



Tuna Fishing and Dolphin in the Eastern Pacific

by Melissa Groswald

President's Introduction: The San Diego Ocean Foundation is dedicated to informing the public with facts concerning issues affecting our ocean and our community. This White Paper presents facts and major viewpoints regarding the Tuna Dolphin issue. We offer this White Paper to educate rather than advocate. Our objective is to facilitate consensus on this important subject.

A handwritten signature in black ink, appearing to read "Roger Bof".

Overview

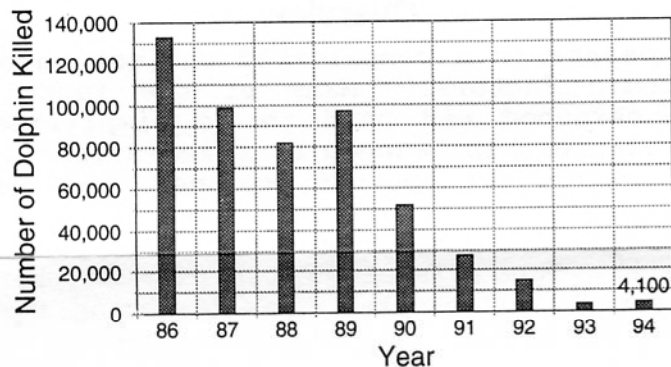
The tuna-dolphin debate is a complicated subject involving political, social, and economic factors. Many of the facts surrounding the subject are misunderstood and need to be simplified. The problem begins with the relationship between tuna and dolphin. Scientists are uncertain of the reason, but spotted, spinner, and common dolphin are frequently found with mature yellowfin tuna in the eastern Pacific Ocean (the area stretching from southern California to Chile and westward to Hawaii). Tuna fishermen use the dolphin to locate and catch the tuna swimming underneath the dolphin. During the process dolphin are mistakenly caught with the tuna. About 6 million dolphin have died in the past 35 years as a result of tuna fishing in the eastern Pacific Ocean. A combination of efforts (the Marine Mammal Protection Act, the Inter-American Tropical Tuna Commission, the Dolphin Conservation Program, and the development of better fishing techniques) have drastically reduced the numbers of dolphin that die during tuna fishing, though dolphin mortality still exists. The simple solution appears to be for the fishermen to avoid using dolphin to catch their tuna. The situation is more complicated, however, as this simple solution creates other problems. Most environmentalists and tuna fishermen agree dolphin must be spared, however finding an acceptable solution is a difficult but not impossible task. The main discord concerns whether to eliminate dolphin mortality immediately, or to gradually decrease the numbers of dolphin that are killed to levels approaching zero over time.

About the Author Melissa Groswald graduated from Tulane University with a Bachelor of Sciences. Recently she worked for the Orange County Marine Institute in Dana Point, Ca as a naturalist. Ms. Groswald also worked for the American Cetacean Society of Orange County as their Program Coordinator. She has extensive research experience and is committed to marine science education and public awareness. Ms. Groswald is an avid sailor and feels a strong connection with issues concerning the ocean and its inhabitants.

Dolphin and Tuna Biology and Interaction

Yellowfin tuna, *Thunnus albacares*, are one of the two most important species in the tuna market. They can be over 6 ft. in length and weigh up to 450 pounds; today tuna over 125 pounds are rare. Dolphin are marine mammals belonging to the order Cetacea, which includes all whales, dolphin, and porpoises. Spotted dolphin (*Stenella attenuata*), spinner (*Stenella longirostris*) and sometimes common (*Delphinus delphis*) are the types of dolphin associated with yellowfin tuna. Dolphin are toothed whales ranging in size from 6-15 ft. in length. They primarily feed on small fish, squid, and shrimp which they detect through echolocation. Because dolphin are mammals, they must frequently return to the surface to breathe. This allows the fishermen to locate tuna that are often swimming underneath the dolphin. Some scientists speculate the reason for the association between tuna and dolphin has to do with a common food source, though analysis of the stomach contents of tuna and dolphin are inconclusive.

