Thursday, November 08, 2012 9:38 AM
To: Tagab, Clarita@Coastal
Subject: FW: Coast

From: Nancy [avilabeachsparetreat@yahoo.com]
Sent: Sunday, November 04, 2012 9:47 AM
To: Teufel, Cassidy@Coastal
Subject: Coast

I'm opposed to seismic testing in our coastal waters

Avila Beach Spa Retreat
360 Front St B
Avila Beach, Ca. 83424
(805)704-1779
Avilabeachsparetreat.com

Teufel, Cassidy@Coastal

From: Katharina Obermoser-Ruef <katharinaor@gmail.com>
Sent: Thursday, November 08, 2012 8:02 PM
To: Teufel, Cassidy@Coastal
Subject: RE: Seismic Testing

Dear California Coastal Commissioners,

My name is Katharina Obermoser-Ruef. I am a resident of Los Osos and a kayak guide for Central Coast Outdoors. I am writing to express my opposition to the proposed high intensity acoustic seismic testing for Diablo Canyon off the SLO County coast.

My main concern is the potential negative impact to marine life in the area. Our tours in and around Morro Bay are very popular because of the amount and variety of wildlife we see. I am very concerned that the proposed testing will have significant negative impacts on the wildlife in the area. Will people still be interested in paddling in a lifeless body of water? What impact will that have on my income? What will the economic impact be? Tourism and the fishing industry are essential to our local economy.

I am also concerned that this testing might move forward without a full and up to date analysis of seismic testing for Diablo Canyon done in the recent past. Why are we contemplating moving forward with high intensity acoustic seismic testing to gather better information when we haven't even fully analyzed the information collected from previous surveys?

Best regards,

Katharina Obermoserr-Ruef

Teufel, Cassidy@Coastal

From: Michael McNamara <mmc18700PCH@verizon.net>
Sent: Thursday, November 08, 2012 12:33 PM
To: Teufel, Cassidy@Coastal
Subject: Reject PG&E's Proposal for Seismic Testing in Central Coast

Dear Commissioners

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This project could have dangerous impacts on ocean ecosystems and recreational ocean users.

PG&E's own EIR clearly states unavoidable impacts to marine life. As an ocean enthusiast, I'm deeply concerned about the impacts to marine life during the testing. California is known for its rich ocean waters and we need to protect every level of our ocean ecosystem from risky and arguably unnecessary projects, such as seismic testing.

I'm also concerned that PG&E is disregarding the health and safety of ocean users. Their EIR clearly says the proposed activities would expose persons present in the water to harmful noise levels. And a recent PG&E map shows that dB levels could reach upward of 160 at some beaches. This is well over the threshold for human safety.

Finally, I'm concerned that PG&E is not analyzing decades of data collected by several sources to paint a full picture of geologic hazards near the power plant, new testing will only provide marginal improvement to what is already known.

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****Section 30224--Recreational boating use--**Increased recreational boating use of coastal waters shall be encouraged...

****Section 30230-- Marine resources; maintenance** Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

****Section 30210-- Access; recreational opportunities; posting** In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs...

We urge you to deny this project and send PG&E "back to the drawing board" in order to protect marine life and ocean users from this unnecessary project.

Thank you in advance for your thoughtful consideration.

Sincerely,

Teufel, Cassidy@Coastal

From: montaraspeaks@juno.com
Sent: Thursday, November 08, 2012 12:59 PM
To: Teufel, Cassidy@Coastal
Subject: PG&E seismic testing off the shores of CA . . . ludicrous, inhumane and unnecessary waste of resources and money ~

NO SEISMIC TESTING! And here is why . . .

The offshore component of the Project would consist of operating a geophysical survey vessel, its associated survey equipment, and support/monitoring vessels . . . The survey would be conducted along the central coast from approximately Cambria to Guadalupe (including marine protected areas around Cambria and elsewhere). . . 18 active air guns . . . would discharge once every 15 to 20 seconds. In other words, huge underwater cannons would blast ear-shattering sounds under the water in an area from Guadalupe to Marin County. (These same measures are used to search for offshore oil reserves — hmmmmmm . . . smell something fishy?)

The environmental impact report indicates these tests would kill or injure marine mammals, including seals, dolphins, whales and otters. They could make them go deaf which would mean a lingering death. Already depleted fishing resources would be impacted as well as crustaceans. Seabirds would be affected with little or no way of mitigating the impacts. Migratory birds would be affected as the tests would go on 24 hours a day and lights at night would be required. Air quality would be impacted and the project would contribute to climate change.

It is already known where the faults are and which faults are there. This is not new information and that is right out of PG&E's mouth. They want to do this because a study is required (or so they say) to re-license the plant. It doesn't mean they have to do Seismic Testing, there are other ways to do the study that is needed for their re-licensing issue. This one just comes with benefits and those are the location to our Off shore Oil and Gas locations. There is a larger picture many are not seeing . . . if you rely only on what the news reports and not what the licensing agencies involved are saying you are not fully informed on the issue.

Many of us care enough about this issue to make sure we get both sides of the story and as much information as we can to help us come to our own conclusions about the concerns of Seismic Testing. Local reporting like KSBY (video), New Times, The Rock, The Tribune are also in support. It's all over the news and other places like Facebook.

WE are not a bunch of Environmental activists. We are people of this community from many different backgrounds; upset with the facts and concerned for our Marine Life and our local economy along with our fishing industry. Seismic testing is a waste of time and money. PG&E will not act on the small amount of additional information these tests will provide and they certainly are not going to shut down Diablo Canyon based on the results of these tests. It is a complete waste and will harm the marine environment. 3D testing has not been done in this area before and that includes Santa Barbara. It is much more powerful than the low level testing that has been done but will provide a relatively small amount of additional information about the faults in this offshore area. It will, however, identify potential sources of oil and natural gas (the testing ruse). Guessing the oil companies will appreciate us paying for this information since the 64 million (without our consent) has already been approved to put back of the taxpayers back even tho we are saying, "No seismic testing!"

The only way to make us safe is shut that nuke plant down for good and clean up the mess because these tests will do nothing/zip to cause PG&E to make any improvements to the plant. Parkfield and the San Andreas fault

have been being studied for years and the studies still haven't saved anyone. It didn't stop the earthquake from killing anyone when it damaged Paso a few years ago; it didn't save those people who died then.

It's been said dozens of times . . . seismic testing will benefit NO ONE but PG&E, plain and simple. Diablo will not be safer and sea animals will be murdered in droves. Plz, we've done our homework, eventho it oftentimes feels like a dead (sea) horse to those advocating. . . plz do your duty to this planet and say, "No!" to seismic testing.

Most all of us that have been involved for months here in our own ways for the same cause have it all on our Timelines here on FB. At least pick one or two of us, take the time, and go in and read previous posts.

If we want Diablo safe the only solution is to shut it down and clean it up. Until then, let's all make a joint decision to save our otters, dolphins, whales, elephant seals, sea lions, harbor seals, our local economy and eco system from destruction.

There is no bargain with the devil. Once you've sold your soul, damage done~ Plz make the right decision: NO SEISMIC TESTING!

Peace on Earth and its oceans ~

Dion Schwulst
Concerned Citizen

An e-mail confirming you rec'd this would be much appreciated! Thanx so much ~

"Truth has no special time of its own. Its hour is now -- always."



Tagab, Clarita@Coastal

From: Teufel, Cassidy@Coastal
Sent: Thursday, November 08, 2012 6:35 PM
To: Tagab, Clarita@Coastal
Subject: FW: High decibel seismic testing in Estero Bay

From: Virginia Flaherty [virginia@centralcoastoutdoors.com]
Sent: Thursday, November 08, 2012 4:09 PM
To: Teufel, Cassidy@Coastal
Subject: High decibel seismic testing in Estero Bay

Dear California Coastal Commissioners;

As a small local business owner in the ecotourism business in SLO County (guiding naturalist kayak tours of Morro Bay) and as a concerned citizen, I would like to express my strongest feelings against the proposed PG & E high decibel seismic testing in Estero Bay.

Morro Bay and the estuary and Estero Bay are one of the few remaining healthy environs of their types left in the state of California, not to mention the west coast of the US. After considerable reading I have come to the conclusion that this type of testing would have serious consequences for our incredibly rich ecosystem. From migratory birds to nursery breeding grounds for a large variety of fish, from marine mammals to invertebrates, all would most definitely be affected in some large, small, but most certainly, long term way. The impact to the wildlife would in turn affect the growing and substantial eco tourism business in the area and the local fishermen whose livelihoods rely on the rich fishing grounds of the bay.

I urge you to vote no on the proposal to start this testing!! This is not the answer!!

