Marinas Interagency Coordinating Committee (MIACC) & Anti-Fouling Strategies Workgroup (AFSWG) –

Notes from Dec. 3, 2019 Meeting

CAL/EPA Building, Sacramento; and Teleconference Call

Hosted by the State Water Resources Control Board and California Coastal Commission

Note: The following meeting notes are paraphrased. The opinions expressed by Committee members, presenters, or any other participant who speaks or otherwise expresses an opinion at a meeting do not necessarily reflect the official policy or position of the State Water Resources Control Board, California Coastal Commission, or Marina Interagency Coordinating Committee and Antifouling Strategies Workgroup. Meetings of this Committee and Workgroup provide an open forum where all participants are invited to share their input and opinions with mutual respect for other participants.

Introductions and Announcements

Coordinators:

Michael Hanks – NPS Program, State Water Resources Control Board, &
Vanessa Metz – Coastal Water Quality Program, California Coastal Commission

Purpose:

- Participants introduce themselves and their affiliation.
- Updates and announcements from participants.

Participants:

Michael Hanks	State Water Resources Control Board
Vanessa Metz	California Coastal Commission
Jeanie Mascia	State Water Resources Control Board
Susan Keydel	U.S. Environmental Protection Agency
Chris Scianni	State Lands Commission
Aniela Burant	Dept. of Pesticide Regulation
Ryan Pessah	Western Wood Preservers Institute
Lark Starkey	Wood Environment & Infrastructure Solutions
Kelly Tait	Port of San Diego
Michael Tripp	L.A. County Dept. of Beaches and Harbors
Shana Rapoport	L.A. Regional Water Quality Control Board
Jen Mongolo	L.A. County Dept. of Beaches and Harbors
Brenda Ponton	L.A. County Dept. of Beaches and Harbors
Frank Winkelman	Pettit Marine Paint
Sandy Lea	Pettit Marine Paint
Shelly Anghera	Latitude Environmental
Ray Hiemstra	Orange County CoastKeeper

Participant Updates and Announcements:

- [Kelly Tait, Port of San Diego]: The Port is revising our in-water hull cleaning ordinance. Changes deal with Best Management Practices and training. We are proposing to our board for adoption in Jan. to align our BMP requirements and in-water hull cleaning permit to match that of the Dept. of Pesticide Regulation, in terms of frequency (no more than one cleaning per month of copper hull paints), using only soft materials, and cleaning by hand only. In terms of training, we are following the lead of Marina del Rey's Beaches and Harbors. We will contract a service provider to provide mandatory training for all divers, once the ordinance goes into effect. See our website on Copper Reduction Program for Port of San Diego. Red-line drafts of these documents are available for public view; they were released on Nov. 22, and the public comment period is open until Dec. 23. Send an email to the Port of San Diego's hull cleaning program if you'd like to be added to the list serve.

Action Items:

- Notes, presentations, and materials from this meeting will be posted on the Coastal Commission's Marinas and Recreational Boating webpage, under the heading '**Archive of Meeting Notes & Presentations**' – 2019, December.

Presentation – Biofouling Management: New Best Practices Handout

Speaker:

Chris Scianni **–** Marine Invasive Species Program, California State Lands Commission

Purpose:

Provide update on biofouling management Best Practices publications.

Background:

The Coastal Committee of the Western Regional Panel has recognized biofouling associated with recreational boats as a risk for introduction and spread of aquatic nuisance species. Responding to the action items from the Coastal Committee's 2017 Biofouling White Paper, the committee has produced a best practices outreach document for recreational vessels and is continuing to develop similar documents for fishing vessels and mobile marine infrastructure.

Materials:

- **Biofouling Management: Best Practices**. **(PowerPoint).** Chris Scianni, State Lands Commission.
- **Best Practices for Biofouling Management. (Handout).** Coastal Committee of the Western Regional Panel on Aquatic Nuisance Species. This handout is available on the website of the Coastal Committee of the Western Regional Panel on Aquatic Nuisance Species.

