Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region

2002 Annual Report

Western Pacific Regional
Fishery Management Council
1164 Bishop Street, Suite 1400
Honolulu, Hawaii 96813

Cover photo: *Bottomfish of Hawaii (from Top to Bottom): ʻOpakapaka* (Pink Snapper, *Pristipomoides filamentosus*), *ʻula'ulakoa'e/Onaga* (Ruby Snapper, *Etelis coruscans*), *ʻula'ula/Ehu* (Red Snapper, *Etelis Carbunculus*), *Hāpu'upu'u* (Sea Bass, *Epinephelus quernus*), and *Uku* (Gray Snapper, *Aprion virescens*).

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2002 Annual Report

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Bottomfish and Seamount Groundfish Fisheries of the Western Pacific

2002 Annual Report

1.0 Introduction

The 2002 annual report provides a set of descriptors and indicators of the bottomfish fisheries from American Samoa, Guam, Hawaii and the Northern Mariana Islands. The descriptors are designed to document recent trends in landings, effort, participation, revenue and prices. Should management action be recommended, descriptor information will aid in assessing potential impacts of the action on fishery participants. The indicators are quantifiable and measurable tools used to identify signs of stress in the stocks or the fishery. Based on changes over time in indicator levels, the Bottomfish Plan Team (BPT) may identify "yellow light" situations (i.e., where stress is first detected) and recommend that either management action or additional study be undertaken or “red light” situations where immediate management action is needed.

The annual report is organized as follows: The introduction section defines and briefly explains the descriptors and indicators. The next section briefly summarizes time trends in descriptor and indicator levels, through the current year, and recommends any areas of concern for each island area. Reports from each island area are appended. The introduction describes the history and present characteristics of the fishery. Results of the current year's descriptors and indicators are presented in detail, in relation to past temporal trends. Figures are supported with information on source of the data, methods of calculation, and data interpretation. Table 1 summarizes 2002 bottomfish statistics for the region. The appended report from each area includes a summary of the new area specific and region-wide recommendations. Finally, additional appendices contain information on NMFS 2002 administrative and enforcement activities, habitat conditions, protected species interactions, and 2002 BPT membership.

Table 2 lists scientific, common English and local/indigenous names for bottomfish management unit species (BMUS) for each area (American Samoa, Guam/Northern Marianas, and Hawaii).

1.1 Definition of Descriptors

The fishery descriptors are defined as follows:

1.1.1 Landings information

Time series information on aggregate catch for each island area shows recent trends in total bottomfish harvest. For American Samoa and Guam, estimates of both the commercial landings and the total landings (combined commercial, recreational and subsistence) are available. For Hawaii and the Northern Marianas, landings information represents only the commercial harvest.

Table 1. Regional Summary of 2002 Bottomfish Species

				Hawaii			
	AS	GU	NMI	All	MHI	Mau	Hoomalu
BMUS Landings (lb)	40,769	88,740	47,110	589,774	361,774	108,000	120,000
Revenue ($)	75,727	46,145	135,823	2,122,400	1,364,000	334,800	423,600
No. Of Boats	14	351	53	---	386	5	4
No. Of Trips	533	4,387	374	---	2556	76	26
CPUE	7.4 lb/trip-hr	3.0 lb/hr	126 lb/trip	---	179 lb/trip	1416 lb/trip	4638 lb/trip
SPR	---	---	---	0.26-0.47	note 1	note 2	note 2

Notes:

1) Species with Spawning Potential Ratio near or below threshold level of 0.20, indicating localized subarea depletion: MHI onaga ("targeted" SPR = 0.03); MHI ehu ("targeted" SPR = 0.11)
2) Healthy (SPR > 0.20) for all species

Table 2. Bottomfish Management Unit Species (BMUS) Names

(Absence of an indigenous name implies no local name established or area is not within the species' geographic range.)

