Table 2.

Landings in lbs of domestic commercial fisheries in the U.S. Pacific islands, 2002.

Location	Hawaii	Am Samoa	Guam	CNMI	Total
Pelagic Fish	21,576,000	15,328,000	319,800	253,270	37,477,070
Bottomfish	615,000	37,350	13,920	46,980	713,250
Reef-fish	339,000	15,120	139,100	152,150	645,370
Other Fish	1,310,000	8,700	9,520	26,790	1,355,010
Total	**23,840,000**	**15,389,170**	**482,340**	**479,190**	**40,190,700**

Table 3.

Landings and value from distant water fishing nations in American Samoa and Guam, 2002.

	Landings		Value	
Port	x 1,000 lb	No. U.S. port	Million $	No. U.S. port
Pago Pago, American Samoa canneries and transshipment	423,324	2	251.7	1
Agana, Guam transshipment,	16,940	43	60	6

In Guam and the Northern Mariana Islands, domestic tuna fisheries are limited, but landings, transshipment and processing of tuna catches from distant water fishing nation (DWFN) fleets in Guam are extremely important (Table 3). Tuna fishing in American Samoa was also limited until the late 1990s when domestic longline fishing expanded, growing by 2002 to rival Hawaii in terms of pounds of fish landed. American Samoa also has two canneries, which process tuna caught throughout the Pacific and provide the main source of private sector employment for American Samoa and a significant employment of labor from independent Samoa. Re-provisioning of fishing vessels also adds to the revenues generated by tuna processing in this territory. The same is true in Guam where large numbers of DWFN longliners are based and transship their catches. Guam and neighboring Saipan have also seen the increasing development of airfreighting foreign-caught fresh tuna for the sashimi market in Japan and increasingly to a growing tuna and swordfish market in Europe. The development of air transshipment hubs in Guam and Saipan has also had a positive effect on the development of tuna fisheries in the neighboring Micronesian states of Palau, the Federated States of Micronesia (FSM) and the Marshall Islands, with both domestic and DWFN vessels home-porting in these islands. Pago Pago, American Samoa, and Agana, Guam, are ranked first and sixth, respectively, of all major US ports for value of commercial landings in 2002 (Table 3). Honolulu, Hawaii, was ranked 12th of US ports in 2002 for value of commercial landings, a decline from recent years due to recent restriction on the swordfish component of the Hawaii longline fleet.

4.1. Pelagic Fisheries

The Western Pacific Council was the first of the regional councils to develop a Pelagics Fishery Management Plan (FMP), promulgated in 1987, through which US pelagic fisheries under federal jurisdiction are regulated. The Pelagics FMP initially addressed the regulation of foreign fishing vessels in EEZ waters surrounding the US Pacific islands through fishing permits, area closures, the prohibition of drift gill net fishing except for experimental purposes, definition of pelagic management unit species, observer requirements and catch reporting. The plan also created a framework for the future management of pelagic fisheries within the EEZ waters of the US Pacific islands.

Domestic commercial pelagic fisheries in Hawaii and American Samoa are the most developed of commercial pelagic fisheries of the US Pacific islands (Table 2). Until the latter quarter of this century, much of the commercial pelagic catch was skipjack taken by Hawaii live bait pole-and-line vessels, which supplied a local cannery. This method of fishing has largely declined following the closure of the tuna cannery in 1984 although a small amount of skipjack is still landed for fresh consumption. The predominant pelagic fisheries in Hawaii are two handline fisheries (palu-ahi and ika-shibi), trolling and longline fishing. Of these methods, by far the most important in terms of volume and value is the longline fishery (Table 4). Less than 15 longline fishing vessels were active in the early 1980s in Hawaii, but this fishery targeting swordfish and tunas expanded to about 150 vessels by the early 1990s. Prior to a recent closure of the swordfish component of the Hawaii longline fishery, Hawaii-based longliners accounted for about two thirds of US swordfish production and 15 percent of all Pacific swordfish landings.

