STATE OF CALIFORNIA -- THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

CALIFORNIA COASTAL COMMISSION
45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200

Tu 13

DATE: **March 22, 2006**

TO: **Coastal Commissioners and Interested Parties**

FROM: **Peter M. Douglas, Executive Director**
Elizabeth A. Fuchs, Manager, Statewide Planning and Federal Consistency Division
Mark Delaplaine, Federal Consistency Supervisor

RE: **Negative Determinations Issued by the Executive Director**
[Executive Director decision letters are attached]

PROJECT #:	ND-111-05
APPLICANT:	U.S. Fish and Wildlife Service
LOCATION:	Humboldt Bay National Wildlife Refuge, Humboldt Co.
PROJECT:	Tide gate maintenance and replacement
ACTION:	Concur
ACTION DATE:	1/30/06

PROJECT #:	ND-117-05
APPLICANT:	National Park Service (GGNRA)
LOCATION:	Mori Point, San Mateo Co.
PROJECT:	Trail and restoration plan
ACTION:	Concur
ACTION DATE:	3/6/2006

PROJECT #:	ND-001-06
APPLICANT:	Department of the Navy
LOCATION:	Naval Base Point Loma, San Diego
PROJECT:	Demolish and replace four units of military housing at Silvergate complex
ACTION:	Concur
ACTION DATE:	2/17/2006

PROJECT #:	ND-002-06
APPLICANT:	Department of the Navy
LOCATION:	Naval Base San Diego, San Diego
PROJECT:	Demolish and rebuild two military housing units
ACTION:	Concur
ACTION DATE:	2/17/2006

PROJECT #:	ND-003-06
APPLICANT:	Department of the Navy
LOCATION:	Naval Air Station North Island, Coronado, San Diego Co.
PROJECT:	Renovate and/or repair 54 military housing units
ACTION:	Concur
ACTION DATE:	2/17/2006

PROJECT #:	ND-004-06
APPLICANT:	Department of the Navy
LOCATION:	Naval Amphibious Base Coronado, San Diego Co.
PROJECT:	Demolish and rebuild 40 military housing units at Rendova housing site
ACTION:	Concur
ACTION DATE:	2/28/2006

PROJECT #:	NE-014-06
APPLICANT:	Steven Blair
LOCATION:	41 Linda Isle, Newport Beach, Orange Co.
PROJECT:	Maintenance dredging of small boat berth
ACTION:	No effect
ACTION DATE:	2/28/2006

PROJECT #:	ND-015-06
APPLICANT:	Dept. of Health and Human Services
LOCATION:	Smith River Rancheria, Del Norte Co.
PROJECT:	Water treatment system improvements
ACTION:	Concur
ACTION DATE:	3/17/2006

PROJECT #:	ND-016-06
APPLICANT:	Corps of Engineers, San Francisco District
LOCATION:	Humboldt Bay and HOODS, Humboldt Co.
PROJECT:	Maintenance dredging and offshore disposal
ACTION:	Concur
ACTION DATE:	3/2/2006

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January 30, 2006

Eric Nelson
Manager
Humboldt Bay National Wildlife Refuge
P.O. Box 576
Loleta, CA 95551

Aldaron Laird
Environmental Planner
980 7th Street, Suite K
Arcata, CA 95521

Subject: Negative Determination ND-111-05 (Replacement and installation of tide gates and channel maintenance to enhance salmonid habitat on Salmon Creek tributary to Hookton Slough, Humboldt County)

Dear Mr. Nelson and Mr. Laird:

The Coastal Commission staff has reviewed the above-referenced negative determination. The U.S. Fish and Wildlife Service (Service) proposes to implement the Salmon Creek Anadromous Salmonid Access, Tide Water Habitat Enhancement and Flood Control Maintenance Project, located on the Salmon Creek and Hookton Slough Units of the Humboldt Bay National Wildlife Refuge (Refuge). The Service states that the proposed project will help achieve management and habitat restoration goals identified in the 1989 *Refuge Management Plan* and the 1992 *Refuge Habitat Restoration and Enhancement Plan.* The Commission reviewed the *Management Plan* as part of its concurrence with consistency determination CD-040-91, and reviewed the *Habitat Restoration and Enhancement Plan* as part of its concurrence with consistency determination CD-033-92.

The proposed project would expand tidal wetland/estuarine habitat in the lower Salmon Creek delta by 20 acres and extend tidal influence approximately 1,000 feet farther upstream on lower Salmon Creek. To accomplish these objectives the Service proposes to: (1) install a new tide gate on Hookton Slough to increase tide water exchange and to expand and enhance estuarine habitat in the lower Salmon Creek delta; (2) replace an existing tide gate at the mouth of Salmon Creek to improve access into the lower Salmon Creek delta for federal and state protected fish species (e.g., Coho and Chinook salmon, steelhead, and tidewater goby) in Humboldt Bay and Hookton Slough; (3) replace two existing tide gates in the upper reaches of Hookton Slough to reduce flooding on 313 acres of private agricultural lands and Refuge lands located east and south of Hookton Slough; (4) excavate 75 cubic yards of sediment from a 100-foot-long reach of Salmon Creek (approximately 1,900 feet upstream of the east tidal gate) to remove a channel

obstruction and restore a uniform channel cross-section to enhance tidal influence and sediment routing; and (5) excavate 250 cubic yards of sediment from outlet channels draining two wetlands adjacent to Salmon Creek (and in close proximity to the Salmon Creek excavation site) to restore previous channel dimensions and improve tidal circulation at these two locations.

All excavated materials will be used to increase the elevation of interior dikes on the Refuge, and concrete salvaged from tide gate replacement will be used to armor the face of the levee bordering Hookton Slough in the reach near Long Pond. The project includes best management practices to avoid impacts to wetlands and coastal waters. No equipment will be operated in tidal waters, excavation shall occur only in dewatered channels, all temporary sheet pilings and cofferdams will be installed and removed at low tide to minimize the construction footprint at the west and east tide gate sites, and all disturbed areas will be replanted/seeded with appropriate native vegetation. The proposed habitat enhancement work would complement projects implemented by the Service on the lower Salmon Creek delta area of the Refuge under the framework of the aforementioned 1992 *Refuge Habitat Restoration and Enhancement Plan.* Previous projects included tide gate modification, relocation of a portion of lower Salmon Creek from a linear leveed channel into a meandering channel, and creation of several seasonal freshwater wetlands adjacent to Salmon Creek.

Under the federal consistency regulations a negative determination can be submitted for an activity "which is the same or similar to activities for which consistency determinations have been prepared in the past." The proposed project is similar to U.S. Fish and Wildlife Service plans and projects at the Humboldt Bay National Wildlife refuge previously concurred with by the Commission (CD-040-91 and CD-033-92). We therefore **concur** with your negative determination for the proposed *Salmon Creek Anadromous Salmonid Access, Tide Water Habitat Enhancement and Flood Control Maintenance Project* made pursuant to Section 15 CFR 930.35 of the NOAA implementing regulations. Please contact Larry Simon at (415) 904-5288 if you have any questions regarding this matter.

Sincerely,

(for) PETER M. DOUGLAS
Executive Director

cc: North Coast District Office
California Department of Water Resources
Governor's Washington, D.C., Office

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March 6, 2006

Brian O'Neill
General Superintendent
National Park Service
Golden Gate National Recreation Area
Fort Mason
San Francisco, CA 94123

RE: ND-117-05, National Park Service, Golden Gate National Recreation Area, Mori Point Trail and Restoration Plan, San Mateo County

Dear Mr. O'Neill:

The Coastal Commission staff has reviewed the above-referenced negative determination for the restoration of Mori Point in Pacifica. The project includes six site-wide management actions and six long-term stewardship actions. The six site-wide management actions are: protection of San Francisco garter snakes; restoration of native California plant communities; removal of placed fills, trash, debris and illegal structures, and replacement of them with functional habitat; implementation of a comprehensive trail plan; installation of additional site improvements; and restoration of three specific areas: A (the Eastern-most section including most of Mori Road and Upper Trail), C (the Western-most section including the point and the bluff trail), and B (in the mid-section of Mori Point including the remainder of Mori Road and the bulk of the San Francisco garter snake habitat). Long-term stewardship actions include: maintenance of trails; ongoing restoration of native plant communities; development and implementation of a monitoring system to track progress of restoration goals; engagement with the community in the implementation of management objectives; building of public awareness on the appropriate use of the site; protection of habitat from unauthorized or destructive use; and the building of public awareness of the unique values and recreational opportunities on site.

The National Park Service (NPS) will restore to native habitat 2.1 miles of unofficial trails and 0.7 miles of unofficial road, upgrade 2.6 miles of existing trails and establish 0.9 miles of new trail. The NPS will install five-foot-wide timber stairs where necessary, de-compact soil in disturbed areas and on trails designated for restoration; out-slope new trails to minimize erosion; use manual, mechanical and chemical techniques for removal of non-native invasive plants; use heavy machinery to remove illegal structures and placed fill, to be determined on a case-by-case basis; capture and remove feral cats; install snake "exclosure" fencing to accommodate snake movement; and plant native species. After conducting a drainage study on Upper Trail in restoration area A, the NPS will likely smooth the trail, add a permeable top surface and install drains and other devices to keep water from pooling on this trail. In restoration area B, the NPS will breach a man-made berm and possibly install a boardwalk to protect small animals from maintenance and emergency vehicles; and create seasonal ponds for red-legged frog habitation which requires rerouting certain drainages and re-grading of upland slopes to direct drainage into the ponds. The ponds will be constructed such that they are not wet year-round, in order to keep bullfrogs from settling there. These ponds will require sediment removal over time, and the NPS will perform sediment removal during late summer or fall, when the garter snake no longer visits the ponds. In restoration area C, the NPS will re-contour the grade above the Bluff Trail beginning at the ridge top and continuing down the western slope within gullied areas, recovering all topsoil and placing it on scarified sites to restore original, natural contours. The NPS will install check dams in gullies, cover grades exceeding 15 percent with erosion matting or certified weed-free rice straw and use soil from fill site areas to place and compact in gullies.

The project will benefit habitat and assist with the recovery of federally endangered and threatened species. The NPS will take measures to minimize, and avoid where possible, adverse effects from construction. These include: pre-construction preparation; limited access to the project area, and containment of vehicle and equipment refueling and lubrication. To prevent "take" of the San Francisco garter snake and the California red-legged frog, the NPS will clear vegetation and conduct surveys for the San Francisco Garter Snake in any area subject to ground disturbance; construct "exclusion" fencing; and monitor fencing gates to keep other snakes from entering the construction area. A Biological Monitor, with the authority to stop work activities, will inspect each active work area daily. Prior to construction, all project staff will receive training regarding habitat sensitivity, species identification and required practices. Personnel who detect any San Francisco garter snake or California red-legged frog will immediately report their finding to the Biological Monitor, and a biologist holding a valid Scientific Collection Permit from U.S. Fish and Wildlife Service will take appropriate action.

In conclusion, the Coastal Commission staff agrees that the proposed project will not adversely affect coastal zone resources. We, therefore, **concur** with the negative determination made pursuant to 15 CFR § 930.35. If you have questions, please contact Diane Livia of the Coastal Commission staff at (415) 904-5250.

Sincerely,

Mark Delaplaine

(for) PETER M. DOUGLAS
Executive Director

cc: North Central District Office
U.S. Army Corps of Engineers, San Francisco District

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

CALIFORNIA COASTAL COMMISSION

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February 17, 2006

W. N. Thornton
Environmental Planning
Product Coordinator
Naval Facilities Engineering Command Southwest
1220 Pacific Highway
San Diego, CA 92132-5190

ATTN: Robert Montana

RE: ND-001-06, Department of the Navy, demolish and replace four units of military housing at Silvergate complex, Naval Base Point Loma, San Diego

Dear W. N. Thornton:

The Coastal Commission staff has received the above-referenced negative determination. The Navy proposes to transfer ownership of four units of military housing at Silvergate complex near Electron Avenue, on Naval Base Point Loma to a public-private venture (PPV) entity, and then demolish and replace and these units. The PPV entity will be responsible for following all state laws during and after construction, will obtain a general construction storm water permit which includes a storm water pollution prevention plan (SWPPP), and will implement post-construction best management practices to ensure that storm water pollution does not occur from the site. The proposed project will not affect coastal uses or resources. For military security reasons, there is no public access to the shoreline in the vicinity of the project, and thus it will not affect access to the coast. The replacement housing units will be within the existing development, and will not affect visual or aesthetic resources of the coast. Further, effects of storm water runoff will be minimized by the implementation of the SWPPP and of post-construction best management practices. Therefore, the project will not affect water quality or habitat resources of the coastal zone.