Sincerely, Virginia Flaherty

Teufel, Cassidy@Coastal

From: John Flaherty <john@centralcoastoutdoors.com>
Sent: Thursday, November 08, 2012 4:44 PM
To: Teufel, Cassidy@Coastal
Cc: 'John Flaherty'
Subject: Letter of opposition to seismic testing SLO County coast

To whom it may concern,

My name is John Flaherty and I am the owner of a small eco-tourism business (Central Coast Outdoors) located in San Luis Obispo County. I am writing to express my opposition to the proposed high intensity acoustic seismic testing for Diablo Canyon off the SLO County coast.

My main concern is the potential negative impact to marine life in the area. Our tours in and around Morro Bay are very popular because of the amount and variety of wildlife we see. I am very concerned that the proposed testing will have significant negative impacts on the wildlife in the area and thus my business. Although they have been proposals to compensate fisherman for the potential loss of income, there have been no such proposals for tourism related businesses that may be affected.

I am also concerned that this testing might move forward without a full and up to date analysis of seismic testing for Diablo Canyon done in the recent past. Why are we contemplating moving forward with high intensity acoustic seismic testing to gather better information when we haven't even fully analyzed the information collected from previous surveys?

For the reasons above I am opposed to the proposed high intensity acoustic seismic testing for Diablo Canyon.

Sincerely,

JOHN FLAHERTY

John Flaherty, Owner
Central Coast Outdoors
PO Box 6893, Los Osos, CA 93412
p 805-528-1080
f 805-528-5209
john@centralcoastoutdoors.com
www.centralcoastoutdoors.com
Check us out on [Tripadvisor](#)!

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www.centralcoastoutdoors.com
Check us out on [Tripadvisor!](#)

Teufel, Cassidy@Coastal

From: Taylor, Luna@Coastal
Sent: Thursday, November 08, 2012 9:54 AM
To: Teufel, Cassidy@Coastal
Cc: Staben, Jeff@Coastal
Subject: FW: Letter in Opposition to Seismic Testing by P G & E Diablo Canyon Nuclear Power Plant
Attachments: Seismic Imaging Letter.doc

From: Valerie Bentz [mailto:vbentz@fielding.edu]
Sent: Wednesday, November 07, 2012 4:50 PM
To: Coastal coast4u
Subject: Letter in Opposition to Seismic Testing by P G & E Diablo Canyon Nuclear Power Plant

Dear Coastal Commission,
Please circulate the letter below and attached to the coastal commissioners.

Thank you.

Valerie Malhotra Bentz, Ph.D., C.C.S.
Professor, School of Human and Organization Development
Fielding Graduate University

Ms. Cassidy Teufel

California Coastal Commission

Energy, Ocean Resources and Federal Consistency Division

45 Fremont St., Suite 2000

San Francisco, Ca 94105

November 7, 2012

Dear Commissioners:

I strongly object to PG &E's proposed Central Coastal California Seismic Imaging Project. The goal of the project is to attempt to measure the three major earthquake fault-lines which run along our coast. The existence of these fault

lines, especially after the continuing disaster at Fukushima Japan, call into question the advisability of maintaining the Diablo Canyon nuclear power facility, operating near Avila. The proposed testing will do nothing to prevent an earthquake on any of these fault lines. The tests will instead produce a large amount of data about dangers that we cannot avoid when these earthquakes occur.

We should redirect the \$60 millions plus that will be spent on these seismic tests to help us move towards safe and sustainable sources of energy.

I have read the environmental impact report for the project. Here is how the EIR describes it:

"The offshore component of the Project would consist of operating a geophysical survey 29 vessel, its associated survey equipment, and support/monitoring vessels . . . The survey would be conducted along the central coast from approximately Cambria to Guadalupe. (including Marine protected areas around Cambria and elsewhere) 18 active air guns . . . would discharge once every 15 to 20 seconds."

In other words, huge underwater canons would blast ear-shattering sounds under the water in an area from Guadalupe to Marin county. (These same measures are used to search for off shore oil reserves—coincidence?)

The environmental impact report indicates these tests would kill or injure marine mammals, including seals, dolphins, whales, and otters. They could make them go deaf which would mean a lingering death. Already depleted fishing resources would be impacted. Seabirds would be affected as well, with little or no way of mitigating the impacts. Migratory birds would be affected as the tests would go on 24 hours a day and lights at night would be required. Air quality would be impacted and the project would contribute to climate change.

The proposed "mitigation" measures include flying a plane to look for mammals who may be getting in the way and employing a marine biologist to watch as the devastation occurs. I quote again from the Environmental Impact Report:

"The Project would generate potentially significant environmental impacts on air quality, terrestrial and marine biological resources, greenhouse gases (GHGs), land use and recreation, and noise. Impacts to air quality, marine biological resources, and land use and recreation, remain *Significant and Unavoidable* even after all appropriate and feasible mitigation measures are applied. The EIR found *Significant and Unavoidable* impacts to fin, humpback and blue whales resulting from noise. Substantial impact on the Morro Bay stock of the harbor porpoise, is also considered to be significant; based on this threshold, is *Significant and Unavoidable*. Project impacts on sea otters are also considered to be *Significant and Unavoidable* because of the proximity of the survey to sea otter habitat. The Project is also expected to have *Significant and Unavoidable* impacts on air quality and greenhouse gases. Significance thresholds for air pollutants are developed by taking into consideration the levels at which individual project emissions would result in cumulatively considerable impacts. (www.slc.ca.gov "information" tab "CEQA Updates" link)

The ocean is our most precious resource. If the life of the ocean does not matter then neither do our lives. Some few persons stand to make lots of money from this outrageous project. P.G. & E will pass on the costs to us, the consumers. We and all life in the ocean and the land around us stand to lose. And for what? The project will not prevent the next earthquake. And if it happens and Diablo crashes, so do we. Think of the economic impact of such a disaster. A recent issue of *The Economist* has on its front cover a statement that says the dream of nuclear power has become a nightmare. It is time to put our resources into safe energy and abandon nuclear power.

The proposed tests will damage our environment, destroy marine life and to no good purpose. Please do not approve these tests.

Sincerely,

Valerie Bentz, Ph.D.

1855 Cardiff Dr.

Cambria, CA., 93428

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I urge you to vote no on the proposal to start this testing!! This is not the answer!!

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Tagab, Clarita@Coastal

From: Teufel, Cassidy@Coastal
Sent: Thursday, November 08, 2012 9:36 AM
To: Tagab, Clarita@Coastal
Subject: FW: seismic testing at Diablo Nuclear Power Plant

From: Duane [seaswallows32@yahoo.com]
Sent: Tuesday, November 06, 2012 10:45 PM
To: Teufel, Cassidy@Coastal
Subject: seismic testing at Diablo Nuclear Power Plant

Dear Honorable Coastal Commissioners

Suppose Pacific Gas and Electric is allowed to proceed with the proposed seismic tests and its determined that a powerful earth quake could damage or destroy the power plant and release the spent fuel stored there. Who's going to protect the California Central Coast and reinforce the existing structures and bring them up to a new earth quake code? PG@E shareholders ? rate payers? national tax payers.? Who is going to issue the permit and guarantee safety? Coastal Commission?

If it's determined that the faults pose no threat to the continued operation of the plant.....for how long? We're experiencing dramatic changes in our world daily above and below the earth's crust . Any interpretation of test results could become obsolete in a relatively short time.

The fast accumulating lethal waste on the site has to be isolated and monitored for thousands of years This is a burden that will cost our decedents much more than the energy we are using/wasting. Please deny PG@E 's seismic permit.

The corporation can improve it's much tarnished image if it would use the \$64,000,000.00 seismic fee to fund aWind...Solar..and...Tide generatingalternative energy park on the 2,000 acres surrounding the Diablo Nuclear power plant.

Sincerely,
W Duane Waddell
Cayucos, CA 93430
805 215 3487

Ms. Cassidy Teufel
California Coastal Commission
Energy, Ocean Resources and Federal Consistency Division
45 Fremont St., Suite 2000
San Francisco, Ca 94105

RECEIVED
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CALIFORNIA
COASTAL COMMISSION

November 7, 2012

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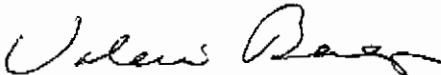
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1855 Cardiff Dr.

Carlsbad, CA, 92012

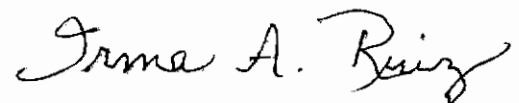
November 7, 2012

Dear Commissioner Brennan:

I urge you to deny PG&E's request to assess earthquake risks by the environmentally harmful methods they propose using. PG&E totally discount the effects of their proposed methods on oceanic and coastal wildlife, which are already heavily stressed by our pollution from sewage and oil spills, and non-biodegradable rubbish. What do we mean by having set aside "Marine Reserves," if we allow PG&E such devastating goings-on? Nor can we be sure of the extent of the damage their proposed tests would wreak on the ground itself, which we know is already fragile by its proximity to fault lines.

To allow PG&E to carry out such destructive practices at this time would be to leave the door open to their requesting permission to affect ever greater areas and even more damaging methods in the future. I urge you, I beg you, to give them a NO to their request.

