

California Driftnet Fishery:

The True Costs of a 20th Century Fishery in the 21st Century



Overview

Turtle Island Restoration Network
By Doug Karpa, Todd Steiner & Peter Fugazzotto
SeaTurtles.Org
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ABOUT TURTLE ISLAND



Turtle Island Restoration Network is a leading advocate for the world's oceans and marine wildlife.

Our work is based on science, fueled by people who care, and effective at catalyzing long-lasting positive change that protects the likes of green sea turtles, whale sharks, and coho salmon.

By working with people and communities, we preserve and restore critical habitats like the redwood forested creek banks of California to the full-of-marine-life waters of the Galapagos Islands.

We accomplish our mission through grassroots empowerment, consumer action, strategic litigation, hands-on restoration, environmental education, and by promoting sustainable local, national, and international marine policies.

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Terminology

The driftnets in use in the California swordfish fishery are referred to as “drift gill nets” in state and federal technical regulatory documents. In this report, we use the term “driftnet” for these same nets.

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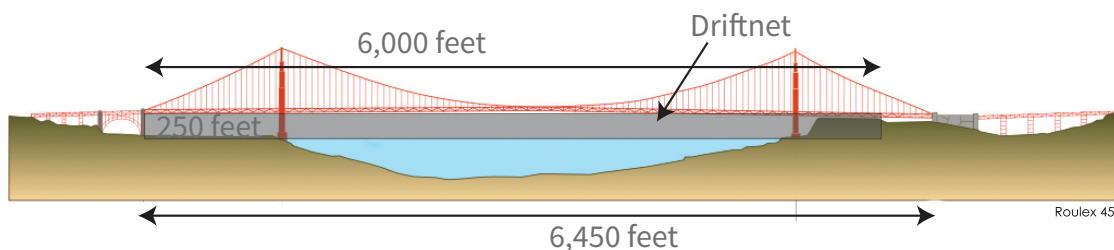




SNAPSHOT OF THE CALIFORNIA DRIFTNET FISHERY

As scientists are warning that our ocean ecosystems are on the verge of collapse, leaders are taking action to rein in the world's worst industrial fisheries.ⁱ

Astonishingly, one of those worst offenders is California's driftnet fishery, (also known as the CA drift gillnet fishery). Currently, the fishery consists of a small fleet of roughly 20 active vessels that set nets the size of the Golden Gate Bridge to drift unattended through our oceans.^{ii, iii} While the primary targeted commercial species for this fishery are swordfish and shark, these nets entangle everything in their mile-wide path, resulting in high levels of bycatch (unintended catch, most thrown overboard dead or injured).



Over the past ten years, nearly a thousand air-breathing whales, dolphins, and sea turtles have drowned, while thousands of sharks (that depend on constant movement) have suffocated.

In the last ten years, an estimated 26,000 sharks overall were caught by this deadly fishery, with nearly 10,000 simply being tossed overboard. The fishery was especially wasteful in its treatment of blue sharks. In the last decade, 8,186 blue sharks were caught, and an astounding 8,180 were discarded. Of those discarded nearly 5,313 were dead. The fishery also caught an astounding 8,000 common thresher sharks (a candidate species for listing under the U.S. Endangered Species Act) and is further jeopardizing shark populations.^v

This inherently destructive fishing gear has been banned by the United Nations, on the high seas, by a host of countries, and throughout the United States.^{vi, vii, viii, ix} California is the last state in the U.S. to allow this fishing method, which has been described as “invisible curtains of death.”

Essentially, this gear entangles or kills almost everything that becomes entangled, in hopes that some of the thousands of animals caught or killed are swordfish, an expensive luxury product with dangerous levels of mercury. Only one in eight of the animals caught are swordfish.^x

Given the tremendous difficulty in enforcing environmental laws for such a destructive fishery, U.S. taxpayers bear the cost of managing this economically marginal fishery for almost no benefit. The end result is that the driftnet fishery is a net drag on the U.S. economy.