Presentation Notes:

This presentation is on work by the Western Regional Panel on Aquatic Nuisance Species; I'm chairing their Coastal Committee. The umbrella group is the Aquatic Nuisance Species Task Force (ANS Task Force), which was set up by Congress decades ago and meets regularly on a suite of invasive species issues. Under that umbrella there are six regional panels. We're part of the largest panel, the Western Regional Panel (WRP), which includes all the states west of the Mississippi River. The Coastal Committee is the largest committee within the Western Regional Panel, and focuses on coastal invasive species issues.

White Paper on Biofouling

The Coastal Committee has been focusing on Vessel Biofouling, which is the topic of this presentation. Biofouling refers to organisms that are attached or associated with the underwater surfaces of vessels. A few years ago, the Coastal Committee put out a white paper "Biofouling in the U.S. Pacific States and British Columbia." It includes sections on current science, risks, management options, gaps, and recommendations related to a variety of vessel types.

The "current science" portion of the white paper talks about the paradigm shift when thinking about invasive species, vessels, and biofouling. We used to think that big ships moving across ocean basins were the vessels to focus on. But we now know that there are a lot of different vessel types moving up and down the coast, including recreational boats, fishing vessels, and mobile marine infrastructure (such as a mobile drilling rig). Mobile drilling rigs can sit in one place for a year, then go somewhere else and do the same thing. These are big structures that don't move often, but when they do, they move huge communities of organisms with them.

One takeaway from the white paper is a figure illustrating the spectrum of our knowledge of the population size of different vessel types, their activity level (how often they move within and between regions), and what regulatory authority there is over these vessels in terms of biofouling and biosecurity. At one end of the spectrum are commercial merchant and passenger vessels; we know a lot about where they're going, because they report to agencies such as the State Lands Commission, and there is regulatory authority. On the other end of the spectrum is mobile marine infrastructure; there's not a lot of information on when, where, and why they're moved, and no real regulatory authority over them. In the middle are recreational vessels and commercial fishing vessels; we know a little about where they move, because there have been some studies.

Recreational Vessels

The key takeaway for recreational vessels is the lack of a central reporting authority, so we don't know how often and where they move, which is important for understanding the risk they pose of introducing species. There are seasonal patterns; summer and fall were pretty consistent in activity patterns. When they do move, it's pretty predictable where they move, which is important for outreach purposes, to get a consistent message across in different areas. Also, there are no existing biofouling regulations for these vessels in the marine environment.

Best Practices Outreach

Recommended actions in the white paper are to develop regionally consistent "Best Practices" outreach documents on managing biofouling for three categories of vessels: recreational vessels, commercial fishing vessels, and mobile marine infrastructure. The goal of the biofouling Best Practices outreach is to provide clear, consistent messaging across jurisdictions, that's not too complex, and to fill gaps where regulatory authority is lacking. We developed an outreach handout (5" x 9" card), describing what biofouling is and why biofouling management is important to a boat owner, with a list of Best Practices on the other side. We wanted to brand catchy phrases such as "Coat your Boat" and "Clean Before You Go." We don't go into a lot of detail on the Best Practices, such as about the different types of coatings. The goal is sharing these handouts with California, Oregon, Washington, Alaska, Hawaii, and British Columbia, to get a consistent message across the region to hopefully reduce the risks.

The Recreational Boats Best Practices handout is available on the WRP Coastal Committee website, and on the Division of Boating and Waterways website; you can also email me for printed copies if you're interested in taking them to boating groups. We are continuing to work on similar materials for commercial fishing vessels and mobile marine infrastructure. Our goal for mobile marine infrastructure is rather than reaching out to vessel owners, to have this be a tool for the agencies that issue permits for activities within the coastal region. So if there's construction going on, and they're bringing in construction barges, we're hoping that the Best Practices will be part of the lease or permit conditions. That's the one vessel category that there could be a mechanism to require that this be done.