When we protect the environment, it is our own habitat we are protecting. Of course, you know this. I just ask that you bear it very much in mind.

A handwritten signature in cursive script that reads "Irma A. Ruiz".

Irma A. Ruiz

2004 238th St.

Torrance CA 90501

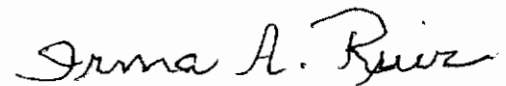
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Dear Commissioner Bochco:

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Irma A. Ruiz

2004 238th St.

Torrance CA 90501

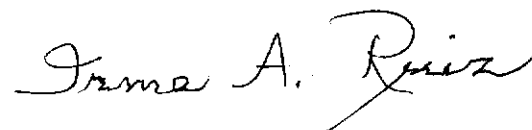
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Dear Commissioner Zimmer:

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Copy of Letter to Commissioner Dr. Burke

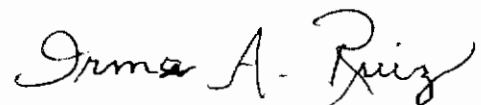
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Copy of Letter to Commissioner Bochco

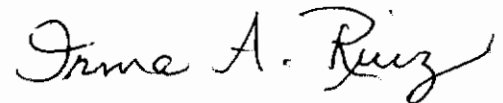
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Irma A. Ruiz

2004 238th St.

Torrance CA 90501

Copy of letter sent to Coastal Commissioner Jana Zimmer

November 7, 2012

Dear Commissioner Zimmer:

I urge you to deny PG&E's request to assess earthquake risks by the environmentally harmful methods they propose using. PG&E totally discount the effects of their proposed methods on oceanic and coastal wildlife, which are already heavily stressed by our pollution from sewage and oil spills, and non-biodegradable rubbish. What do we mean by having set aside "Marine Reserves," if we allow PG&E such devastating goings-on? Nor can we be sure of the extent of the damage their proposed tests would wreak on the ground itself, which we know is already fragile by its proximity to fault lines.

To allow PG&E to carry out such destructive practices at this time would be to leave the door open to their requesting permission to affect ever greater areas and even more damaging methods in the future. I urge you, I beg you, to give them a NO to their request.

When we protect the environment, it is our own habitat we are protecting. Of course, you know this. I just ask that you bear it very much in mind.

A handwritten signature in cursive script that reads "Irma A. Ruiz".

Irma A. Ruiz

2004 238th St.

Torrance CA 90501

Copy of letter sent to Coastal Commissioner Brian Brennan

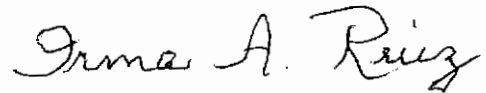
November 7, 2012

Dear Commissioner Brennan:

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A handwritten signature in cursive script that reads "Irma A. Ruiz".

Irma A. Ruiz

2004 238th St.

Torrance CA 90501

Cassidy Teufel

California Coastal Commission

Energy, Ocean Resources and Federal Consistency Division

45 Fremont St., Suite 2000

San Francisco, Ca 94105

November 7, 2012

Dear Commissioners:

I strongly object to PG &E's proposed Central Coastal California Seismic Imaging Project. The goal of the project is to attempt to measure the three major earthquake fault-lines which run along our coast. The existence of these fault lines, especially after the continuing disaster at Fukushima Japan, call into question the advisability of maintaining the Diablo Canyon nuclear power facility, operating near Avila. The proposed testing will do nothing to prevent an earthquake on any of these fault lines. The tests will instead produce a large amount of data about dangers that we cannot avoid when these earthquakes occur.

We should redirect the \$60 millions plus that will be spent on these seismic tests to help us move towards safe and sustainable sources of energy.

I have read the environmental impact report for the project. Here is how the EIR describes it:

"The offshore component of the Project would consist of operating a geophysical survey 29 vessel, its associated survey equipment, and support/monitoring vessels . . .The survey would be conducted along the central coast from approximately Cambria to Guadalupe. (including Marine protected areas around Cambria and elsewhere) 18 active air guns . . . would discharge once every 15 to 20 seconds."

In other words, huge underwater canons would blast ear-shattering sounds under the water in an area from Guadalupe to Marin county. (These same measures are used to search for off shore oil reserves—coincidence?)

The environmental impact report indicates these tests would kill or injure marine mammals, including seals, dolphins, whales, and otters. They could make them go deaf which would mean a lingering death. Already depleted fishing resources would be impacted. Seabirds would be affected as well, with little or no way of mitigating the impacts. Migratory birds would be affected as the tests would go on 24 hours a day and lights at night would be required. Air quality would be impacted and the project would contribute to climate change.

The proposed "mitigation" measures include flying a plane to look for mammals who may be getting in the way and employing a marine biologist to watch as the devastation occurs. I quote again from the Environmental Impact Report:

"The Project would generate potentially significant environmental impacts on air quality, terrestrial and marine biological resources, greenhouse gases (GHGs), land use and recreation, and noise. Impacts to air quality, marine biological resources, and land use and

recreation, remain *Significant and Unavoidable* even after all appropriate and feasible mitigation measures are applied. The EIR found *Significant and Unavoidable* impacts to fin, humpback and blue whales resulting from noise. Substantial impact on the Morro Bay stock of the harbor porpoise, is also considered to be significant; based on this threshold, is *Significant and Unavoidable*. Project impacts on sea otters are also considered to be *Significant and Unavoidable* because of the proximity of the survey to sea otter habitat. The Project is also expected to have *Significant and Unavoidable* impacts on air quality and greenhouse gases. Significance thresholds for air pollutants are developed by taking into consideration the levels at which individual project emissions would result in cumulatively considerable impacts. (www.slq.ca.gov "information" tab "CEQA Updates" link)

The ocean is our most precious resource. If the life of the ocean does not matter then neither do our lives. Some few persons stand to make lots of money from this outrageous project. P.G. & E will pass on the costs to us, the consumers. We and all life in the ocean and the land around us stand to lose. And for what? The project will not prevent the next earthquake. And if it happens and Daiblo crashes, so do we. Think of the economic impact of such a disaster. A recent issue of *The Economist* has on its front cover a statement that says the dream of nuclear power has become a nightmare. It is time to put our resources into safe energy and abandon nuclear power.

The proposed tests will damage our environment, destroy marine life and to no good purpose. Please do not approve these tests.

Sincerely,

Valerie Bentz, Ph.D.

1855 Cardiff Dr.

Cambria, CA., 93428

To: *CASSIDY TEUFFEL*
STAFF - COASTAL COMMISSION - RE: AB. 1632 (BLAKELOG)
Subject: Diablo / PG&E Seismic Testing

RECEIVED
NOV 06 2012
CALIFORNIA
COASTAL COMMISSION

We the People
Demand Democracy for All.
We Vote NO to Seismic Testing.

The Seismic Testing will not Prevent the next Earthquake.
It could trigger the next earthquake and kill many creatures in the testing.

We the People and our Grandchildren ask you
Please Vote NO now to Seismic Killing.

We Must Find Another Way. *L.I.D.A.R. or ORTHOPHOTOS ?*

Melinda Davis 11-6-12

Melinda Davis
Citizen of Cayucos, CA.

11-06-12

Calif. Coastal Commission

re: Application No. E-12-005
and CC-027-12 PG#6

I fully support your Staff's
recommendation to Deny These
Applications -

Sincerely

Bill Richardson

Former Mayor
City of Pismo Beach

RECEIVED

NOV 08 2012

CALIFORNIA
COASTAL COMMISSION

November 6, 2010

The California Coastal Commission

RE: Seismic Testing Along Central California Coast

Dear Members:

My name is Drew Jacobson. I am a resident of Morro Bay and wish to speak about the Diablo seismic testing program. I am President of the Morro Bay Liveaboard Association and represent fifty residential vessels and their families. I am also a certified marine surveyor and I hold a USCG Masters License. I have worked within the marine industry for nearly forty years.

I attended the San Luis Obispo Board of Supervisors meeting regarding seismic testing discussion that took place on October 30, 2012, and was shocked to hear that the decibel levels associated with the testing would reach levels not only detrimental to sea life but also humans. Individuals that live and work on Morro Bay and the surrounding area on a daily basis would be effected by the seismic testing program proposed by PG&E.

Vessels made of fiberglass, wood or metal tend to amplify the sounds within the surrounding waters. This "speaker" effect is powerful. In the early 1980's, houseboat owners and boaters on Richardson Bay, San Francisco, noticed a loud "hum" (similar to running a large generator) coming up through their vessels and reverberating throughout their interiors. I was living aboard our sailing vessel on Richardson Bay at the time and can attest that the sound, while not at the levels proposed by PG&E's seismic testing program, was intensely irritating and caused much concern among people who lived and worked on the waters of the areas effected. The cause of the noise turned out to be attributed to a small bottom fish.. The point being, even low decibels of sound can be greatly amplified within the vessels interior and may cause serous health effects on their occupants.

