



Governor Edmund G. Brown
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Sacramento, CA 94814

Senate President Pro Tem Kevin de León
State Capitol, Suite 205
Sacramento, CA

Speaker of the Assembly Toni Atkins
State Capitol, P.O.Box 942849
Sacramento, CA

William Stelle, Regional Administrator
NOAA Fisheries, West Coast Region
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Dorothy Lowman, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
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February 12, 2015

Dear Governor Brown, Senator de León, Assemblymember Atkins, Mr. Stelle, and Ms Lowman:

The world's oceans and marine ecosystems are facing a grave crisis due to impacts of industrial fishing activity.^{i iii iiiiv} Not only does industrial fishing have substantial impacts on both target species and bycatch species populations, but the effects on these populations can have serious repercussions for the communities and ecosystems of which they are a part.

Drift nets and other gill nets are among the most potentially damaging industrial fishing methods, since they are massive nets that indiscriminately capture a wide range of target and non-target marine species and have some of the highest bycatch rates of any fishery in the world.^{vii}

Large-scale pelagic driftnets were outlawed in 1993 on the High Seas by the United Nation General Assembly,^{vii} which the US has implemented as a matter of policy.^{viii} On the US West Coast, the State of Washington State banned drift gill nets in 2001^{ix}, and Oregon abandoned its drift gill net fishery program in 2009.^x

The myriad reasons for phasing out this fishery include:

- Despite decades of increased regulations and decreasing effort and demand for swordfish, the California Driftnet Fishery remains one of the highest bycatch fisheries in the United States.^{xi}
- The California drift gill net fishery entangles more cetaceans than any other fishery along the US Pacific coast.^{xii} In the last ten years, an estimated 885 marine mammals have been killed. Observed takes of marine mammals include two Endangered sperm whales, which died after becoming entangled in driftnets in 2010 alone.^{xiii} (Based on the observer coverage rate, this gives rise to an estimate of 15.5 sperm whale entanglements for the entire fishery.) Over the period from 2007-2010, this fishery caught an annual average of 67.8 cetaceans. The second most damaging fishery averaged 1.4 individuals per year.^{xiv}
- Swordfish, the primary target species, make up only 12 % of the catch, while 65% of the catch is discarded directly overboard.^{xv}
- Between 2004 and 2014, 21% of the catch consisted of IUCN Red List species (9% was Near Threatened, 12% Vulnerable or Critically Endangered), including endangered leatherback sea turtles, sperm whales, shortfin mako sharks, blue fin tuna and smooth hammerheads.^{xvi}
- Red Listed Vulnerable thresher and mako sharks together make up 10% of the catch and are targeted, retained and sold, despite concern about the sustainability of their harvest.^{xvii} Vulnerable blue sharks make up 5% of the catch, but are discarded directly overboard.^{xviii}
- The megamouth shark was only discovered in 1976, and since then fewer than 70 specimens have ever been reported. Nearly 10% of all megamouth sharks ever reported globally were entangled in California's driftnets.^{xix}
- Although the creation of the Pacific Leatherback Conservation Area reduced mortality of leatherback turtles from 112 in the period 1990-2000, 12 leatherback turtles (and an estimated 5.76 loggerheads) are estimated to have been killed by California driftnets in the period 2004-2014. In particular, the Loggerhead and leatherback populations have declined by 80 - 95% in the last twenty years.^{xx} Recent studies suggest that even low fishing mortality may have a significant impact on the extinction risk for this population.^{xxi xxixxxiii}

Beyond the impacts on threatened species, the fishery also captures significant numbers of relatively common species that threaten to have ecological impacts. For example, almost 50% of the catch is made up of ocean sunfish – the primary consumers of jellyfish in the region. Although mostly released alive, there is little available information on post-release mortality or population and impacts of the catch of an estimated 85,000 individuals in the last decade.

A growing body of scientific research shows us the fragile nature of the oceans, and the defaunation processes that currently threaten marine ecosystems. In this context, it is imperative to consider that the ecological impact of a marginal fishery that threatens species spanning the entire food web of the California coastal ecosystem along with several migratory species. The time is right to phase out the fishery in California as it has been ended worldwide.