Discussion:

- [Michael Hanks]: For regionally consistent BMPs, how large is the region you're talking about?
  - [Chris Scianni]: In the Coastal Committee we have about 40 or 50 people that assist in the activities, spanning from California to Alaska, including British Columbia, and Hawaii. We're sharing these handouts through networks in all these areas.
- [Michael Hanks]: Are you getting buy-in from mobile marine infrastructure permitting agencies?
  - [Chris Scianni]: Not yet, a few members on the Coastal Committee have a good "in" there, but we've just formed a sub-committee to start working on mobile marine infrastructure. As part of that process, we will engage more with permitting and leasing agencies that we're aware of. We have a pretty good idea in California, but for other states and on the federal level there are a whole host of agencies, and we're looking for feedback about these other agencies.
- [Jennifer Mongolo]: L.A. County Beaches and Harbors, along with Port of San Diego and a researcher (Carrie Culver) from UCSB Calif. Sea Grant, are collaborating to put together an online program for certifying in-water hull cleaners on Best Management Practices. We are at the beginning phase of the discussion, and looking at grant opportunities. If anyone has ideas for grant funding or would like to collaborate on the project, please reach out to me.
  - [Chris Scianni]: There's not enough space on the 5x9 Best Practices card, and we wanted to keep it as generic as possible so it would work for the different states and British Columbia. It is important for boat owners to know what the rules are for in-water

hull-cleaning in the different harbors and marinas. The Coastal Committee has some supplementary material on our website with links to the different rules and requirements, so this program from L.A. County and Port of San Diego is perfect for that. We'll be looking for this sort of thing from other regions in the coming months.

  - [Jennifer Mongolo]: L.A. County Beaches and Harbors has a regulation that we passed last year, which Kelly Tait referred to. We can send Chris the ordinance that requires in-water hull cleaners to be certified in Best Management Practices.

- [Shana Rapoport]: Can you talk about how the small Vessel General Permit plays into this?
  - [Chris Scianni]: I'm more familiar with the larger vessels' Vessel General Permit. Congress passed a bill about a year ago called the Vessel Incidental Discharge Act. The regular Vessel General Permits will be replaced with regulations adopted under the Vessel Incidental Discharge Act, which will include all sorts of vessel discharges including underwater ship husbandry. But I believe that's only for commercial vessels; I'm not sure what that would do to the small Vessel General Permit. I can look into it and get back to you.
  - [Shana Rapoport]: I'm curious if there are requirements that could be enhanced and would help coordinate between some of the copper paint issues and the anti-fouling invasive species issues, to make sure we're meeting both of those requirements.
  - [Chris Scianni]: We can follow up on that soon. My understanding of the small Vessel General Permit is that it wasn't very thorough and useful like the larger Vessel General Permit was. I believe there were a lot of carve-outs in it; the small vessel lobby is pretty strong. At least here in California that's been the case whenever anyone brings up the idea of regulating small vessels, it gets shot down pretty quickly.

Action Items:

None.

Presentation – Environmental Risks Associated with Commercial Vessel In-Water Cleaning Options

Speaker:

Chris Scianni **–** Marine Invasive Species Program, California State Lands Commission

Purpose:

Describe recent publication on environmental risks associated with in-water cleaning.

Background:

Different approaches to in-water cleaning for commercial ships are being developed and implemented across the globe. This paper examines the different approaches and the water quality and biosecurity risks associated with each.

Materials:

- **Environmental Risks Associated with In-Water Cleaning**. **(PowerPoint).** Chris Scianni, State Lands Commission.

- **Vessel In-Water Cleaning or Treatment: Identification of Environmental Risks and Science Needs for Evidence-Based Decision Making. (Publication).** Scianni and Georgiades (2019). This publication is available (Open Access) on the Frontiers in Marine Science website.

Presentation Notes:

The focus of this presentation is on commercial ships, but a lot is also applicable to in-water cleaning of smaller vessels. A couple months ago, Michael Hanks sent out a paper to the group that we wrote on this topic; I want to acknowledge my co-author Eugene Georgiades from the New Zealand Ministry for Primary Industries. We interact pretty often at meetings, and talk about big vessel commercial ship in-water cleaning technologies that are being developed to collect and treat the debris. We thought it was a perfect time to put our thoughts out there so we're all aware of the different risks, and making sure we address the risks once we're using these new technologies. The paper is open access; this presentation is like a Cliff's Notes version of it. (Michael Hanks adds that the paper is linked from the MIACC webpage).