Total Dolphin Mortality Estimates in the Eastern Pacific Ocean (1986 - 1994)



Fishing Methods

In the mid to late 1950's tuna fishermen began using the "purse-seine" method of fishing. Three primary types of "purse-seine" fishing for tuna have since evolved. The first method is referred to as fishing for tuna "on dolphin." Fishermen spot a group of sea birds who are sometimes flying above a pod of dolphin. Often the yellowfin tuna are swimming beneath the dolphin. When the fishermen are sure there are tuna with the dolphin, they encircle the group by a deep net. The net is then gathered at the bottom with a cable similar to the drawstrings on a purse, hence the name "purse-seine." This prevents the escape of the tuna. Tuna fishermen also developed the "back-down" technique, where they literally back up the vessel after hauling most of the net on board. This causes one end of the net to dip below the surface and allows only the dolphin to escape. In addition, the nets are equipped with a dolphin safety panel in the backdown area, which is made of finer mesh that will not entangle the dolphin as they escape. This panel is often referred to as the "Medina Panel", named after the U.S. fisherman who invented it. The "back-down" technique and the Medina panel greatly reduce the numbers of dolphin that are caught accidentally. The second method is often referred to as "log-fishing," because tuna may be found under free-floating objects such as logs. In this method, fishermen circle their nets around the log before "pursing" the net. The third method is to fish for tuna that are "free-swimming" in schools, where the fishermen encircle the tuna themselves. The problem with the last two methods is a

considerable "by-catch." In addition to the yellowfin tuna, other species such as sharks, billfish, sea turtles, and other fish are caught and discarded. Also, the majority of the tuna caught are small and sexually immature, which creates a biological concern. Not only are the tuna less valuable to the fishermen, but they most likely have been caught before they have reproduced, reducing tuna populations in the future. On the other hand, when fishermen use logs or encircle free-swimming tuna, the number of dolphin caught is minimal.

**Bycatch Estimates per 10,000 Sets in the Eastern Pacific Ocean While Fishing for Tuna in 1993
Using Encirclement of Logs, Schools, or Dolphin**

BYCATCH	FISHING METHOD		
	LOG	SCHOOL	DOLPHIN
Dolphin	25	8	5,000
Small Tuna	130,080,000	2,430,000	70,000
Mahi Mahi	513,870	2,100	100
Sharks	139,580	12,220	0
Wahoo	118,660	530	0
Sea Turtles	1,020	580	100

The Inter-American Tropical Tuna Commission

The Inter-American Tropical Tuna Commission (IATTC) and the U.S. National Marine Fisheries Service began working together in 1979, when the IATTC's program began. In 1986, an estimated 133,000 dolphin were accidentally killed. That year, all of the non-U.S. fleets in the eastern Pacific Ocean participated in the IATTC's international program for the first time, which improved the IATTC's mortality estimates. In 1991, the governments agreed to a goal of 100% observer coverage (an observer on every vessel, every trip to monitor dolphin mortality) of all fleets fishing for tuna in the eastern Pacific Ocean.

Mortality Estimates While Using Encirclement of Dolphin

Year	# of Net Sets	Mortality per Set	Total Mortality
1988	10,515	7.51	78,927
1989	12,580	7.71	96,979
1990	10,571	4.97	52,531
1991	9,482	2.88	27,292
1992	10,326	1.50	15,539
1993	7,500	0.55	4,000

In 1992, ten countries participated in the International Dolphin Conservation program that set decreasing limits on the number of dolphin that could be taken. These limits are divided among all vessels fishing for tuna "on dolphin" in the eastern Pacific. For example, if the annual limit was 5,000 dolphin and there were 100 vessels fishing for tuna, each vessel would be allowed to take 50 dolphin for that year. If a vessel reaches its limit, it must stop fishing for tuna "on dolphin" for the rest of the year and any excess is deducted from the vessel's limit for the next year. Due

to exceptional performance by the fleet the target limit of less than 5,000 dolphin by the year 1999 was actually achieved in 1993, when the mortality for the year was 3,600 dolphin. Based on this early success, the governments agreed to lower the limits for 1994 and 1995. The program includes research on improving fishing methods to further decrease and ultimately prevent incidental dolphin mortality. Conservationists applauded the drastic reduction, but still called for the elimination of dolphin mortality altogether.

