

California Driftnet Fishery:

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



The Economic Argument Against California Driftnets

Turtle Island Restoration Network
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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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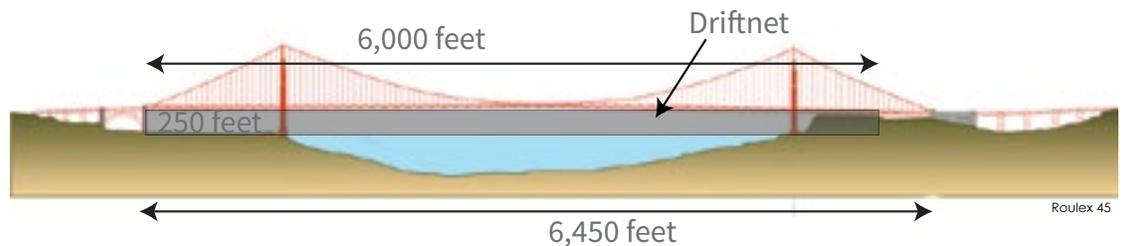




INTRODUCTION

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.

Astonishingly, one of the 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 boats that set unattended nets the size of the Golden Gate Bridge to drift through our oceans.



While this fishery primarily targets swordfish and shark, these nets entangle everything in their mile-wide path, resulting in high levels of bycatch (non-target species of fish).

Over the past ten years, hundreds of air-breathing whales, dolphins, and sea turtles have drowned, while thousands of sharks (that depend on constant movement to force air through their gills) have suffocated.

This enterprise is operating squarely in the red when its management costs are valued. This is not only an unprofitable venture, but worse, it is costing taxpayers money on an annual basis.

The California driftnet fishery is a destructive enterprise to our oceans and marine life that it is deficit spending annually, and costing taxpayers potentially millions of dollars.

If this fishery was a public corporation, it would have been bankrupt a long time ago.

The good news is that positive solutions are available, which we will highlight in this report. The damage to the marine environment and ongoing drain to taxpayers funds can be addressed in a timely fashion if lawmakers are willing to take positive steps to solve this problem immediately.

THE ECONOMIC ARGUMENT AGAINST CALIFORNIA DRIFTNETS

The Driftnet Fishery Costs More to Manage than it Earns for Fishermen

The California driftnet fishery has an overall negative impact on our economy because it costs more to manage the fishery than the wealth that is created from the fishery.