Table 4.

Volume and value of finfish landings from Hawaii-based fisheries, 2001.

Fishery	Landings (x 1,000 pounds)	Gross revenues ($)
Longline	15,600,000	33,000,000
Pole-and line (aku boat)	1,200,000	1,600,000
Troll	2,600,000	3,800,000
Handline	1,320,000	2,300,000
Other gear	600,000	900,000

Handline fishing is an ancient technique developed by Pacific islanders living on atolls and small islands. It is used to catch yellowfin and bigeye tunas with simple gear and small boats. Today, there is a substantial amount of variation in fishing methods and gear employed by the Hawaii handline fleet. Handline gear is set below the surface to catch relatively small quantities of large, deep-swimming tuna suitable for sashimi markets. There are two types of pelagic handline fishing methods employed in Hawaii. The ika shibi (squid small ahi) handline fishery is generally conducted at nighttime and most fishers use a parachute sea anchor to slow the vessel's drift while fishing. Three to four handlines are set at a time. Mackerel scad is the typical bait, and the baited hook is lowered with a lead weight. A light bulb is placed in the water to attract baitfish and tuna, and the surface is chummed with chopped squid and anchovies. The palu-ahi (chum tuna) handline method adds a weighted, retrievable "bag" stuffed with chum that is released at a depth of approximately 130 meters to attract tuna to the baited hooks. When a fish is caught, it is hauled aboard either manually or with hydraulics. The Hawaii offshore handline fishing grounds are primarily at seamounts and weather buoys 30-200 miles from shore. In 2001 the State of Hawaii issued 163 Commercial Marine Licenses to fishermen who identified on their license that their primary fishing method was ika shibi or palu ahi handline. There is no federal permit requirement for commercial handline fishing off Hawaii. Total Hawaii handline catch in 2001 was about 1.3 million pounds.

Troll fishing, which may catch a variety of pelagic species, is predominantly a recreational fishery; however, there are a few full-time commercial troll fishermen in Hawaii and pelagic handline and bottomfish fishermen may also set trolling lines en-route to and from fishing grounds to augment their catch. Trolling is conducted by towing lures or baited hooks from a moving vessel using big-game rods and reels or hydraulic haulers and outriggers. Some troll vessels will also use a handline especially to target ono (wahoo) and tunas. Commercial troll fisheries target ono, mahimahi, and large yellowfin tuna. Trollers fish at grounds where water masses converge, and where underwater features create dramatic bathymetric changes, and may target fish aggregation devices and foraging seabirds. Many "recreational" troll fishermen in Hawaii sell surplus catch to cover trip expenses and are thus referred to as "expense" fishers. This makes the definition of "commercial" and "recreational" fishermen difficult. A 1995-1996 statewide survey of small boat fishers classified 41 percent of respondents as expense fishers, 28 percent as recreational fishers who did not sell any portion of their catch, and the remainder as full-time or part-time commercial fisheries who fish to generate personal income. Trolling is the most popular pelagic fishing method in Hawaii and has a long tradition of use by small boat recreational and commercial fishers using simple gear. Hawaii also has been the site of important innovations in big-game trolling techniques. For instance, Hawaii is known as the blue marlin trolling capital of the world, and the annual Hawaii International Billfish Tournament has been held for the past 45 years in Kona, Hawaii. Commercial trollers landed about 2.6 million lbs of pelagic fish in 2001.

