

# *Best Fishing Practices*



## **BLUEWATER FISHERIES**

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*Fishing is a human right for the many, not for the few.*  
Danish fisherman Kurt Christensen

### Introduction

“Best management practices” for fisheries are based on pre-determined goals, such as locally-supplied seafood, recreation and tourism, community-based employment and, in support of it all, maintaining abundant and sustainable fishery resources and a healthy environment. Although the primary goals may be social and economic, the long-term health of the resource is always the bottom line. And while each region’s specific goals and needs may be unique, best fishing practices, such as low bycatch of non-target species, live release of incidentally-caught or undersize fish, and cost-effective monitoring and enforcement, are universal.

The billfishes, swordfish and tunas, along with dolphin-fish, wahoo and other pelagic species, support valuable recreational and commercial fisheries in many coastal regions. But studies suggest that populations of big ocean fish, including bluefin and bigeye tuna, swordfish, the marlins and many oceanic sharks, may have declined as much as 90 percent over the last 50 years. Efforts to restore them have been hindered in large part due to the non-selective nature of the fishing gears and methods used to target these fish commercially, most notably pelagic longlines, also commonly known as surface or drift longlines.

Some would contend that it is how many fish you catch, not how you catch them, that’s important to sustaining fish populations. But this misconception ignores a half-century of evidence to the contrary. Our collective experience with non-selective fishing gears is this:

- Excessive bycatch and waste, resulting in one-quarter of the global catch being discarded as unwanted, prohibited or protected species;
- An inability to effectively control fishing mortality for any single species in a fishery that opportunistically targets and catches multiple species;
- Destructive impacts on marine life and the ability of fishermen and coastal fishing communities to survive, much less thrive; and,

- Disproportionate management and regulatory costs imposed on taxpayers and regional economies.

Best fishing practices for conserving and managing big ocean fish require transitioning fisheries away from the large-scale use of indiscriminate, ecologically-harmful fishing gears to more selective, sustainable fishing methods that provide an economically-feasible, low-bycatch alternative. Fortunately, those alternative methods exist.

### **No More “Ocean Roulette”**

In 1998, *Wild Oceans* (then National Coalition for Marine Conservation) published Ocean Roulette, a lengthy study of pelagic longlining, with a series of recommendations for reigning in its destructive impact. In the intervening 15 years, many of these recommendations have been or are being implemented. (Page 6) While bycatch of some species has been substantially reduced, it has come at considerable cost (measured in time, money, and lost fishing opportunities) and a number of serious bycatch threats remain (most notably to severely depleted bluefin tuna and endangered sea turtles, both of which are the object of ongoing federal actions.)

It is revealing of the unmanageable nature of longlining that the most effective regulations implemented are time-area closures; that is, taking the gear out of the water where and when it is doing the most harm. The east coast longline closures that have been in place since the year 2000 have reduced bycatch mortality for swordfish, billfish and sharks overall an average of 50 percent, saving many thousands of these fish over the past decade. (Page 7) Additional reductions have been achieved for some species since circle hooks were required on all longlines in 2005.

The circle hook requirement, however, merely underscores the fact that there is no regulatory fix for longline bycatch, aside from strictly limiting or prohibiting the gear. The conservation value of using non-offset circle hooks for marlin, sailfish and a number of other recreationally-caught species, instead of J-hooks, is well documented, substantially reducing post-release mortality. Circle hooks have also proven effective in reducing longline interactions with sea turtles and some non-target fish. But there is evidence that they can increase hook-ups with some species of billfish and shark, and because longline-caught fish can remain on the line for many hours, they die regardless of how non-lethal the hooks may be.

Mortality of bycatch species increases significantly with each hour after hook-up. Berkeley and Edwards (1998) used hook-timers in the Gulf of Mexico yellowfin tuna longline fishery to compare the mortality of fish upon retrieval with the time they spent on the hook. The tuna longliners used circle hooks almost exclusively. As shown on page 8, the mortality rate for billfish surpassed 50 percent (that is, more than half the fish dead) after they'd been on the hook for about 8 hours. Swordfish (mostly

protected juveniles) surpassed the 50 percent mortality mark less than 2 hours after hook-up.