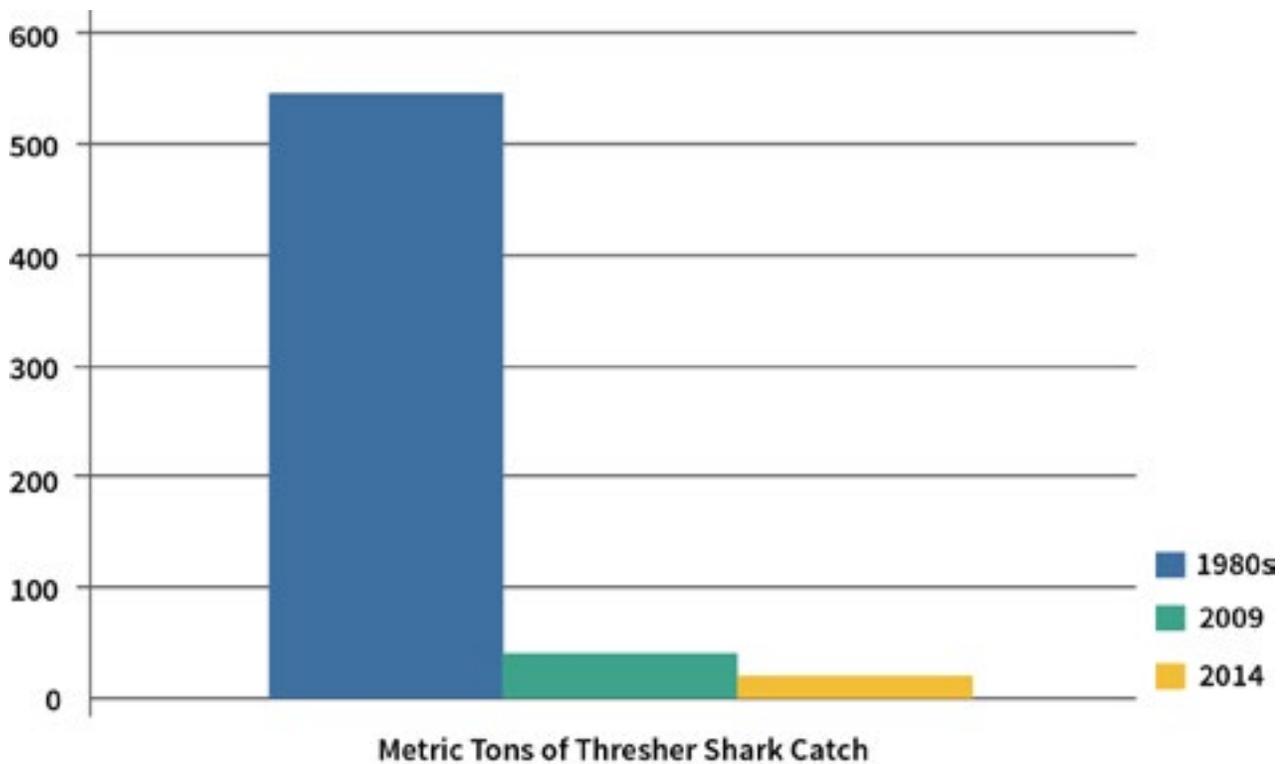
Taxpayers pay for observers and regulators for fisheries to protect public marine resources. Because driftnets are inherently destructive, tight regulation is necessary to ensure that the fleet complies with U.S. and California law and that the fishery does not devastate the public marine resources of the California coast. The cost of regulation would substantially decrease if the California swordfish fishery used more sustainable fishing gear instead of driftnets.

The catch from the California driftnet fishery peaked in the 1980s and has been steadily declining.¹ According to the California Department of Fish and Wildlife, the California driftnet fishery landed 135,000 pounds of swordfish in 2013, valued at \$585,000.²





The declining catch from the driftnet fishery includes not only swordfish, but also thresher shark. The thresher shark catch dropped from nearly 544 metric tons in the early 1980s to below 40 metric pounds in 2009 and a mere 25 metric tons in 2014 selling for roughly \$0.80 per pound at the dock, adding only \$69,000 worth of landings.^{3,4}



Although precise information is difficult to obtain, a best preliminary analysis suggests that the costs of protecting California's natural resources from the driftnet fishery exceed the value of the fish. This analysis is based on observer financial data, Pacific Fisheries Management Council estimates, and scientific costs estimates from the National Marine Fisheries Service.⁵

The analysis derives high and low estimates of the annual cost of managing the California driftnet fishery during the last five years that ranges from \$1,265,500 to \$2,720,750, while the value of landings has ranged from only \$553,000 (2014) to \$1,030,000 (2011). This analysis indicates ***the cost of managing the fishery is more than double the value of the fish, leading to a net loss to the economy between \$268,500 up to \$2,058,500 each year.***

Cost of Managing the Fishery	Value of Landings	Net Loss to Economy
\$1,265,500 to \$2,729,750	\$553,000 to \$1,030,000	-268,500 to -\$2,058,500

Commercial Fisherman Would Potentially Benefit from Ending Driftnet Use

When one door closes, another one opens. With the closure of the driftnet fishery, fishermen targeting swordfish could transition to a low-impact, more selective gear type. One clear alternative is the historic harpoon fishery, which has existed off the California coast since the 1930s. A second alternative is the deep-set buoy gear used off the East Coast, where driftnets are banned. Both alternatives have the potential to increase fishermen’s income due to higher prices of swordfish caught using these more sustainable methods.