Biosecurity and Water Quality

The big topics we're concerned about when we talk about in-water cleaning are biosecurity and water quality. There are different strategies for implementing in-water cleaning, and most often in the past they had been reactive. But more and more in current times we're hearing about strategies that rely on proactive cleaning. The difference between the two is that proactive cleaning is doing a regular grooming; the idea is to keep biofouling to a minimum, to a slime layer, essentially a biofilm. To do that, you have to clean pretty often. Reactive cleaning is less frequent; you're cleaning larger macro-fouling invertebrates at that point. The risks change, but a lot of different strategies are evolving around those two themes, proactive and reactive.

Also in the past, we've seen a lot of technologies that don't capture any of the debris. For large ships, it's a pretty large scrubbing unit, probably the size of a Volkswagen. It's basically mowing the lawn, so everything they remove (the organisms and the copper) gets released into the water column. Nowadays we're seeing more technologies that capture all of that. There's a shroud around the cleaning head, and an umbilical that removes everything with the use of a pump, and brings it up top-side (usually on a dock or a barge) to be filtered and treated to remove the organisms, and active filtration to remove as much of the copper as possible. Then that water is released back into the receiving environment, and the filtered debris gets treated appropriately as hazardous waste.

Four Types of Strategies

So along those two lines, proactive and reactive, and with capture and no capture, there are four different types of strategies. These are proactive and reactive in-water cleaning with capture, and proactive and reactive in-water cleaning with no capture. I'd like to talk about the different risks related to each of them.

For reactive in-water cleaning with no capture of the debris, you are cleaning macro-fouling invertebrates. This is not an acceptable biosecurity risk, and is not an acceptable water quality risk (unless the coating is biocide-free).

For proactive in-water cleaning with no capture of debris, you are cleaning a biofilm, with no observable invertebrates or macro-fouling. In most cases this is an acceptable biosecurity risk; undoubtedly there are some risks related to what's in a biofilm (algae and bacteria), but our knowledge of those risks is not great right now. So the current thinking is that it's an acceptable risk for biosecurity reasons to allow cleaning without capture if it's done in a proactive manner, for commercial ships. But the water quality risk still remains, and that's not an acceptable risk (unless the coating is biocide-free). In some jurisdictions this may be allowed even if it's a biocidal coating; the mechanisms involved in doing proactive cleaning allow them to clean in a more gentle fashion than for regular cleaning of the large biofouling community. So vendors will often claim that their systems don't release a lot of copper, or any copper, during this process. This needs to be backed up by data, but this is a consideration that some jurisdictions are looking into.

For proactive in-water cleaning and capture, you are cleaning off biofilm only, and capturing all of the debris. This is an acceptable biosecurity risk, and also an acceptable water quality risk in most cases (assuming the system reduces the risk to an appropriate level). We're assuming that it's capturing everything it's removing, and during filtration and treatment stages it meets an end-of-pipe standard that is set by the local authority.

For reactive in-water cleaning and capture, the same thing applies, except you're cleaning off invertebrates. This would be deemed an acceptable biosecurity risk and water quality risk (assuming it's doing what we expect it to do, and it meets the local thresholds for the end-of-pipe discharge).

Cleaning Without Capture

So is it ever appropriate to allow cleaning without capture of the debris? I created a matrix to walk through that, showing fouling type (micro or macro), coating type (biocide-free or biocidal), biosecurity risk (capture or no capture, depending on whether its macro-fouling or micro-fouling), and water quality risk (capture or no capture, depending on whether it's biocide-free or biocidal). If it's micro-fouling, you do not necessarily need to capture it; but if it's macro-fouling, you do want to capture that waste. If it's biocide-free, you don't necessarily need to capture it, but if it's biocidal you do. So the last column is the end result: if we require capture for either biosecurity or water quality, then this column shows we're going to require capture. No capture would be acceptable only if cleaning micro-fouling on a biocide-free coating (unless there are data showing the amount of copper or other biocide being released is acceptable).