Scientific	English Common	American Samoa	Guam/CN MI	Hawaii
Bottomfish:				
Aphareus rutilans	red snapper/silvermouth	palu-gutusiliva	maraap tatoong	lehi
Aprion virescens	gray snapper/jobfish	asoama	tosan	uku
Caranx ignobilis	giant trevally/jack	sapoanae	tarakito	white ulua/pau'u
C. lugubris	black trevally/jack	tafauli	trankiton attilong	black ulua
Epinephelus fasciatus	blacktip gouper	fausi	gadao matai	
E. quernus	sea bass			hapu'upuu
Etelis carbunculus	red snapper	palu-malau	guihan boninas	ehu
E. coruscans	red snapper	palu-loa	onaga	onaga
Lethrinus amboinensis	ambon emperor	filoa-gutumumu	mafuti/lililok	
L. rubrioperculatus	redgill emperor	filoa-pa'o'omumu	mafuti tatdong	
Lutjanus kasmira	blueline snapper	savane	sas/funai	ta'ape
Pristipomoides auricilla	yellowtail snapper	palu-i'usama	guihan boninas	yellowtail kalekale
P. filamentosus	pink snapper	palu-'ena'ena	guihan boninas	opakapaka
P. flavipinnis	yelloweye snapper	palu-sina	guihan boninas	yelloweye opakapaka
P. seiboldi	pink snapper		guihan boninas	kalekale
P. zonatus	snapper	palu-sega	guihan boninas/gindai	gindai
Pseudocaranx dentex	thicklip trevally		terakito	butaguchi/pig ulua
Seriola dumerili	amberjack		guihan tatdong	kahala
Variola louti	lunartail grouper	papa	bueli	
Seamount Groundfish:				
Beryx splendens	alfonsin			kinmedai (Japanese)
Hyperoglyphe japonica	ratfish/butterfish			medai (Jap.)
Pseudopentaceros richardsoni	armorhead			kusakari tsubodai (Jap.)

In Hawaii, changes in species catch composition are provided for the Main Hawaiian Islands (MHI) and the Northwestern Hawaiian Islands (NWHI). Statistical tests for consistency in catch composition over time and between areas are included. Where possible, descriptor information has been presented for each NWHI management zone: Hoomalu and Mau. For 2002, pounds landed by species are presented in tabular form for each area except Hawaii. For Hawaii, NWHI BMUS landings by species are provided for 1986 through 2002.

1.1.2 Effort information

Effort is measured in number of trips for Hawaii and the Northern Marianas, and in both hours fished and trips taken for American Samoa and Guam.

1.1.3 Participation information

Estimates of the number of vessels making bottomfish landings are provided for all areas.

1.1.4 Economic information

Time trends in economic performance are characterized by plots of total ex-vessel revenue, aggregate average price levels, and for Hawaii, price trends over time for major species. In time-series of prices and revenues, it is appropriate to adjust value for the rate of inflation so that values throughout the time period are comparable (based on a consistent purchasing power for the dollar). Both the unadjusted and adjusted aggregate average price and aggregate revenues are plotted to clarify the relative change over time.

1.2 Definition of Indicators

Indicators were developed as tools for identifying signs of stress in the stocks or the fishery which deserve further investigation and/or a management response. Analyses consider how the indicators change over time. Indicators for Hawaii include 95% confidence intervals. To the degree possible, similar variance estimates are expected from the other areas in future annual reports. The indicators are defined as follows:

1.2.1 Aggregate Catch-Per-Unit-Effort

If the current year's aggregate catch-per-unit-effort (CPUE) is less than 50% of the average aggregate CPUE for the first three years of available data, there may be cause for concern. CPUE information is available for all areas; research CPUE is available for SE Hancock Seamount for all years since 1985, except in 1992 and 1994-2002.

1.2.2 Mean Fish Size

If there has been a significant reduction in mean fish size for a species over time, the stock may be stressed by the fishery. Mean size information is provided for nine species in Hawaii. No

mean size information was available at this time for American Samoa, Guam or the Northern Marianas.

1.2.3 Percent Immature

If over 50% of the catch for a species is below the size of first maturity, the stock may be stressed by the fishery. Information for this indicator by species is available only from Hawaii.