In conclusion, the Coastal Commission staff agrees that the proposed project will not adversely affect coastal zone resources. We, therefore, **concur** with the negative determination made pursuant to 15 CFR § 930.35. If you have questions, please contact Diane Livia of the Coastal Commission staff at (415) 904-5250.

Sincerely,

Mark Delaplaine

(for) PETER M. DOUGLAS
Executive Director

cc: San Diego Coastal District

DL/PMD

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February 17, 2006

W. N. Thornton
Environmental Planning
Product Coordinator
Naval Facilities Engineering Command Southwest
1220 Pacific Highway
San Diego, CA 92132-5190

ATTN: Robert Montana

RE: ND-002-06, Department of the Navy, demolish two military housing units at Naval Base San Diego

Dear W.N. Thornton:

The Coastal Commission staff has received the above-referenced negative determination. The Navy proposes to transfer ownership of two housing units in the Northeastern portion of Naval Base San Diego, to a public-private venture (PPV) entity; after a period of five years, that entity will demolish the units. The proposed project will not affect coastal resources. For military security reasons, there is no public access to the shoreline in the vicinity of the project, and thus it will not affect access to the coast. The existing housing units are within a much larger development, and once demolished, will present no issues regarding the coastal zone.

In conclusion, the Coastal Commission staff agrees that the proposed project will not adversely affect coastal zone resources. We, therefore, **concur** with the negative determination made pursuant to 15 CFR § 930.35. If you have questions, please contact Diane Livia of the Coastal Commission staff at (415) 904-5250.

Sincerely,

Mark Delaplaine

(for) PETER M. DOUGLAS
Executive Director

cc: San Diego Coastal District

DL/PMD

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

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February 17, 2006

W. N. Thornton
Environmental Planning
Product Coordinator
Naval Facilities Engineering Command Southwest
1220 Pacific Highway
San Diego, CA 92132-5190

ATTN: Robert Montana

RE: ND-003-06, Department of the Navy, renovate and maintain 54 existing housing units at Naval Air Station North Island, Coronado, San Diego

Dear W. N. Thornton:

The Coastal Commission staff has received the above-referenced negative determination. The Navy proposes to renovate two military housing units (units 843 A and B), and repair and revitalize 52 other units at five sites on Naval Air Station North Island. The repair work may include kitchen and bathroom remodeling. The proposed projects will not affect coastal uses or resources. For military security reasons, there is no public access to the shoreline in the vicinity of the project, and thus the projects will not affect access to and use of the coast. The 54 existing housing units are spread across a large area of the base, diffusing any possible effects. The projects are located in an already developed area and will not result in additional buildings; therefore there will be no significant change in use.

In conclusion, the Coastal Commission staff agrees that the proposed project will not adversely affect coastal resources. We, therefore, **concur** with the negative determination made pursuant to 15 CFR § 930.35. If you have questions, please contact Diane Livia of the Coastal Commission staff at (415) 904-5250.

Sincerely,

Mark Delaplaine

(for) PETER M. DOUGLAS
Executive Director

cc: San Diego Coastal District
DL/PMD

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

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February 28, 2006

W. N. Thornton
Environmental Planning
Product Line Coordinator
Naval Facilities Engineering Command Southwest
1220 Pacific Highway
San Diego, CA 92132-5190

ATTN: Robert Montana and Delphine Lee

RE: ND-004-06, Department of the Navy, demolish 40 existing military housing units and construct 43 replacement units at the Rendova housing site, Naval Amphibious Base Coronado, San Diego County

Dear W. N. Thornton:

The Coastal Commission staff has received the above-referenced coastal consistency negative determination. The Navy proposes to transfer ownership of 40 existing military housing units to a public-private venture (PPV) entity. The PPV will then demolish the 40 existing units and construct 43 new units. The proposed project will not affect coastal zone uses or resources. For military security reasons, there is no public access to the shoreline in the vicinity of the project, and thus the project will not affect access to and use of the coast.

The new housing units will be built in the same area as the units to be demolished, and that area is already developed. The Navy will submit a storm water pollution prevention plan as part of a general storm water permit, minimizing polluted runoff. After construction, the PPV entity will implement post-construction, best management practices in coordination with Naval Base Coronado Facilities Department to ensure no storm water pollution occurs from the site.

To enhance habitat for migratory birds, the Navy will prohibit planting more trees. The demolition for this project, and future maintenance of the grounds, may include removal or trimming of existing trees. However, prior to removal or trimming of trees, the PPV entity will coordinate with the Navy base biologist to ensure work avoids impacting active nests of birds protected under the Migratory Bird Treaty Act. Prior to any demolition or construction, a survey will be conducted by the Navy base biologist to determine if the site contains active nests for migratory birds. Should such nests be found, construction in the vicinity of the nests will be conducted outside the breeding season, which occurs from March to August, or if that seasonal construction window cannot be avoided, the Navy will obtain a depredation permit from the U.S. Fish and Wildlife Service. In addition, should such nests be found, we request and expect that the Navy will inform us of its conclusions and any subsequent remedial measures implemented in consultation with the U.S. Fish and Wildlife Service. The Navy will provide barrier walls to provide shielding for migratory birds from construction noise, should they be found.

Landscaping at the housing units will include plants and materials chosen for drought tolerance and low maintenance, and the plan will be designed to reduce use of fertilizers and pesticides, and implement water-efficient practices. The Navy will incorporate BMPs to prevent adverse water quality effects.

In conclusion, with the above measures, the Coastal Commission staff agrees that the proposed project will not adversely affect coastal zone resources. We, therefore, **concur** with the negative determination made pursuant to 15 CFR § 930.35. If you have any questions, please contact Diane Livia of the Coastal Commission staff at (415) 904-5250.

Sincerely,

(for) PETER M. DOUGLAS
Executive Director

cc: San Diego Coast District Office
DL/PMD

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, Governor

CALIFORNIA COASTAL COMMISSION
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February 28, 2006

Steven Blair
71 Linda Isle
Newport Beach, CA 92660

Re: **NE-014-06,** No Effects Determination, 850 cu. yds. of maintenance dredging, with ocean disposal, Newport Beach, Orange Co.

Dear Mr. Blair:

The Coastal Commission staff has received the above-referenced "no effects" determination for ocean disposal of 850 cubic yards of material to be dredged at 41 Linda Isle in Newport Beach. The project would have been covered by previous Commission actions (CDP 5-99-282 and Consistency Certification CC-078-99/ CC-077-01); however those authorizations have expired. The dredging is exempt from CDP requirements; however the dredging and disposal are both subject to federal consistency review. The applicant has complied with the pre-construction permit conditions that would have applied had the permit not lapsed. The material is suitable for ocean disposal, eelgrass beds would not be affected, and the material is not suitable for beach replenishment. The Commission staff has typically waived the requirement for a consistency certification for these types of situations where ocean disposal at EPA-approved ocean disposal sites (including LA-3) of clean, non-sandy material is proposed. The Commission staff is willing to similarly waive the federal consistency provisions, provided that the applicant also comply with the remaining permit conditions that would have applied, particularly:

CONSTRUCTION RESPONSIBILITIES AND DEBRIS REMOVAL

The permittee shall comply with the following construction-related requirements:

(a) No construction materials, debris, waste, oil or liquid chemicals shall be placed or stored where it may be subject to wave erosion and dispersion, stormwater, or where it may contribute to or come into contact with nuisance flow;

(b) Any and all debris resulting from construction activities shall be removed from the site within 10 days of completion of construction;

(c) No machinery or construction materials not essential for project implementation shall be allowed at any time in the intertidal zone or in the harbor;

(d) Sediment for beach nourishment shall be placed, not dumped, using means to minimize disturbance to bay sediments and to minimize turbidity;

(e) If turbid conditions are generated during construction a silt curtain shall be utilized to minimize and control turbidity to the maximum extent practicable;

(f) All stock piles and construction materials shall be covered, enclosed on all sides, shall be located as far away as possible from drain inlets and any waterway, and shall not be stored in contact with the soil;

(g) All debris and trash shall be disposed of in the proper trash and recycling receptacles at the end of each construction day;

(h) The discharge of any hazardous materials into the harbor or any receiving waters shall be prohibited;

(i) Prior to commencement of beach nourishment the boundaries of any eelgrass meadow within the general project area shall be marked with buoys so that equipment and vessel operators shall avoid damage to eelgrass meadows;

(j) Barges and other vessels shall be anchored a minimum of 15 feet from any eelgrass bed. Anchors and anchor chains shall not encroach into any eelgrass bed.

(k) Barges and other vessels shall avoid transit over any eelgrass meadow to the maximum extent practicable. Where transit over eelgrass beds is unavoidable such transit shall only occur during high tides when grounding and potential damage to eelgrass can be avoided.

With the understanding the applicant agrees to comply with these measures, we concur with your "no effects" determination. Please contact Mark Delaplaine at (415) 904-5289 if you have any questions.

Sincerely,

Mark Delaplaine

(for) PETER M. DOUGLAS
Executive Director

cc: Long Beach District Office
EPA
U.S. Army Corps of Engineers, L. A. District

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

CALIFORNIA COASTAL COMMISSION
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March 17, 2006

Barry D. Jarvis
Department of Health and Human Services
Indian Health Service
Arcata Field Office
1125 16th St., Suite 100
Arcata, CA 95521

Re: **ND-015-06** Indian Health Service, Negative Determination, Water Treatment System Improvements, Smith River Rancheria, Del Norte Co.

Dear Mr. Jarvis:

The Coastal Commission staff has reviewed the above-referenced negative determination for the construction of water treatment system improvements project on Trust lands within the Smith River Rancheria in Del Norte County. The Trust lands include two fenced areas: one at the existing water treatment plant building on Ocean View Drive and the other at the existing water storage tank off of Lopez Court. The projects would consist of drilling a second community well; modifying and rehabilitating the existing community well; enlarging the existing treatment building and installing new water treatment, monitoring and control equipment; installing a separate chemical equipment and storage shed/room adjacent to the enlarged building; installing/relocating underground cables and piping; installing an underground backwash water storage tank and associated pumps and piping to connect the backwash tank with the building drains and with an existing sewer in Ocean View Drive; abandoning an existing backwash sediment tank, a drainage sump and associated piping; replacing an existing screen on the overflow discharge pipe for the existing wet well with a new valve/screen; and installing water quality monitoring equipment at the recently installed water storage tank site.

The improvements would be minor modifications to existing facilities, and are needed to comply with existing and proposed future Federal requirements related to the Safe Drinking Water Act. The project would not increase water capacity but rather is an attempt to replace lost capacity in the existing well through installation of an adjacent second well.

The project will be visually compatible and comparable in size to existing facilities and thus will not affect scenic public views; water quality will not be affected, the project will not induce growth through increasing new water supplies; the project will be located in previously disturbed areas, will include erosion controls and Best Management Practices, and will not adversely affect any environmentally sensitive habitat; the project will

benefit habitat (Lopez Creek) through elimination of the existing potential for backwash from the facilities to enter Lopez Creek; and any cultural issues will be addressed through coordination/consultation with the Tribal Historic Preservation Office (THPO).

In conclusion, we **agree** with the Indian Health Service that the proposed project would not adversely affect coastal zone resources. We therefore **concur** with your negative determination made pursuant to Section 15 CFR 930.35 of the NOAA implementing regulations. Please contact Mark Delaplaine at (415) 904-5289 if you have any questions regarding this matter.

Sincerely,

(For) PETER M. DOUGLAS
Executive Director

cc: North Coast District Office

STATE OF CALIFORNIA -- THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, Governor

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March 2, 2006

Fari Tabatabai
Chief
Environmental Planning Section
U.S. Army Corps of Engineers
San Francisco District
333 Market Street
San Francisco, CA 94105-2197

RE: **ND-016-06** Negative Determination, Army Corps of Engineers, Fiscal Year 2006 Maintenence Dredging, Humboldt Bay

Dear Dr. Tabatabai:

The Coastal Commission staff has reviewed the above-referenced negative determination. The Corps of Engineers proposes to conduct annual spring maintenance dredging of the Humboldt Harbor Bar and Entrance Channel and the North Bay, Eureka, Samoa, and Field's Landing Channels. The Corps' hopper dredge will remove between 1.4 and 2.9 million cubic yards of shoaled material that has accumulated in these channels over the past winter. Physical, chemical, and biological testing of sediments from the subject navigation channels was conducted in January 2005. All the predominately sandy dredged material is suitable for disposal at the Section 102 designated Humboldt Open Ocean Disposal Site (HOODS) and will be dredged and placed at that site during the period between mid-March and mid-May 2006.

