

National Marine Sanctuaries JMPR and Ocean Noise Pollution
December 29, 2006
Comments and Notes from Seaflow

Re: Comments, revisions, and amended text to the Joint Management Plan and the three sanctuaries management plans for Cordell Banks, Gulf of Farallones, and Monterey Bay National Marine Sanctuaries submitted by Michael Stocker for Seaflow, Inc. Sausalito, CA

1.0 Overview – scope and form of this document

Text contained herein is informed by the Joint Management Plan DEIS and the independent management plans for the Cordell Banks, Gulf of Farallones, and Monterey Bay National Marine Sanctuaries. This document focuses on underwater noise pollution and does not directly apply to airborne noise pollution affecting marine animals above water.

Underwater noise pollution due to anthropogenic sources is an overarching issue and not particular or specific to any of the three independent sanctuary management plans. As such, a majority of the suggested text will be adapted and applicable to the Joint Management Plan DEIS. Nonetheless, certain text within each of the independent management plans could be modified to accommodate for noise regulations in the context of each of the specific plans.

Each of the individual management plans is comprehensive, thorough, and far-reaching. They are also not entirely reconciled to each other. This is evident in terms of the form of each document and is partially a product of the distinct geographical areas and regional stakeholders represented by each of the individual management plans. Nonetheless, text contained in this document could be equally used in each or all of independent plans as applicable.

Suggested text will be presented initially in terms of the Joint Management Plan. Where applicable, supporting or subsidiary text specific to the individual plans will be referenced and noted to where the text should be applied.

Where existing text is modified or revised, revisions will be made using Microsoft Word “Track Changes” tool. Suggested new text will be referenced to the applicable sections of each document using the established abbreviations “JMPR,” “CB” “GF” and “MB.”

Any and all text within this document may be used and modified as applicable without citation or reference.

2.0 Proposed text and comments

2.1 Preamble and Executive Summaries (JMPR, CB, GF, MB)

The following text may be applied or adapted to the Executive Summaries or Introduction sections of all four documents.

Mitigate Impacts from Anthropogenic Noise Sources

Noise sources in the oceans are increasing at a dramatic rate. It is now known that these noises are creating negative impacts on ocean habitat, although the extents of the impacts are yet to be understood well enough to sufficiently mitigate for these impacts. Fortunately there is enough known about specific sound sources and particular noise levels to put preliminary noise guidelines in place. Once established, these guidelines need to be flexible and adaptable to accommodate for the continuing development of bio-acoustic knowledge and understanding.

Acoustical energy travels far in the ocean without regard to jurisdictional boundaries. While sanctuary management can prohibit or regulate noise generation taking place within the sanctuary, mitigating for noise generated outside of sanctuary boundaries will require coordination with other state and federal agencies, such as Minerals Management Service, regional fisheries councils, the U.S. Navy, and the Department of Commerce including the National Marine Fisheries Service and the Marine Mammal Commission, and where applicable, international agencies and agreements.

To the extent practicable, noise criteria and thresholds should be established within the sanctuaries boundaries based on known biological responses to the specific subject noises rather than acoustical thresholds based on noise exposure models using noise types or animal models not represented in the subject setting or in equivalent circumstances. This is a departure from the current practice of establishing “safe” thresholds derived from exposure models based on test signals generated by laboratory equipment in controlled environments – which often have little in common with the actual exposures that ocean animals might be subjected to in their habitat by human activities.

2.1.1 Executive Summary (JMPR) and Introductory Section (MB)

Table ES-1 “Impacts of Proposed Actions” (JMPR).

This table should include a row for “Underwater Noise Regulation” with applicable impacts noted. Acoustic disturbance should be segregated into “above water” and “under water” acoustical issues.

“ES 2.2.1 Proposed Cross-Cutting Regulations in the Sanctuaries” (JMPR)

Add a fourth bullet point:

- Regulate the discharge or generation of energy pollution including, but not limited to acoustical energy, thermal energy, light, electromagnetic energy, and nuclear radiation.

