Appendix 1

American Samoa

CONTENTS

Summary

American Samoa's bottomfish fishery was relatively bigger between 1982 and 1985 when this fisheries was new and booming (Figure 1). In 1988 a decline in bottomfish fisheries occurred as many skilled and full-time commercial fishermen converted to trolling. Profits and revenues in bottomfishing suffered devastating blows from four separate hurricanes; Tusi in 1987,Ofa in February of 1990 and Val in December of 1991 and Heta in January of 2004 (Figure 2). The gradual depletion of newly discovered banks and migration of many fishermen into other fishing vendors resulted in the decline of landings in the mid 1980s (Figure 1). Fuel prices have gradually soared in the past four years causing yet another strain in the bottomfish fisheries (Figure 3). The average price of bottomfish has also declined due to the shift of local bottomfish demand to imported bottomfish competing closely with local prices. In 2004, 60% of coolers imported from the independent state of Samoa on the Lady Naomi Ferry are designated for commercial purposes; from the Commercial Invoice System 50% of these coolers are bottomfish

During 2004, a total of 25 local boats landed an estimated 21,500 pounds of both commercial and recreational bottomfish in the territory. Revenues from the commercial fishery this year was estimated around $21,800 with all catch being sold locally. The CPUE for 2004 (5.6 lb/hr) was the lowest ever but not less than 50% of the aggregate CPUE for the first 3 years of this fishery. Effort (hours and trips) has been increasing since 1998 as some of the Alias that normally troll and/or longline perform bottomfishing when trolling and longline prices and catches decline.

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Regarding some of the SFA amendments: ***Commercial*** Bottomfish Landings and Revenues statistics for American Samoa is presented in Figure 2. No bottomfish ***Recreational*** trip was recorded this year. **Recreational** fishing is more associated with the pelagic fisheries and usually never occur in this fishery. There was no ***chartered*** bottomfish trip during this year and no **bottomfish by catch was recorded this year (Table 3).** In the *Preliminary Draft of EFH, Amendment for Bottomfish, WPRFMC Feb.1998***, the approximate MSY estimate for American Samoa** [196 nautical miles 100-fathom isobath] is estimated at 79,000 lbs. per year. Only about 40% was reached this year.

Indicators derived from current data do not dictate immediate management response at this time.

The following selected annual statistics dating back to 1982 provides a brief historical snapshot of American Samoa's bottomfish fishery

Selected Historical Annual Statistics

Year	Total Landings (lb)	CPUE (lb/trip-hr)	Commercial Landings (lb)	Adjusted Revenue	Adjusted Price/Lb.	CPI	Number of Boats
1982	64942	8.5	62016	$213146	$3.43	100.0	27
1983	126327	10.0	125167	$500763	$4.00	100.8	38
1984	94104	10.7	92841	$304624	$3.29	102.7	48
1985	143225	8.1	102670	$255822	$2.50	103.7	47
1986	91533	8.3	90775	$205446	$2.26	107.1	37
1987	31232	11.9	30740	$76335	$2.48	111.8	21
1988	63136	17.3	60388	$158238	$2.62	115.3	32
1989	47646	16.7	36330	$87412	$2.40	120.3	33
1990	14303	9.2	12535	$30069	$2.41	129.6	24
1991	18665	9.1	17736	$41204	$2.33	135.3	23
1992	13374	9.3	13322	$37150	$2.79	140.9	14
1993	17584	7.3	15657	$40646	$2.59	141.1	26
1994	45105	7.7	41552	$101447	$2.44	143.8	25
1995	34945	9.8	34487	$75377	$2.18	147.0	35
1996	38522	14.8	37911	$85049	$2.25	152.5	35
1997	39882	14.7	38357	$99219	$2.59	156.4	37
1998	15884	14.0	14405	$42277	$2.94	158.4	30
1999	19385	12.9	17070	$49994	$2.93	159.9	34
2000	28270	10.2	26211	$61911	$2.36	166.7	38
2001	48862	15.2	38647	$102250	$2.64	168.8	29
2002	42096	7.6	37554	$88288	$2.35	169.2	17
2003	26795	15.3	12741	$26631	$2.09	177.5	19
2004	28249	7.5	16576	$31958	$1.93	187.2	25
Averages	47568	11.1	42421	$118055	$2.60		30.2
Std. Dev.	34632	3.2	31403	$110609	$0.46		8.61

Introduction

Bottomfishing utilizing traditional canoes by the indigenous residents of American Samoa has been a subsistence practice since the Samoans settled into the Tutuila, Man'ua and Aunu'u islands. It was not until the early 1970's that the bottomfish fishery developed into a commercial scheme utilizing motorized boats. A government subsidized program, called the Dory Project, was initiated in 1972 to develop the offshore fisheries into a commercial venture, and resulted in an abrupt increase in the fishing fleet and total landings. In 1982, a fisheries development project aimed at exporting high-priced deep-water snappers to Hawaii caused another notable increase in bottomfish landings and revenues. Between 1982 and 1988, the botttomfish fishery comprised as much as 50% (by weight) of the total commercial landings. Beginning in 1988, the nature of American Samoa's fisheries changed dramatically with a shift in importance from bottomfish fishing towards trolling. In the past eight years, the dominant (by weight of fish landed) fishing method has been longlining.