Where Risks Occur

The paper also touched on where the risks occur. A lot of focus is exclusively on end-of-pipe discharge, but risks are involved at every stage of this process. At the cleaning head, if it's not capturing everything that's getting removed, there are some risks involved. In most cases they'll have a shroud around it, but if things can escape through the shroud that is a risk. The operator could be a risk if they're not using the tool the correct way, etc.; it's dependent not just on the technology but on the operator of the technology. The umbilical itself can scrape along the side of the hull while the cleaning is occurring, and knock things off. The effluent that comes out of the end of the pipe needs to treated to whatever thresholds are set by the local authorities, and how they manage the waste must be considered as well, are they getting rid of the waste in an appropriate manner.

Regulations

At the end of the day, as regulators who have to permit this activity, things we want to know are how well do these systems clean, reduce biosecurity risks, and reduce water quality risks? Some of us get calls from vendors who want to operate their system in a harbor or marina, and have data they collected themselves. One of the things we focus on is that this type of data probably should be collected independently of the vendor. So we've been working with a group under the Alliance for Coastal Technologies to provide some independent assessment of some of these technologies. We created some protocols, and we looked at all of these questions independent of the vendor. So when vendors get the report they can take it to a permitting agency, who can put a lot more weight on the data because they were collected independently.

Right now these activities are regulated in California through the U.S. EPA. If they're using a system that does not capture the debris, it's regulated under the Vessel General Permit (VGP). In California, the State Water Resources Control Board puts specific conditions on top of the VGP; essentially, cleaning a ship with a copper biocide coating is not allowed in waterbodies impaired by copper.

If the system captures the debris, it is not covered by the Vessel General Permit, as it's no longer incidental to the normal operation of that vessel. It's now considered a commercial discharge from the cleaning vendor, because they're putting the water through a filtration process and then discharging it. The vendor therefore needs to get a National Pollutant Discharge Elimination System (NPDES) permit under the Clean Water Act; in California, this is implemented by the State and Regional Water Boards. The role of the State Lands Commission from the biosecurity side is to work with the State and Regional Water Boards as they consider permits, to make sure that biosecurity concerns are being addressed. We've been working with the L.A. Regional Water Board for a while, looking at permit applications. We've also been working with the San Francisco Regional Water Board, as they're working towards a general NPDES permit for in-water cleaning. This would allow in-water cleaning as long as the vendor follows whatever is included in the general permit.

Final thoughts: All of this info on how these practices are regulated will turn on its head in a few years, when the regulations adopted under the Vessel Incidental Discharge Act are implemented. The EPA is expected to release the draft likely in April or May of 2020; they have to adopt regulations by the end of the year. Then the Coast Guard has to adopt regulations within two years, laying out how they will enforce the requirements that the EPA adopts. The EPA adopts the standards, and then the Coast Guard adopts the enforcement regulations. So all this will be governed by new regulations probably starting in 2022.

Testing of Systems

I touched on one of the questions we're interested in, of how well do these systems reduce risks; we're looking into providing more information through the Alliance for Coastal Technology. We've completed two tests of one system, in Baltimore and in Alameda. We're lining up to do a test of a proactive cleaning system in spring of 2020. Other pollutants of concern from in-water hull-cleaning include the microplastics in anti-fouling coatings. Through the Alliance for Coastal Technology we will be quantifying the volume of microplastics released during an in-water cleaning session.