1.2.4 Spawning Potential Ratio

The spawning potential ratio (SPR) is the ratio of the spawning stock biomass per recruit, at the current level of fishing, to the spawning stock biomass per recruit that would occur in the absence of fishing. According to the overfishing definition contained in the Bottomfish FMP (Amendment 3, 1990), if SPR is less than or equal to 0.20, recruitment overfishing has occurred (i.e., spawners have been reduced to 20%, or less, of their unexploited stock level). Data to calculate SPR were not available from Guam or the Northern Marianas. An estimate of the "worst case" SPR was calculated for American Samoa's bottomfish complex using Dory Project data to estimate the virgin population CPUE and information on percent of immature fish from Hawaii. In Hawaii, SPR was calculated for five major species in the Hoomalu and Mau Zones, of the NWHI, and the MHI; some SPR values changed slightly from previous year's reports due to improvement in the calculations. SPR for armorhead was calculated annually since 1985, except for 1992 and 1994-2002.

1.2.5 Economic Indicators

Revenue per trip plots are presented for all areas except the MHI. A more valuable indicator for the commercial fisheries, which may be available in the future, would be net revenue (ex-vessel revenue minus costs per trip). Net revenue is available only from the Hoomalu Zone and Mau Zone in Hawaii.

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2.0 AREA SUMMARIES

2.1 American Samoa

2.1.1 Descriptors

During 2002, a total of 14 local boats landed an estimated 40,800 pounds of bottomfish, (about a 17% decrease from last years landings) Revenues for the domestic commercial fishery this year was estimated around $75,727 (a 18.1% decrease from last year) with all the catch being sold locally. The CPUE for 2002 (7.4 lb/hr) was not less than 50% of the average aggregate CPUE for the first 3 years of available data.. In 2002, effort (trips and hours) increased.

2.1.2 Indicators

CPUE (pounds per hour), though relatively stable (at about 10 lb/hr) in the early 1990's, increased in 1996 to 14.8 lb/hr, mainly due to improved sampling. CPUE increased in 2001 to 15.2 lb/hr, the third highest CPUE since it was recorded in 1982, but decreased dramatically by about 51% in 2002 to 7.4 lb/hr, This level is not less than 50% of the average aggregate CPUE for the first three years of available data (9.7 lb/hr), indicating no cause for concern. Bottomfish revenue per trip (as opposed to total revenue) increased in 2002 ($180/trip) by about 59% over 2001 ($113/trip).

2.1.3 Recommendations

2002 Recommendations

A. DMWR biologists should further investigate the low CPUE recorded this year.

2.2 Guam

2.2.1 Descriptors

The fairly large fluctuations over time in bottomfish landings in Guam appear to be due more to entry and exit patterns of fishermen, rather than changes in fish stocks. The number of highliners fishing in the area doubled from 1993 to 1994, increasing the total commercial BMUS harvest and revenue by nearly 300% during that year. In 2002, a decrease in BMUS landings was due to decreases in landings of jacks, groupers, and snappers (26.1%, 9.5%, and 31.4% respectively). Emperor landings, however, increased by about 13%. Landings of all groups remained above the long-term. 2002 landings decreased by 33% from 2001, and is below the 15-year long term average.

The adjusted average price for bottomfish has not shown consistent marketing trends. This is believed to have resulted from the seasonal supply of pelagic fish and difficulties in developing a consistent market for locally caught fish. In addition, imported fish from other islands around the region have contributed to the continued marketing problem for local fishermen. The 2002 inflation-adjusted average bottomfish price of $3.15 continues a decrease from last year and is down 12.5% from 1999 ($3.60). The 2002 average price was 24.6% below the long term average.

2.2.2 Indicators

Total and BMUS bottomfish harvest decreased in 2002. Total bottomfish landings decreased 33%, with non-charter decreasing 39%. Charter catch increased 58%, but make up a small portion of the overall harvest. Total BMUS landings decreased 40%, with the non-charter and charter components decreasing 45% and 31% respectively. Offshore made 84% of both the total bottomfish catch and BMUS catch. The CPUE for all bottomfish decreased 21%, while the non-charter and charter CPUE decreased 20% and increased 19% respectively.