Harpoons:

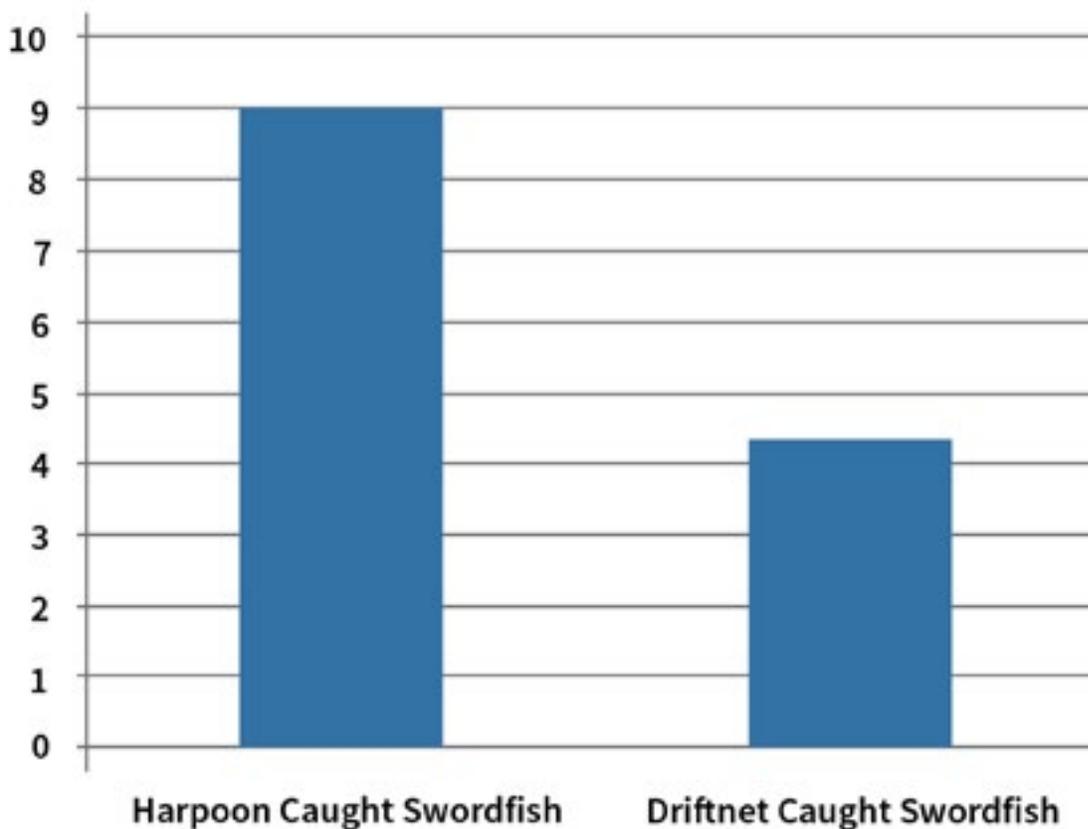
Over the period from the 1930s through the advent of the driftnet fishery, the historic harpoon fishery landed an average of 411 metric tons (MT) of swordfish from 1930 through 1980, with a peak of 1,781 MT in 1978.⁶ For comparison, the driftnet fishery has not matched the historical performance of the harpoon fishery since the 1990s, with average of 234 MT of swordfish landings from 2002-2014.





Even with a lower catch than from the driftnet fishery, a transition to a harpoon fishery would potentially increase fishermen's average income, although the catch is highly volatile. Because harpoon or deep set buoy gear caught fish is fresh, and not hanging dead on a net for many hours, the fish is higher quality and commands a higher price. On average, the landings of the harpoon fishery have had an ex-vessel value of \$8.93 per pound, compared to the average of \$4.34 from the driftnet fishery.⁷

Ex-Vessel Value Per Pound



At a time where the high-end food culture of California is placing an ever-increasing premium on sustainability and quality, this opens a strongly viable market niche. Currently, the driftnet fishery produces a lower quality generic commodity swordfish with which foreign, frozen fish can effectively compete. However, with fresh sustainably caught fish, fishermen would have a higher end value product that meets a different market than foreign, frozen fish.