Discussion:

- [Aniela Burant (DPR)]: Do you have a sense of how many commercial vessels use biocide-free coatings?
  - [Chris Scianni]: Every commercial ship that comes into California submits a report to us once a year, and tells us a whole host of things related to biofouling. One of those is what hull coating they have. So we have a dataset going back 11 years now, and it's been remarkably consistent: about 8-10% of the fleet has biocide-free coatings. We see about 1,800 unique vessels a year, so about 10% of that. But not all of those have exclusive biocide-free. A lot of the cruise ships will use biocide-free hull foul release coatings on their hull, and copper biocide in some of the niche areas where you don't get a lot of water movement (as you need water movement for those to work). Cruise ships have a lot of niche areas, more so than other vessels. I can look up the breakdown of how many use only biocide-free coatings.
- [Aniela Burant (DPR)]: You stated that under the Vessel General Permit, no cleaning without capture is allowed in impaired waterbodies. Do you know who enforces that, and how well it is enforced?
  - [Chris Scianni]: At the regional level, I don't think anyone is actually enforcing it. We get a lot of questions about whether we can clean in this scenario, and we always say we think this is the answer, but you should check with the Regional or State Water Board. In terms of someone enforcing it and putting penalties on bad actors, I don't think that is occurring. At least within the in-water cleaning community, they tend to self-police, if they know that one of their competitors is cutting corners. Although cleaning is not allowed within ports, a lot of times a ship will go anchor outside of the port and get cleaned out there, without capture. The risks are still there, and there are risks to the diver of being in unprotected waters. Ideally we'll come to a situation where these technologies are good enough that they can clean within the port a ship at a berth, and reduce the risks to acceptable levels. The goal is to get the amount of organisms and/or copper coming out of the end of the pipe lower to meet the threshold.
- [Michael Hanks]: Of those commercial vessels that are using non-biocidal paints, are there any common denominators among those vessels, such as origin, or where they're registered, or what type of entities they fall under?
  - [Chris Scianni]: Not that I know of; I think the biggest driver is the type of vessel. For a lot of the foul release coatings, they need a certain speed in order to be effective, so we don't see a lot of them on oil tankers that travel a lot slower. So primarily on container ships and passenger vessels. I can look into that as well, as we've done that analysis before.

Meeting Wrap-Up

Coordinator:

Michael Hanks – NPS Program, State Water Resources Control Board

Purpose:

- Any additional announcements.

- Soliciting ideas for future topics and meeting locations for the Fall/Winter 2020 MIACC meeting.

Announcements:

- [Michael Hanks]: This was a shorter meeting, so if you have anything that you'd like to share at the next meeting, or you know about a presentation that you'd like to hear about, please share that with me.

  Additionally, there has been a stated gap among governmental agencies that talk to me and say they would like a space where they can talk about some of these issues openly. My role is a facilitator, and I want to meet the needs of the members of this committee. So email me if you're interested in this; we don't want to exclude any non-governmental agencies, but there's a want for a free flow of information without immediate push-back, to exchange ideas and see what other agencies are doing. I don't know if that would be an additional meeting, one with governmental agencies and one with everybody, or if this is the right forum for that. There are probably some legal parts to that question, about what we're obligated to do. We want to make sure that people are comfortable with the actions taken by this committee, and we don't want to step on any toes. If you have any thoughts, or if you see a need (or don't see a need), please contact me. This isn't something we're ready to act on; it's just something I've been hearing a lot from different government agencies about trying to share some of their information, but not feeling its information that can be shared with the public yet.

- [Vanessa Metz (Coastal Commission)]: We've been maintaining a webpage for this group, an archive of meeting materials, notes, and presentations. But we have some new regulations coming into place requiring all of the materials that we post on webpages to follow ADA-accessibility guidelines for people with visual disabilities. So we need to temporarily remove the archive of meeting materials until we have time to go through them and make them meet the accessibility guidelines. I'm trying to make the agendas ADA-accessible, and then if you see any materials listed on the agendas or meeting notes that you would like, you can contact me and I will send you those materials. We just can't post them online.
  - [Michael Hanks]: Is that true for documents provided by third parties?
  - [Vanessa Metz]: It is, yes. In the future when we have presentations, if there is a brochure for example that we can link to on someone else's webpage, that's fine. But if we have materials such as the PowerPoint posted on our webpage, it has to be ADA-accessible. We'll give you some guidelines for future presentations.
  - [Michael Hanks]: The Water Board is figuring that out as well, and we're all scrambling to get it right. The presentations, meeting notes, and attachments will be posted on the webpage once we're sure they're accessible.

~ End ~