WE THE UNDERSIGNED, CALL ON GOVERNOR BROWN, THE CALIFORNIA LEGISLATURE AND THE PACIFIC FISHERIES MANAGEMENT COUNCIL TO ACT PROMPTLY TO PROTECT THE ECOLOGICAL INTEGRITY OF CALIFORNIA'S COASTAL WATERS AND TO PHASE OUT THE USE OF DRIFT GILL NETS AND OTHER INDISCRIMINATE FISHING METHODS IN CALIFORNIA AND U.S. WATERS.

To this end, we also call on you to maintain the prohibition on the use of the similarly indiscriminate longline gear, and other gear with similar ecological impacts.

Sincerely,

- 1 Dr. Sylvia Earle, Ph.D., Founder, Mission Blue
- 2 Todd Steiner MS, Founder & Executive Director, Turtle Island Restoration Network
- 3 Dr. Alex Hearn, Ph.D. Conservation Science Director, Turtle Island Restoration Network
- 4 Dr. Doug Karpa, Ph.D. Legal Program Director, Turtle Island Restoration Network
- 5 Dr. Simon Pierce, Co-founder and Chief Scientist, Marine Megafauna Foundation
- 6 Dr. David W Owens, Associate Dean of Graduate School, College of Charleston
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- 9 Mary Lou Zoback, Consulting Professor, Department of Geophysics, Stanford University; Member, National Academy of Sciences
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- 25 Dr. Bruce G. Baldwin, Professor, Integrative Biology, University of California, Berkeley
- 26 Raymond Levitt, PhD, Kumagai Professor of Engineering, Director, Global Projects Center, Stanford University

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- 165 Chris Maxey, Director, Cape Eleuthera Foundation
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- 171 Randall Arauz, Founder and Director, PRETOMA, Costa Rica
- 172 Sandra Bessudo. Fundadora y Directora Fundacion Malpelo y Otros Ecosistemas Marinos
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- 213 B. Cael Barry, Graduate Student, MIT-WHOI Joint Program, Physical Oceanography
- 214 Arlene Davis, Volunteer Beach Watch, IBR and WildCare
- 215 Mary Sue Kelly, citizen scientist, Gulf of the Farallones Marine Sanctuary.
- 216 Andrea Kaufman, Volunteer with Stewards of the Coast and Redwoods, Volunteer with Farallones Marine Sanctuary Association Beach Watch
- 217 Richard Fortmann, Citizen scientist, FMSA Beach Watch
- 218 Julie Bitnoff, Volunteer, Beach Watch, Farallones Marine Sanctuary Association
- 219 Rich Trissel, Volunteer, GFNMS Beach Watch
- 220 Richard Matzinger, Beach Watch volunteer wildlife surveyor, Farallones Marine Sanctuary Association
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- 222 Nancy Trissel, Beachwatch volunteer
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- 226 Michael D. Sparkman, M.S., CDFW Fisheries Biologist/ Environmental Scientist, California Department of Fish & Wildlife
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- 228 Dr Cheng Siong Chin, Senior Lecturer, Newcastle University
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- 230 Phillip Wickey, Research Ecologist, Colorado

ⁱ Myers RA, Worm B. 2003. Rapid worldwide depletion of predatory fish communities. *Nature* 423: 280–283.

ⁱⁱ Myers RA, Worm B. 2005. Extinction, survival and recovery of large predatory fishes. *Philosophical Transactions of the Royal Society of London, Biological Sciences* 360: 13–20.

ⁱⁱⁱ Myers RA, Baum JK, Shepherd TD, Powers SP, Peterson CH. 2007. Cascading effects of the loss of apex predatory sharks from a coastal ocean. *Science* 315,1846–1850.