The commercial sale of BMUS species decreased 44% in 2001, with the adjusted revenue decreased 46%. The number of fishing vendors selling local fish decreased during 2002, and sales were affected by a lack of electricity and available ice after the supertyphoons. The number of boats bottomfishing, the number of bottomfish trips, and the number of hours spent fishing increased 4%, decreased 44%, and decreased 43% respectively.

2.2.3 Recommendations

2002 Recommendations

A. Completing the baseline biological survey of the red-gill emperor, *Lethrinus rubrioperculatus*, remains the single most important data deficiency for the shallow water bottomfish resource for the Mariana Islands. DAWR's fisheries staff has discussed making progress towards completing this study when additional staff is available to ease the workload of the existing staff.

B. DAWR should establish mean fish size, percent immature, and SBB indicators for both deep and shallow water bottomfish complexes. Fine-tuning of this program should be completed in 2003

C. The BPT recommends the Council send letters to the Governments of CNMI and Guam to provide legal authority to the local fishery departments to monitor and collect information from all fishing sectors.

D. Regarding Guam offshore bottomfish management, the BPT supports alternative 2 but wants to ensure the following provisions are clarified:

- require permitted vessel to report on all fishing activity where ever fishing occurs.

- consider at-sea transhipment of bottomfish, which has occurred in the past.
- consider impacts to CNMI due to displaced larger vessels

2.3 Hawaii

2.3.1 Descriptors

Main Hawaiian Islands: Only commercial data are available for both the MHI and NWHI fisheries, even though the MHI recreational/subsistence catch is estimated to be about equal that of commercial landings. In 1988, there was a dramatic increase in MHI bottomfish landings due to a bonanza uku (gray snapper) harvest. A steady decline in total landings occurred until 1993, which was the lowest recorded annual value at the time. Landings increased 32% in 1994 and remained high through 1997, although CPUE was at a 12 year low in 1997. Participation and landings have declined over the past two years while CPUE has increased 29% in that same period. 2002 landings of 361,774 pounds are the lowest total landings since 1993 and the second lowest total landings since 1986. The 1.4% decrease in MHI bottomfish landings from 2001 to 2002 may be attributed to the 7.4% decline in number of trips taken in the MHI.

Total ex-vessel revenue from the MHI shows a general decline from 1988-1996 and has stabilized since. 2002 inflation adjusted revenue increased 6.6% from 2001 values, but still remains 41.4% below the long-term average.

NWHI Mau Zone: Mau Zone 2002 landings increased 116% from 2001 due to a 38.2% increase in number of trips from 55 in 2001 to 76 in 2002. Catch per trip increased by 54.6% in this zone. The total number of boats decreased from 6 in 2001 to 5 in 2002.

The Mau zone inflation adjusted revenue increased in 2002 to $334,800, up 137.4% from $141,000 in 2001. The inflation adjusted price per pound also increased in 2002 by 9.9%.

NWHI Hoomalu Zone: Hoomalu Zone 2002 landings decreased 49.2% from 2001. Four boats fished in 2002, one less than in 2002. The number of trips decreased by 36.6 % from 41 to 26. Bottomfish landings per trip decreased by 19.4% based on NMFS CPUE.

Inflation adjusted revenue decreased dramatically in 2002 (-43.6%), even though the inflated price per pound increased in 2002 by 11%.

2.3.2 Indicators

Hawaii Archipelago-wide:

SPR values for the five major BMUS species in 2002 are all above the 20% critical threshold level, that defines recruitment overfishing under the FMP, when viewed on an archipelago-wide basis. Of these species, onaga is still the lowest with a 2002 value of 26%. Implementation of the state's management plan should help improve the condition of onaga in the MHI and continue to increase the archipelago-wide SPR.

SPR values are also presented on a management zone basis (MHI, Mau Zone, Hoomalu Zone) for the purpose of determining locally depleted resources.