During the early 1980's, fisheries data was collected from the bottomfish fishery by interviewing only commercial vessels. In the current Offshore Creel Survey on Tutuila that started on October 1, 1985, commercial, subsistence and recreational domestic fishing boats landing catch in five designated areas were interviewed and their catch recorded. Every two weeks a total of seven weekdays and one weekend of regular morning and evening shift surveys are conducted, with two days of regular office hours where opportunistic interviews are collected. In the past three years, the sampling period was increased and modified to encompass boats that come in earlier or after the normal sampling period. Two DMWR samplers based on Tau and Ofu collect fisheries data from the Manu'a islands fleet and one in Aunuu.

Boat-based fishing in American Samoa used to be mainly trolling and/or bottomfish. In the past six years, record longline landings were recorded with revenues around the one million-dollar mark. Bigger foreign boats are entering the local fisheries but these are rigged for longlining and more of these are expected to enter the territory's longline fishery. Limited entry options have been initiated to check this increase.

The bottomfish fishery of American Samoa was typically commercial overnight bottomfish handlining using skipjack as bait, on 28-30 feet aluminum/plywood Alias. Imported bottomfish from the independent state of Samoa help satisfy the demand for bottomfish however it weakens the local bottomfish fishery. The adverse effects of four hurricanes that struck American Samoa in 1987, 1990, 1991 and the most recent one in 2004 can be seen throughout the various trends depicted in this report.

Recent changes in the fishery and improvements in the Offshore Creel Survey requires modifications to algorithms used to process the data for this report. Hence the continuous improvements to DMWR's data processing systems by WPacFIN staff.

Recommendations

2004 Recommendation:

1. DMWR should enhance internal development through training for staff in order to minimize chances of misidentification.
2. Incorporate market data from Market surveys into the database.
3. Include Import data from Western Samoa into the database for further enhancement of this report.

Status of 2004 Recommendation:

1. The DMWR biologist hired in 2003 compiled a local bottomfish identification charts that the technicians are able to take with them to help with identification.
1. This same biologist whom is responsible for the offshore creel survey, has participated in many surveys, to further illustrate to technicians the proper methods of data collecting, fish identification, measuring and surveying.
2. In 2004 Market survey was on hold.
2. Incorporation of Market data raises concern of double sampling; Offshore Creel Survey and Markey Survey.
3. Import data from western Samoa should only be used as a comparison tool. Including import data to the territory's database proves irrelevant to our goals in the fisheries.

2005 Recommendation:

1. Technicians require intensive fish identification training, requesting council to compose training workshop for all Western Pacific members to standardize data.
2. Establish a centralized fish market for fishermen and businessmen.
3. DMWR should mandate fishermen and store owners to allow technicians to conduct interviews.
4. FoxPro data collecting system should enter data using scientific names and not use common names or local names.
5. A data sampling port should be established near the boat docks to not only centralize interviews but to maximize the quantity of interviews.

Table 1. **American Samoa 2004 Estimated Total Bottomfish Landings by Species.**

Interpretation: The bottomfish species list has increased by an additional 13 species due to samplers' ability to identify more species. Historical and current data and observations however, do not indicate any major changes in the composition of the bottomfish species landed.

Source: DMWR Offshore Creel

Calculation: Catches are normally weighed by species either at landing sites or during the selling of fish to stores and restaurants. Trips missed by the Creel Survey are accounted for in a separate data collections system – the Commercial Invoice System. This analysis, as in the past, is for the Offshore Creel Survey catch only. Analysis of the bottomfish fishery presented in this report is for the whole bottomfish complex and **not just for the BMUS.**

Species	Pounds
BMUS	
Blue lined snapper	2564
Squirrel Snapper (Ehu)	718
Flower Snapper (Gindai)	155
Gray jobfish	1992
Hawaiian opakapaka	1587
Lehi (silverjaw)	654
Onaga (longtail snapper)	1004
Yellowtail snapper	80
Blacktip grouper	86
Lunartail grouper	1127
Ambon emperor	4537
Redgill emperor	1935
Black jack	636
BMUS SUBTOTALS	**17074**
OTHER	
Bottomfish (Assorted)	3846
Black snapper	100
Yellow Margined snapper	2
Blood snapper	10
Blue lined gindai	97
Paddletail snapper	2104
Kusakar's snapper	40
Multidens snapper	79
Onespot snapper	112
Pristipomoides/Etelis	9
Rufous snapper	102
Stone's snapper	210
Twinspot/red snapper	92
Yellow opakapaka	310
Groupers (misc)	176
Flagtail grouper	92
Peacock grouper	44
Smalltooth grouper	184
Spotted grouper	331
Tomato grouper	302
Yellowspot grouper	3
Emperors (misc)	674
Bigeye squirrelfish	63
Orangespot emperor	64
Longnose emperor	986
Jacks (misc)	559
Bigeye trevally	452
Goldspot trevally	38
Trevally (C.caeruleop.)	91
OTHER SUBTOTALS	**11175**