The Commission concurred with negative determinations (ND-035-05 and ND-029-05) for 2005 spring maintenance dredging at Humboldt Bay. The Commission similarly concurred with a consistency determination (CD-005-04) for the 2004 spring and fall maintenance dredging at Humboldt Bay. In those concurrences, the Commission referenced its long history of reviewing the Corps' dredging and disposal operations at Humboldt Bay. The Commission's primary concern in recent years has been the potential adverse effect on local sand supply, beach width, and public recreation from disposal of sandy dredged materials at the HOODS site, located outside the littoral system. In CD-005-04, the Corps committed to continue implementing its ongoing shoreline monitoring program along the north and south spits of Humboldt Bay. Should that monitoring indicate that adverse shoreline erosion is occurring, the Corps will reconsider its disposal at HOODS. The Commission also found that given the monitoring results to date, it is not yet clear whether loss to the littoral system of the material dredged from Humboldt Bay is significant to the local beaches or shoreline, due to the amount of natural sedimentation into Humboldt Bay, as well as the healthy delivery of sediment to the south spit by the Eel and Mad Rivers. However, as long as the monitoring program continues, there will be an early warning of any shoreline erosion that may occur. If it does, the Corps will be able to revise its disposal practices to keep more sandy material in

the littoral cell. As a part of the subject negative determination, the Corps will continue to implement its shoreline monitoring program at Humboldt Bay.

Under the federal consistency regulations (Section 930.35), a negative determination can be submitted for an activity "which is the same as or is similar to activities for which consistency determinations have been prepared in the past." The proposed project is similar to numerous individual spring and fall maintenance dredging operations previously concurred with by the Commission (e.g., ND-035-05, ND-029-05, CD-005-04, ND-043-04, CD-045-98, ND-024-98), thereby qualifying it for review under the negative determination process.

The proposed maintenance dredging and disposal activities will not adversely affect coastal resources. We therefore **concur** with your negative determination made pursuant to 15 CFR 930.35 of the NOAA implementing regulations. Please contact Cassidy Teufel at (415) 904-5502 should you have any questions regarding this matter.

Sincerely,

(for) PETER M. DOUGLAS
Executive Director

Cc: North Coast District Office
California Department of Water Resources
Governor's Washington, D.C., Office

CALIFORNIA COASTAL COMMISSION
45 FREMONT STREET, SUITE 2000
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Tu 13

DATE: **March 22, 2006**

TO: **Coastal Commissioners and Interested Parties**

FROM: **Peter M. Douglas, Executive Director**
Elizabeth A. Fuchs, Manager, Statewide Planning and Federal Consistency Division
Mark Delaplaine, Federal Consistency Supervisor

RE: **Federal Consistency Report (i.e., items not on the April agenda)**

Attached are the following items:

1. Letter dated March 13, 2006, from the National Oceanic and Atmospheric Administration (NOAA) in response to the Commission's December 14, 2005, conditional concurrence with NOAA's consistency determination for the Montrose Settlement Restoration Program (CD-104-05).

2. Statement from the Scientific Research Caucus for the Report of the Advisory Committee on Acoustic Impacts on Marine Mammals to the Marine Mammal Commission, dated January 3, 2006.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of General Counsel
Suite 4470
501 West Ocean Boulevard
Long Beach, CA 90802

March 13, 2006

Mr. Peter M. Douglas
Executive Director
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

Re: **CD-104-05**, National Oceanic and Atmospheric Administration (NOAA), Montrose Settlements Restoration Program (MSRP), various locations in the Southern California Bight

Dear Mr. Douglas:

I am writing on behalf of the Montrose Settlements Restoration Program (MSRP) Trustee Council [1] (Trustee Council) regarding CD-104-05. In October 2005, on behalf of the federal Trustee agencies of the Council (the federal Trustees), the National Oceanic and Atmospheric Administration (NOAA) submitted to the California Coastal Commission (the Commission) a Federal consistency determination seeking concurrence for four specific projects to restore, in part, resources injured by the release of DDTs and PCBs into the southern California marine environment. At the December 14, 2005, hearing the Commission voted to concur with this consistency determination, but only on the condition that the Trustee Council fund a bald eagle program on Santa Catalina Island (the Catalina program) for ten years in the amount of $250,000 per year.

While we understand the Commission's interest and concern for bald eagles, the federal Trustees respectfully decline to accept the Commission's proposed funding condition for several reasons:

(1) The Catalina funding decision was not before the Commission.

(2) The Trustees' decision regarding funding of the Catalina program was not a "federal agency activity" under the Coastal Zone Management Act (CZMA) and was, therefore, not subject to a federal consistency review.

(3) Even assuming solely for the sake of argument that the Commission has jurisdiction concerning the Trustees' discretionary funding decision, that decision was consistent to the maximum extent practicable with the enforceable policies of the California Coastal Management Program (CCMP).

[1] The MSRP federal trustees are the National Oceanic and Atmospheric Administration and the Department of the Interior through the National Park Service and the U.S. Fish and Wildlife Service. The MSRP Trustee Council also includes representatives of the following State Trustee agencies: the California Department of Fish and Game, the California Department of Parks and Recreation, and the California State Lands Commission. The federal and State Trustee agencies of the MSRP Trustee Council are collectively referred to as the Trustees or the MSRP Trustee Council.

(4) The Commission's condition is unsupported by the Commission's own administrative record and fails to consider the reasoned, expert conclusions of those State and federal government agencies responsible under law for recovery of bald eagles.

Because the federal Trustees decline to accept the Commission's condition, pursuant to the CZMA and 15 C.F.R. § 930.4(b), the Commission's conditional concurrence must be treated as an objection. This letter is the federal Trustees' written notice to the Commission that the federal Trustees have found CD-104-05 to be consistent to the maximum extent practicable under 15 C.F.R. § 930.32 with the enforceable policies of the CCMP. Accordingly, pursuant to 15 C.F.R. § 930.43(d), the Trustees intend to proceed with the activities outlined in CD-104-05 as proposed.

Prior to discussing in more detail the federal Trustees' objections to the Commission's condition, I will provide a brief description of the injuries addressed by the Montrose litigation, the Catalina program, and the Catalina program's shortcomings.

Background of the Catalina Program

From the late 1940s to the early 1970s, millions of pounds of DDTs and PCBs were discharged into the ocean from industrial sources near Los Angeles. Bald eagles were one of the many species impacted by these discharges. While bald eagles had once inhabited all 8 of the Channel Islands (including Santa Catalina Island), contaminants, human persecution, and other factors extirpated bald eagles from the islands by the 1960s. The continued presence of contaminants has prevented them from recovering even today. In 1980, the Institute for Wildlife Studies (IWS), with support of the California Department of Fish and Game (CDFG), the U.S. Fish and Wildlife Service (USFWS), and the Catalina Island Conservancy, initiated the Catalina program to reintroduce bald eagles to Catalina – the best location available in the Channel Islands from a logistical perspective.

The federal and State agencies that now make up the Trustee Council began funding the Catalina program in the 1990s, after it had already been in existence for over a decade. Their goal was to gather information for use in the natural resource damage assessment and to support their ongoing litigation against the Montrose Chemical Corporation of California (Montrose) and other responsible parties. Since bald eagles were no longer available for study on other Channel Islands, the Catalina eagles were the only available source of data on the continuing injury to this species.

The Montrose litigation ultimately resulted in a series of settlements from which approximately $30 million was earmarked for restoration of not only eagles but also seabirds, peregrine falcons, and fish and fishing services throughout the Southern California Bight (SCB) - not just Catalina.

The Catalina program has two primary components: (1) removal and artificial incubation of defective eggs from Catalina nests followed by re-introduction of surviving chicks into those nests and (2) introduction of chicks from locations other than Catalina. This process continues to the present day and is the source of all eagles on Catalina since 1980.

Catalina eagles are unable to reproduce without this human intervention because elevated DDT and PCB levels in the parent birds continue to cause them to lay defective eggs. These eggs are incapable of surviving a natural incubation and contain contaminant concentrations that are often toxic to the developing chicks. Consequently, even when the eggs are removed from the nest and carefully incubated in an artificial incubation facility, the hatching success has remained low. Ninety-one eggs have been removed from nests and incubated from 1989 to 2005. Only 17 of these have survived artificial

incubation. As a result of this high mortality rate, eagle chicks must frequently be introduced from the relatively uncontaminated environment of a captive bald eagle breeding program at the San Francisco Zoo.

After the conclusion of the Montrose litigation, the Trustees continued to fund the Catalina program for several years. Their purpose was to gather data to determine whether contaminant levels would decrease sufficiently to permit unaided reproduction. The Trustees hoped that self-sustaining eagles on Catalina would ultimately help to rebuild the eradicated bald eagle population throughout the SCB. However, 16 years of data show no indication that contaminant levels are dropping rapidly enough to allow the existing Catalina eagle pairs to reproduce unaided at any time in the foreseeable future.

In November 2005, after carefully considering extensive public comment, the Trustees released a MSRP Final Restoration Plan and Programmatic Environmental Impact Statement/Environmental Impact Report (RP). This RP selected several restoration projects to address, in part, the resource injuries caused by Montrose. This RP did not include funding for the Catalina program at this time.

The Trustees were concerned that the Catalina program would not likely lead to a self-sustaining bald eagle population in the foreseeable future. With no foreseeable prospect of unaided bald eagle reproduction, the most the Trustees could do is artificially maintain bald eagles on Catalina for several years until the funds are depleted – with questionable long-term benefits. Rather than spend the finite bald eagle restoration funds on a program without predictable long-term benefits, the Trustees focused on a potentially sustainable alternative. Since 2002, the Trustees have funded a feasibility study that includes the introduction and monitoring of bald eagles on Santa Cruz Island in the Northern Channel Islands (NCI). As early as 2008, the Trustees may have sufficient data from the NCI feasibility study to determine whether eagles on the NCI can successfully breed on their own. When this feasibility study is complete, the Trustees will consider its results and all other appropriate data from Catalina to re-evaluate all available options for the bald eagles.

The Trustees' decision was also influenced by concerns that the Catalina program leads to toxic levels of contaminants in what could otherwise be healthy bald eagles. Because they feed on marine mammal carcasses and seabirds that contain high levels of DDTs and PCBs, every bald eagle returned or imported to Catalina accumulates high levels of these contaminants. The most notable consequence is unsuccessful reproduction; however, there may be other effects – at least one eagle death on Catalina has been attributed to DDT poisoning. The Trustees have always had concerns about this fact, and now – with no predictable decline in contaminant exposures on Catalina forthcoming and a potentially viable alternative on the NCI – the Trustee Council has decided not to fund the Catalina program until the relative feasibility of another bald eagle restoration option is known.

Federal Trustees' Reasons for Not Accepting the Commission's Condition

The Commission's proposed condition is unacceptable for the following reasons:

(1) The Catalina funding decision was not before the Commission.

The Trustees' interim decision not to fund the Catalina program was not before the Commission for concurrence. As the Commission's findings state, the only activities before the Commission were projects related to lost fishing services, marine protected areas, peregrine falcons, alcids on Santa Barbara Island, seabirds on Santa Cruz Island, and seabirds on the Baja California Pacific Islands (two of these were negative determinations, not consistency determinations). Neither the Commission's comments at

the December 14, 2005, hearing nor its written findings state any objection to the four projects for which the federal Trustees sought concurrence in CD-104-05.

(2) The Trustees' interim decision not to fund the Catalina program does not constitute a "federal agency activity" under the CZMA and is not subject to a federal consistency review.

Under the CZMA, 16 U.S.C. §§ 1456(c)(1)(A) and 1456(c)(1)(C), the trigger for a consistency review is a "federal agency activity." The Code of Federal Regulations defines "federal agency activity" at 15 C.F.R. § 930.31(a) as "any function[ ] performed by or on behalf of a Federal agency in the exercise of its statutory responsibilities." Here, the mere fact that the federal Trustees will *not* fund the Catalina program is not a "federal agency activity"; rather, it is federal agency's determination *not* to engage in an activity. The Catalina program could not be a "federal agency activity" unless the federal Trustees, not the Commission, included it as one of the selected projects in the RP.

Despite the clear meaning of "federal agency activity," the conditional concurrence improperly attempts to expand the Commission's CZMA authority to include not only actions that could be harmful to the coastal zone but also those that it does not consider beneficial *enough*. The circumstances of this case are such that the Trustees must make difficult decisions to fulfill their statutory responsibilities and best reach their restoration goals. When selecting restoration projects, the Trustees had to choose from a large number of restoration options, many of which they rejected in favor of the option best supported by the administrative record. Neither the CZMA nor its implementing regulations authorize the Commission to make restoration decisions or impose a non-proposed project under the guise of a conditional concurrence.

(3) Even assuming, *arguendo*, that the Commission has jurisdiction concerning the Trustees' discretionary funding decision, the activities set forth in CD-104-05, including the interim decision not to fund the Catalina program, are consistent to the maximum extent practicable with the CCMP.