I understand that the sound levels in the effected areas may reach 160- decibels. This is near the level of what humans can withstand. If you then add the amplified sound produced within the vessels interior we are very much concerned as to the health effects this will have on the boating population of Morro Bay and Port San Luis.

Sincerely,

Captain Drew G Jacobson
Morro Bay, California

Date: 10-5-12

California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

RECEIVED

NOV 08 2012

CALIFORNIA
COASTAL COMMISSION

Re: PG&E's Proposal for Seismic Testing in the Central Coast

Dear California Coastal Commissioners:

I'm writing to express my opposition to PG&E's Proposal for Seismic Testing in Central Coast. This project could have dangerous impacts on ocean ecosystems and recreational ocean users. PG&E's own EIR clearly states unavoidable impacts to marine life. As an ocean enthusiast, I'm deeply concerned about the impacts to marine life during the testing. California is known for its rich ocean waters and we need to protect every level of our ocean ecosystem from risky and arguably unnecessary projects, such as seismic testing.

I'm also concerned that PG&E is disregarding the health and safety of ocean users. Their EIR clearly says the proposed activities would expose persons present in the water to harmful noise levels. And a recent PG&E map shows that dB levels could reach upward of 160 at some beaches. This is well over the threshold for human safety.

Finally, I'm concerned that PG&E is not analyzing decades of data collected by several sources to paint a full picture of geologic hazards near the power plant, new testing will only provide marginal improvement to what is already known.

Please deny this project. The Coastal Act was created to protect ocean resources and recreation. I believe this project does not conform to following sections of the Coastal Act:

****Section 30220--Protection of certain water-oriented activities--** Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

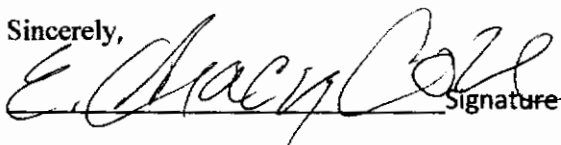
****Section 30224--Recreational boating use--** Increased recreational boating use of coastal waters shall be encouraged...

****Section 30230-- Marine resources; maintenance --** Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

I urge you to deny this project and send PG&E "back to the drawing board" in order to protect marine life and ocean users from this unnecessary project.

Thank you in advance for your thoughtful consideration.

Sincerely,


Signature

____ Printed name



Ms. E. T. Cole
123 1/2 Navarra Dr.
Scotts Valley, CA 95066

____ Address

NOV 5, 2012
~~October 2012~~

RECEIVED

NOV 07 2012

CALIFORNIA
COASTAL COMMISSION

California Coastal Commission

Attn: Cassidy Teufel, Energy, Ocean Resources & Fed. Consistency Divn.
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

Re: PG&E's planned seismic survey of the Central Coast

Dear Mr. Teufel & Commissioners:

I want to register my strong objection to the proposal of PG&E to use extremely loud air gun blasts to explore earthquake faults. I believe that this will be devastating to our marine mammals, both those who live along the coast, and those that migrate through here annually.

The idea of using such disruptive devices, even on a short-term basis, is difficult to justify in an area inhabited by whales, dolphins, sea lions, otters and more is unacceptable. But the plan to blast the massive noise every few seconds round-the-clock seems like torture to me. It sounds like something used to break down prisoners to force them to divulge information.

Sound is vital to these animals; and subjecting them to such loud blasts of sound, which will travel for miles in the water, will cause disorientation at the least. It will likely cause deafness and ultimately death for many who have the misfortune to be within a few miles of the blasts. To consider this in any area where living beings reside is horrific; but to consider it within areas which have been designated as sanctuaries or protected areas is unimaginable.

Please deny the request for PG&E to proceed with this project. They must be forced to find alternatives for their ongoing business.

Thank you for your consideration.

Signed: Sandra K. Davis

Printed name: Sandra K. Davis

Address: P.O. Box 3939

San Cruz CA

95063 - 3939

November 4, 2012

Dear Ms. Teufel,

I am writing regarding the proposed seismic testing for PG&E (Port San Luis). I am opposed to this testing, for the sake of the precious ecosystem, & also because the value is certainly questionable.

I have learned that the Coastal Commission is recommending they deny the project →

& for this, I am very grateful. Thank you for your efforts on the behalf of all involved!



Best regards,

EDF
ENVIRONMENTAL
DEFENSE FUND

Finding the ways that work

257 Park Avenue South
New York, NY 10010
www.edf.org

Julie Harper

Julie Harper
15 Essex St., #1
Dover, NH 03820

(SLO native)

Cassidy Teufel
California Coastal Commission
Energy, Ocean Resources and
Federal Consistency Division
45 Fremont St., Suite 2000
San Francisco, Ca 94105

Nov. 3, 2012

R E C E I V E D

NOV 07 2012

CALIFORNIA
COASTAL COMMISSION

Dear Commissioners,

My name is Mary Sullivan and I have been a resident of SLO since 1968. I am writing to encourage you to deny the permit for seismic testing by PG&E in the regions surrounding the Diablo Canyon Power plant on the Central Coast of California. I object to the type of technology used for this testing due to potentially significant biological impacts, to the damage to our precious marine resources, to the negative impacts on our fishing and tourist industries, and to the potential for harm to human populations.

PG&E plans to create a 160dB received sonic wave safety radius around the blasting area, including coming to the shoreline where people are recreating in the ocean. The US Navy determined a man's threshold is 145 dB before internal tissue damage occurs. Humans who recreate in the ocean during testing periods will be in danger of receiving internal tissue damage from high intensity decibel shock pressure waves. In *Underwater Blast Injuries*, Dr. P. G. Landsberg, MD, describes the physiological effects of seismic testing on the human body: "the shock wave would hit the air-filled pockets of your body and instantly compress the gases there, possibly resulting in blocked blood vessels, ruptured lungs, torn internal tissues and even

brain hemorrhaging.” Waves hitting the surface of the water or the bottom ground would bounce back, inflicting even more damage.

It is important to recognize that testing new faults is not mandated in AB 1632 and that the only legal mandate is to review and assess existing studies. It therefore makes the proposed testing unnecessary and not a legal requirement to adhere to the legislation. PG&E will falsely argue that **only** these tests will provide the necessary geological data, and that safety trumps biological resources. I am concerned that PG&E is using scare tactics based on safety in order to push through the permitting process without employing due diligence. PG&E's proposed intensities and durations of the sonic waves exponentially exceed any sited study or studies; the proposed intensities and durations of the sonic waves are unprecedented in scope compared to any referenced study. Thus, the predictive model is useless other than a significantly understated guess.

Moreover, PG&E's EIR ignored the conflict between the federal government's assumed lower standards or assumptions of sonic impacts to marine life, especially mammals, and those of the California Coastal Commission's Report on Acoustic Impacts on Marine Mammals that are stated significantly higher. The differences between these two standards are of statistical significance.

Conducting these seismic tests will do nothing to make the Diablo Nuclear Power plant safer. It will only offer more information on the fault lines. Many agencies, including the NRC, conclude that adequate testing has already been done Just because we have a technology does

not mean we would be wise to employ it. We must weigh the true cost-benefit of such a decision. I have faith that future state-of-the-art technologies could be developed that would not endanger human health, nor endanger an already degraded marine environment. It is time to seriously research and promote more benign air gun alternatives such as, perhaps, controlled sources, passive seismic “the detection of natural low-frequency earth movements”, electromagnetic surveys, etc. - especially in sensitive habitats.

Not rushing forward with these high intensity seismic tests will give the peer groups time to review and evaluate the land tests and the low level ocean tests. After this review, scientists can learn what alternative technology can be used to protect our marine life ocean resources, especially sea otters. I am a volunteer for Pacific Wildlife Care and I, among countless others that live here on the Central Coast, contribute our time, money, gas, and passionate efforts to protect and rehabilitate injured and orphaned wildlife that call the Central Coast home. We transform passion into action when we rescue even one animal, so the thought that any agency would condone the wholesale kill-off of marine species to obtain what I consider to be useless and redundant data. Well now that really boggles the mind.

There are just so many unanswered questions: Does the data derived from this testing provides enough new information to be worth devastating our precious marine resources? Do we know what long-term consequences of, as the EIR states "significant impacts", this

testing may have on humans exposed to these decibels, or impacts on the ocean ecology, food web, coastal economies, tourist industries, cultural resources, fishing industry? Do we know if this type of testing could possibly even cause earthquakes? Could these blasts effect levels of salt-water intrusion into coastal aquifers? Are there any other types of testing available now or in the near future? Do we really have independently peer -reviewed data? Why is there no financial cap over and above the \$64 million already approved by the CPUC to be passed on to the ratepayers? If we do not have the answers to these questions we should not risk damaging the most valuable feature of our Central Coast! Would we chop all the trees down in Yosemite to conduct a seismic study of Hetch-Hechy? Of course not!