Table 2. American Samoa 2004 Estimated Commercial Landings by Species.

Interpretation: There have been no major changes in individual species prices in the past eight years. DMWR keeps track of fish prices for imported fish and those missed by the Offshore Creel Survey through a separate data collection system – the Commercial Invoice System. From this data processing system the average price of bottomfish imported from Western Samoa were lower than locally caught bottomfish. However, this year the margin is only ten cents. It implies the improvement in import fish quality and it's rising competition to local fishermen. The decrease in price since 1998 is a result of not only competition from imported fish but also increase competition.

Source: DMWR Offshore Creel Survey and Commercial Invoice System

Calculation: During creel surveys, the disposition of the catch is recorded, and if sold, the price is obtained whenever possible. The average prices reported in this table are calculated by dividing the total revenue by the weight sold in pounds for each species.

Species	Pounds	Price/Lb.	Value
BMUS			
Blue lined snapper	1812	$1.81	$3281
Squirrel Snapper (Ehu)	670	$2.42	$1623
Flower Snapper (Gindai)	73	$2.11	$154
Gray jobfish	1552	$1.87	$2898
Hawaiian opakapaka	1587	$1.79	$2843
Lehi (silverjaw)	358	$1.95	$698
Onaga (longtail snapper)	728	$2.00	$1460
Yellowtail snapper	62	$2.08	$129
Blacktip grouper	33	$1.96	$65
Lunartail grouper	205	$2.06	$421
Ambon emperor	2783	$1.89	$5261
Redgill emperor	1570	$1.96	$3077
Black jack	469	$2.19	$1028
BMUS SUBTOTALS	**11900**	**$1.93**	**$22937**
OTHER			
Bottomfish (Assorted)	852	$1.98	$1687
Black snapper	100	$2.00	$201
Blood snapper	10	$1.70	$18
Blue lined gindai	53	$3.65	$194
Paddletail snapper	1244	$1.84	$2285
Kusakar's snapper	32	$2.13	$68
Multidens snapper	18	$1.85	$34
Onespot snapper	108	$1.55	$167
Pristipomoides/Etelis	4	$3.00	$12
Rufous snapper	66	$2.09	$138
Stone's snapper	103	$2.06	$214
Twinspot/red snapper	8	$2.00	$15
Yellow opakapaka	167	$2.07	$346
Groupers (misc)	102	$1.77	$181
Flagtail grouper	70	$1.95	$137
Peacock grouper	32	$1.82	$58
Smalltooth grouper	149	$2.00	$297
Spotted grouper	270	$1.97	$531
Tomato grouper	112	$2.06	$231
Yellowspot grouper	3	$1.85	$6
Emperors (misc)	64	$1.78	$114
Bigeye squirrelfish	48	$2.10	$102
Orangespot emperor	49	$1.70	$84
Longnose emperor	313	$1.87	$585
Jacks (misc)	153	$2.00	$306
Bigeye trevally	452	$1.87	$846
Goldspot trevally	19	$1.70	$33
Trevally (C.caeruleop.)	72	$1.85	$134
OTHER SUBTOTALS	**4675**	**$1.93**	**$9021**
TOTAL BOTTOMFISH	**16576**	**$1.93**	**$31958**