The pelagic pole-and-line fishery in Hawaii targets primarily skipjack and juvenile yellowfin tuna. This fishery is also called the baitboat fishery because it uses live bait to entice tuna to bite on barbless hooks with feathered skirts. Okinawan fishermen introduced the fishery after the turn of the century, and even today several Hawaii skippers are of Okinawan descent and several original Okinawan "sampan" style wooden boats are active today in this fishery. A steel-hulled sampan-style vessel was built in the late 1990s and has shown to be profitable despite pessimistic predictions. The major historic baiting areas used by the fishery, such as Pearl Harbor, are now closed to bait fishing, making it difficult for the remaining fleet to obtain bait in less productive Kaneohe Bay. Historically skipjack landed in the pole-and-line fishery were primarily canned, but there was and still remains an important domestic market for fresh caught skipjack in Hawaii. Currently most Hawaii catch is sold on the fresh fish market. The Hawaii-based pole-and-line fishery now has only about three active boats. In 2001, the pole-and-line fishery landed 1.2 million pounds of fish, 99% of which was skipjack tuna, generating $1.6 million in ex-vessel revenue.

Longline fishing in Hawaii had been conducted for many decades prior to the expansion of the fishery in the late 1980s. Hawaii longline vessels evolved from wooden pole-and-line tuna sampans, employing longlines made from rope and fishing mainly within 2-20 nm of the coast. At this time, this fishing style was called "flag line." By the 1930s this fishery was second only to the pole-and-line fishery in landed volume of fish and accounted for most of the yellowfin, bigeye and albacore tuna landed in Hawaii. The fishery peaked in the mid-1950s with landings exceeding 2000 t and then declined steadily through lack of investment in boats and gear until the late 1980s.

The Hawaii-based longline fishery was revitalized with the development of local markets and exports for fresh tuna on the US mainland and in Japan and expansion of fishing for swordfish around the Hawaiian Islands. Participation in the longline fishery increased from 37 vessels in 1987 to 75 in 1989 and then doubled again to 156 vessels in 1991 (Figure 2). Further entry to the longline fishery was halted through a moratorium in 1991 under

Amendment 3 to the Pelagics FMP, followed by a limited entry program to restrict effort. Landings increased rapidly, reaching 9,000 t, of which 4,400 t was broadbill swordfish (Xiphias gladius), by 1991. The new entrants in the longline fishery were mostly steel hulled vessels up to 110 ft in length operated by former participants in the US East Coast tuna and swordfish fisheries. These newer vessels in the fishery were also characterized by a greater reliance on sophisticated electronic gear to navigate, mark deployed longline gear and find fish. The revitalized fleet also adopted more modern longline gear, using continuous nylon monofilament main lines stored on spools, with snap-on monofilament branch lines.

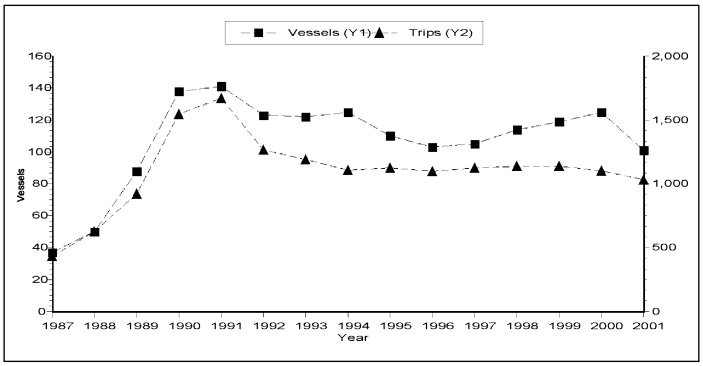

Figure 2.
Participation in Hawaii-based longline fishery from 1987 – 2001.

Monofilament longline gear is more flexible in configuration and can be used to target various depths more easily than traditional rope longlines. Both daytime and nighttime fishing are practiced using the same monofilament system. When targeting deep-swimming bigeye tuna, 12-25 hooks are deployed between floats with lots of sag to reach as deep as 1,300 ft. When targeting swordfish, only a few hooks are deployed between floats and the line is kept relatively taut so that it stays within the first 100–300 ft of the water column. Luminescent light sticks are employed at night to attract swordfish and bigeye tuna or their prey. The longlines are baited with large imported squid. However, the swordfish segment of the longline fishery has been closed since 2001 due to concerns about the fishery's interactions with sea turtles.