The Driftnet Fishery is One of the World’s Most Destructive Fisheries in Terms of Bycatch (Unwanted Animals Caught & Discarded)

Despite almost 40 years of management efforts to clean up this fishery, today almost two-thirds of the animals caught by the California driftnet fishery are discarded, placing it among the 20 percent worst fisheries worldwide.^{xi, xxi, xxiii} Many of these discarded animals are dead, injured or mortally stressed.

Although ostensibly a swordfish fishery, only one animal in eight caught is a swordfish. A recent analysis by the Pacific Fisheries Management Council shows that the bycatch of high-priority protected species, such as sea turtles or endangered whales, is as high today as it was in the 1990s.^{xiv}



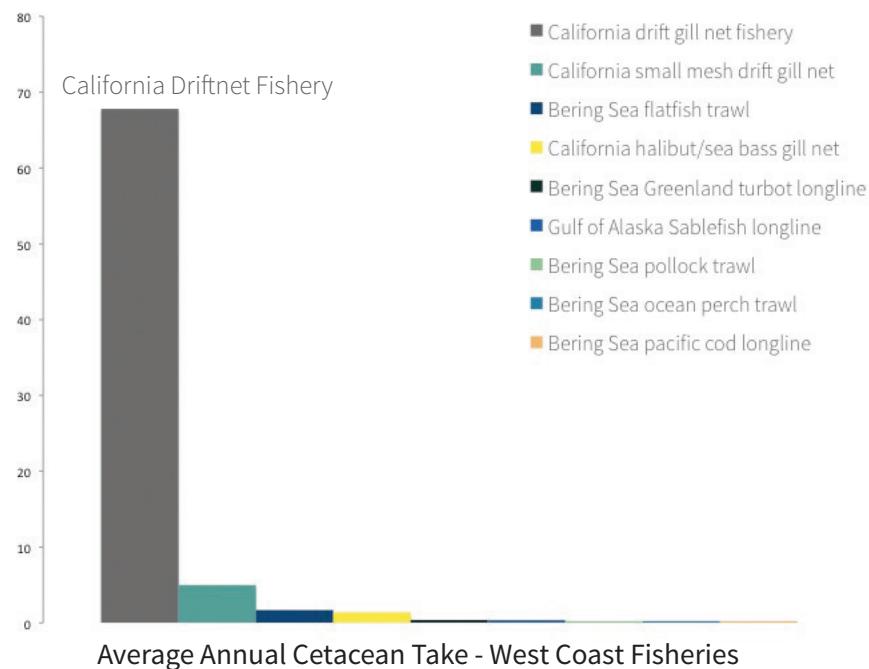


The Driftnet Fishery Threatens Marine Mammals

The California driftnet fishery kills or injures approximately seven times more whales and dolphins than all other observed fisheries in California, Oregon, Washington, and Alaska combined, and 13 times more than any other single observed fishery on the West Coast.^{xv}

This fishery has killed an estimated 16 endangered sperm whales in the last decade.^{xvi} Recent stock assessments suggest that this take is more than the population can sustain from all sources combined, much less from a single fishery.^{xvii}

Other marine mammals killed include: the bottlenose dolphin, the long-beaked common dolphin, the northern right whale dolphin, the Pacific white-sided dolphin, the Risso's dolphin, the short-beaked common dolphin, the gray whale, the humpback whale, the minke whale, the sperm whale, the shortfin pilot whale, the California sea lion, and the northern elephant seal.^{xviii} In total, an estimated 885 marine mammals have been killed in the past decade.^{xix}



The Driftnet Fishery Threatens Endangered Sea Turtles

Despite regulatory schemes that have closed more than 250,000 square miles to driftnet fishing to protect sea turtles, the driftnet fishery has still caught an estimated 22 critically endangered leatherback and loggerhead sea turtles since 2001.^{xx}

The Pacific leatherback has declined by over 90 percent since the 1980s, and it appears headed to extinction by 2030 if current trends are not reversed.^{xxi, xxii, xxiii, xxiv} The annual nesting population of western Pacific leatherbacks is estimated to be 1,438 mature individuals.^{xxv} Recent scientific analyses show that killing more than one leatherback every six years (from all fisheries and other human activities combined) will significantly hamper recovery efforts, but current regulations allow six times that amount.^{xxvi} Since a leatherback was killed in 2015 by derelict crab pot fishing gear, the populations can tolerate no further mortalities for another six years.^{xxvii}

***The driftnet fishery has
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Courtesy of Doug Helton
NOAA/NOS/ORR/ERD.