Comparing the historic economic performance of the harpoon fishery with the current driftnet fishery suggests that such a fishery could return to viability, particularly if swordfish stocks, depleted of the largest animals, were allowed to recover. For example, currently, the harpoon fishery includes 10-13 commercial boats, catching 5.5 MT of fish, while the driftnet fishery includes 17-26 boats (average 21) landing 62 to 120 MT of swordfish in 2010 to 2014 (average 98 MT).^{8,9} Switching the existing driftnet boats to harpooning would generate a fleet of 27-31 boats, comparable to the harpoon fishery during the period of 1996-2010. During that period, the harpoon fishery averaged 28 boats each year landing an average of 69.6 MT of swordfish per year. Given the higher prices available for harpoon-caught fish, this smaller catch fetched comparable or higher swordfish revenues (an average of \$750,000 in 2015 dollars 1996-2010) than the driftnet fishery (an average of \$681,000 in 2015 dollars, 2010-2014).^{10,11} In fact, an independent analysis by the Bren School of Fisheries Management reached a similar conclusion that a harpoon-only fishery could well be more profitable with lower landings.^{12,13} Although the volatility of harpoon landings remains an issue, a wide range of policy options exist for reducing the economic impacts of revenue volatility.

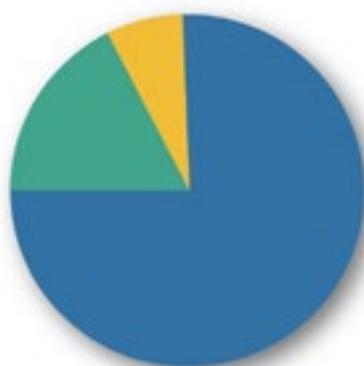




Deep-Set Buoy Gear:

The economics of the fishery are radically changed by the development of deep-set buoy gear off the California coast. Deep-set buoy gear is commonly used on the East Coast, where driftnets are banned, for swordfish fishing. Deep-set buoy gear is an actively tended gear that hangs a single hook by a slender line down to a depth of 800 to 1,200 feet during daytime hours when swordfish are the main predator. Recent trials in California have shown that this gear catches roughly 75 percent swordfish, with an additional 20 percent of the catch comprised of other marketable species such as opah and Bigeye thresher shark, leaving less than 5 percent of the catch as bycatch. Given the data from the west coast and the east coast, this gear poses a small risk to protected species, such as whales and sea turtles.

Portion of Catch: Deep-Set Buoy Gear



Portion of Catch: Driftnets



- Swordfish
- Other Marketable Fish
- Bycatch

Deep-set buoy gear represents a solid economically viable alternative. During these trials with relatively small sets of 10 buoys (12 to 14 is more typical on the East Coast), the deep-set buoy gear caught approximately 1.3 swordfish per set, relative to the 1.76 per set averaged over the last five years of driftnet fishing.^{14,15} These per-set numbers are comparable to the full season averages.



For example, in the 2015-2016 season, the four boat experimental deep set buoy gear fleet landed an average of 4,250 pounds of swordfish per boat, while the twenty boat driftnet fleet landed an average of 5,250 pounds per boat.¹⁶ Given that deep-set buoy gear fetches prices comparable to harpoon caught fish (\$8.95 per pound compared to \$4.34 per pound for driftnet-caught fish) and the potential for larger sets as found on the East Coast, deep set buoy gear fully has the potential to land as much swordfish as the deep-set buoy gear and to be markedly more profitable upon full implementation. An independent analysis demonstrated that a combination harpoon and deep-set buoy gear is projected to both outstrip the total landings of the current driftnet fleet, and may potentially triple the vessel income from \$585,000 to nearly \$1.75 million per year.¹⁷

Among the several approaches to ensure that the driftnet fishermen benefit from alternate fishing methods is to offer a buy-out of their driftnet permits, or to offer priority for harpoon or deep-set buoy gear permits in a limited entry fishery. Considering the high cost taxpayers spend each year to manage the driftnet fishery, such a buy-out plan could be a fiscally responsible decision for taxpayers.