Clearly, the major problem with longlines is that they are “long.” The typical set for swordfish or tuna is 30-40 miles in length, fishing over 1,000 hooks, and the hooks remain in the water from 12-24 hours. Shorter lines and soak times, say 6 hours or less, might diminish its lethal impact. But what we are talking about here is not pelagic longlining, which measures “efficiency” in terms of maximizing hooks fished on multi-day fishing trips, but alternatives to longlining – namely, swordfish buoy-gear and tuna green-sticks – developed, not surprisingly, by commercial fishermen in areas where pelagic longlines have been prohibited.

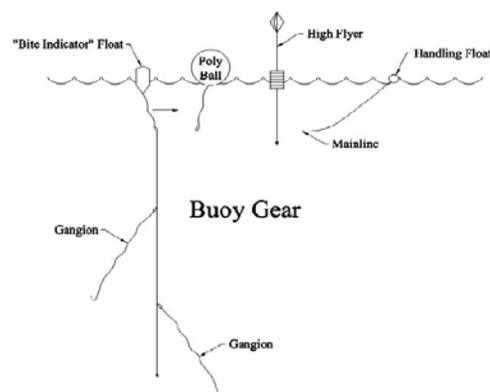
### Safe, Sustainable Fishing for Large Ocean Fish

Take a picture of this...

*A big blue marlin, feeding on the edge of the continental shelf, sights a squid dropping through the water column. What's actually a squid-baited hook – just one of a thousand or more like it, hanging from a 30-plus mile mainline set by a commercial longliner plying the blue waters of the Atlantic Ocean – is meant for a swordfish. But the hungry marlin doesn't know that. Neither does the bluefin tuna, the hammerhead shark, the loggerhead turtle, and innumerable other ocean creatures, many prohibited or endangered species, that make up the unwanted “bycatch” of longlining. The marlin swallows the squid. She runs, she dives, but she's caught. And she won't be cut loose for up to 10 or 12 hours, when the vessel's crew hauls back the long, long line. By then it's too late, the fish is dead. Chalk it up as collateral damage, part of the cost of doing business with longlines.*

Now imagine...

*The same commercial fishermen quit longlining for a new way of catching swordfish. They set a very short mainline with one or two branch lines descending, attached to a buoy. There may be a dozen such “buoy-gears” set, with no more than 2 hooks per buoy. The fishermen actively tend the gear so they can retrieve it as soon as the buoy signals that the bait's been taken. Over 90% of what they catch is swordfish. If a juvenile sword or a non-target species is hooked, it can be released soon after, alive. But blue marlin, turtles, bluefin tuna and other vulnerable species are rarely if ever caught.*

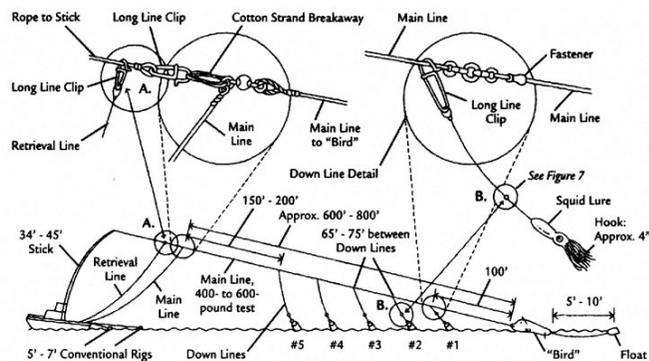


The gear is called **swordfish buoy-gear**, and it was developed by commercial fishermen on the

east coast of Florida after longlines were banned there over a decade ago. It's now being tried all around the U.S. coast and overseas, where the U.S. government is promoting its use by developing countries.