The Driftnet Fishery Threatens Sharks

The California driftnet fishery kills thousands of sharks each year, catching more sharks than swordfish, including 18 species of sharks and rays. Nine of these species are listed as ‘threatened’ or ‘vulnerable’ under the U.S. Endangered Species Act.^{xxviii}



A shark illustration by nine-year-old Francisco to his Assemblymember asking for marine wildlife protections.

In fact, 820 blue sharks are caught on average each year with all them discarded, the vast majority already dead, the rest injured.

In the last decade, this fishery caught an estimated 15 megamouth sharks, a species so rare that it is only known to science from 100 specimens worldwide.^{xxvix} This species is so rare we will never be able to know whether the fishery is driving it to extinction until it vanishes.

The Driftnet Fishery Targets Toxic Mercury-laden Fish

Office of Environmental Health Hazard Assessment, 2008.

WARNING!

Nearly all fish and shellfish contain some amount of mercury and related compounds, chemicals known to the State of California to cause cancer, and birth defects or other reproductive harm. Certain fish contain higher levels than others.

Pregnant and nursing women, women who may become pregnant, and young children should not eat the following fish:

SWORDFISH • SHARK • KING MACKEREL • TILEFISH

They should also limit their consumption of other fish, including tuna.

Fish and shellfish are an important part of a healthy diet and a source of essential nutrients. However, the United Food and Drug Administration (FDA) and U.S. Environmental Protection Agency (EPA) advise pregnant and nursing women, women who may become pregnant, and children to limit their weekly consumption of fish and to eat fish that are lower in mercury.

The California Department of Health Services recommends that these individuals:

- Eat a variety of different types of fish.
- Eat smaller fish rather than other larger fish.
- Begin following these guidelines only after becoming pregnant.

According to the FDA and EPA, fish or shellfish that tend to be lower in mercury include salmon, shrimp, and sardines. Mercury levels in some fish, such as swordfish and shark, are higher than others.

For more information about the risks of mercury in fish and about the levels in various types of fish consult the following websites:
U.S. Food and Drug Administration (FDA) www.fda.gov/oc/ohs
U.S. Environmental Protection Agency www.epa.gov/mercury
or call the FDA toll-free at 1-888-SAFEFOOD (1-888-725-3366).

California requires mercury warning signs in supermarkets selling swordfish, shark & tuna.

The U.S. FDA and EPA warn women of childbearing age and children to never eat swordfish and shark, the target species of the California driftnet fishery.^{xxx} Larger, longer-lived, top-of-the-food-chain marine species, such as swordfish and shark, have the highest levels of mercury in their tissue.

Consumption of toxic, mercury-laden fish is a widespread public health problem, especially for women of childbearing age, pregnant and nursing women, and children. Mercury ingestion can lead to developmental and learning disorders, vision loss, heart disease, memory loss, and, in extreme cases, death.^{xxxi}

The Driftnet Fishery is a Net Drag on the California Economy

In addition to impacts on marine biodiversity, the driftnet fishery is expensive to manage, has little relative economic benefit, and is a net loss to the U.S. economy. The total revenue from the California driftnet fishery over the past three years has averaged a mere \$750,000, while enforcement and management costs borne by taxpayers to “manage” this fishery are estimated to range between \$1.3 million to \$2.7 million a year.^{xxxii, xxxiii}

The California driftnet fishery:

- Provides revenue of less than three-tenths of one percent of the California fishing industry;^{xxxiv}
- Replaced the zero-bycatch California harpoon fishery and lands only a fraction of the historic target catch. The harpoon fishery also produced fresher, higher-quality and more economically-valuable fish;
- Appears to cost U.S. taxpayers more to manage than the value of the fish caught; and^{xxxv, xxxvi}
- Has a vastly higher ecological impact for the value than other California fisheries.