In early 1991 longline fishing was prohibited within 50 nm of the NWHI to prevent interactions with endangered Hawaiian monk seals. Additional longline exclusion zones were established in mid-1991 through Amendment 5 of the Pelagics FMP, i.e., 50-75 nm around the MHI and within 50 nm of Guam. These closures around the MHI and Guam were adopted to prevent gear conflicts between longliners and smaller fishing boats targeting pelagic stocks.

Enforcement of the longline exclusion zones around the MHI and the NWHI is accomplished through the Council's mandatory Vessel Monitoring System (VMS) policy, where local longline boats must be equipped with a satellite transponder that provides 'real-time' position updates and the track of the vessel movements. Working closely with industry, the National Marine Fisheries Service (NMFS) and the US Coast Guard, the Council implemented this mandatory VMS scheme for the Hawaii longline fishery in December 1994. This was the first mandatory scheme in US waters. Hawaii-based longline vessels are also required to carry onboard observers when requested by NMFS, in part, to record interactions with sea turtles, seabirds and marine mammals. Table 5 describes the catch composition by volume and value for the Hawaii longline fishery.

Table 5.

Catch composition of Hawaii longline fishery, by volume and value, 2001.

Species	Catch (x 1,000 lb)	Revenue (x $1,000)
Blue marlin	879	730
Striped marlin	775	845
Swordfish (round weight)	485	1,193
Other billfishes	299	242
Mahimahi	530	662
Ono (wahoo)	388	563
Opah (moonfish)	756	930
Sharks (round weight)	327	119
Other	395	529
Subtotal non-tuna PMUS	**4,834**	**5,813**
Albacore	2,802	3,222
Bigeye	5,217	18,208
Bluefin	2	10
Skipjack	466	238
Yellowfin	2,233	5,516
Subtotal tuna PMUS	**10,720**	**27,194**
TOTAL	**15,554**	**33,007**

Most recently, an August 31, 2003, judgment (as amended on October 6, 2003) by the federal district court for the District of Columbia vacated regulations promulgated in 2002, implementing a 2001 NMFS Biological Opinion, designed to reduce interactions between Hawaii pelagic longline fishing gear and sea turtles. However, the 2002 regulations will remain in effect until NOAA Fisheries develops replacement regulations by April 1, 2004. It is expected that NMFS, working with the Council, will develop and implement new regulations by that date. The current (through April 21, 2004) regulations prohibit swordfish longline fishing north of the equator, all Hawaii-based longlining in an area south of the Hawaiian Islands during April and May, and the possession or landing of more than 10 swordfish per fishing trip by longline vessels fishing north of the equator, among other measures. The new management regime for the fishery will be designed to allow a sustainable fishery while not jeopardizing the continued existence of affected sea turtles or other threatened or endangered species.

Another recent regulation that has had a major impact on the Hawaii-based longline fishery was the prohibition of shark finning. The US Congress and the State of Hawaii adopted legislation in 2000 banning shark finning because of concerns that the practice was wasteful, and that the increasing market demand for fins may endanger pelagic shark populations. Prior to the ban, up to 60,000 sharks, primarily blue shark, were finned and the carcasses discarded by the Hawaii-based longline fleet. However, a stock assessment conducted jointly between NMFS and Japanese colleagues showed that North blue sharks stocks were healthy, and fished well below the maximum sustainable yield.

Troll fishing continues to be the most commonly practiced method for commercially fishing large pelagics in Guam and the Northern Marianas, while longline fishing, principally for albacore, has dramatically increased in American Samoa since 1995. In mid-1995 four vessels began longlining in American Samoa. By 1997, a total of 33 vessels had longline permits, and the fishery grew rapidly until 2001. In 2001, a total of 62 American Samoa permitted longline vessels were active and reported total landings of over 8.1 million pounds. In 2002, a total of 60 active longline vessels in American Samoa reported landings of over 15.7 million pounds. The total landings of all pelagic species in American Samoa in 2001 was an increase of 339% from 2000, and the total landings of all pelagic species in 2002 was an increase of over 93% from 2001. Of the 2002 domestic total landings of pelagic species in American Samoa, longlining comprised 99.8% while trolling took less than 0.2% (Table 6).

