Via Electronic Mail and Facsimile

August 28, 2013

Chairwoman Shallenberger and
Members of the California Coastal Commission
45 Fremont Street
Suite 2000
San Francisco, CA 94105

Re: New Science on the Impacts of the Navy's Southern California Activities

Dear Commission Members and Staff:

On behalf of the Natural Resources Defense Council (NRDC) and the California Coastal Protection Network (CCPN), we write to alert the Commission to three recent groundbreaking scientific studies that relate to the U.S. Navy's proposed 5-year (January 2014 to 2019) training and testing activity in Southern California. This new science should inform present negotiations with the Navy and validates the Commission's concern that—without enhanced mitigation measures—the proposed action will cause grave impacts to coastal resources in direct contravention of the clear mandate of the California Coastal Act.

Two pioneering studies and a dissertation published this summer offer some of the first direct measurements of whales' responses to mid-frequency active (MFA) military sonar, along with a comparison of population demographics in an area where MFA sonar was frequently used with an area without Navy sonar. Much of this new information comes directly from the Southern California Behavioral Response Study ("SOCAL BRS"), a multi-year interdisciplinary study that is led by several of the country's leading experts on underwater noise pollution, and is substantially funded by the Navy. Taken together, this new science suggests that current levels of Navy training are already having adverse population-level impacts on vulnerable whale species off our coasts, particularly on blue whales and beaked whales. A summary of these three studies follows.

1. Southern California Behavioral Response Study (SOCAL BRS): Blue Whales[1]

To better understand the effect of military sonar on blue whales, a team of SOCAL BRS researchers placed suction cup tags on seventeen blue whales off the coast of Southern California,

[1] Goldbogen JA, Southall BL, DeRuiter SL, Calambokidis J, Friedlaender AS, Hazen EL, Falcone EA, Schorr GS, Douglas A, Moretti DJ, Kyburg C, Mckenna MF, Tyack PL (2013) Blue whales respond to simulated mid-frequency sonar. Proc R Soc B 280: 20130657. http://dx.doi.org/10.1098/rspb.2013.0657.

then simulated military sonar signals, and measured the received sound levels and behavioral responses of those particular whales. Even at sound levels well below those used in actual Navy training and testing,[2] Goldbogen et al. (2013) found that blue whales subjected to the sound ceased foraging, altered their dive pattern, increased their swim speed, and fled the noise. One blue whale's panicked flight was likened to the response these whales have to a killer whale attack. Another whale terminated foraging for over an hour, missing out on an estimated metric ton of krill, or roughly the amount of food a blue whale needs to meet its metabolic needs for an entire day. The authors conclude:

> [O]ur results suggest that frequent exposure to mid-frequency anthropogenic sounds may pose significant risks to the recovery rates of endangered blue whale populations, which unlike other baleen whale populations (i.e. humpback, grey and fin whales), have not shown signs of recovery off the western coast of North America in the last 20 years.

Last year, another study showed that Navy sonar is suppressing blue whale foraging calls over substantial parts of Southern California.[3] The current study is only further evidence that the use of Navy sonar near important blue whale feeding areas imperils not just individuals but *populations* of endangered whales.

2. Southern California Behavioral Response Study (SOCAL BRS): Beaked Whales[4]

A related paper employed similar tagging techniques on two Cuvier's beaked whales (family *Ziphiidae*) and found even stronger responses to simulated sonar. Cuvier's beaked whales are the whales that are most frequently killed in mass stranding events associated with military sonar, and their population numbers, along with those of other beaked whales, were recently reported to be in rapid decline within the California Current Ecosystem.[5] When exposed to simulated sonar, the beaked whales initiated an avoidance response that included energetic fluking (i.e. lifting their tails), swimming away from the source, and ceasing eating for up to 7.5 hours. The researchers characterize the whales' responses as long-lasting, intense, and consistent, and they note that these responses occurred at sound levels that are orders of magnitude below what the Navy currently considers harmful.

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[2] Although the study used a sound that simulated tactical military MFA systems, the authors explain that actual Navy MFA sonar systems "are significantly more intense, mobile, often used with other active sources and typically used for longer durations."

[3] Melcó´n ML, Cummins AJ, Kerosky SM, Roche LK, Wiggins SM, et al. (2012) Blue Whales Respond to Anthropogenic Noise. PLoS ONE 7(2): e32681.doi:10.1371/journal.pone.0032681

[4] DeRuiter SL, Southhall BL, Calambokidis J, Zimmer WMX, Sadyakova D, Falcone EA, Friedlaender AS, Joseph JE, Moretti D, Schorr GS, Thomas L, Tyack PL (2013) *First direct measurements of behavioural responses by Cuvier's beaked whales to mid-frequency active sonar*. Biol Lett 9: 20130223. http://dx.doi.org/10.1098/rsbl.2013.0223.

[5] Moore JE, Barlow JP (2013) Declining Abundance of Beaked Whales (Family Ziphiidae) in the California Current Large Marine Ecosystem. PLoS ONE 8(1): e52770. doi:10.1371/journal.pone.0052770.

3. Dissertation of Diane E Claridge PhD: Beaked Whales[6]

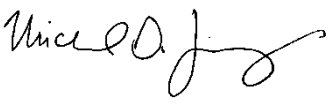
This study compared the abundance and age composition of Blainville's beaked whales on and off a Navy range in the Bahamas. This was the first study to compare the population demographics of beaked whales regularly exposed to Navy sonar to one rarely exposed. The study revealed a substantially lower abundance of beaked whales on the range where MFA sonar was used regularly than at the control site, where sonar was limited. Of particular concern, the study found a lower female to calf ratio—i.e. fewer baby whales per adult female—at the site with military sonar. After ruling out several other factors, the author concludes that the "apparent low reproductive rates and recruitment through births on the Navy range," together with impacts that have been observed on beaked whale foraging, present cause for concern.

A separate paper showed that the disruptions of foraging seen on the range could, when repeated over an extended period of time, threaten reproduction and the population of these vulnerable whales as a whole.[7] All of these results support the hypothesis advanced by two NOAA scientists earlier this year that the Navy's SOCAL Range, which sees far more activity than its range in the Bahamas, has become a "population sink": a place that beaked whales are drawn to but where they are unable to reproduce at the rate required to maintain their west-coast population.[8]

Conclusion

These recent publications: (1) support the Commissions concern that the Navy's proposed action will not preserve, protect, restore, or enhance the State's coastal resources; (2) are directly relevant to the Commission's present negotiations with the Navy related to the use of MFA sonar; and (3) indicate that even current levels of Navy activities are having population-level impacts on marine mammals in Southern California waters. We hope that you will share these studies with the Navy in any current or future negotiations, and we again offer our support for the Commission's recommendations, which take into account the Navy's need to maintain flexibility in training and testing while protecting vulnerable and endangered marine species.

Very truly yours,



Michael Jasny
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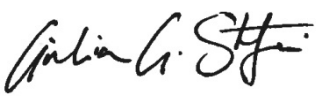

Giulia Good Stefani
Project Attorney
NRDC

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[6] Population ecology of Blainville's beaked whales (Mesoplodon densirostris) by Claridge, Diane E, PhD., University of St. Andrews, 2013 (available at: http://hdl.handle.net/10023/3741).

[7] See New LF, Moretti DJ, Hooker SK, Costa DP, Simmons SE (2013) Using Energetic Models to Investigate the Survival and Reproduction of Beaked Whales (family *Ziphiidae*). PLoS ONE 8(7): e68725. Doi:10.1371/journal.pone.0068725.

[8] See *supra* footnote 5, Moore and Barlow (2013).