Our oceans are in trouble, which is why the MLPA's were developed in the first place. The fact that many endangered species will be impacted is simply unacceptable. I have major concerns regarding the documents prepared by NSF and the EA prepared by Padre Associates, Inc. Both contradict the high levels of 'take' forecasted by the EIR of PG&E by stating that there will not be significant impact on the environment. PG& E maintains that the fish and other marine life will survive because they will leave the blasting area and that they will provide a safety limit radius. This statement implies staying in the blast area will result in death, and ignores the shellfish, such as abalone and other marine life that cannot move quickly and leave. Thus, the marine life, including fish eggs, larvae, plankton, etc. will be destroyed within the blasting area. A single seismic survey has been

shown to cause endangered fin and humpback whales to stop vocalizing, a behavior essential to breeding and foraging. Whales, dolphins and porpoises that are not killed by the immediate blast will likely suffer slow deaths, impairment to their extremely sensitive hearing will hinder their ability to find food or navigate underwater.

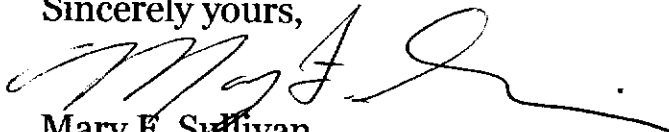
I would encourage the California Coastal Commission to take action to stop the permitting process since an issuance of the permit would not comply with the Coastal Act, and would be in violation of the Endangered Species Act, the Marine Mammal Act, the CA Marine Life Protection Act, as well as, a slew of international marine conservation laws. The mitigation of impacts by PG&E is an unacceptable option and cannot be construed as a responsible solution to the yet unknown impacts and the potential unintended consequences of seismic testing.

The California Coastal Commission would be wise to conduct the appropriate investigations, studies and cost-benefit analysis, as it relates to biological ecosystems and communities. I have faith the California Coastal Commission will recognize their responsibility and act as true guardians of the California Coast. Our ocean life and marine food supply are too valuable to recklessly destroy. The Precautionary Principle must be the guide for decisions that are made regarding threats to marine life.

Please protect these biological, cultural, economic assets and demand PG&E find alternative technologies to obtain seismic data. The eyes of

the world will be looking to you to protect our fragile marine resources. Thank you for your consideration.

Sincerely yours,



Mary F. Sullivan

November 2, 2012

Mar Shallenberger, Chair
California Coastal Commission
45 Fremont Street Suite 2000
San Francisco, CA 94105

**RE: Opposition to Pacific Gas & Electric Seismic Survey:
Consistency Certification and Coastal Development Permit (E-12-005 and
CC-027-12**

Comments on Proposed High Energy Seismic Survey (HESS) off
OUR coast

Dear Chair Shallenberger and Honorable Commissioners,

Thank You for Allowing us to email and fax our concerns for PG&E's proposed
Seismic Testing off our Coast and in Marine Protected Areas.

I want to tell you why I do not want this Seismic Testing done besides the damage
it will cause to our Marine Life, Our Economy, Our Ocean.

I have been fighting to Stop this Seismic Testing issue and talking with many
people in our community about this for months. I have not found many who are for
this test. I understand an earthquake fault is the issue. However, PG&E has already
publicly said they will make no improvements to Diablo regardless of the results of
this test---None what so ever.

I wish to share a short story with you. I recently traveled to Florida to care for my
dying mother. Upon my return, I was met by my Grand daughter at the airport. She
was in tears begging me to save her Seals. I am a local Photographer who takes my
Grand Children with me to photograph our local wildlife. She had heard while I
was gone that Seals and Whales will have their ears blown out. I promised her I
would do everything in my power to make sure that would not happen.

We are Stewards of the world we live in. It is our responsibility to make sure we
do not leave our Children and Grand Children a large mess to clean up. We have
already made a mess on the land, and we do not need to destroy our Ocean and
Marine Life also.

Someone needs to speak for the Children. That is what I am doing, Speaking for my Grand Children and the Children of the world. We all know that this test is bad. It is really an Insane Idea. We all know the facts about Seismic Testing and the results it has on Marine Life from around the world. The problem is that it takes so long to prove the biological devastation caused by seismic testing.

I am begging you to Please think of the Children. We have 27 miles of beach here in the Five Cities Area, and at least double that in the Morro Bay and Cayucos areas. I do not wish for Children to have Images of dead and dying Whales, Elephant Seals, Sea Otters, Harbor Seals, Sea Lions, Dolphin, Porpoise, and other marine life burned in their brains. I don't want our children to have Visions of Death like the war coverage of the 60's that was displayed nightly on our evening news. Visions of death---Our Children have enough to worry about as it is.

I do not want to see our citizens rushing to our beaches with towels and buckets trying to save Whales, Dolphin, Porpoise, and Children crying."save them save them." I know this is what will happen...PG&E has already admitted animals will die. It is not cost effective for any of us. It will not make Diablo Nuclear Power and Waste Plant any safer. It will destroy our Marine Life and destroy and harm the minds of our young people with visions of death. PG&E admits Death.

Sea Otters are already being Harassed by capturing, implanting, tagging and being let go for a study to see how they will react to Seismic Testing. They are Harassing them to find out if they will be Harassed, an Insane Idea. I don't see reason behind the actions and the Science gained. I cannot agree with this action. To me, someone put the cart before the horse.

This tagging was listed in PG&E's request for permit that has not been granted yet. How can someone start a job without a Permit that has not been granted? I know all about the old 2005 permit they are using. It is not right. If Otters needed this kind of study, the permit should have been funded and the study started many years ago.

This is-A Study to See How Otters will have their brains blown out---Funded by PG&E on a seismic test that has not been permitted yet, and All because PG&E wants to be ready to start the testing if they get their permit.

What should have happened is the process of getting the permit should have played out. Once they got the permit, then capture, implant, tag and study. Not hurry up, use an old permit, so If PG&E gets their permit, they cannot worry about having to

Capture, Implant, tag and study our Otters. Like I said. If it wasn't to get ready to rush this Seismic Testing. Why wasn't the Capture, Implant, Tag and Study done years ago to establish a base line?

This Insane Idea has red flags popping up everywhere. It borders on breaking the law by Harassing to see if a species will be Harassed. I am imploring you all: Think about the Children. Please keep in mind what our Children want.

When my Grand Daughter begged me to save her seals. I made a promise I would do everything in my power to stop this Insane Idea. Our children learn by example, and children see everything.

I hope you continue to lead our Children by example and join us to Oppose PG&E's Insane Idea. You have made Great Choices in the past with our Issues. Please continue to do so by standing up to PG&E and speaking for our Children. They do not want the sea life harmed by seismic blasting.

My Grand daughter even said." Grandma, we can use candles or flashlights at night. I do not need to watch T.V or play my video games--If it means they wont kill our seals--I can do that Grandma." I cried hearing her compassion.

Thank You so much for allowing me the opportunity to voice my opinion. Please think about your actions. Our children are watching, asking, and counting on us to protect our Marine Life, and Children see Everything. I hope you chose to do the same and Not Allow Seismic Testing on our Coast. Stand Up. Make San Luis Obispo truly the Happiest Place on Earth to Live. Protect it. Show the world we can truly make a difference. I can Assure you the world is watching to see what we will do. I have made sure of that.

I have enclosed photographs that I have taken. I hope they will give you a visual of what our children need to see and what they do not need to see. The choice and a difficult choice it truly is, remains with you. I pray you will keep in mind when making your decision the visions our children will have for a lifetime.

Thank You all so much.

Maryann Avila

Kaila Overman (age 7)

Kobe Overman (age 11)

Grover Beach, California

To: California Coastal Commission

From: Anne Gill Kellogg

1538 3rd St. Los Osos, CA 93402

Date: November 2, 2012

Re: 3-D Acoustic Seismic Testing off
Central Coast proposed by PG&E

RECEIVED
NOV 05 2012
CALIFORNIA
COASTAL COMMISSION

I am writing to add my voice to the many voices with deep concern regarding the proposed 3-D acoustic testing around the Diablo Nuclear Plant. I live in this beautiful coastal area only ten miles from the nuclear power plant. I enjoy observing the many different sea mammals in this area: gray whales, elephant seals, sea otters, sealions and harbor seals.

There is not enough research to show how this testing might damage all the marine life off the coast.

Do no harm. Do not issue a permit for this devastating acoustic technology without looking at other options.

You are there to protect the coastal environment.
Please take care of the amazing Central Coast.
Thank you, Anne Kellogg

From: Richard Kay <richardkay2233@aol.com>
To: richardkay2233 <richardkay2233@aol.com>
Subject: PG&E Coastal Destruction / application # E-12-005 & #CC-027-12
Date: Fri, Nov 2, 2012 9:12 am

Dear Sirs, Please let this serve as a letter of Protest !