MHI: CPUE in 2002 decreased slightly from 2001 but remained above 1997 and 1998 levels. Recent CPUE values are approximately one-fourth the early (baseline 1948-50) values, signifying local depletion in the MHI. Most of the more commercially important species in the MHI have had relatively stable mean weights since 1984. Hapuupuu's mean weight dropped sharply in 1993 and has continued to be low. The small number of fish upon which the annual estimates are based may bias the result. However, with so many years in a row recording low mean weights, it is likely that marketed fish size has actually declined for MHI hapuupuu. Such a decline in mean size indicates increased stress on the MHI hapuupuu resource. These values do not exhibit a continuing decline, in fact, the 1997-2002 values are slightly greater than the 1995 lowest value.

For the eighth year 95% confidence intervals were constructed based on "best" and "worst" case bounds of SPR components (CPUE and percent immature). For the seventh year SPR values were calculated using both aggregate CPUE, as in previous years, and targeted CPUE, which gives a more accurate picture for individual species. 2002 aggregate CPUE SPR values for all five major species declined but remained above the 20% critical level, except for onaga and opakapaka: onaga (0.05), opakapaka (0.20), hapuupuu (0.26), ehu (0.24), and uku (0.24). The use of targeted CPUE showed a different picture for the four species where targeted trips are available. Here, ehu SPR is much worse than indicated using aggregate CPUE (SPR = 0.11), whereas SPR values for opakapaka and uku are much higher than previously indicated (SPR = 0.3029 and 0.2727, respectively). Onaga's SPR remains consistent when using targeted or aggregate CPUE and has now been below 0.20 for the past 10 years and ehu has increased to its highest SPR in 2001 since 1993 (using targeted CPUE).

NWHI Mau Zone: The NMFS CPUE data are only available for the NWHI fishery as a whole since 1984 and by zone since 1986. The NWHI (combined Mau and Hoomalu Zones) NMFS CPUE steadily decreased from 1987 to 1992, rose in 1993, and then declined from 1994-96. CPUE rose in 1997 to the 1993-94 level, but dropped slightly in 1998. CPUE decreased in 2001 to 467 lbs/day and continued to decreased in 2002 to 425 lb/day. The Mau Zone NMFS CPUE had been steadily decreasing since 1989, but increased in 1993 and 1994. In 1997, NMFS CPUE rose 49%. The CPUE declined 15% in 1998 and 7% in 1999 to 337 lb/day. Mau Zone CPUE dropped to 260 lbs/day in 2000 to similar levels as in 1992 and 1993, but decreased by 9%

in 2001. In 2002, CPUE increased to 438 lb/day, an increase of over 54.8% from 2001, and the highest CPUE since 1990. Mean weights of fish in the Mau Zone continue to exhibit year to year fluctuations, but are generally at much higher values than MHI mean weights. The percent of immature fish in the 2002 Mau Zone catch was just under 50% for all species evaluated.

SPR values in the Mau Zone have been decreasing since 1990 (mirroring the pattern in the HDAR CPUE), experienced a surprising rise in 1994, returned to lower levels in 1995, followed by a continued four year increase through 1999. All values are presently above well above the critical level of 0.20 for 2002. There was a notable increase in 2002 SPR values for all species evaluated in the Mau Zone, with all SPR values over 40%. SPR values are higher in the NWHI than the MHI because most of the catch is mature fish.

NWHI Hoomalu Zone: The Hoomalu Zone NMFS CPUE has been on a downward trend from since data collection began in 1988. 2002 CPUE continued to decrease to 412 lb/day from a 6-year high in 2000. Pounds per trip decreased by 19.4% in 2002. Mean weights of fish in the Hoomalu Zone continued to exhibit year to year fluctuations, but are still at much higher values than MHI mean weights. The percent of immature fish in the 2002 catch was just under 50% for all species evaluated.

The SPR values in the Hoomalu Zone decreased for all species. The 2002 SPR levels range from 41% to 65%.