^{iv} McCauley, D.J., M.L. Pinsky, S.R. Palumbi, J.A. Estes, F.H. Joyce, and R.R. Warner. 2015. Marine defaunation: Animal loss in the global ocean. *Science*. doi: 10.1126/science.1255641

^v Lewison, R., L. Crowder, B. Wallace, J. Moore, T. Cox, R. Zydelski, S. McDonald, A. DiMatteo, D. Dunn, C. Kot, R. Bjorkland, S. Kelez, C Soykan, K. Stewart, M. Sims, A. Boustany, A. Read, P. Haplin, W. Nichols, C. Safina. (2014) Global patterns of marine mammal seabird, and sea turtle bycatch reveal taxa-specific and cumulative megafauna hotspots. *PNAS* 111:5271-5276, doi:10.1073/pnas.1318960111.

^{vi} All bycatch statistics for the California large mesh drift gill net fishery are derived from NOAA Observer Program data, unless otherwise noted, available at http://www.westcoast.fisheries.noaa.gov/fisheries/wc_observer_programs/sw_observer_program_info/data_summ_report_sw_observer_fish.html. Compare overall bycatch discard ratio of 1.78 to Table 7b, FAO (1994) A Global Assessment of Fisheries Bycatch and Discards, Alverson, D.L.; Freeberg, M.H.; Pope, J.G.; Murawski, S.A., FAO Fisheries Technical Paper. No. 339. Rome, FAO.

^{vii} United Nations General Assembly (UNGA) Resolutions 44/225, 45/197, and 46/215.

^{viii} 16 U.S.C. § 1826

^{ix} Washington Administrative Code 220-44-035; Washington State Register 01-21-141.

^x NOAA Fisheries (2014) Status of the U.S. West Coast Fisheries for Highly Migratory Species Through 2013, at 29.

^{xi} Keledjian, A, G. Brogan, B. Lowell, J. Warrenchuk, B. Enticknap, G. Shester, M. Hlrshfield, and D. Cano-Stocco (2014) Wasted Catch: Unsolved Problems in U.S. Fisheries. *Oceana*. Available at http://oceana.org/sites/default/files/reports/Bycatch_Report_FINAL.pdf.

^{xii} During the period 2007-2010 covered in the most recent National Bycatch Report Update, the California drift gill net fishery is estimated to entangled an annual average of 116.8 marine mammals annually, more than all Alaskan fisheries (33.2 marine mammal takes per year) and northwestern fisheries(47.78 annually) combined. National Bycatch Report Update, 2014, available at <http://www.st.nmfs.noaa.gov/Observer-Home/first-edition-update-1>.

^{xiii} NOAA Observer Program data. See note v above

^{xiv} National Bycatch Report Update 1, see note xi above

^{xv} NOAA Observer Program data. See note v above.

^{xvi} *Ibid.*

^{xvii} *Ibid.*

^{xviii} *Ibid.*

^{xix} See NOAA Observer Program data for 2012-13 and 2013-14 (two specimens each); Florida Museum of Natural History, Distribution Table of Confirmed Megamouth Shark Sightings, #14, #15, <https://www.flmnh.ufl.edu/fish/sharks/megamouth/tablemega.htm>

^{xx} Lewison, R., S.A. Freeman, L. Crowder (2004) Quantifying the effects of fisheries on threatened species: the impact of pelagic longlines on loggerhead and leatherback sea turtles. *Ecology Letters* 7: 221-231.

^{xxi} Tapilatu, R. F., P. H. Dutton, M. Tiwari, T. Wibbels, H. V. Ferdinandus, W. G. Iwanggin, and B. H. Nugroho. 2013. Long-term decline of the western Pacific leatherback, *Dermochelys coriacea*: a globally important sea turtle population. *Ecosphere* 4(2):25. <http://dx.doi.org/10.1890/ES12-00348.1>

^{xxii} Spotila, J. R., A. E. Dunham, A. J. Leslie, A. C. Steyermark, P. T. Plotkin, and F. V. Paladino. 1996. Worldwide population decline of *Dermochelys coriacea*: Are leatherback turtles going extinct? *Chelonian Conservation and Biology* 2:209–222.

^{xxiii} Spotila, J. R., R. D. Reina, A. C. Steyermark, P. T. Plotkin, and F. V. Paladino. 2000. Pacific leatherback turtles face extinction. *Nature* 405:529–530.