California's Driftnet Fishery is Responsible for Less than 0.3 Percent of California's Fishing Industry's Revenue

While the driftnet fishery represents a disproportionate level of environmental impacts, the fishery is a tiny part of the California fishing industry. The driftnet fishery represents roughly 0.3 percent of California's fishing industry by revenue.¹⁸ Even in regards to swordfish, the driftnet fishery's main target, the driftnet fishery is responsible for only a small portion of swordfish caught in the region. For example, in 2010, California's driftnet fleet brought in less than 370 MT of swordfish from the North Pacific region, which was only 5.5 percent of the total swordfish catch in the North Pacific.¹⁹



Swordfish: Taxpayers Paying to Provide this Luxury Item to High-end Consumers

With the cost of managing the driftnet fishery being more than double the value of the fish, U.S. and California taxpayers pay significant sums to produce swordfish. The cost of catching swordfish is distributed to taxpayers generally, but swordfish is considered an expensive, luxury food. In other words, average taxpayers who cannot afford luxury items foot the bill to subsidize swordfish consumed by the wealthy.



Ecological Impact per Dollar of Swordfish is Very High Compared to Other Fisheries

The California driftnet fishery has such a high ecological impact relative to its benefit that it cannot be considered a sustainable approach to meeting demand for seafood. For example, between 2004 and 2014, one whale, dolphin, or porpoise was killed for every \$27,906 of landings by the driftnet fishery.²⁰ The economic “return” for every individual of a IUCN listed vulnerable species caught by this species is a mere \$133.

To demonstrate that this represents a truly unacceptable rate of ecological impact, if all California fisheries were as destructive as the California driftnet fishery, California fisheries would kill approximately 7,931 whales, dolphins, and porpoises a year, over 6,000 seals and seal lions, and 1.7 million vulnerable or threatened sharks and finfish every year.²¹ Conversely, if the California driftnet fishery were as clean as the average fishery, the driftnet fishery would kill a whale or dolphin once every three centuries, instead of the dozens it kills each year.

The animals that are unnecessarily caught by the driftnet fishery can play important roles in providing ecosystem services that benefit the ocean and humans alike.

For example, sea turtles play an important role in ocean ecosystems by maintaining healthy seagrass beds and coral reefs, providing key habitat for other marine life, helping to balance marine food webs, and facilitating nutrient cycling from water to land. Animals killed as bycatch can also provide more direct monetary benefits. The same whales that are considered bycatch from the driftnet industry are the basis for California's whale watching industry, with revenues of \$20 million a year (nearly 40 times the value of the driftnet fishery).²²

California Should Avoid Race-to-the-Bottom Fisheries Management

One of the more pernicious, but ultimately wrongheaded, arguments in favor of indiscriminate industrial gear is that California should engage in a race-to-the-bottom in fisheries management because of the "transfer effect hypothesis." Proponents of indiscriminate industrial gear argue that because other countries have less regulated and dirtier fisheries, California should maintain dirty fisheries of its own because otherwise foreign fishermen will increase their catch and their bycatch along with it. While superficially appealing, there is scant evidence that the transfer effect actually happens.





In fact, race-to-the-bottom arguments by industry against environmental laws are common. However, despite, or perhaps because of, California's environmental protections, the California economy is among the most robust and dynamic in the world. Not only is California economically successful despite high environmental standards, but California's environmental record is also a strong component of our economic success. Many environmental regulations in fact prevent costs being imposed on society that are higher than the value of the regulated activity, much as would be true of banning driftnets, so the economy benefits from preventing unproductive costs to the economy.

Not only do environmental regulations prevent damage and harms to public resources that would be a net drag on the economy, but they have also fostered innovation, efficiency, and dynamism.

To date, no studies have shown that "transfer effect hypothesis" reflects a real effect that actually increases global impacts on marine life. The two main studies to investigate the potential magnitude of any transfer effect have simply compared regulated U.S. fishery bycatch levels to either unregulated U.S. fisheries or foreign fisheries with limited bycatch data and extrapolated that increased imports must involve increased effort and therefore increased bycatch.^{23,24} However, this analysis make a series of unjustified assumptions to make the leap from changes in imports to hypothetical increases in foreign bycatch. In reality, these unfounded assumptions about the global economy do not hold up under scrutiny.