Seamount Groundfish (Armorhead): No fishing has been allowed on the armorhead stocks of the SE Hancock Seamount since the moratorium began in August, 1986. The 1993 CPUE, calculated from research longline catches, was more than double that of the last assessment (in 1991) and nearly as high as the highest CPUE recorded since surveying began in 1985. No research cruise occurred since 1993, and future research assessment cruises are unlikely.

No SPR values were available in 2002 as no research was undertaken. In 1993, SPR within the EEZ (SE Hancock Seamount) was above 0.02, the highest since 1986, but still far below (10% of) the threshold level for recruitment overfishing of 0.20. About 99% of the known armorhead seamount habitat occurs outside the U.S. EEZ, an area which had 0.06 SPR in 1993. During February and March 1997, an oceanic and larval armorhead survey over the seamounts outside the U.S. EEZ was conducted onboard the R/V Kaiyo Maru by the National Research Institute of Far Seas Fisheries Laboratory in Shimizu, Japan. Armorhead larvae were collected from surface waters around all seamounts except for Koko Seamount.

2.3.3 Recommendations

2002 Recommendations

A. The BPT recommends the Council support and participate in the State of Hawaii's effort to review and assess effectiveness of the Main Hawaiian Island bottomfish area closures.

B. The BPT recommends that the NMFS re-evalute MSY and standardized cpue and effort estimates for the Hawaiian archipelago.

2.4 Northern Mariana Islands

2.4.1 Descriptors

Data are available only on the commercial fishery. Landings of bottomfish has decreased (34.3% fewer pounds in 2002 than in 2001) from the highest total landings last year (57.1% more pounds in 2001 than in 2000), to slightly higher than the 20-year mean. This fishery continues to show a high turnover with changes in the high liners participating in the fishery, and an increased number of local fishermen focusing on reef fishes in preference to bottomfishes. In 2002, the number of vessels fishing decreased to 53 following 75 in 2001 and 66 in 2000. The number of trips decreased to just above the long term average with 374 trips, which is the down 55.2% from the highest number of trips recorded in 2001 (834).

Both the unadjusted and adjusted prices decreased in 2002. Both the unadjusted and adjusted prices decreased by 5.9% from 2001. The unadjusted price was higher than the long term average, but the adjusted price was 8.6% lower than the mean for the last 20 years. The total 2002 ex-vessel revenue decreased to $135,823, the seventh-highest revenue in the last 20 years.

2.4.2 Indicators

The average bottomfish catch per trip increased from 86 lb/trip in 2001 to 126 lb/trip in 2002. Although the average catch per trip is not a very good measure of CPUE, because it is subject to significant biases (e.g., changes in trip length and relative amounts of bottom fishing compared to trolling or reef fishing); it is the only measure readily obtained from the commercial landings system. However, the smaller vessels commonly make mixed trips and the relative proportions of bottom fishes to pelagic and reef fishes seem to be changing. Between 1997 and 2001 the number of fishermen selling both pelagic fishes and bottomfishes decreased and was lower than the 5-year mean. The number selling both pelagic and reef fishes increased in 2002 to greater than the 5-year mean. The number selling only pelagics also decreased to below the 5-year mean. Given that fishermen appear to be changing the focus of their trips to include more reef fishing and less bottom fishing, this measure is an increasingly inaccurate portrayal of the actual CPUE. It has been suggested that it may be possible to improve this measure of CPUE by using only those trips that landed bottomfish exclusively. However, in 2002, 0.0% of the fishermen making sales exclusively sold bottomfish. These numbers are too low to be indicative of the entire fishery.

Revenues significantly decreased (38% less than in 2001). The unadjusted revenue and inflation-adjusted revenue for 2002 is greater than the mean for the last 20 years, and is the seventh highest value. This is a result of the combined effect of lower pounds landed and a lower price per pound for almost all bottomfish species.

2.4.3 Recommendations

2002 Recommendations

A. To request NMFS and the Council continue to assist the CNMI by contracting a specialist to map commercial fishing banks, particularly around Farallon de Medinilla, Marpi Reef, and the banks closest to Saipan, Tinian, and Rota.

B. To request NMFS and the Council continue to assist the CNMI by supporting the MARAMP cruises to the northern islands of the CNMI.