In order to be "consistent to the maximum extent practicable," as defined by 15 C.F.R. § 930.32(a)(1), a federal agency activity may be either (a) fully consistent with the CCMP or (b) less than fully consistent with the CCMP only to the extent that full consistency is prohibited by existing applicable law. The activities for which the federal agencies have made a consistency determination in this matter satisfy either of these definitions in the alternative.

(a) The RP is fully consistent with the CCMP.

The Commission's findings state that a failure to fund the Catalina program would be inconsistent with sections 30230 and 30240(a) of the California Coastal Act (CCA). However, the Commission has failed to explain the basis for this finding of inconsistency, as required by 15 C.F.R. § 930.43(a)(1), or why the funding condition is necessary to ensure consistency, as required by 15 C.F.R. § 930.4(a)(1). The Commission's conclusion is not only unexplained but also inconsistent with the opinion of the Commission's own Revised Staff Recommendation for the December 14 hearing that the projects in CD-104-05, without funding for the Catalina program, are consistent with the CCMP.

Because the Commission has failed in its obligation to explain its decision, the federal Trustees cannot directly address whatever basis the Commission may have had for its proposed condition. However, the federal and State Trustees *have* conducted an exhaustive analysis of the environmental consequences associated with the MSRP RP in accordance with the National Environmental Policy Act (NEPA) and

the California Environmental Quality Act (CEQA) and have identified no significant adverse environmental impacts, including to bald eagles or other species on Catalina.

The Commission apparently gave credence to the contentions by some that the bald eagles might disappear from Catalina, that their territories would become occupied by golden eagles, and that the golden eagles would prey upon the Catalina Island fox. The federal and State Trustees' research on these questions (documented in the administrative record and in documents submitted to the Commission) indicates that bald eagles are unlikely to disappear from Catalina in the next several years even if they are unable to successfully reproduce without human intervention.

The Trustee Council also concluded, as documented in the RP, that even if the bald eagles did disappear from Catalina during the interim period, this would not likely result in golden eagles taking up residence and preying on Catalina Island foxes. As indicated in the Trustees' administrative record and in documents submitted to the Commission, golden eagles are an occasional visitor to Catalina, and the island's terrestrial food base is likely insufficient to attract and sustain a golden eagle population. Furthermore, pursuant to the Endangered Species Act, NOAA consulted with the USFWS concerning potential impacts to the Catalina Island fox. This consultation resulted in a USFWS concurrence that the suspension of funding for the Catalina program is "not likely to adversely affect" this listed species.

(b) Assuming, *arguendo*, that the Trustee Council's decision were not "fully consistent," accommodating the Commission's condition would be contrary to CERCLA and its implementing procedures.

Even assuming, *arguendo*, that full consistency requires accommodating the Commission's condition, implementing that condition would be contrary to the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601 *et seq.* (CERCLA) and its implementing regulations, would contravene the terms of the Montrose consent decree, would violate the terms of the Memorandum of Understanding (MOU) among the State and federal Trustees, and might require the trustees to defend a claim brought under the Administrative Procedure Act, 5 U.S.C. §§ 555 *et seq.* (APA).

CERCLA, in addition to requiring the President to designate federal officials to act as trustees, requires "[t]he Governor of each State [to] designate State officials who may act on behalf of the public as trustees for natural resources . . ." to assess damages to natural resources. 42 U.S.C. § 9607(f)(2)(B). Federal regulations promulgated under CERCLA, referred to as the National Contingency Plan (NCP), define the roles and responsibilities of the federal and State natural resource trustees and require where there are multiple federal and State trustees that they "coordinate and cooperate." 40 C.F.R. §§ 300.600 *et seq.* and § 300.615(a).

The three State of California agencies which are members of the Montrose Trustee Council and who were co-plaintiffs with the United States throughout the Montrose litigation are the duly designated State Trustees for this matter pursuant to the NCP. Pursuant to a formal delegation of State trustee authority, officials within each of the three State trustee agencies have acted, and continue to act, as the "authorized official" pursuant to the federal regulations. To the federal Trustees' knowledge, the California Coastal Commission is not, and has never been, empowered to act as a State trustee in this matter under the foregoing authorities. Nor does the CZMA provide the Commission with any independent authority to select restoration projects. As discussed above, the CZMA only permits the Commission to evaluate the coastal impacts of projects proposed by the duly authorized Trustees.

CERCLA further obligates State and federal Trustees to develop a restoration plan, which considers public comment, for the use of funds recovered for injuries to natural resources. 42 U.S.C. § 9611(i). CERCLA's implementing regulations at 43 C.F.R. § 11.82(d) provide that restoration options should be chosen based on such factors as technical feasibility, cost-effectiveness, and the potential for additional injury to resources from the proposed action. Similarly, the final Montrose consent decree requires that the Trustees use this restoration planning and public comment process to "determine which restoration projects will *most effectively* restore the injured resources . . ." (emphasis added). The Trustee Council's interim decision not to fund the Catalina program resulted from its deliberate and good faith application of these regulatory criteria. The consensus of the six duly designated State and federal Trustees was that using finite restoration funds to sustain the Catalina program pending results of the NCI study was not a cost effective means of restoring bald eagles. Nor did the Trustees consider the Catalina program to have sufficient technical feasibility under CERCLA at this point. It is unlikely that the Catalina program could meet the Trustees' goal of self-sustaining bald eagles within an acceptable period of time. In selecting restoration projects the Trustees gave preference to sustainable projects over non-sustainable projects; therefore, these concerns about the Catalina program are particularly significant when a potentially sustainable alternative is under investigation on the NCI.

Federal Trustee implementation of the Commission's condition would not only be contrary to the delegations of authority under CERCLA discussed above but would also contradict the terms of the MOU between the State and federal Trustees. Since 1990, when the State and federal co-Trustees first entered into a written agreement to jointly prosecute their claims for natural resource damages, they have made all decisions in accordance with the terms of that MOU, as amended. The first modification to the MOU (1991) declares, among its purposes, to provide for the "common use" of recovered damages and obligates all of the signatory agencies to carry out "restoration plans that are jointly developed and approved by all Trustees."

Consequently, if the federal Trustees attempted to override the Trustee Council's consensus decision and carry out the Commission's condition, they would be doing so in violation of the CERCLA statutory and regulatory framework, in derogation of the authority and responsibility of the duly authorized State trustees, and in violation of the agreement among the federal and State Trustees.

In addition, under the APA, final federal agency actions are subject to judicial review and, pursuant to 5 U.S.C. § 706, may be set aside if a reviewing court finds them to be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." Given the current data and information in the Trustees' administrative record, even if the federal Trustees could implement the Commission's condition without the agreement of their State co-Trustees, they might expose themselves to a legal challenge under the APA.

(4) The Commission's condition is not supported by its own administrative record and disregards the reasoned, expert conclusions of those State and federal agencies responsible under law for recovery of bald eagles.

In preparing its RP, the Trustee Council engaged in a rigorous and deliberative process, relying on the best scientific information and experts available. In particular, the Trustees' decisions regarding bald eagle restoration relied on the expertise of CDFG and the USFWS, the agencies responsible

under law for recovery of this species. Both are members of the Trustee Council, and their decisions on the Council were informed by their agencies' extensive knowledge gained through decades of experience in bald eagle recovery.

Unlike the Trustees' process, the Commission's proposed condition resulted from a cursory exercise as to a single item on a full Commission agenda and is unsupported by any substantial data. In fact, virtually all of the scientific data and expert opinion in the Commission's substantive record was submitted by the Trustees. The only apparent exceptions are two documents from the IWS, one of which asserted that there is a "paucity of data on the breakup of existing pairs."

The Commission's conclusion is not only unexplained and unsupported by its own record but is also directly contrary to the opinions contained in the Commission's Revised Staff Recommendation for the December 2005 hearing. The Revised Staff Recommendation, prepared in response to five questions arising at the Commission's November, 2005, hearing (three of which related to the bald eagles), stated in summary,

> The staff report has been revised to respond to these questions. The staff continues to believe the project is consistent with the Coastal Act and therefore continues to recommend concurrence.

Even if the Commission possessed judicial review-like authority to reweigh the Trustees' evidence, given the disparity in expertise, legal authority, and the deliberative effort between the two processes, basic principles of comity and deference should have compelled the Commission not to second guess the Trustee Council. A declaration in the Commission's findings that the fate of Catalina bald eagles is uncertain is not a substitute for the Commission's responsibility to base its findings on the evidence before it. Nor can it justify a condition that would have the Trustees spend $2,500,000 of their settlement funds on actions that the Trustees have determined are not the optimal means to restore the injured resources.

Conclusion

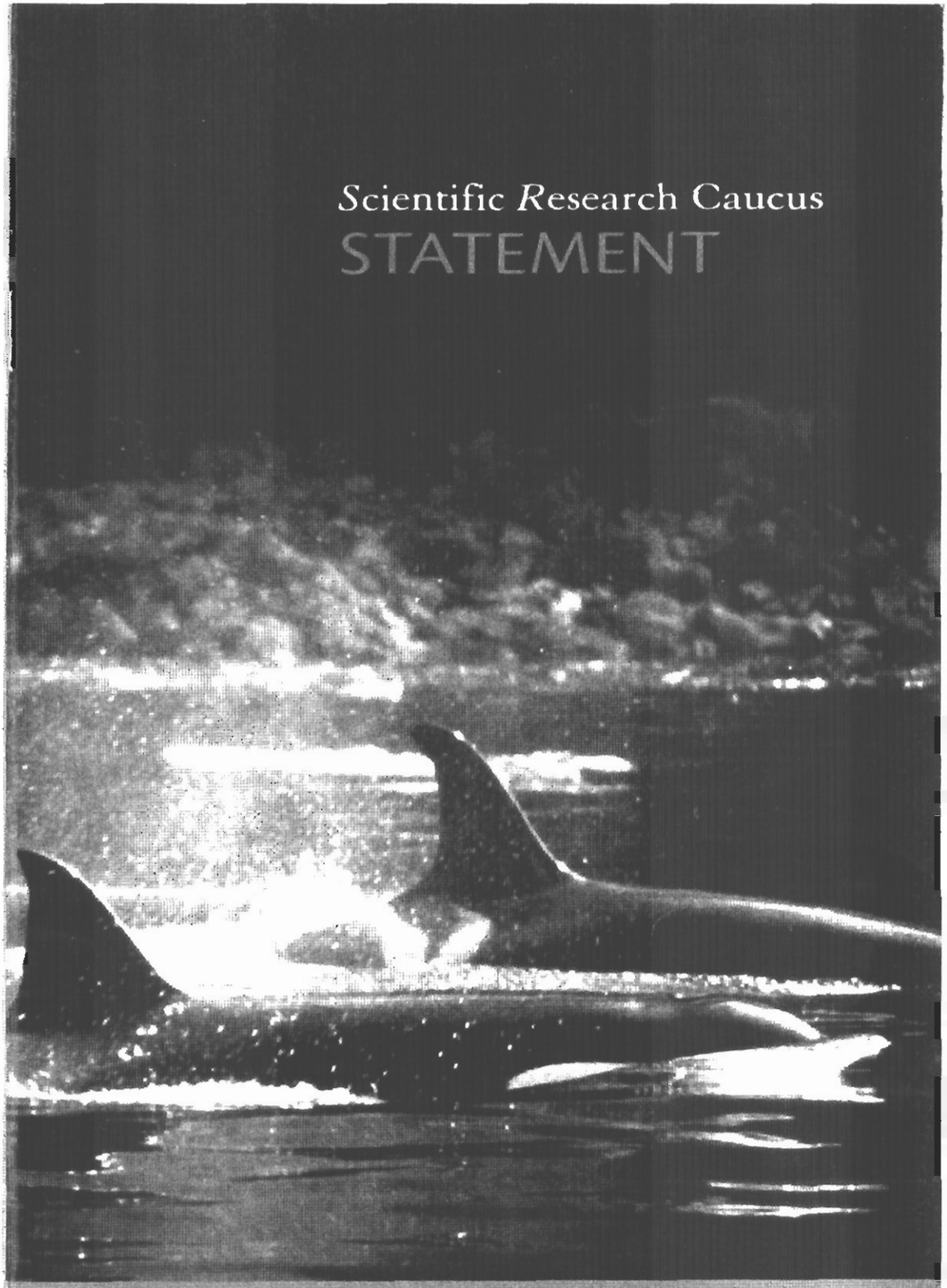
Having found the Commission's condition unacceptable for the reasons discussed above, the federal Trustees will treat the conditional concurrence as an objection pursuant to 15 C.F.R. § 930.4(b). The federal Trustees reaffirm that the proposed activities in CD-104-05 are consistent to the maximum extent practicable with the enforceable policies of the CCMP, and therefore intend to proceed with those projects for which they requested concurrence.