The future belongs to safer, more selective, more sustainable fishing methods that are not only friendly to the environment, but friendlier to fishermen and fishing communities, too. Actively fished gears like buoy-gear provide fresher, higher quality swordfish, too. (Florida fishermen are working with retail chains, like Whole Foods, to get higher prices for their "sustainable" product.) Fishermen want efficiency? Catch rates with buoy-gear come in at 300+ swordfish per 1,000 hooks vs. only 8 swords per 1,000 hooks on longlines.

Similarly, fishermen on the U.S. east coast are using what is called **green-stick gear** to catch yellowfin tuna, but it can also be used to catch bigeye, albacore, skipjack and bluefin tuna. The rigs consist of one or more 30-foot long poles mounted to the deck of the boat, each towing a main line with no more than 10 hooks attached. Each hook can be retrieved independent of the others, so that when a fish takes the bait, it can be retrieved while the other hooks continue to fish. It is then re-baited and put back to work.



## Summary

The use of pelagic longlines should not be an option for sustainable commercial fisheries because of the irresolvable bycatch problems associated with this indiscriminate gear. The only ones who think longlines can be sustainable are too narrowly focused; either on maximizing catches of swordfish and tuna, without regard for the impact on other species; or concerned only with the "take" of marine mammals or seabirds, whose capture may be mitigated with modifications that unfortunately do little to protect other vulnerable species, especially finfish.

Managing large-scale, indiscriminate gears like longlines is extremely complicated and costly, from an economic as well as an environmental standpoint. Trying to conserve and protect swordfish, marlin, sharks, tunas, dolphin-fish, turtles, marine mammals and sea birds – targeting some, trying to avoid others; species in varying conditions from abundant to endangered and everything in between; with very different management goals and regulations for each – is the fisheries management equivalent of playing *Wack-a-Mole*.

Fortunately, there are economically-viable alternatives. Best fishing practices can support small-scale, high-yield, locally-supplied fisheries, commercial as well as recreational, using the latest technological developments in sustainable fishing. It is part of a progressive shift away from so-called modern, "efficient" methods of fishing that are wasteful and ultimately unmanageable.

Fishermen want to fish, consumers want local, fresh seafood caught in an environmentally-responsible way. Safe, sustainable fishing for big ocean fish is a win-win for everyone.