PG&E proposed "High Energy 3 Dimensional Geophysical Survey" would do irreparable damage to this part of Central California Coastline !

PLEASE DO NOT ALLOW THIS FOOLISH "SURVEY" TO HAPPEN !

The result of such folly would be too grim to predict. Hundreds of dead whales, dolphins, seals and fish, not to mention the damage to the sea bed, reefs and underwater Topography / Hydrograph.

Truly, the end product of this ill-conceived "Survey" would be disastrous to this part of our beloved coastline !

Please do the "Right Thing" so future generations can enjoy this magnificent coastline.

For the Oceans, Jeffery A. Welshans / BA, MBA (San Diego State U.)
Marine Biology Dept.
School of Oceanography
Surfrider Foundation of So.Cal
Sea Shepherd Conservation Society

Thank you and Best Regards,
CHAMPION BEARINGS, INC.
Phone # (760) 320-4645
2233 Milo Drive, Palm Springs, CA, 92262
www.championballbearings.com

MAIL

RECEIVED

NOV 05 2012

Thursday, November 1, 2012 6:50 PM

CALIFORNIA
COASTAL COMMISSION**Diablo Canyon seismic testing**

"lee caulfield" <userandrea1493@yahoo.com>

userandrea1493@yahoo.com

Cassidy Teuffel
California Coastal Commission
45 Fremont St, Ste 2000
San Francisco, Ca 94105-2219
Nov. 1, 2012

Dear Coastal Commissioners:

I request you deny PG&E's request for a permit to perform seismic testing in the waters off Diablo Canyon nuclear power plant.

The evidence that marine life will be harmed, as well as fishermen's livelihoods should be sufficient to deny the permit. In addition evidence by the U.S. Geologic Survey indicates the mapping survey proposed have a very poor ability to actually see any structures in the Franciscan Rock, the granite structure underlying the Diablo Canyon plant, making it a site that likely won't reveal any great detail from this form of testing.

There are other alternatives recommended by the U.S. Geologic Survey such as ocean floor GPS which shows how fast the plates are moving and provides information on how frequently earthquakes are likely to occur, something the current proposal doesn't do.

(see Monterey county weekly "Hazarding Guesses" August 4 2011)

I am concerned about an expensive procedure that will cost taxpayers millions of dollars yet will not provide necessary information about the faults, but will kill and cause harm to our marine life while putting fishermen's livelihoods at risk.

Therefore I request you deny the permit.

Sincerely



Lee Andrea Caulfield
748 Lilac Dr
Los Osos, Ca. 93402
528-4047

Nov. 1, 2012

Dear Dan Carl, et al.

Please do what you can to do the right thing: Stop the Diablo Canyon Seismic Testing, as it is far too destructive and unnecessary.

Better yet, do whatever you can to shut the antiquated, worn out, time bomb that Diablo Canyon plant is.

Geologist and geophysicists tell us the pressure is building up and a Big Earths quake is coming to California. They cannot tell us when, but every day we get closer to an unprecedented disaster, ala. Fukushima.

What are you waiting for?

Thank You in advance for doing the right thing.

Sincerely,

FW Wakefield

Franklin Wakefield

P.O. Box 1044

Morro Bay CA 93943

RECEIVED
NOV 07 2012
CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

PS. - pls. forward a copy in incl. ~~no~~ SASE

10/31/12

Chair, CA coastal commission ; Fish & Game

Not only are seismic sound blasts
devastating to ocean mammals - they
were also a precursor to the quakes
* occasioning the devastating Tsunami
in SE Asia in 2004 - this together
with PGE wanting to ~~put a~~ activate
a nuclear power plant in this fault
area is a recipe for disaster.

* Members of the Australian Parliament
were commenting on their chain of
events in 2004 and you should NOT
allow 42 days of blasts every 13
seconds in a marine reserve, near a
fault to justify a nuclear reactor.
No, no, and no.

Sincerely,

G. Hoff

Gler Hopkins ~~Gardner~~
The Library Mootney Institute

213 W. Main Street
Woodbury, TN 37190
www.mootney.org

BS.) MFA

retired after 35 yrs. teaching LAUSD

RECEIVED

NOV 05 2012

CALIFORNIA
COASTAL COMMISSION

Date: Oct. 31 2012

California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

Re: PG&E's Proposal for Seismic Testing in the Central Coast

Dear California Coastal Commissioners:

I'm writing to express my opposition to PG&E's Proposal for Seismic Testing in Central Coast. This project could have dangerous impacts on ocean ecosystems and recreational ocean users. PG&E's own EIR clearly states unavoidable impacts to marine life. As an ocean enthusiast, I'm deeply concerned about the impacts to marine life during the testing. California is known for its rich ocean waters and we need to protect every level of our ocean ecosystem from risky and arguably unnecessary projects, such as seismic testing.

I'm also concerned that PG&E is disregarding the health and safety of ocean users. Their EIR clearly says the proposed activities would expose persons present in the water to harmful noise levels. And a recent PG&E map shows that dB levels could reach upward of 160 at some beaches. This is well over the threshold for human safety.

Finally, I'm concerned that PG&E is not analyzing decades of data collected by several sources to paint a full picture of geologic hazards near the power plant, new testing will only provide marginal improvement to what is already known.

Please deny this project. The Coastal Act was created to protect ocean resources and recreation. I believe this project does not conform to following sections of the Coastal Act:

****Section 30220--Protection of certain water-oriented activities--** Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

****Section 30224--Recreational boating use--**Increased recreational boating use of coastal waters shall be encouraged...

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I urge you to deny this project and send PG&E "back to the drawing board" in order to protect marine life and ocean users from this unnecessary project.

Thank you in advance for your thoughtful consideration.

Sincerely,



Signature

Deborah Berkson Printed name

2240 Kinsley St

Address

Santa Cruz CA 95062

RECEIVED

NOV 05 2012

CALIFORNIA
COASTAL COMMISSION

Date:

10/31/12

California Coastal Commission

Attn: Cassidy Teufel, Energy, Ocean Resources & Fed. Consistency Divn.

45 Fremont Street, Suite 2000

San Francisco, CA 94105-2219

Re: PG&E's planned seismic survey of the Central Coast

Dear Coastal Commissioners:

Please accept this, my strong objection to the proposal of PG&E to conduct their seismic survey with extremely loud air gun blasts along our abundantly inhabited Central Coast. I believe that this will be devastating to our marine mammals, both those who live along the coast, and those that migrate through here annually.

There are alternatives to the air guns which are not as damaging to marine life. There is no justification for the use of this life-destroying method. I also believe that whatever new information may be learned from such exploration does not outweigh the harm to the ocean resources along our coast, or any other ocean setting.

Marine mammals rely on sound for reproduction, communication with family members, foraging for food, and general navigation. These loud blasts of sound will create waves that will travel for many miles – over 100 miles in some cases, as stated in the EIR conducted by PG&E. It will likely cause deafness and ultimately death for many animals who have the misfortune to be within a few miles of the blasts. To consider this in any area where living beings reside is horrific; but to consider it within areas which have been designated as sanctuaries or protected areas is unimaginable.

Please don't allow PG&E to proceed with this project. They must be forced to find alternatives for their ongoing business.

Thank you for your consideration.

Sincerely,

Signed:

Faye Stone

Printed name:

FAYE STONE

Address:

7148 Viewpoint Rd.
Aptos, Ca. 95003

RECEIVED

NOV 05 2012

CALIFORNIA
COASTAL COMMISSION

October 31, 2012

California Coastal Commission

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45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

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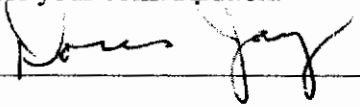
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Please deny the request for PG&E to proceed with this project. They must be forced to find alternatives for their ongoing business.

Thank you for your consideration.

Signed: 

Printed name: DORIS JAY

Address: 517 MEDER ST.

SANTA CRUZ, CA 95060

RECEIVED

NOV 05 2012

CALIFORNIA
COASTAL COMMISSION

October 31, 2012

California Coastal Commission

Attn: Cassidy Teufel, Energy, Ocean Resources & Fed. Consistency Divn.
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

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Thank you for your consideration.

Signed: 

Printed name: CARY BEN SEIDEN

Address: 517 MEDER STREET
SANTA CRUZ, CA 95060

October 31 2012

California Coastal Commission

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45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

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Thank you for your consideration.

Signed:

Mary E. Gardner Loscutoff

Printed name: *Mary E. Gardner Loscutoff*

Address: *111 Cayuga Ave.*

Santa Cruz, Ca 95062

RECEIVED

NOV 02 2012

CALIFORNIA
COASTAL COMMISSION

October 31 2012

California Coastal Commission

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45 Fremont Street, Suite 2000
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Thank you for your consideration.

Signed: Sandra Farrell

Printed name: Sandra Farrell

Address: 3203 Stockbridge Ln.