Sincerely,

Christopher J. Plaisted
Attorney-Advisor

Cc: Montrose Settlements Restoration Program Trustee Council
Charles McKinley, Department of the Interior, Office of the Solicitor
Lisa Wolfe, Staff Counsel, CDFG, Office of Spill Prevention and Response
Katherine Verrue-Slater, Staff Counsel III, CDFG, Office of Spill Prevention and Response

Scientific Research Caucus
STATEMENT



for The Report of the Advisory Committee on Acoustic Impacts on Marine Mammals to the Marine Mammal Commission

3 January 2006

Scientific Research Caucus

STATEMENT

CONTENTS

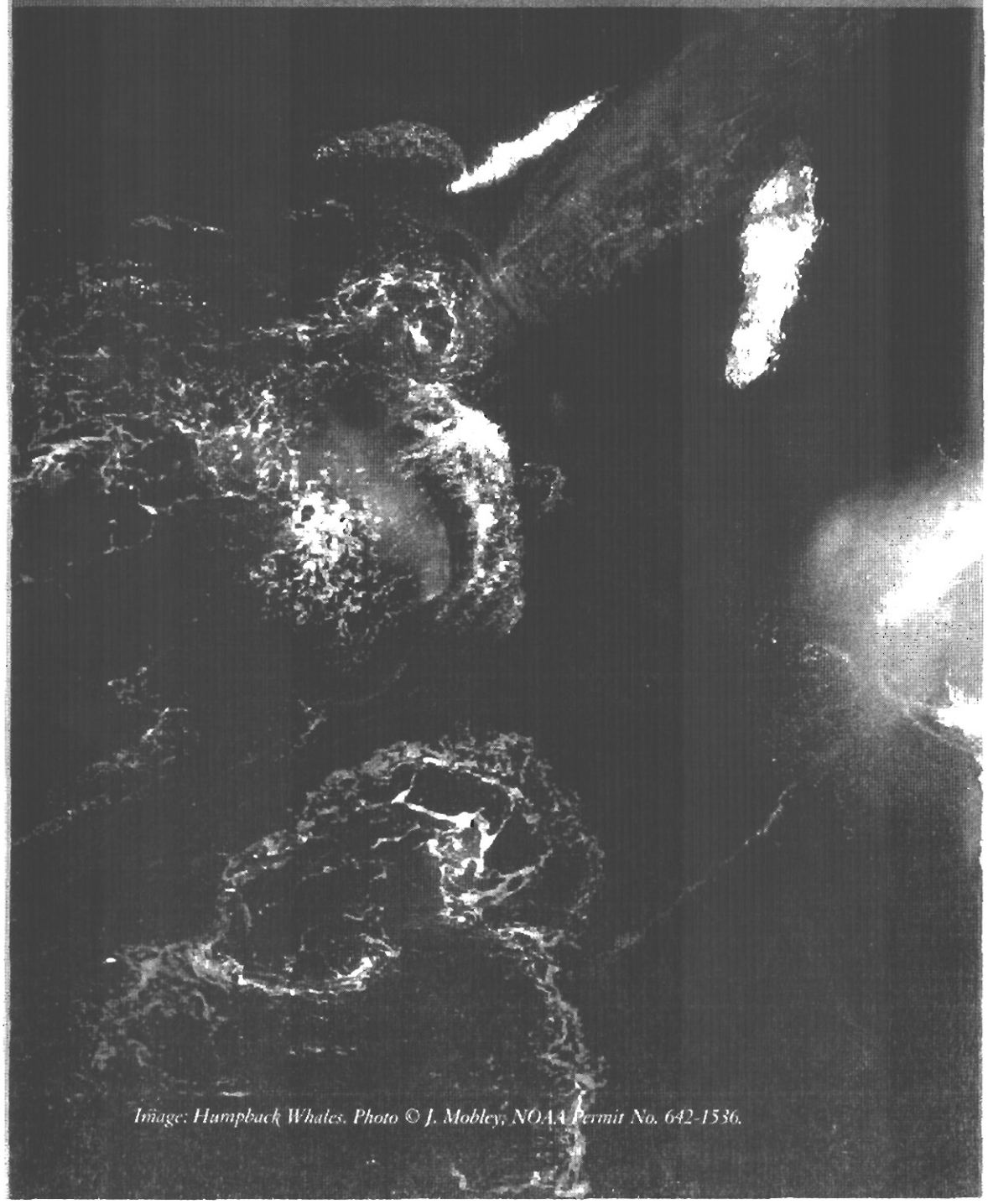
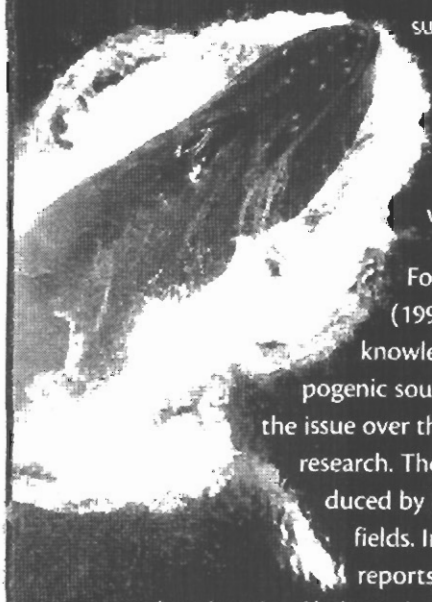


Image: Humpback Whales. Photo © J. Mobley, NOAA Permit No. 642-1536.

BACKGROUND

Any discussion of sound in the sea must start from one basic fact: the ocean is largely transparent to sound, but opaque to light and radio waves. Light travels only a few hundred meters in the ocean before it is absorbed, but sound can travel much greater distances underwater. Marine mammals therefore rely on sound to sense their surroundings, to communicate, and to navigate. Similarly, oceanographers, fishermen, and submariners—in short, all who work in the ocean—rely on sound to sense their surroundings, to communicate, and to navigate.

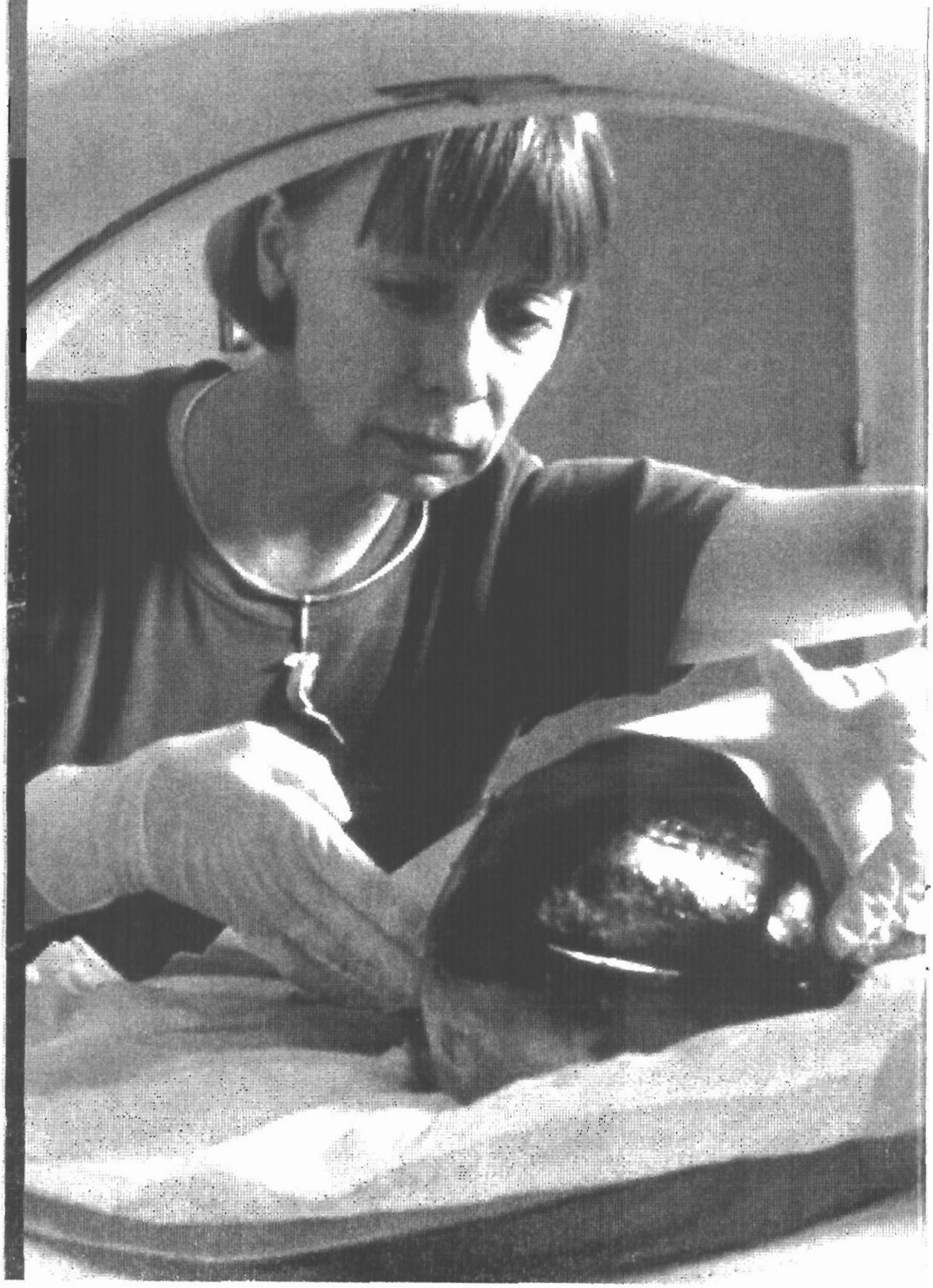
Sound is an unavoidable and often intentional addition to the marine environment for virtually all human endeavors in the oceans. Short of abandoning all use of the seas, it is simply impractical, and indeed in many cases inadvisable, to say that no human-generated sound may be produced in the oceans. If we are to continue to explore and use our marine resources, we must determine the critical parameters for safe, sustainable use of the oceans. Active sonar systems are a fundamental tool used by all the navies of the world to accomplish their mission. Towed arrays of acoustic sources and receivers are used in geophysical exploration to create images of geological structures below the seafloor in order to locate oil and gas reserves. Over 90% of the world's commerce depends on transport on the high seas, which produces sound as a by-product. For the scientific community, sound production is fundamental to determining the basic properties of the ocean environment and studying the animals that live in it, including, for example, the development of a more complete understanding of marine mammal foraging, social behavior, and habitats. In addition, acoustics-based subsea imaging techniques provide the most effective means to document and analyze significant natural geological processes such as earthquakes, volcanic activity, and seafloor slides, that can have profound effects not only for marine life, but also for coastal and island communities, as recent world events have made painfully obvious. Sound in the sea is not just noise. It is used for a wide variety of valuable and important purposes.



Four reports published by the National Research Council (1994b, 2000, 2003, 2005) summarize the state of scientific knowledge on the issue of marine mammals and anthropogenic sound, the progress that has been made in understanding the issue over the last ten years, and recommendations for future research. These reports are thoroughly researched documents produced by balanced panels of scientific experts in the relevant fields. Independent experts anonymously reviewed the reports for scientific accuracy. Thus, these reports represent nearly a decade of balanced and comprehensive studies of our knowledge of anthropogenic sound and its potential impacts on marine mammals. The U.S. Commission on Ocean Policy (2004) also considered the issues related to protecting marine mammals, including those related to anthropogenic sound. Their recommendations are fully consistent with those made in the National Research Council (NRC) reports. The findings and recommendations in these reports provide excellent guidance for the way forward. We believe that the Federal Advisory Committee process was less well suited to provide a review of the science than the NRC process, and we will therefore not attempt a detailed synthesis of the relevant research here.

"The basic goal of marine mammal conservation is to prevent human activities from

Dr. Darlene Ketten uses computerized tomography and magnetic resonance imaging, along with traditional physical dissections, to get detailed information about the hearing structures of animals. In this image, Dr. Ketten is preparing a harbor porpoise for a CT scan. Photo courtesy of Tom Kleindinst, Woods Hole Oceanographic Institution.



harming marine mammal populations." NRC, 2005

STATEMENT OF THE ISSUE

Marine mammals face many threats from human activities, including fisheries bycatch, habitat degradation, whaling, ship strikes, and anthropogenic sound. Preventing harm to marine mammal populations requires an accurate understanding of the threats facing them.

The U.S. Marine Mammal Protection Act (MMPA) was designed to protect marine mammals from intentional whaling and from unintentional bycatch in fisheries. While the MMPA has reduced marine mammal bycatch in U.S. fisheries, globally hundreds of thousands of marine mammal deaths still occur annually from fisheries bycatch (Read *et al.*, 2003). Marine mammals are also killed by ship strikes, underwater explosions, and entrapment in power plants and other structures.