If the driftnet fishery were as clean per dollar of revenue as the average fishery in California, the driftnet fleet would only catch one whale or dolphin once every 266 years, instead of more than 60 each year.^{xxxvii}





The Driftnet Fishery Undermines International Efforts to Clean Up Foreign Fisheries

Moving foreign governments to improve their fisheries depends on maintaining high standards in the United States. In addition to diplomatic efforts to persuade foreign governments, U.S. law provides legal tools to impose sanctions on foreign fisheries that do not match U.S. standards. However, keeping destructive fisheries alive in California allows foreign fleets that kill large numbers of marine mammals to continue to sell their seafood to U.S. consumers. As long as the U.S. keeps these damaging fisheries around, other countries can as well.^{xxxvii} The biggest losers from this race to the bottom are our ocean ecosystems, and the people of the world whose heritage is closely tied to these species.

RECOMMENDATIONS

- 1. California Must Phase Out the Use of Driftnets Immediately**
Provide Funding for a Fishery Transition Plan
- 2. Employ Only Highly Selective Gear in the Swordfish Fishery**
Transition Away from Harvest of Mercury-laden Fish
- 3. Keep Protected Areas Closed**
Expand Marine Protected Areas (MPAs) to Better Protect Ocean Biodiversity

ENDNOTES

- i. 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
- ii. 50 C.F.R. § 660.713
- iii. Stock Assessment and Fisheries Evaluations (SAFE) Report, Pacific Fisheries Management Council, available at <http://www.pcouncil.org/highly-migratory-species/stock-assessment-and-fishery-evaluation-safe-documents/current-hms-safe-document/>
- iv. Catch and bycatch data are derived from NOAA Observer Program data from 2004-2014 unless otherwise noted http://www.westcoast.fisheries.noaa.gov/fisheries/wc_observer_programs/sw_observer_program/info/data_summ_report_sw_observer_fish.html
- v. NOAA Observer Program data, http://www.westcoast.fisheries.noaa.gov/fisheries/wc_observer_programs/sw_observer_program/info/data_summ_report_sw_observer_fish.html
- vi. See United Nations General Assembly (UNGA) Resolutions 44/225, 45/197, and 46/215. See also 16 U.S.C. § 1826.
- vii. Florida State Constitution, Article X, Section 16.
- viii. Washington Administrative Code 220-44-035; Washington State Register 01-21-141
- ix. <http://www.pcouncil.org/highly-migratory-species/stock-assessment-and-fishery-evaluation-safe-documents/current-hms-safe-document/commercial-fisheries-descriptions/#dgn>
- x. NOAA Observer Program data, http://www.westcoast.fisheries.noaa.gov/fisheries/wc_observer_programs/sw_observer_program/info/data_summ_report_sw_observer_fish.html
- xi. NOAA Observer Program data, http://www.westcoast.fisheries.noaa.gov/fisheries/wc_observer_programs/sw_observer_program/info/data_summ_report_sw_observer_fish.html
- xii. Kelleher, K. (2005) Discards in the world's marine fisheries. An update. FAO Fisheries Technical Paper. No. 470. Rome, FAO. 2005. 131p, Table 6. See also Lewison, R., L. Crowder, B. Wallace, J. Moore, T. Cox, R. Zydalis, 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.
- xiii. Observer data from 2004-14 indicates a discard ratio of 110,905 discards to 62107 landings retained, for a discard ratio of 1.78, which would place it among the top 20 highest bycatch by number if broken out as a distinct fishery compared to a league table of the world's highest bycatch fisheries in an 1994 report. See, 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. 1994. 233p.
- xiv. See high priority species bycatch per set, from Highly Migratory Species management Team Report on Swordfish Fishery Management and Monitoring Plan including Management Alternatives, Table 13, Agenda Item E.3, June 2015 PFMC Meeting, available at http://www.pcouncil.org/wp-content/uploads/2015/05/E3a_HMSMT_Rpt_HardCaps_JUN2015BB.pdf
- xv. NOAA Observer Program data http://www.westcoast.fisheries.noaa.gov/fisheries/wc_observer_programs/sw_observer_program/info/data_summ_report_sw_observer_fish.html
- xvi. NOAA Observer Program data http://www.westcoast.fisheries.noaa.gov/fisheries/wc_observer_programs/sw_observer_program/info/data_summ_report_sw_observer_fish.html