C. To request the council to hire a consultant to examine and assess the best way to capture the data necessary for fishery management (potentially through creel surveys, community development programs, commercial purchase systems, or other types of data collection systems), while including the local social, political, legal, and economic constraints within the CNMI.

2.5 Region-Wide Recommendations 2002

A. The BPT recommends the Council send letters to the Governments of CNMI and Guam to provide legal authority to the local fishery departments to monitor and collect information from all fishing sectors.

B. Regarding overfishing, the BPT recommends the Council conduct sensitivity analysis on the effects of MPAs on fishery based estimates of fishing mortality and cpue for potential impacts in relation to overfishing/overfished thresholds.

2.6 NMFS 2002 Administrative Activities

2.6.1 Use-it or Lose it Requirement for Permit Renewal (Calendar Yr 2002)

Mau Zone limited entry permits expire on December 31 each year. NMFS will renew a permit for the following year if the permit holder's vessel made a minimum of 5 separate landings, each of which consisted of at least 500 pounds of bottomfish management unit species, from the Mau Zone during the previous permit year. Failure to meet the required landing requirement may result in the permit being lost (not renewed). All 2002 Mau Zone limited entry permit holders will be required to meet this permit renewal requirement.

2.6.2 Northwestern Hawaiian Islands (NWHI) Bottomfish Fisheries

During calendar year 2002, PIAO issued a total of 9 permits for the NWHI bottomfish fishery. Five vessels fished in the Mau zone and four vessels fished in the Hoomalu zone. Four

vessels were registered for the Ho'omalu Zone fishery; 5 vessels were registered with Mau Zone permits.

Ho'omalu Zone vessels

1. Ka Imi Kai
2. Fortuna
3. Laysan
4. Kealailani

Mau Zone vessels:

1. Kai Pali
2. Imua
3. Wahine Kapaloa
4. Jamie Elizabeth
5. Iwa lani

2.7 NOAA Fisheries and USCG Enforcement Activities in 2002

2.7.1 NOAA Fisheries Office for Law Enforcement Southwest Enforcement Division

INVESTIGATIONS and ENFORCEMENT PARTNERSHIPS

Throughout this reporting period, random dockside compliance checks of Hawaii-based longliners were conducted. Minor technical violations were noted and addressed. In addition, several prominent investigations involving potential violations of the Western pacific Pelagic Regulations addressing the harvesting of swordfish were initiated.

In order to facilitate a consolidated response to marine resource enforcement issues, the NOAA Office for Law Enforcement partnered with the Hawaii Department of Conservation and Resources Enforcement, the U.S. Coast Guard, the Guam Customs and Quarantine, Maritime Enforcement Unit, and the American Samoa Department of Marine and Wildlife Resources, Office of Enforcement.

Joint patrols were conducted with personnel from the Hawaii Department of Conservation and Resources Enforcement on the Big Islands of Hawaii in order to assess and deter potential harassment of spinner dolphins.

Enforcement personnel worked in partnership with researchers from the Pacific Islands Fisheries Science Center to resolve the status of land-locked sea turtles on private property. The turtles were listed as threatened or endangered.. Strategies including returning the sea turtles to the open ocean.

The resident special agent in American Samoa attended the Coral Reef Advisory Group (CRAG) meeting and provided an enforcement assessment for the area.

The United States Navy in conjunction with the Pacific Missile Range Facility at Barking Sands,

Kauai, relied on the NOAA OLE Hawaii Field Office to assist with the identification of fishing vessels in exclusion zone areas prior to missile test launches.

PUBLIC OUTREACH

Public education, outreach, and enforcement efforts in conjunction with the Hawaiian Islands Humpback Whale National Marine Sanctuary continued during 2002. Consistent with previous years, public education, deterrence, and intervention strategies were maintained throughout the 2001/2002 whale watching season. The NOAA Fisheries Office for Law Enforcement participated in pre-season enforcement workshops during November and December of 2001.