Sound is included in the list of threats because we know that it can affect marine mammals in a number of ways. It can alter behavior or compete with important signals (masking). Sound can cause temporary hearing loss or, if the exposure is prolonged or intense, permanent hearing loss. It can even cause damage to tissues other than the ear if sufficiently intense. At present, our knowledge of the extent and nature of these threats for marine mammals is severely limited.

Anthropogenic sound has also emerged as the most likely cause of some marine mammal strandings based on an association between the location and timing of naval activities using active sonar and mass strandings of beaked whales in their vicinity (Cox *et al.*, 2005). (Mass strandings are defined as the stranding of two or more animals simultaneously or in close proximity.) There are multiple causes of strandings, some natural and some related to human activities. Natural causes include toxic algal blooms, disease, and storm surges. Human activities that cause strandings include ship strikes, entanglement in fishing gear, and pollution. On average approximately 3,600 stranded marine mammals were reported per year in the United States alone during the period 1990–2000 (NMFS, 2000). Beaked whale strandings are uncommon and mass strandings of beaked whales are extremely rare. Seventeen beaked whales strandings were reported in the U.S. in 1999 and five in 2000, for example (NMFS, 2000).

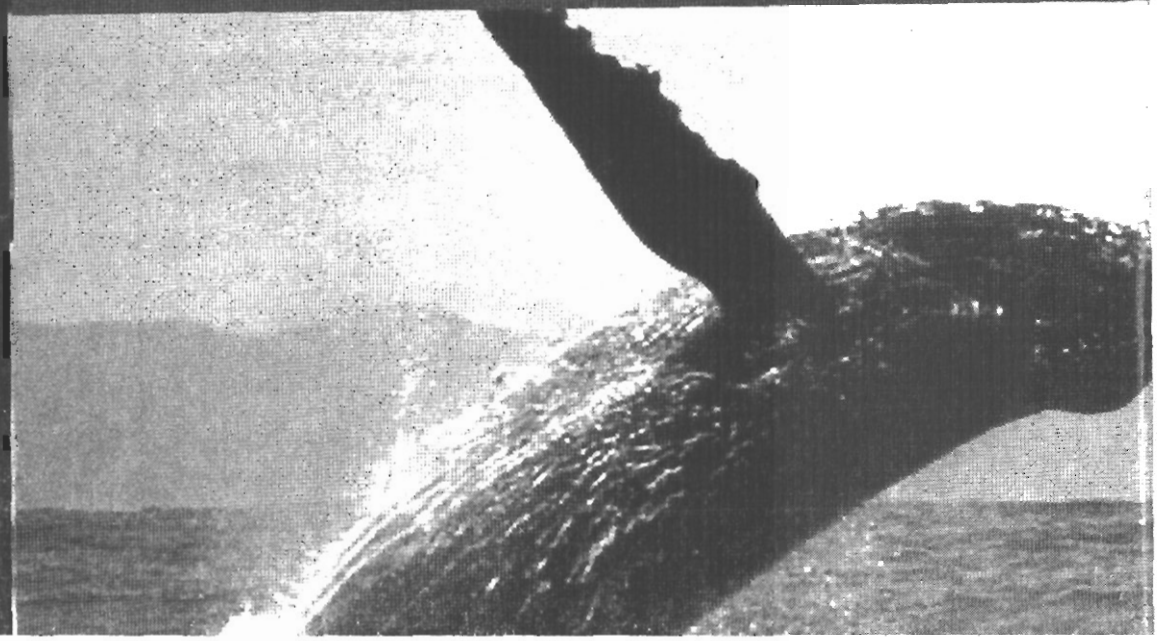
The best-documented mass strandings of beaked whales involving activities using high-level, mid-frequency active naval sonar occurred in Greece (1996), the Bahamas (2000), Madeira (2000), and the Canary Islands (2002). In these cases, there is sufficient information about the sonar operations and the times and locations of the strandings to associate the strandings with the naval activities. Each stranding involved between 4 and 18 whales that were found stranded within two days of the sonar use. Approximately half of the stranded animals were found dead or subsequently died, for a total of nearly 40 known animal deaths in the four events. No deaths in any other

family of marine mammals have been clearly associated with sound (NRC, 2005; Cox *et al.*, 2005). Although these strandings are closely related in time and space to active naval sonar operations, the mechanism by which the sonars could have caused the strandings or the traumas observed in some of the stranded beaked whales is unknown.

The small number of known animals involved in the few well-documented strandings associated with active naval sonar activities does not provide adequate evidence to conclude that sound poses a global and critical threat to marine mammals. Until we have a full understanding of these events, however, it is appropriate to be concerned and to continue the investigations needed to fully understand the exact role, direct or indirect, of sound use in them. Until a mechanism is determined, we cannot say definitively whether these stranding events represent unique circumstances that adversely affect relatively few individuals from a single family of whales or if this is a harbinger of a potentially broader problem of anthropogenic sounds adversely impacting other marine animals on wider geographic and temporal scales.

Further, it is important that we look not only at these relatively limited and possibly special cases, but also proceed with investigations that can inform us of other possible impacts in advance and prevent more subtle, but in the long term perhaps more significant, effects. We suspect that the most significant effects of sound on marine mammal populations are more likely to result from cumulative effects of chronic exposures to sounds that cause hearing loss or disrupt behavior and habitats, rather than from a small number of extreme events. Effective protection requires differentiating activities that cause minor changes in marine mammal behavior from activities that cause significant disruption of behaviors critical to survival and reproduction or that cause direct physical harm. The MMPA was originally written to reduce "takes"—mortality, injury, or harassment of marine mammals. The current regulatory framework under the MMPA is not well suited to reducing adverse impacts of cumulative effects of chronic exposure to potential stressors such as sound or chemicals.

A great deal of controversy surrounds the issue of marine mammals and anthropogenic sound. At present, how-

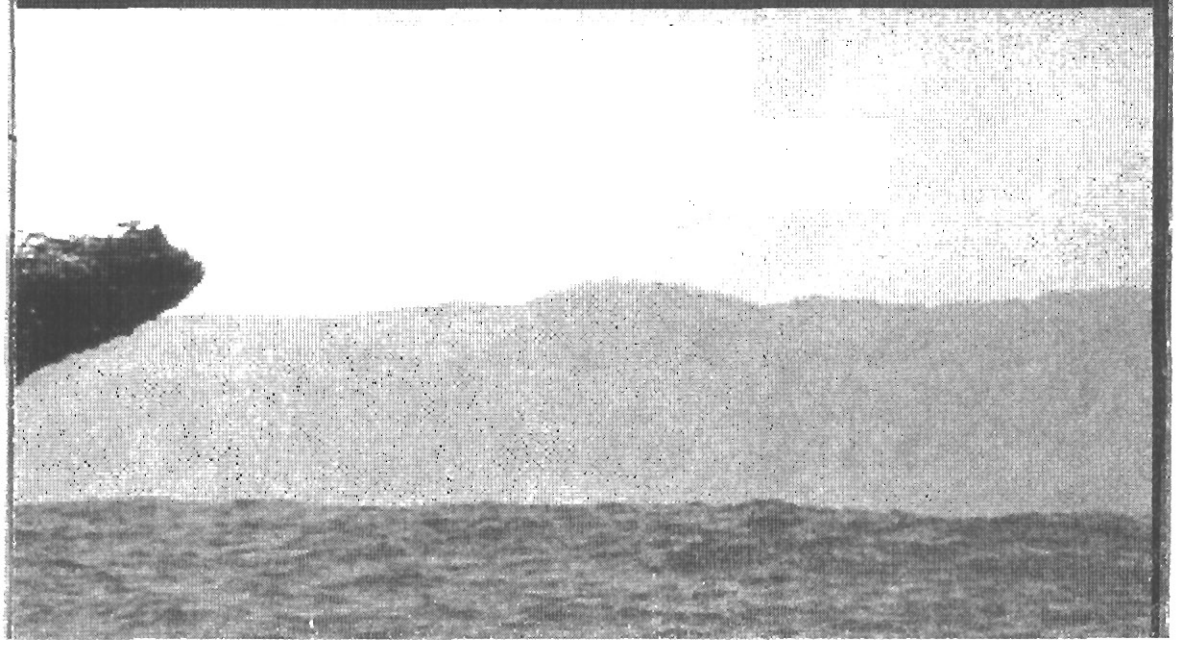


ever, it is not scientifically verifiable whether or not anthropogenic sound is a first order problem in the conservation of marine mammal populations. The most recent National Research Council report (2005) concludes:

> *"With the exception of beaked whale strandings, connections between anthropogenic sound in the oceans and marine mammal deaths have not been documented. In the presence of clear evidence of lethal interactions between humans and marine mammals in association with fishing and vessel collisions..., the absence of such documentation has raised the question of the relative importance of sound in the spectrum of anthropogenic effects on marine mammal populations... On the one hand, sound may represent only a second-order effect on the conservation of marine mammal populations; on the other hand, what we have observed so far may be only the first early warning or "tip of the iceberg" with respect to sound and marine mammals."*

The four reports published by the National Research Council (1994b, 2000, 2003, 2005) make recommendations for the research required to resolve this fundamental uncertainty.

Photo Below: Humpback whales are commonly sighted in nearshore waters near Kauai, Hawaii during the winter months. Photo courtesy of Ann Zoidis.



RISK ASSESSMENT

The issue of protecting marine mammals from adverse effects of sound shares similarities with the problem of protecting humans and wildlife from toxic chemicals. The classic way to manage this kind of problem is called risk assessment. We therefore argue that the intellectual framework required for thinking in a rigorous way about the threats to marine mammals and how best to ameliorate them is also that of risk assessment (Harwood, 2000; Tyack *et al.*, 2003/04). Risk assessment has been reviewed in several reports by the National Research Council (1983, 1993, 1994a) and by the Environmental Protection Agency (1992). It involves several stages:

- Hazard identification
- Exposure assessment
- Exposure-response assessment
- Risk characterization
- Risk management

Hazard identification. The first stage in risk assessment is called hazard identification. As early as 1971, scientists warned that the global increase in low frequency sound from shipping could reduce the range of communication in marine mammals (Payne and Webb, 1971). However, there is still no evidence to indicate whether or not this increased sound poses a hazard. Abundant studies describe how marine mammals avoid anthropogenic sounds, and other changes in behavior have also been described (e.g., Richardson *et al.*, 1995). However, a recent report of the National Research Council (2005) points out that we do not have the scientific techniques required to evaluate whether these changes pose a hazard to marine mammal populations. The one known lethal hazard related to sound involves the mass strandings of beaked whales associated with mid-frequency naval sonars.

Exposure assessment. The next step in risk assessment is exposure assessment. To predict the sound exposure at a marine mammal, one must know the characteristics of the sound source, how sound propagates through the ocean, and the hearing sensitivity of the species. The acoustic characteristics of human sources of sound and the propagation of sound in the marine environment are relatively well understood. It is unrealistic to expect that research conducted to understand effects of noise on marine mammals could make significant improvements in our knowledge of sound propagation. However, as the federal government develops ocean observatories, action agencies should be directed to include acoustic monitoring that can be used to measure trends in ambient noise at a variety of scales.

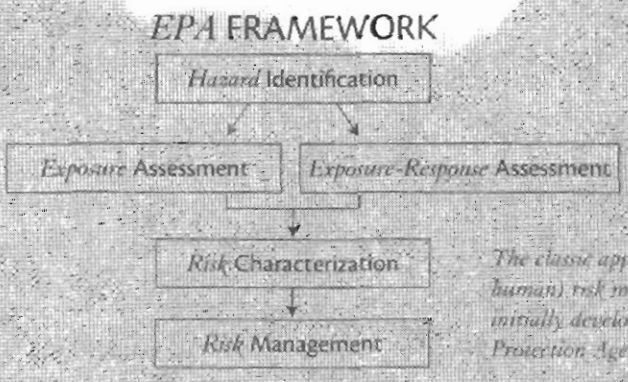
Assessing the exposure of marine mammals to a sound in a specific area requires knowledge of the distribution and abundance of all marine mammal species that can hear the sound in that area. The National Marine Fisheries Service (NMFS) conducts an extensive series of sighting cruises each year within the U.S. EEZ. However, these data are collected to assess the stocks or populations of marine mammals, and the analysis provided by NMFS is not suitable for predicting the probability of encountering animals at different ranges from a source. NMFS should make the raw data public, so that other analyses could be performed. Although this would help resolve uncertainties in U.S. waters, additional survey efforts will likely be needed. Many U.S. activities are conducted all over the globe, however, and additional coordination is required with other nations to predict which species might be exposed when sources operate outside of U.S. waters.