U.S. Fishermen Can Lead Global Innovation

The transfer effect hypothesis rests on an erroneous assumption that U.S. fisheries will not innovate new and cleaner approaches or switch to alternate gear, such as harpoons or buoy gear and replace dirty gears with cleaner ones such that overall supply is not diminished. This does not seem to be the reality in California, as some fishermen have already switched from driftnets to harpoons or deep-set buoy gear. Historically harpoon gear matched current levels of catch, especially with innovative technologies to identify key swordfish areas, resulting in no net increase in imports. Given the incentives provided by a ban on driftnet gear, the swordfish fleet has the capacity to develop other, cleaner gear.

There is scarce reason to believe that supply displaced by eliminating driftnets cannot be replaced by U.S. fishing with less disruptive gear rather than foreign suppliers, and in fact a transition may increase California supply, as described above to the extent that U.S. fishermen maintain supply with new gears, there will be no transfer effect.

Imports are Likely to Reflect Mere Diversions of Foreign Supply

Even if demand is shifted to foreign suppliers because of a failure of U.S. producers to innovate, increased foreign supply most likely reflects a diversion of supply from domestic markets, rather than an increase in fishing effort. In effect, if increased U.S. imports are satisfied by foreign fishers selling their catch in the U.S. rather than in their own domestic markets, then the global amount of fishing would be unchanged (and global bycatch would be unchanged). In fact, we have seen such shifts occur already on the East Coast of the U.S. For example, a sharp spike of imports from Spain into the U.S. from essentially 0 to 130 MT in 2014 resulted from a collapse in demand in Spain rather than from increased demand for imports in the U.S.²⁵ Thus, the imports into the U.S. associated with higher bycatch did not come from any increase in effort by foreign fishing industries, but rather by simply diverting fish that was already being caught from a market with a lower price to one with a higher one. To the extent that increased imports enter into the U.S. are supplied through diversions among markets, there will be no transfer effect.

Furthermore, the transfer effect hypothesis would require a decrease in U.S. production to stimulate an increase in foreign effort. That would require a decrease in U.S. supply to be large enough to affect the global market price. It is difficult to maintain that the landings from 20 California boats have such an impact on global markets. Furthermore, there would have to be excess fishing capacity in global fleets to respond to such a decrease. Since much of the swordfish caught globally is bycatch of tuna fleets and not targeted and many fishermen fish globally, increases in effort are likely to be muted. To the extent that there are no global price signals or excess capacity, there will be no transfer effect.





Continuing the California Driftnet Fishery Enables Dirty Fishing Practices Globally

Conversely, maintaining one of the highest-bycatch fisheries in the world enables foreign fisheries to continue their own dirty fishing practices. Such “regulatory enabling” erodes the ability of the United States to act as a leader in sustainable fisheries management and induce improvements in foreign fisheries. As long as California maintains an indiscriminate fishing method among the worst 20 percent globally, U.S. diplomatic efforts to push for cleaner fisheries abroad will be blunted, particularly if other countries such as Morocco and Russia have banned driftnets.

Continuing the driftnet fishery also undermines efforts to clean up imports at home. U.S. law provides several powerful mechanisms to use against foreign fisheries that catch marine mammals or other protected living marine resources in excess of U.S. standards, such as Section 101(a)(2) of the Marine Mammal Protection Act, the Moratorium Protection Act, and the Pelly Amendment. Several of these legal mechanisms allow for bans on foreign imports if the imports do not meet U.S. standards. For example, the U.S. National Marine Fisheries Service recently took legal action against Mexican driftnet fisheries for failing to meet U.S. standards for the protection of loggerhead sea turtles.²⁶

However, these legal protections for U.S. consumers only have force to the extent that U.S. standards do not allow gear types such as driftnets, which result in high levels of incidental kill or serious injury of marine mammals, sea turtles, whales, or other protected species. As long as California maintains its driftnet fishery, a large range of harmful fisheries around the world will be able to escape sanctions under U.S. law. Thus, the California driftnet fishery weakens efforts to address dirty fishing abroad as well as in the U.S.

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

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