Enforcement personnel liaised with representatives from the native Hawaiian community as well as other local environmental advocates to address harassment issues impacting spinner dolphins on the Big Island of Hawaii. Informational community outreach letters were developed to educate ocean users, as well as local businesses about the requirements of the marine Mammal Protections Act relative as it applies to wild spinner dolphins in Hawaii.

VESSEL MONITORING SYSTEM

The Vessel Monitoring System (VMW) continued to be an integral part of the Pacific Islands/Southwest Law Enforcement's Monitoring, Control, and Surveillance (MCS) program. The VMS continued to be an effective tool for monitoring compliance with closed area and seasonal restrictions in the region, and cooperation from the fishing community continued to remain at high levels.

The size of the VMS program is relatively stable, with approximately 150 vessels in the program. OLE continued to monitor the entire permitted Hawaii longline fleet. In addition, most former Hawaii-based vessels that conducted fishing operations in California and American Samoa still have the VMS units on board.

Southwest Enforcement continued to monitor, as part of a voluntary demonstration, a US krill fishing vessel in the CCAMLR management area of Antarctica.

The VMS cued several investigations into alleged closed area violations. Additionally, the VMS continued to be an important tool to assist the United States Coast Guard in search and rescue operations.

The transition of the Main Hawaiian Islands longline closed area from the "Winter" to "Summer" configuration happened on February 1st, and from "Summer" to "Winter" on October 1st. NMFS OLE did not observe any unauthorized activity related to these changes.

Throughout the year, Pacific Islands/Southwest OLE continued to coordinate efforts and assist

NMFS Headquarters in the development of a national VMS Program.

To improve coral reef conservation in the Northwestern Hawaiian Islands, the VMS control center was modified to accept depth data that is transmitted automatically from VMS units. The project is ongoing, and the next phase will establish the transmission of depth data from vessel to shore side control center.

In retrospect, the Hawaii VMS Program has clearly demonstrated that a fishing vessel monitoring system can be an effective use of technology to improve monitoring, control and surveillance of regulated fisheries. VMS, in conjunction with air and surface patrols, promotes and supports regional strategies for conservation and management of highly migratory species in the Central and Western Pacific.

2.7.2 USCG Enforcement

United States Coast Guard Enforcement Activities

The United States Coast Guard (USCG) conducted roughly 800 hours of fisheries patrols with C-130 aircraft in the Central and Western Pacific ocean during fiscal year 2002. A balance in aerial surveillance effort was sought as well, yet during FY 2002, the majority of available C-130 resource hours were spent in support of the Homeland Security mission. The USCG deployed C-130s in response to intelligence cueing and increased fishing activity in close proximity to the non-contiguous EEZs. They conducted several C-130 deployments to American Samoa and Guam, with additional over-flights of Wake, Jarvis, Johnston, Howland-Baker, and Palmyra to monitor the Central and Western Pacific EEZs. Nevertheless, the need for flight hours to support the Maritime Homeland Security mission impacted their ability to deploy, and overall, there was a reduction in the total number of C-130 hours flown in support of fisheries enforcement.

The C-130 surveillance of the eight non-contiguous EEZ s was broken down as follows: 520 hours in the Main Hawaiian Islands, 8 hours in the Northwest Hawaiian islands, 105 hours in Guam and the Northern Mariana Islands, 56 hours in American Samoa, 15 hours in Palmyra Atoll/Kingman Reef, 49 hours in Jarvis Island, and 41 hours in Howland/Baker Islands.

In FY 2002, over 1300 cutter hours of fisheries patrol were conducted in the Central and Western Pacific ocean. The USCG provided only a minimal presence in the Central and Western Pacific EEZs, as they continued to balance efforts between fisheries enforcement operations throughout the region and post- September 11th Homeland Security missions in the vicinity of the Main Hawaiian Islands. There were almost 200 fishing vessel boardings in FY 2002. The breakdown of vessels boarded is as follows: 133 were U.S and 63 were foreign.

It is estimated that 89 EEZ encroachments by foreign fishing vessels occurred in FY 2002 and only three suspected violators were intercepted by Coast Guard units.