Santa Cruz, CA 95065

Date:

12/3/12

California Coastal Commission

Attn: Cassidy Teufel, Energy, Ocean Resources & Fed. Consistency Divn.

45 Fremont Street, Suite 2000

San Francisco, CA 94105-2219

RECEIVED

NOV 02 2012

CALIFORNIA
COASTAL COMMISSION

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Thank you for your consideration.

Sincerely,

Signed:

Mary McCrory

Printed name:

Mary McCrory

Address:

117 Palo Verde Terrace

Santa Cruz Co. 95060

RECEIVED

NOV 07 2012

CALIFORNIA
COASTAL COMMISSION

October ____ 2012

California Coastal Commission

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45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

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Thank you for your consideration.

Signed: Jamalia Turpin

Printed name: Jamalia Turpin

Address: 2172 Northmain St

Apt H, Salinas Ca 93906

October ____ 2012

California Coastal Commission

Attn: Cassidy Teufel, Energy, Ocean Resources & Fed. Consistency Divn.
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Thank you for your consideration.

Signed: Bettye R. Pina PT MPP

Printed name: Bettye Pina PT MPP

Address: 26 Beverly Dr

Watsonville CA 95076

RECEIVED

NOV 07 2012

CALIFORNIA
COASTAL COMMISSION

Date: Oct. 30, 2012

RECEIVED

California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

NOV 02 2012

CALIFORNIA
COASTAL COMMISSION

Re: PG&E's Proposal for Seismic Testing in the Central Coast

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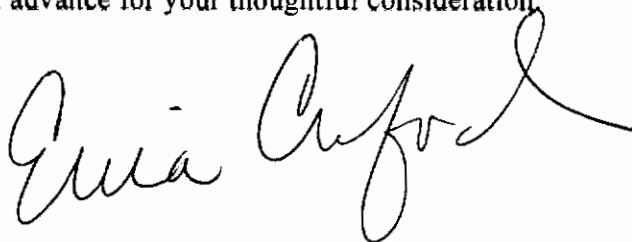
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I urge you to deny this project and send PG&E "back to the drawing board" in order to protect marine life and ocean users from this unnecessary project.

Thank you in advance for your thoughtful consideration.

Sincerely,



Date: October 30, 2012

California Coastal Commission
Attn: Cassidy Teufel, Energy, Ocean Resources & Fed. Consistency Divn.
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

RECEIVED

NOV 02 2012

CALIFORNIA
COASTAL COMMISSION

Re: PG&E's planned seismic survey of the Central Coast

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Please don't allow PG&E to proceed with this project. They must be forced to find alternatives for their ongoing business.

Thank you for your consideration.

Sincerely,

Signed: Jayne E. Hocorn

Printed name: Jayne E Hocorn

Address: 7211 Viewpoint Rd
Aptos, CA 95003

October 30 2012

California Coastal Commission

Attn: Cassidy Teufel, Energy, Ocean Resources & Fed. Consistency Divn.
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

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Thank you for your consideration.

Signed: Clare V. Hannan

Printed name: Clare V Hannan

Address: 257 Sheldon Ave

San Jose, CA 95060

October 30 2012

California Coastal Commission

Attn: Cassidy Teufel, Energy, Ocean Resources & Fed.Consistency Divn.
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

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Thank you for your consideration.

Signed: Kathleen Silva

Printed name: KATHLEEN SILVA

Address: 683 Bayview Dr.

APTOS, CA 95003

RECEIVED

NOV 02 2012

CALIFORNIA
COASTAL COMMISSION

California Coastal Commission
Attn: Cassidy Teufel, Energy, Ocean Resources and Federal Consistency Div.
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

I have just been made aware this weekend of PG&E plans to do sonic seismic testing on the Central Coast. PG&E has proved to be unreliable in the past, e.g., the San Bruno fires. Their plans have not been publicly announced, at least I can find no reference of transparency in this matter. One of my friends has done extensive research on the effects of this testing to marine life, only one of several serious consequences of the proposal.

I urge the Coastal Commission to deny PG&E's request.

Sincerely yours,



Mary G. Selby

731 Clubhouse Drive
Aptos, CA 95003

831-662-8270

October 30, 2012

October 28, 2012

California Coastal Commission

Attn: Cassidy Teufel, Energy, Ocean Resources & Fed.Consistency Divn.

45 Fremont Street, Suite 2000

San Francisco, CA 94105-2219

RECEIVED

NOV 08 2012

CALIFORNIA
COASTAL COMMISSION

Re: PG&E's planned seismic survey of the Central Coast

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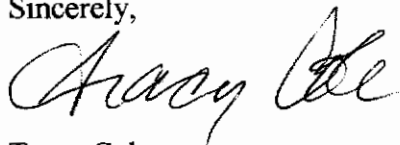
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Please deny the request for PG&E to proceed with this project. They must be forced to find alternatives for their ongoing business.

Thank you for your consideration.

Sincerely,



Tracy Cole

123½ Navarra Drive

Scotts Valley, CA 95066

10/28/12

Dear Commissioners,

I am a concerned resident of the Central Coast. I am writing to express my strong opposition to the planned seismic testing to take place near Diablo Canyon Nuclear Power Plant. I, like many of my friends, colleagues and neighbors, find this plan ill conceived, shoddily researched and extremely irresponsible. It truly makes one pause and question the judgment and fitness of those making these thoughtless and imprudent decisions. I urge you to reject any permitting of this project.

Sincerely,

Suzanne Tytcell

Dear California Coastal Commissioners:

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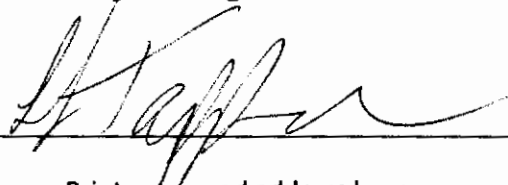
****Section 30230-- Marine resources; maintenance**

****Section 30210-- Access; recreational opportunities.**

We urge you to deny this project and send PG&E "back to the drawing board" in order to protect marine life and ocean users from this unnecessary project.

Thank you in advance for your thoughtful consideration.

Sincerely,



Date:

10/26/12

Sign and date above. Print name and address here:

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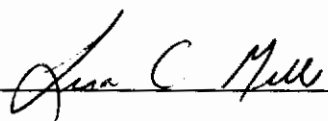
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Sincerely,



Date: 10/26/12

Sign and date above. Print name and address here:

LISA C. MILLS

Esposito Ave

S.B. CA 93449

Dear California Coastal Commissioners:

I'm writing to express my opposition to PG&E's Proposal for Seismic Testing in Central Coast.

This project could have dangerous impacts on ocean ecosystems and recreational ocean users.

PG&E's own EIR clearly states unavoidable impacts to marine life. As an ocean enthusiast, I'm deeply concerned about the impacts to marine life during the testing. California is known for its rich ocean waters and we need to protect every level of our ocean ecosystem from risky and arguably unnecessary projects, such as seismic testing.

I'm also concerned that PG&E is disregarding the health and safety of over 160 at some beaches. This is well over the threshold for human safety.

Finally, I'm concerned that PG&E is not analyzing decades of data collected by several sources to paint a full picture of geologic hazards near the power plant, new testing will only provide marginal improvement to what is already known.

Please deny this project. The Coastal Act was created to protect ocean resources and recreation. We believe this project does not conform to following sections of the Coastal Act:

****Section 30220--Protection of certain water-oriented activities.**

****Section 30224--Recreational boating use**

****Section 30230-- Marine resources; maintenance**

****Section 30210-- Access; recreational opportunities.**

We urge you to deny this project and send PG&E "back to the drawing board" in order to protect marine life and ocean users from this unnecessary project.

Thank you in advance for your thoughtful consideration.

Sincerely, Maurine Holt Date: 10/26/12

Sign and date above. Print name and address here:

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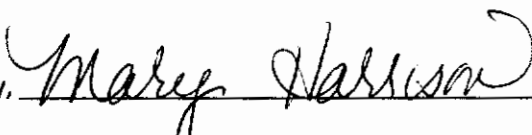
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Thank you in advance for your thoughtful consideration.

Sincerely,

Jana Sorenson

Date

10/26/2012

Sign and date above. Print name and address here:

*302 Esparto Ave
Shell Beach Ca 93449*

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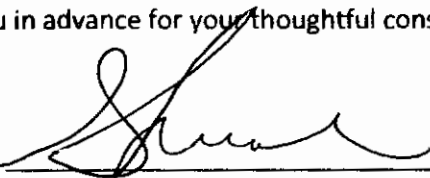
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Thank you in advance for your thoughtful consideration.

Sincerely,  Date: 10-26-12

Sign and date above. Print name and address here:

Paula Palmer
1320 Kiler Canyon Rd
Paso Robles CA 93446

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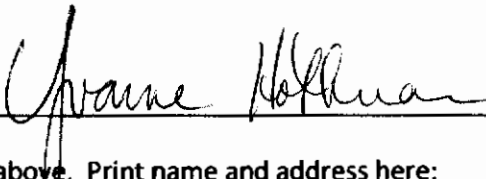
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Sincerely,



Date: 10/26/2012

Sign and date above. Print name and address here:

Yvonne Hoffman
313 Esparto Ave
Shell Beach CA 93449

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Thank you in advance for your thoughtful consideration.