- xvii. 2012 Stock Assessment Report, Sperm Whale California/Oregon/Washington Stock, <http://www.nmfs.noaa.gov/pr/pdfs/sars/po2012whsp-cow.pdf>
- xviii. NOAA Observer Program data, http://www.westcoast.fisheries.noaa.gov/fisheries/wc_observer_programs/sw_observer_program/info/data_summ_report_sw_observer_fish.html
- xix. NOAA Observer Program data http://www.westcoast.fisheries.noaa.gov/fisheries/wc_observer_programs/sw_observer_program/info/data_summ_report_sw_observer_fish.html
- xx. NOAA Observer Program data http://www.westcoast.fisheries.noaa.gov/fisheries/wc_observer_programs/sw_observer_program/info/data_summ_report_sw_observer_fish.html
- xxi. 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.
- xxii. 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>.
- xxiii. 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.
- xxiv. 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.
- xxv. Tiwari, M., Wallace, B.P. & Girondot, M. 2013. *Dermochelys coriacea* (West Pacific Ocean subpopulation). The IUCN Red List of Threatened Species 2013: eT46967817A46967821. <http://dx.doi.org/10.2305/IUCN.UK.2013-2.RLTS.T46967817A46967821.en>. Downloaded on 05 January 2016.
- xxvi. Compare recently instituted hard caps of 1 take per year (<http://www.pcouncil.org/2015/09/38641/california-large-mesh-drift-gillnet-fishery-management-final-preferred-alternatives/>) to the local Limit Reference Point calculated by Curtis, et al. (2015) Estimating Limit Reference Points for western Pacific Leatherback turtles (*Dermochelys coriacea*) in the U.S. West Coast EEZ. *PLoS One* 10(9): e0136452. doi:10.1371/journal.pone.0136452
- xxvii. Rare leatherback sea turtle found dead near Farallon Islands, San Francisco Chronicle, September 29, 2015, <http://www.sfgate.com/bayarea/article/Rare-leatherback-sea-turtle-found-dead-near-6538101.php>
- xxviii. NOAA Observer Program data, http://www.westcoast.fisheries.noaa.gov/fisheries/wc_observer_programs/sw_observer_program/info/data_summ_report_sw_observer_fish.html
- xxvix. <https://www.flmnh.ufl.edu/fish/sharks/megamouth/tablemega.htm>
- xxx. 2004 EPA and FDA Joint advice for women who might become pregnant, women who are pregnant, nursing mothers, and young children, <http://www.fda.gov/Food/FoodbornellnessContaminants/Metals/ucm351781.htm>
- xxxi. H. Ratcliffe, M. Swanson, and L. Fischer (1996) Human Exposure to Mercury: A critical Assessment of the evidence of adverse health effects. *Journal of Toxicology and Environmental Health* 49: 221-270.
- xxxii. Pacific Fisheries Management Council, Stock Assessment and Fishery Evaluation (SAFE) Documents, <http://www.pcouncil.org/highly-migratory-species/stock-assessment-and-fishery-evaluation-safe-documents/current-hms-safe-document/>
- xxxiii. D. Karpa (2015) California driftnet Fishery Regulatory Costs Exceed Value of Fish Harvested, Turtle Island Restoration Network report.
- xxxiv. In 2013, the driftnet fishery landed \$690,000 worth of swordfish out of a total \$255,444,187 landed by the California fishing industry.
- xxxv. Pacific Fisheries Management Council, Stock Assessment and Fishery Evaluation (SAFE) Documents, <http://www.pcouncil.org/highly-migratory-species/stock-assessment-and-fishery-evaluation-safe-documents/current-hms-safe-document/>
- xxxvi. Bedford, D. and F. Hagerman. 1983. The Billfish Fishery Resource of the California Current, CalCOFI Rep., Vol. XXIV, 1983.
- xxxvii. Based on NOAA Observer data, California fisheries besides the driftnet fishery took a total of an estimated 6.4 whales or dolphin in the last five years, for one take per \$199 million. Based on similar observer data, the driftnet fishery catches only \$15,000 per whale or mammal take. See National Bycatch Report Update, 2014, available at <http://www.stnmfs.noaa.gov/Observer-Home/first-edition-update-1>. To match the California average, the driftnet fishery would need to be over 13,300 times more efficient than it is
- xxxviii. See Section 101(a)(2) of the Marine Mammal Protection Act, 16 U.S.C. § 1372, the Moratorium Protection Act, 16 U.S.C. § 1826-k, and the Pelly Amendment, 22 U.S.C. § 1978.