Coordination of data sharing with other nations will reduce uncertainty, but new survey efforts may be required.

Assessing exposure of animals requires knowledge of their hearing. Hearing ability has been measured in a few individual animals from species that can be trained in the laboratory, such as dolphins and seals. Recently researchers have developed a technique that can be used to study hearing in untrained animals in the wild (Nachtigall *et al.*, 2005). This technique is called auditory brainstem response, or ABR, and it depends upon detecting the electrical activity of the brain when an animal hears a sound. A research program should be developed to apply this technique to study hearing in whales and other species for which hearing has not been studied.

Exposure-response assessment. The next step in risk assessment involves determining how animals respond to a particular sound exposure. In recent years, this kind of dose-response study has been used to define what kinds of acoustic exposure begin to pose a risk to hearing in seals and dolphins. ABR studies can help extend these results to other species. However the greatest ambiguity of all for assessing the risk of sound on marine mammals involves our uncertainty in what kind of behavioral response is evoked by a specific dosage of sound. In many cases, we do not even know the correct way to represent the sound dosage. The behavioral responses an animal makes to a sound are more variable than physiological responses, and can depend on the species, population, age-sex class, behavioral context, hearing sensitivity, and history of exposure of the individual. It is impossible to study responses of all species to all sounds, so studies must be prioritized based upon expectation of the potential for harm.

Risk characterization and risk management. Once one can characterize the exposure of animals to a sound source, and one knows the relationship between exposure and the effects of concern, it is possible to calculate the total effect of the summed exposure to characterize the hazard to the population. If the hazard is significant enough to require management, then a final stage involves comparing the benefits of different strategies to manage the risk. Many management strategies in use today involve shutting down a source when animals are detected within a zone of adverse impact. There are considerable uncertainties about the effectiveness of different methods for detecting animals, however. Another management strategy is to slowly increase the level of a source when it is turned on, to give animals an opportunity to move out of harm's way, but there are few data to confirm whether this strategy is successful or not.



The classic approach to environmental (and human) risk mitigation uses a framework initially developed by the U.S. Environmental Protection Agency.

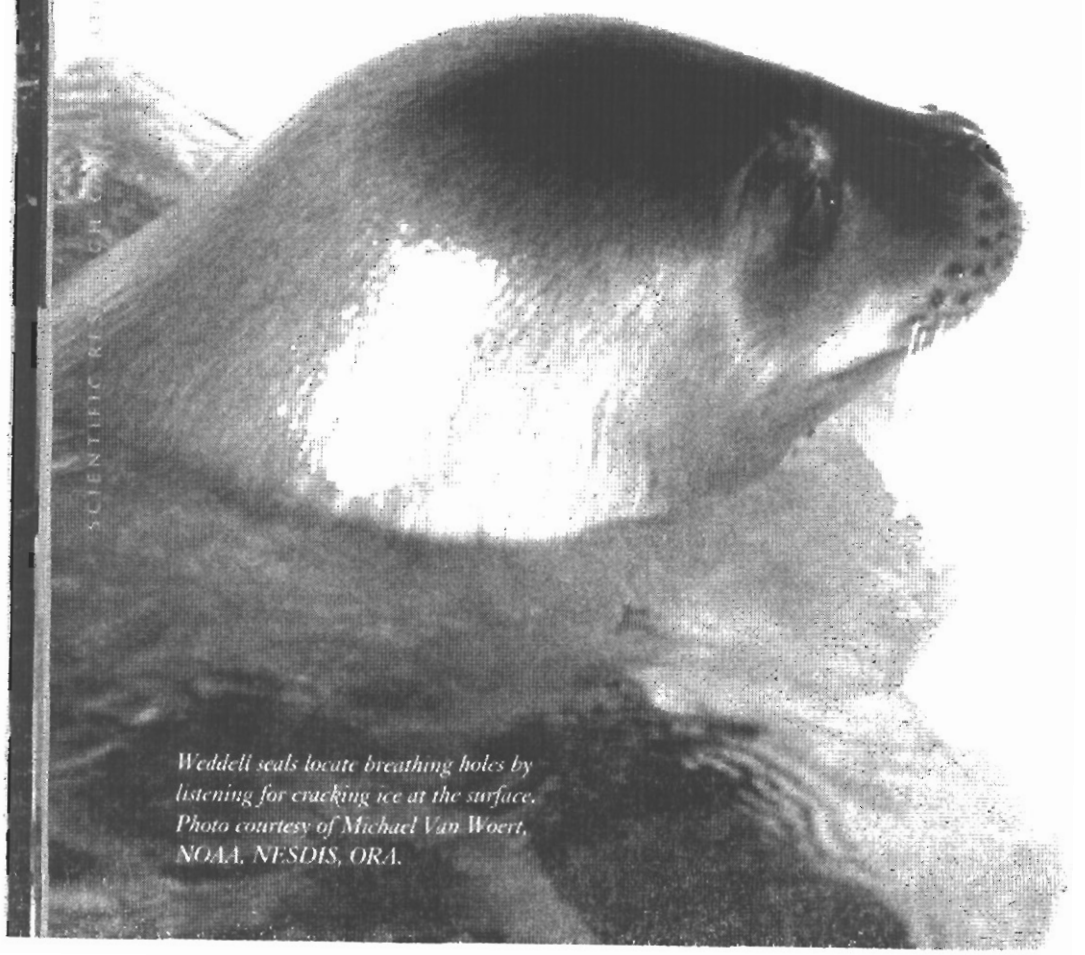
Background Image: Humpback whales are known for their songs. These songs, most often heard on their breeding grounds, are associated with courtship displays. Photo ©Tsutomu Nakamura.

RECOMMENDATIONS

Risk assessment methodology provides the framework for rational management of the risks from various threats to marine mammals. In many, if not most, cases the information needed to conclude that a given source of sound will result in biologically significant effects is simply not available (NRC, 2005). There is therefore an urgent need for a *U.S. National Research Program on Marine Mammals and Sound* that engages multiple federal agencies in order to provide the needed information. A second implication is that there is an urgent need for developing a process for *Rational Management with Incomplete Data*, by "identifying activities that do not reach a de minimus standard for biological significance" (NRC, 2005). A related, but distinct, issue is that the complex and lengthy permitting process under the MMPA, ESA, and NEPA has become a major impediment to conducting ocean research, hindering the research needed to improve our understanding of the effects of anthropogenic sound on marine mammals and of the environment in which they live. The ocean science community is urgently in need of an *Improved Regulatory Process* designed to foster badly needed research, while ensuring protection for marine mammals. Finally, given the controversy and misinformation surrounding the topic of marine mammals and sound, there is a need for a program of *Public Education and Outreach*.

U.S. NATIONAL RESEARCH PROGRAM ON MARINE MAMMALS AND SOUND

We strongly endorse the following recommendation by the U.S. Commission on Ocean Policy (2004):



Weddell seals locate breathing holes by listening for cracking ice at the surface. Photo courtesy of Michael Van Woert, NOAA, NESDIS, ORA.

Recommendation 20–9. The National Science Foundation, National Oceanic and Atmospheric Administration, U.S. Geological Survey, and Minerals Management Service should expand research on ocean acoustics and the potential impacts of noise on marine mammals. These additional sources of support are important to decrease the reliance on U.S. Navy research in this area. The research programs should be complementary and well coordinated, examining a range of issues relating to noise generated by scientific, commercial, and operational activities.

Hearing sensitivity studies provide information on what frequencies an animal can hear and how loud a sound must be to be heard. This dolphin is stationed underwater, waiting for the presentation of a sound from an underwater speaker. A suction cup hydrophone is attached to its chest to record heartbeat sounds. In this experiment, heart rate changes were used as a response to sounds presented. Photo courtesy of Jen Mikas, University of Rhode Island.

A U.S. national research program should be established to support research to understand interactions between marine mammals and all sources of sound in the world's coastal and global oceans. This should be an interagency program with a mechanism to allow the participating Federal agencies to coordinate decisions with regard to disbursement of funding. Provision should be made to allow private, as well as public, funders to contribute to this program. At the U.S. federal level, participating agencies should include the National Science Foundation, U.S. Navy, National Oceanographic and Atmospheric Administration, Minerals Management Service, U.S. Fish and Wildlife Service, and other interested agencies. Diversity of funding sources is essential to bring a variety of perspectives to the research program and to help maintain the long-term stability needed for research on marine mammals.

The first step in this national research program would be a national workshop charged with converting the research recommendations in the National Research Council reports (NRC, 1994b, 2000, 2003, 2005) into a research strategy and implementation plan. We recommend that a national program office be established to assist with coordination and public outreach. The research strategy and implementation plan should call for proposals from the broad scientific community, including those at universities and at research institutions outside of the mission and regulatory agencies, to ensure that the greatest possible pool of expertise is brought to bear on the problem. In addition, since one obstacle to progress in the required research is a shortage of trained personnel, the research strategy and implementation plan should include a component designed to increase graduate student and postdoctoral training and participation in the research projects. Although it would be a U.S. national program, the goal is to foster a cooperative, international research effort as soon as possible. This is, in fact, a global issue and its solution will be best sought via international cooperation. The total program should grow over its first 3-4 years to a funded level on the order of $25M/year. New appropriations to the participating agencies are required to support this activity.

The well-established procedures of the scientific process should be followed in

this program. For example, all grants under the program would be competitively selected using established peer review procedures. Each year, a Program Announcement will be published defining the priorities for the program. The content of the program announcement would be agreed to by the agency program managers, but would be based on priorities determined by input from all stakeholders. The program should place strong emphasis on the open, peer-reviewed publication of research results. An initial 10-year commitment should be made to support this program, at which time a thorough, independent, expert review of accomplishments is important.

Marine Mammal Observers watching for whales or dolphins from the flying bridge of RV Maurice Ewing in the Northern Gulf of Mexico, May, 2003. Photo courtesy of John Diebold, L-DEO.

Appendix A provides an initial assessment of research priorities, using the risk assessment framework to prioritize the research recommendations in the NRC reports (1994b, 2000, 2003, 2005).

RATIONAL MANAGEMENT WITH INCOMPLETE DATA

In the long term we strongly support the recommendation of NRC (2005) that a conceptual model, such as the Population Consequences of Acoustic Disturbance (PCAD) model "should be developed more fully to help assess impacts of acoustic disturbance on marine mammal populations. Development of such a model will allow sensitivity analysis that can be used to focus, simulate, and direct research..." The U.S. National Research Program should be designed to provide the data needed to populate, refine, and complete the PCAD model developed by the NRC in its 2005 report. This type of risk assessment model not only serves as a framework for identifying existing data gaps, but also ultimately provides the mechanism needed to assess the likelihood that specific acoustic sources will have adverse effects on marine mammal populations. Development of the PCAD model would provide the scientific foundation to move toward the recommendation of NRC (2005) that in the long term management actions regulating "takes" should be based on the concept of Potential Biological Removal (PBR), broadened to include behavioral effects.

Development of the PCAD model is some years in the future, however, and in the interim NRC (2005) recommends determining a de minimus standard for deciding which sound-related activities require authorization for "takes." Although there are substantial gaps in our knowledge concerning the issue of marine mammals and sound, it is still possible using our current knowledge and the framework of risk assessment to "identify activities that have a low probability of causing marine mammal behavior that would lead to significant population effects" (NRC, 2005). For example, activities that result in exposure of only a very small fraction of a population are unlikely to lead to population level effects, except in the case of highly endangered populations where every individual is significant. In another example, activities in which exposure results in only minor behavioral responses that are well within the

range of natural behavioral variability are unlikely to cause biologically significant effects. The fact that we are far from knowing all that we need to know about marine mammals and sound does not mean that we do not know anything. Congress should provide the necessary funding and direct the agencies to work with the scientific community to develop an intelligent decision system for identifying activities that do not reach a *de minimis* standard for biological significance (NRC 2005). Congress should also direct the agencies to develop a PBR-like regime for all forms of "take."

IMPROVED REGULATORY PROCESS

From the perspective of the scientific research community, a related problem is that the current regulatory structure makes obtaining the necessary authorizations for using sound in the sea for scientific research purposes so time-consuming and expensive that it is having a chilling effect on a wide variety of important and valuable uses of sound in the ocean, as well as on the very research needed to improve our understanding of the impacts of underwater sound on marine life and of the environment in which marine animals live. The implications are:

- The permitting and authorization process for scientific use of sound in the ocean urgently needs to be streamlined, so that it is timely, predictable, and assures compliance with all applicable legal requirements.
- The regulatory agencies need to be provided with the necessary resources to fulfill their mandates with oversight to assure that permits are being reviewed and given in a timely manner. Both NMFS and USFWS require additional funding to adequately fulfill their regulatory mandates.