This bullet point may also be expanded and included in MB “Introduction” section “Regulations and Prohibitions,” “Scope of Regulations” section (MB p. 41-42) as:

- m. Discharging or generating, from within or into the Sanctuary, any acoustical, thermal, electromagnetic, or nuclear energy deemed to compromise or degrade the habitat for sea life within the sanctuary.
- n. Discharging or generating, from beyond the boundary of the Sanctuary, any acoustical, thermal, electromagnetic, or nuclear energy deemed to compromise or degrade the habitat for sea life within the sanctuary.

2.2 Chapter 2 “Project Description and Alternatives” (JMPR)

Under Sections “2.2.2 Cordell Bank National Marine Sanctuary Regulations” and JMPR “2.3.3 Gulf of the Farallones National Marine Sanctuary Regulations,” “Wildlife Disturbance” subsections; by bringing all three sanctuaries into agreement with the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and Migratory Bird Treaty Act (MBTA) regulations addresses the concern for “Taking” marine animals by acoustical harassment.

Under “Table 2-1; Proposed and Alternative Regulatory Changes.” While it would be useful to add acoustic sections under “Wildlife Disturbance” and further clarify the distinction between underwater noise and above water noise, the existing changes referring to the compliance with MMPA, ESA and MBTA may serve the intention of this suggestion (as above).

2.3 Chapter 3 “Biological Resources” (JMPR)

Under section 3.3.6 “Cross-Cutting Regulations—Environmental Consequences,” we propose including the following text:

Discharging or Generating Underwater Noise

Implementing regulations on the discharge or generation of noise pollution from within or entering the sanctuaries would have a direct beneficial impact on biological resources. There is currently no language in the sanctuary regulations that addresses underwater noise pollution, though the proposed changes bring all three sanctuaries into agreement with Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and Migratory Bird Treaty Act (MBTA) regulations regarding the “Taking” marine animals by acoustical harassment. The proposed management

measures would regulate the discharge or generation of noise pollution in all three sanctuaries.

Noise sources in the oceans are increasing at a dramatic rate. It is now known that these noises are creating negative impacts on ocean habitat. Although the full extents of the impacts are yet to be fully understood, the evidence of acoustical damage to marine biota includes multiple-species and mass strandings of marine mammals, damage to animal hearing organs of fish and odontocetes, and compromised or decreased catch rates in commercial fisheries exposed to seismic airgun survey noise.

Acoustical energy travels far in the ocean without regards to jurisdictional boundaries. While sanctuary management can prohibit or regulate noise generation taking place within the sanctuary, mitigating for noise generated outside of sanctuary boundaries will require coordination with other state and federal agencies such as Minerals Management Service, regional fisheries councils, the U.S. Navy, and the Department of Commerce including the National Marine Fisheries Service and the Marine Mammal Commission, and where applicable, international agencies and agreements.

2.4 Chapter 4 “Alternatives Summary” (JMPR)

Table 4-1 “Summary of the Impacts under the Proposed Action”

This table should include a row for “Underwater Noise Regulation” in the “Cross Cut” location with applicable impacts noted.

2.5 Appendix B: Proposed Regulations and Designation Documents (JMPR)

2.5.1 “Supplementary Information”

(CBNMS p.B-3, GFNMS p.B-37 and MBNMS p.B-87); under the respective sections titled “The proposed new regulations include prohibitions on” add the following bullet point:

- discharging or generating biologically damaging energy pollution from within or into the sanctuary including, but not limited to acoustical energy, thermal energy, light, electromagnetic energy and nuclear radiation.

2.5.2 “Article IV. Scope of Regulation. Section 1. Activities Subject to Regulation”

(CBNMS p.B-9 GFNMS p.B-42 and MBNMS p.B-92 of JMPR) add the following items:

- x. Discharging or generating, from within or into the Sanctuary, any acoustical, thermal, electromagnetic, or nuclear energy deemed to compromise or degrade the habitat for sea life within the sanctuary.

- y. Discharging or generating, from beyond the boundary of the Sanctuary, any acoustical, thermal, electromagnetic, or nuclear energy deemed to compromise or degrade the habitat for sea life within the sanctuary.