Table 6.
American Samoa total landings by longline and troll fisheries, 2002.

	Landings by fishing sector (lb)	
Species	**Longline**	**Troll**
Tunas		
Skipjack tuna	509,213	10,803
Albacore	13,103,961	0
Yellowfin tuna	1,067,481	11,781
Kawakawa	0	93
Bigeye tuna	431,713	0
Misc. tunas	396	0
Mahimahi	85,831	654
Black marlin	2,248	0
Blue marlin	74,216	0
Striped marlin	3,850	0
Wahoo	357,886	351
Sharks	6,019	215
Swordfish	37,101	0
Sailfish	7,060	0
Spearfish	3,033	0
Moonfish	6,759	0
Oilfish	731	0
Pomfret	2,682	0
Other ssp	4,739	770
TOTAL	**15,704,919**	**24,667**

A unique feature of the American Samoa fishery is the bimodal fleet, split between large (>50ft) conventional monohull longline vessels and small outboard powered locally built aluminum *alia* catamarans, from which longline gear is set and hauled manually. The fishery began based on *alias*, but the recent expansion was a result of the entry of large conventional longline vessels into the fishery. The Council developed two management measures to ensure the productivity of the *alia* pioneer fleet in the face of entry from larger monohull vessels. The first of these was the development of 50 nautical mile area closures to all pelagic fishing vessels > 50 ft around the American Samoa islands, which minimized competition between the two fleet segments and allocated nearshore areas to the less mobile *alias*. The second was a limited entry program, which caps effort, but allows American Samoa fishermen to upgrade *alias* to larger monohulls.

Pelagic fisheries of the Territory of Guam include primarily US distant-water purse seiners and foreign longliners that fish outside of the US EEZ and transship through Guam and small primarily recreational trolling boats that fish only in local waters around Guam and the Commonwealth of the Northern Mariana Islands. In 2001 there were a total of 375 troll and charter vessels in Guam landing approximately 757,000 pounds sold for $670,000. The catch was comprised primarily of skipjack tuna, mahimahi, and wahoo. The number of troll vessels operating in Guam has steadily increased from 119 in 1980 to 438 in 1998 and has slightly decreased thereafter to 375 troll vessels in 2001.

Trolling is the most common fishery in the Commonwealth of the Northern Mariana Islands, with bottomfishing and reef fishing also conducted. The main product is skipjack tuna. Yellowfin and mahimahi are targeted to a lesser degree. All production from this domestic commercial fishery is consumed locally. In 2001 there were 148 active troll and charter vessels in the Northern Mariana Islands landing about 143,114 pounds of pelagic species of which 70% was skipjack tuna and 30% was mahimahi and dogtooth and yellowfin tuna. The fish generated an estimated $286,488 in ex-vessel revenue. No large-scale longline or purse seine activity occurs around the Northern Mariana Islands.

Most pelagic stocks and landings are significantly greater than demersal fisheries in all parts of the Western Pacific Region, especially in Hawaii (Table 2). The tropical tunas (skipjack, yellowfin, bigeye) represent a substantial resource for the entire Western Pacific Region. Total catches of skipjack alone in the Western Pacific (including Eastern Indonesia and the Philippines) amount to almost 1,000,000 mt/yr of which most is taken by fleets of purse seiners from the United States, Japan and the Philippines. Results of studies on the biology of the various pelagic stocks suggest that the tropical tunas are extremely productive populations, with rapid growth rates and more or less constant recruitment to the population over a wide range of their distribution. It is thought that present effort levels are still below those that would generate maximum sustainable yields.