Experimenter holding infant stranded Risso's dolphin while testing hearing using Auditory Evoked Potential (AEP) procedure (Nachtigall et al. 2005).

The various NRC reports and the U.S. Commission on Ocean Policy (2004) all agree that the current regulatory structure requires improvement and make a number of specific recommendations for doing so. NRC (1994), for example, suggests that a set schedule should be established for processing applications for scientific research permits to provide applicants with assurance that applications will be processed within a set period of time. Most research proposals to the federal government take about nine months to be funded. If permit processing had a deadline less than this duration, it would make the permit process much less onerous to research. Recent litigation has increased the burden on NMFS and USFWS for authorizing research, including environmental assessments under NEPA. The agencies must be provided with adequate resources to ensure timely authorizations that can stand up in court. We support the efforts of NMFS to develop general authorization procedures for common research activities, but note the need for this to be combined with streamlined authorization of individual research projects.

Effective protection of marine mammals requires that finite regulatory resources and efforts should be devot-

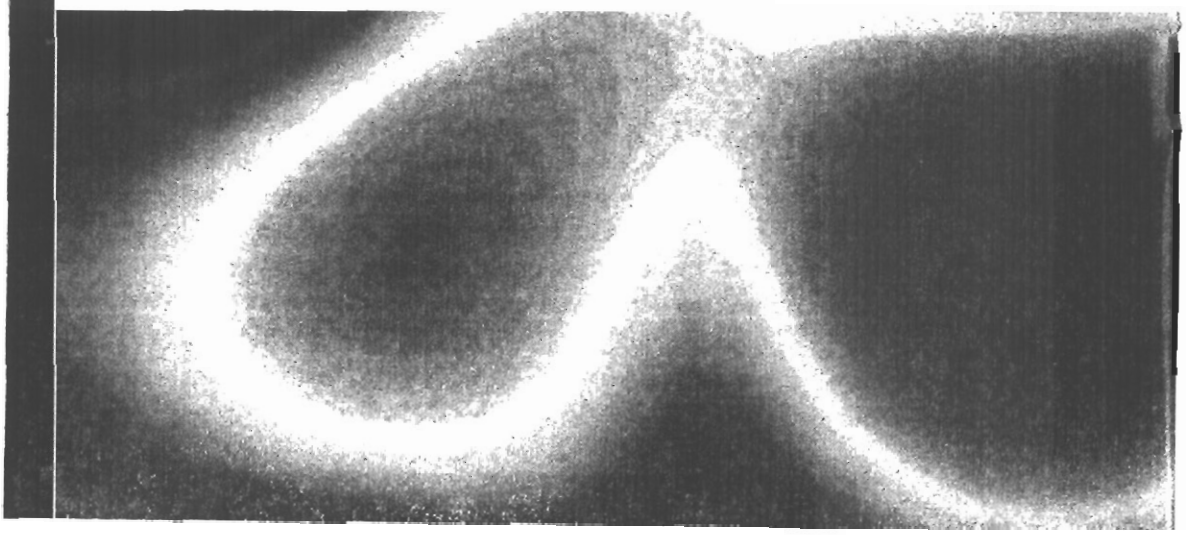
ed to the management of activities with potentially serious impacts on marine mammals, rather than to the management of activities that potentially cause momentary and inconsequential changes in behavior. NRC (2000) concluded that it "does not make sense to regulate minor changes in behavior having no adverse impact; rather, regulations must focus on significant disruption of behaviors critical to survival and reproduction." Unfortunately the Marine Mammal Protection Act has at times been interpreted to mean that any *detectable* change in behavior constitutes harassment that requires permitting (Swartz and Hofman, 1991). The U.S. Commission on Ocean Policy (2004) concluded:

> *Recommendation 20–6: Congress should amend the Marine Mammal Protection Act to revise the definition of harassment to cover only activities that meaningfully disrupt behaviors that are significant to the survival and reproduction of marine mammals.*

The recommendations made in the NRC reports are fully consistent with this recommendation. The need for this redefinition was highlighted in the testimonies of members of the scientific research community during the 2003 Congressional proceedings involving the reauthorization of the MMPA (Ketten, 2003; Tyack, 2003; West, 2003; Worcester, 2003). The Research Caucus urges Congress to make the suggested changes to the definition of harassment.

PUBLIC EDUCATION AND OUTREACH

Given the controversy surrounding the issue of marine mammals and anthropogenic sound, it is extremely important that scientifically valid information be readily available to the public. One of the few such sources of scientifically sound information available to the public and the educational community is the *Discovery of Sound in the Sea* web site (www.dosits.org). This web site provides information on the basic science of sound in the sea, on how both animals and people use sound in the sea, and the effects of anthropogenic sound on marine life. One web site is not an adequate program of education and public outreach, however. A more complete, coherent program is needed. The educational efforts should also include programs to educate producers of ocean sound. The educational and outreach program could be included as part of the *U.S. National Research Program on Marine Mammals and Sound* recommended above.



SUMMARY

The recommendations given above are not new. Fundamentally the same recommendations were made by the scientific community in the National Research Council reports (1994b, 2000, 2003, 2005), in testimony to Congress (Ketten, 2003; Tyack, 2003; West, 2003; Worcester, 2003), and in published papers (e.g., Tyack *et al.*, 2003/04; Worcester and Munk, 2003/04). Fundamentally the same recommendations were made by the U.S. Commission on Ocean Policy (2004). It is time for action if we are to develop the knowledge needed to effectively protect marine mammals from the threats facing them.

Image Below: Forward-looking sonar systems provide a three-dimensional picture of the ocean depths and any submerged obstacles ahead of a vessel. These systems are able to detect marine animals that are in the water. This is an example from a 1998 test involving northern right whales. The range to the animal is about 50 meters and the water depth is approximately 40 meters. The colors indicate target strength, ranging from red (strongest) to blue (weakest). Image courtesy of Jim Miller, University of Rhode Island.

APPENDIX. RESEARCH PRIORITIES

Risk assessment methodology provides a framework to prioritize different research needs. We suggest differentiating between specific research projects likely to resolve critical management issues in a well-defined time and longer term research programs that are highly relevant to management but that require regular sustained funding over long periods to provide basic support for management decisions. We set priorities for targeted projects, but list with no prioritization the longer term areas requiring increased support.

The research area with the greatest uncertainty and the greatest opportunity for directing management decisions in the next decade involves effects of sound on marine mammals. There are a variety of areas where targeted research programs would be likely to resolve critical uncertainties within a 5–10 year period. These should be the top priority research recommendations.

Of special immediate concern is research to understand the one case where exposure to underwater sound has been related to mortalities – the relation between mid-frequency sonar and mass strandings of beaked whales (Cox *et al.*, 2005). We recommend a directed research program to decrease response times for experts in pathology to study stranded animals associated with sound, to standardize data collection and reporting from strandings associated with sound, and to determine, where possible, any human activities coinciding with the stranding that might be involved in the event. This program should also support rigorous scientific studies to test all feasible hypotheses of mechanisms consistent with the observed traumas. If new mid-frequency sonar signals can be designed to reduce impact on beaked whales while retaining the military sonar function, cooperative analyses of these alternate signals should be a high priority and should be conducted employing combined expert analysis of potential behavioral and physiologic responses to the new source characteristics. Questions have been raised about the effect of low frequency sonar and airguns on beaked whales, but the evidence for an association with stranding is much weaker for these sources. Therefore, testing these signals should be a lower priority, but to assure all impacts are considered and because of the value of comparisons from responses to non-traumatic sources, some funding should be devoted to these as well as other common man-made sound sources such as conventional fish finding and research sonar, noise associated with construction, shipping, etc.

Another area of immediate importance involves research to evaluate untested assumptions used in current management. Of high importance is testing whether different marine mammal species avoid intense sources such as airguns at ranges sufficient to prevent injury and to test the effectiveness of ramp up as a mitigation tool. Determinations of level of impact depend critically upon such untested assumptions, but these can be tested within five years using existing methods through a focused research program.

Most monitoring and mitigation plans rely heavily on visual observers to sight marine mammals. There is a low probability of sighting many species under most conditions. Recent work has demonstrated that passive acoustic monitoring can enhance monitoring efforts, and there has been preliminary research on new techniques such as whalefinding sonar and radar. A high priority for improving the effectiveness of mitigation efforts involves research to test the effectiveness of these different methods and how to optimally integrate them. Such an effort should have the goal of improving the effectiveness of monitoring by an order of magnitude within 5–10 years.

Of longer term importance is research to test whether there is a hazard from currently unregulated sources of sound. The potential effect of low frequency ship noise on animals sensitive to low frequencies is perhaps of highest importance here, since ship noise has increased global ambient noise and is relevant for endangered baleen whales. We know that shipping has

elevated average noise levels ten to 100 fold in the frequency range at which baleen whales communicate, but we have no evidence whether this poses a risk of adverse impact. A 5–10 year research program focused on studying the effective ranges of communication in these whales (especially calls used for breeding), studying effects of shipping noise on communication, and studying whether they have mechanisms to compensate for increased noise could help resolve this uncertainty. These studies should be balanced with continued research on risk factors for ship collision in baleen whales, which is known to be a significant hazard for some populations, and involves lack of response or insufficient response to the sound of oncoming ships.

High frequency sound travels less far than low frequency, but the increase in high frequency sources such as acoustic devices designed intentionally to harass marine mammals creates a priority for studying the impacts of these devices on coastal toothed whales that use high frequencies. The few studies on these impacts suggest strong avoidance responses at low received levels. We recommend continued funding for studies of the impact of these sources on toothed whales, especially porpoises and river dolphins.

Another area that may not yield immediate results, but will be critical to improve judgments of biological significance of disturbance was highlighted by the NRC 2005 report. There are few if any models or methods available to calculate the effect specific disturbances will have on vital rates of individual animals. If policy is to move towards population analysis of the consequences of acoustic disturbance, there must be new funding to start a completely new area of research on this topic.

Summary of research priorities for focused projects in order of priority

1. Study effects of mid-frequency sonars (and airguns and alternate sources) on odontocete whales (with focused effort on beaked whales where possible).
2. Test assumptions about which species avoid intense sound sources enough to avoid adverse impact, including testing ramp-up.
3. Develop new methods to monitor, detect, and/or predict the presence of marine mammals and test their effectiveness
4. Test effects of low frequency shipping noise on baleen whales, which are presumed to use low frequencies.
5. Test effects of high frequency sound sources designed to affect marine mammals on coastal species specialized for high frequencies.
6. Develop new modeling and empirical efforts to link changes in behavior and physiology to vital rates of individuals.
7. Tie controlled laboratory data to expanded field tests.

Summary of research projects requiring sustained funding to reduce important uncertainties.

These are important, but are judged less likely to provide rapid resolution of management problems. They are therefore not ranked in priority.

- Design acoustic sensing for ocean observation networks capable of monitoring ambient ocean noise levels and trends on global, regional, and local scales.
- Survey the status, abundance, and distribution of marine mammals globally to develop an improved capability for assessing the exposure of marine mammals to sound producing activities.
- Develop a broadly accessible data base of results from strandings with standardized necropsies capable of detecting most causes of death.
- Support the development of more sophisticated methods to sample behavior and physiology of marine mammals both in the laboratory and in the wild.
- Support long term field studies of baseline behavior for selected marine mammal populations.

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SCIENTIFIC RESEARCH CAUCUS

Congress, through the Omnibus Appropriations Act of 2003, Public Law 108-7, directed the Marine Mammal Commission to "fund an international conference or series of conferences to share findings, survey acoustic 'threats' to marine mammals, and develop means of reducing those threats while maintaining the oceans as a global highway of international commerce." To meet this directive, the Marine Mammal Commission established the 28-member Federal Advisory Committee on Acoustic Impacts on Marine Mammals, composed of representatives from various stakeholder groups, including the scientific research community. This document describes the views of the Scientific Research Caucus on the issues discussed by the Advisory Committee.

The Scientific Research Caucus unanimously and strongly supports the *Report of the Federal Representatives of the Marine Mammal Commission Advisory Committee on Acoustic Impacts on Marine Mammals.*

Therefore, rather than provide a duplicate statement of areas of consensus, we submit the following supplemental statement covering areas in which the Research Caucus has particular expertise or concern.

Above Image: Pacific White-sided Dolphin. Photo ©Tom Kieckhefer. Cover Image: Killer whales travel in groups (called pods) of up to 30 individuals. They produce discrete calls that are specific to their pod. Photo © Tom Kieckhefer.

The following statement reflects only the views of the individuals listed as submitting authors. The inclusion of this statement does not indicate support or endorsement by other members of the Advisory Committee on Acoustic Impacts on Marine Mammals or by the Marine Mammal Commission.