These points may also be included in “Article IV: Scope of Regulations” in each of the three independent documents, as well as under sections:

- § 922.112 Prohibited or otherwise regulated activities (CBNMS)
- § 922.82 Prohibited or otherwise regulated activities (GFNMS)
- § 922.132 Prohibited or otherwise regulated activities. (MBNMS)

2.6 Cross-pollinating individual DMP document texts

The MB and GF have “Wildlife Disturbance” sections with wording crafted around the respective habitats and use priorities of each sanctuary – mostly concerning visitor or stakeholder interaction with visible wildlife (such as seabirds, turtles and pinnipeds) from above or on the water. CB has no equivalent section on wildlife disturbance. We now know that underwater sea life can be profoundly disturbed by sources of underwater noise.

This highlights the need for noise regulation text in all three plans, and a “cross-cutting” strategy addressing underwater noise pollution in the Joint Management Plan. Some of this text already exists in the MB and GF action plans and can easily be adapted to all three plans as well as the JMPR plan as follows:

2.6.1 Wildlife Disturbance text from MB Section VII

“Strategy MMST-6: Assess Impacts from Acoustics” found in the MBNMS management plan is useful and clear in regards to acoustic disturbance. We feel that this text section in its entirety could be placed in all three management plans as well as/or in the “Cross-cutting issues” sections of the JMPR.

2.6.2 Wildlife Disturbance Action Plan from GF

Modify text in Strategy WD-3(p.76) as follows:

STRATEGY WD-3: Coordinate with other agencies, institutions and programs to better understand and address noise, light and visual impacts on wildlife from vessels and low flying aircraft, surface and submersible marine vessels, marine acoustical communications and exploration technologies, marine based commercial or industrial processing and marine based military operations.

This text has no equivalence in either of the CB or MB plans, although this text might be amended to the MMST-6 text above (or added to MMST-6.1 text) to clarify various noise sources to be evaluated, and provide the bridge between the “partners” mentioned in MMST-6.1 and “other agencies, institutions, and programs” mentioned in Strategy WD-3.

2.7 Appendix C: Summary of Sanctuary Action Plans (JMPR)

Text summarizing the “Wildlife Disturbance” changes mentioned in 2.6.2 above is reflected in the following summary text. This text is a melding together of the MB and GF “Wildlife Disturbance” sections with amendments to reflect current understanding about sources and impacts of acoustic (and other energy) pollution threats:

Wildlife Disturbance

Marine Mammal, Seabird, ~~and~~ Turtle, Fish and Marine Invertebrate Disturbance:
Various activities occurring on the water, underwater, in the air, or on land have the potential to harm the sensitive wildlife inhabiting the Sanctuary. Through increased monitoring, education, outreach, and enforcement, the Sanctuary will address disturbance to marine mammals, birds, ~~and~~ turtles, fish, and marine invertebrates from vessels, aircraft, shore-based activities, ocean based commercial or industrial activities, marine debris, commercial harvest, and acoustic disturbance.

Several strategies are proposed to address wildlife protection, including creating an accessible database to house information on wildlife disturbance, monitoring human activity impacts, coordinating with other agencies and programs to better understand and address impacts from vessels ~~and~~ low-flying aircraft, and underwater scientific, commercial and industrial operations, developing interpretive enforcement and law enforcement efforts to address the impacts of human behavior and enterprise~~impacts~~, developing wildlife viewing guidelines, and maximizing media venues to augment outreach efforts and increase public awareness of wildlife disturbance issues.

3.0 Future Strategies and Actions

While ocean bio-acoustics is a long-standing scientific inquiry, studies of the harmful effects of human generated noise on marine animals is still in its infancy. There are many contradictions in the field, many untried ideas and vague understandings as to how marine animals perceive and use sound, and how they segregate biologically important sounds from the noise of their environment. As a consequence of this situation, determination of acceptable levels of human generated noise has been taken on a case-by-case basis without the guidance of any overarching “Ocean Noise Criteria.”

Some Ocean Noise Criteria systems are currently in development but have yet to be broadly accepted by scientists and policymakers. Nonetheless, the JMPR and the individual sanctuary management plans should allow for a time in the near future when an acceptable Ocean Noise Criteria system emerges.

Until that time, precaution should inform decisions about introducing or permitting new, unusual, or loud human generated sounds into the sanctuaries.

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