Sincerely, Victoria L Jennings Date: 25 Oct 2012

Sign and date above. Print name and address here:

VICTORIA JENNINGS
333 ESPARDO AVE.
SHELL BEACH, CA.
93449

Dear California Coastal Commissioners:

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Sincerely,

Sign and date above. Print name and address here:

Renée Mezmarich
70 Terrace Hill Dr.
Paso Robles Ca 93446

Date:

11/25/10
Michelle Blane
8181 San Dimas Rd
Atascadero, CA
93422

10/25/12

To: Ms Cassidy Teuffel or to whom it may
concern,

I'm a resident of Los Osos, a community
in San Luis Obispo, California. I'm writing to express
grave concern over the seismic testing in our coastal waters
planned by P.G. & E. All marine biologists and other experts
know that this practice is hurtful, often fatal, to sea
mammals as well as being destructive to fish and ocean life
in general. The commercial fishermen of Morro Bay
are worried about the negative impact the testing will
have on their livelihood. Please do all in your power
to oppose the seismic testing. We cannot afford to
lose any number of already threatened or endangered sea
creatures.

Respectfully, Mr. Jay Bonestell
2004 Ferrell Ave.
Los Osos, CA. 93402

RECEIVED

NOV 08 2012

CALIFORNIA
COASTAL COMMISSION

Dear California Coastal Commissioners:

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Thank you in advance for your thoughtful consideration.

Sincerely, Maggie Hoffman

Date: 10/22/12

Sign and date above. Print name and address here:

Maggie Hoffman
313 Esparto Ave
Shell Beach, CA 93449

Dear California Coastal Commissioners:

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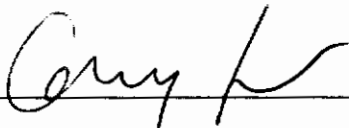
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Thank you in advance for your thoughtful consideration.

Sincerely,



Date: 10/22/12

Sign and date above. Print name and address here:

Gary Hoffmann
313 Esplanade Ave
Shell Beach CA
93449

Deepali Panjabi
2030 Chorro St.
San Luis Obispo, CA 93401
October 20, 2012

RECEIVED

NOV 08 2012

CALIFORNIA
COASTAL COMMISSION

Steve Blank
45 Fremont St.
Suite 2000
San Francisco, CA 94105

Dear Mr. Blank:

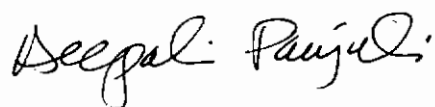
I am writing to express my deep opposition to the conducting of seismic studies off the Central Coast of California as proposed by PG&E in relation to the Diablo Canyon Nuclear Power Plant.

I am horrified by the potential impacts of these studies to marine life. The seismic studies will repeatedly blast deafening acoustic guns that will kill untold numbers of fish and marine mammals including whales, dolphins, seals, sea lions, sea otters, sea turtles, and countless species of fish. The studies will disturb the migrations of whales, orcas, and elephant seals. They will also have devastating consequences on larvae, causing an unprecedented impact on our ocean life for generations to come. There will also be severe negative impacts on the fishing and tourism industry.

Our ocean wildlife will be harassed, injured, and killed. This is not Level B harassment or behavioral disturbance. Clearly, the risk of harm, injury, and death is Level A take. The presence of on-board observers would be laughable if the stakes weren't so high. How are they supposed to see what is below the surface of the water? How will they see animals in distress when it is nighttime? If they do see animals in distress or animals that have been killed or injured, then that is too late. All this to extend the life of a nuclear power plant that is long overdue to retire. This is absolutely unconscionable.

The Central Coast of California is a national treasure. Parts of the proposed survey areas are declared Marine Sanctuaries. Untold numbers of precious wildlife call this area home or migrate through these waters as demonstrated just this past summer. Please act as stewards of our precious coast and marine life by unconditionally rejecting PG&E's proposal to conduct these seismic studies.

Sincerely,



Deepali Panjabi

Justin Ziegler
2030 Chorro St.
San Luis Obispo, CA 93401
October 20, 2012

RECEIVED

NOV 08 2012

CALIFORNIA
COASTAL COMMISSION

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Suite 2000
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Justin Ziegler



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I'm also concerned that PG&E is disregarding the health and safety of ocean users. Their EIR clearly says the proposed activities would expose persons present in the water to harmful noise levels. And a recent PG&E map shows that dB levels could reach upward of 160 at some beaches. This is well over the threshold for human safety.

Finally, I'm concerned that PG&E is not analyzing decades of data collected by several sources to paint a full picture of geologic hazards near the power plant, new testing will only provide marginal improvement to what is already known.

Please deny this project. The Coastal Act was created to protect ocean resources and recreation. We believe this project does not conform to following sections of the Coastal Act:

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Section 30210 Access; recreational opportunities..

We urge you to deny this project and send PG&E "back to the drawing board" in order to protect marine life and ocean users from this unnecessary project.

Thank you in advance for your thoughtful consideration.

Sincerely



Date: 10-18-2012

Daniel A. Hoffman
P.O. Box 472
Pismo Beach, Ca. 93448

Jennifer DeLeon, Senior Environmental Scientist
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

July 28th, 2011

RE: Central Coastal California Seismic Imaging Project, PG&E DCPD

Dear Ms. DeLeon,

I am outraged that such a testing project would be proposed; costing an estimated \$17,000,000 that would be passed on to ratepayers.

We already know there are several significant earthquake faults near the Diablo Canyon plant. Diablo should be decommissioned. P.G. & E will use these results to confuse the issue and to try to convince the public into thinking that what happened at Fukushima Japan could not happen here. The devastation that would be caused by an earthquake or tsunami at the once beautiful site is unimaginable.

The proposed testing itself would put horrendous stress on the life in the ocean, endangering fish, marine mammals and plant life. The canon like sounds could cause sea creatures to go deaf. It would disrupt their breeding and feeding patterns. And ultimately this would cause a disruption in the food supply for humans as well.

The same amount of money could be used to help homeowners and businesses place solar panels on their roofs. For example, 3800 homes could be subsidized at \$5000 to help them pay for solar panels. This would greatly reduce the need for such a dangerous source of energy.

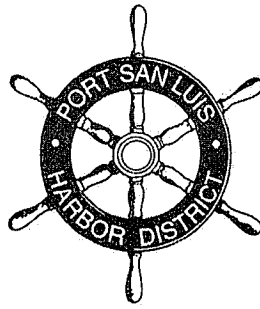
Please do not approve this dangerous and inhumane project.

Sincerely,

Valerie Malhotra Bentz, Ph.D.
1855 Cardiff Dr.
Cambria, CA., 93428
valeriebentz@gmail.com

BOARD OF COMMISSIONERS

| | |
|-----------------|-----------------------|
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| STEPHEN A. McGRATH | <i>Harbor Manager</i> |
| THOMAS D. GREEN | <i>Legal Counsel</i> |
| PHILLIP J. SEXTON, CPA | <i>Treasurer</i> |

November 9, 2012

Mary Shallenberger, Chair
California Coastal Commission
45 Fremont Street
San Francisco, CA 94105

Re: Central Coast Seismic Imaging Project, W-13b-11-2012; Recommend Denial

Dear Ms. Shallenberger:

Based upon the following, the Port San Luis Harbor Commission unanimously recommends and requests denial of PG&E's request for a permit to conduct high energy off shore seismic studies, as proposed.

On September 21, 2011 the District submitted comments to the State Lands Commission on the proposed Mitigated Negative Declaration for PG&E's Ocean Bottom Seismometer (OBS) project. The comments addressed multiple issues related to the placement of ocean floor cables within the Marine Protected Area (MPA), which included but were not limited to, preclusions on fishing and perhaps most importantly on the piecemeal approach to the California Environmental Quality Control Act (CEQA) review process. The District stated that the 2D on shore, the OBS and the upcoming 3D high energy offshore testing constituted the entirety of the project and should have been reviewed in one environmental document. At the time of the writing, the District was unaware of the forthcoming 3D low energy offshore work that occurred in the fall of 2011 and 2012.

On May 3, 2012 the District submitted comments to State Lands Commission on the draft Environmental Impact report (EIR). These comments addressed the necessity for mitigation of the economic impacts of the project, which will occur to the commercial fishing community and other coastal dependent and coastal related businesses within the District, the need for long term monitoring and scientific study, and the paucity of information about the effects of the project on marine life and humans recreating in the water at the time of the sonic blasts. Nevertheless, the District took the position at that time that while the project had significant and unavoidable impacts, support of 'Alternative IIIB', if mitigated, was appropriate given the District's past position on the development