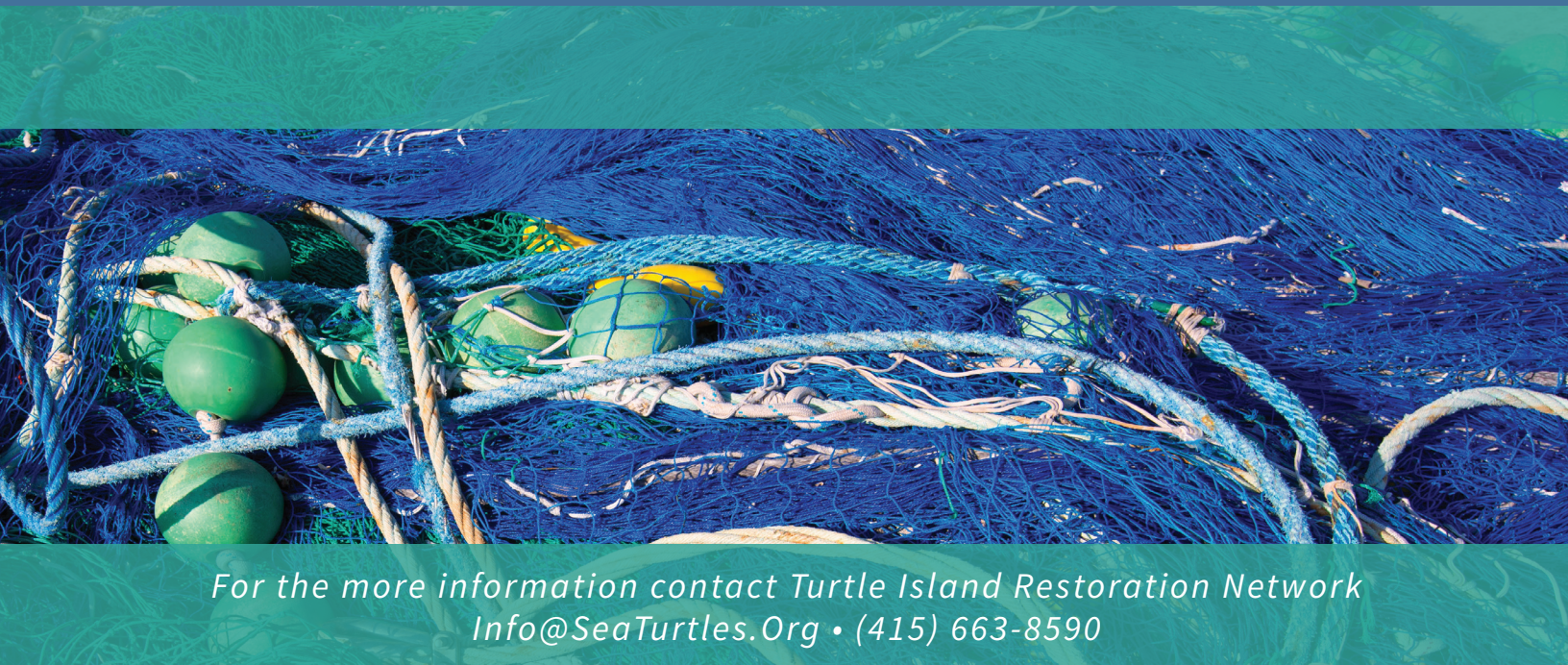


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Turtle Island Restoration Network
PO Box 370
Forest Knolls, CA 94933
415.663.9534
www.seaturtles.org



*For the more information contact Turtle Island Restoration Network
Info@SeaTurtles.Org • (415) 663-8590*