Dolphin Mortality Limits Set by the 1992 La Jolla Agreement

Year	Total Mortality
1993	19,500
1994	15,500
1995	12,000
1996	9,000
1997	9,500
1998	6,500
1999	less than 5,000

Marine Mammal Protection Act

In 1972, the Marine Mammal Protection Act was passed, and numerous amendments that affected the tuna industry followed. The United States placed embargoes on tuna imported from those countries using encirclement of dolphin to catch tuna. After pressure from conservation groups, three of the largest U.S. tuna canners adopted a "dolphin-safe" policy in 1990. This meant they would not buy tuna caught by using encirclement of dolphin. Instead, "dolphin-safe" tuna is caught by encircling logs or schools of free-swimming tuna, which means immature tuna as well as many other species of fish are caught and wasted. Public awareness and outcry against the killing of dolphin combined with the efforts of environmental groups led to the U.S. International Dolphin Conservation Act in 1992. This approach called for the halt of all dolphin mortality in the form of a five year moratorium. Environmental groups and the U.S. Administration supported the moratorium, while the tuna industry supported the program established by the Inter-American Tropical Tuna Commission. Ultimately, the moratorium was not enacted due to lack of support from foreign countries. Instead, Central and South American countries fishing for tuna in the eastern Pacific Ocean agreed to participate in the IATTC's program of decreasing dolphin mortality limits, while also trying to protect yellowfin tuna and other animals in the ecosystem, including sharks, billfish, and endangered sea turtles from exploitation.

Recent Developments

A bill was proposed recently in the U.S. Congress that amends the Marine Mammal Protection Act. The bill supports the program established by the Inter-American Tropical Tuna Commission and lifts the embargoes on countries complying with the program. The bill also allows for the re-definition of the "dolphin-safe" label to mean tuna taken in sets in which no dolphin were killed rather than the present definition of trips by vessels during which no dolphin were encircled. Some environmental activists view the bill as a step backward and fear the consequences of lifting the current requirements of the tuna label.

On October 4, 1995 the Governments of Belize, Colombia, Costa Rica, Ecuador, France, Honduras, Mexico, Panama, Spain, the U.S., Vanuatu, and Venezuela met in Panama City and formed the Panama Declaration. They agreed to

support the 1992 La Jolla Agreement, which is the program established by the IATTC, and to modify the La Jolla Agreement by reducing the mortality limits immediately to 5,000 instead of waiting until 1999. The limits would also be divided among individual dolphin stocks rather than the population of all dolphin jointly. Greenpeace, the Center for Marine Conservation, National Wildlife Federation, World Wildlife Fund, and the Environmental Defense Fund support the Panama Declaration as well as the redefinition of the "dolphin-safe" label. Furthermore, marine biologists believe the current dolphin population has fully recovered from the initial effects of purse-seine fishing. They estimate the present total population of dolphin to be 9,500,000 animals in the eastern Pacific Ocean. Because the dolphin population increases about 2-3% each year, marine biologists feel the current mortality rate of about 0.04% due to tuna fishing is not a threat to the dolphin population.

Conclusion

Although both sides disagree over the course of action that should be taken, they agree on the facts of the issue. Neither side disputes the success of the Inter-American Tropical Tuna Commission's program nor the numbers of dolphin that are killed accidentally. The conflict lies in the importance of sparing all dolphin during tuna fishing versus foreign relations, economics, and other environmental costs. The ultimate goal of sparing the dolphin is not in dispute. The problem is how it should be done, over what time period, and which sacrifices should be made in doing so. The dispute is further strained by public perception of the tuna industry. The public is very fond of dolphin and has historically viewed them as intelligent animals. Often, tuna fishermen are perceived as "dolphin-killers" whereas they are actually cooperating to reduce if not eliminate the incidental taking of dolphin. Environmentalists are sometimes blamed for ignoring the reality of foreign relations and the economic effects on the tuna industry of sparing the dolphin. However, neither side is ignorant of the facts—they simply disagree over the solution to the problem.

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