## Regulation of Pelagic Longlines

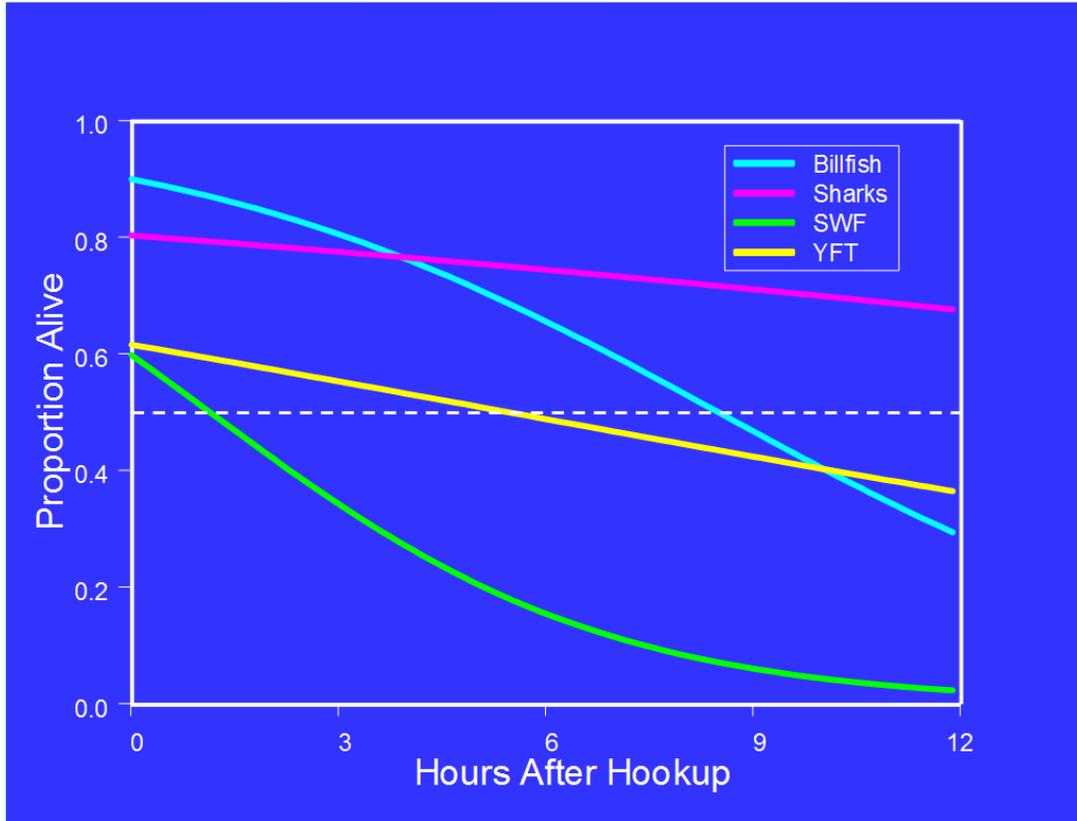
Wild Oceans Recommendations (Source: Ocean Roulette, 1998)	Subsequent Action Taken (as of 2013)
<b>Establish No Longlining Zones in Known Nursery and Spawning Areas...to protect juvenile swordfish, billfish, sharks and bluefin tuna</b>	In 2000, in response to a lawsuit, the National Marine Fisheries Service closed 133,000 square miles of Atlantic and Gulf of Mexico waters closed to longlining. Federal waters off the West Coast (200 mile EEZ) were closed to longlines by the Pacific Council in 2004. Additional Atlantic and Gulf closures were proposed by NMFS in 2013.
<b>Require That Longline Vessels Be Equipped with Vessel Monitoring Systems (VMS) to Ensure Compliance with Area Closures</b>	Since 2003, NMFS has required that approved VMS be installed and operating on all U.S. pelagic longline vessels fishing in the Atlantic.
<b>Seek Closures in International Waters</b>	The U.S. delegation to ICCAT has asked the commission's scientists to study the potential of time-and-area closures on the high seas to aid rebuilding of swordfish and blue and white marlin.
<b>Count Dead Discards Against All U.S. Commercial Quotas...as an incentive to avoid bycatch</b>	Longline dead discards are now deducted from total allowable catch allowances for swordfish, bluefin tuna and large coastal sharks.
<b>Require the Use of Breakaway Gear to Avoid Capture of Giant Bluefin Tuna</b>	NMFS now recommends that longliners fishing in the Gulf of Mexico use "weak hooks" to minimize capture of large spawning bluefin tuna.
<b>Limit Length of Longline Gear and Soak Time</b>	The NMFS west coast region is currently studying the feasibility of limiting soak times to enhance survival of incidentally-caught fish.
<b>Research Alternative Gears</b>	NMFS is conducting pilot programs in the Gulf of Mexico testing swordfish buoy-gear and green-stick gear for yellowfin tuna. It is also funding Pflegler Institute for Environmental Research experiments with deep-set buoy-gear off the California coast.

## Effectiveness of Atlantic Coast Longline Area Closures

	Swordfish	Pelagic Sharks	Blue Marlin	White Marlin	Sailfish
<b>Pre-Closures (1997-99)</b>	21,519	52,093	1,621	1,973	<b>213</b>
<b>First 3 Years of Closures (2001-2003)</b>	13,240	23,017	815	1,045	<b>139</b>
<b>% Bycatch Reduction</b>	-38.5	-55.8	-49.7	-47	<b>-74.6</b>
<b>Closures Plus Circle Hooks (2005-2010)</b>	9,429	30,193	635.8	771.2	<b>197.5</b>
<b>% Bycatch Reduction</b>	-56.2	-42	-60.8	-60.9	<b>-68.3</b>

*NOAA Fisheries HMS SAFE Report 2011*

## Bycatch Mortality Increases Significantly After Several Hours On a Multi-Mile Pelagic Longline (Even Using Circle Hooks)



*Berkeley & Edwards 1998*