Table 3. American Samoa 2004 Bottomfish Bycatch

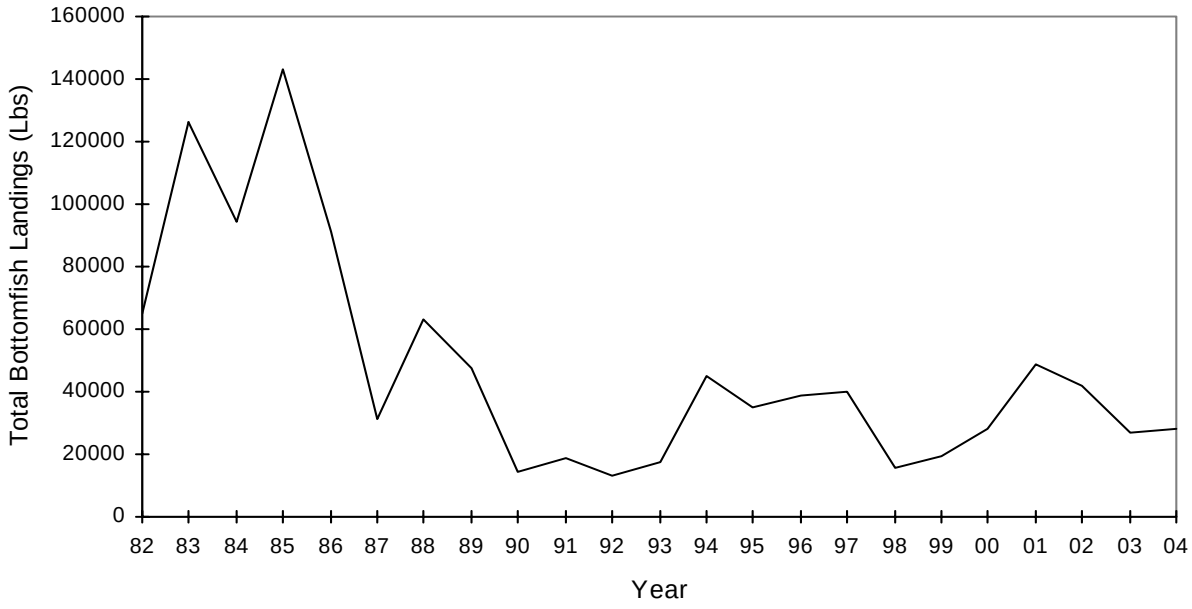
	Bycatch						Interviews		
Species	Alive	Dead Inj	Unk	Total	Catch	%BC	With BC	All	%BC
All Species (Comparison)					6623	0.000	0	796	0.00

Interpretation: No bycatch was reported in 2004.

Source: DMWR Offshore Creel Survey

Calculation: The Bottomfish Bycatch table is obtained from creel survey interviews. The Bycatch numbers are obtained by counting fish in the interviews for purely bottomfishing trips with a disposition of bycatch. The catch for all species included for comparison is obtained by counting all species of fish caught by purely bottomfishing interviews and the number of interviews is a count of purely bottomfishing interviews

Figure 1. American Samoa Total Bottomfish Landings



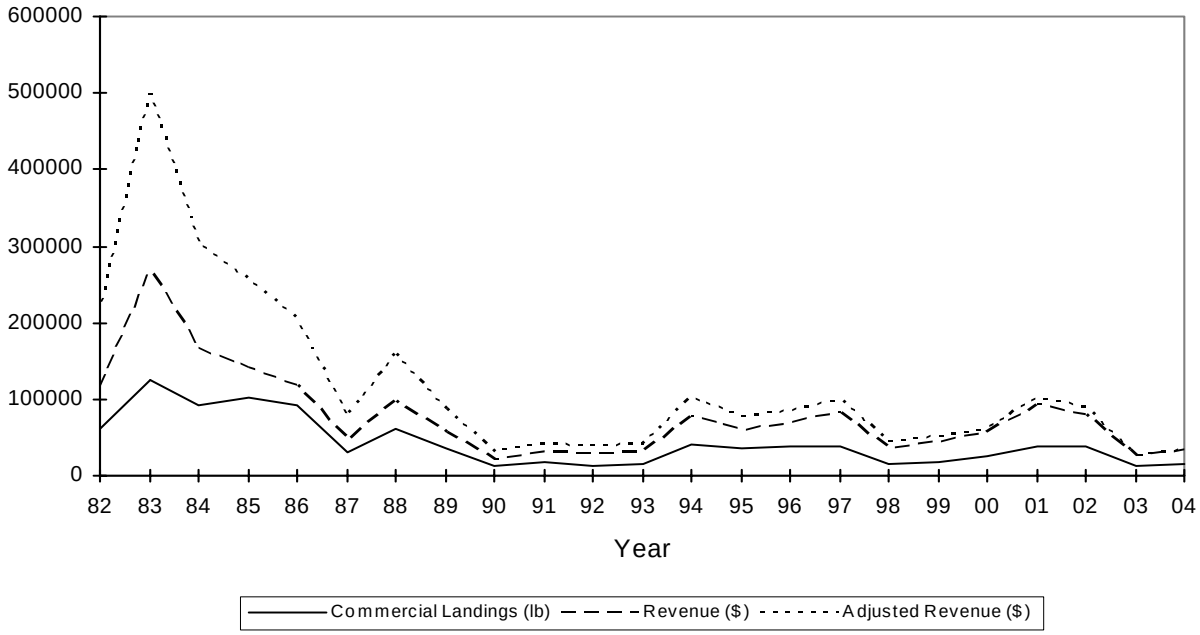
Interpretation: Landings have varied throughout the years as a result of shifts in the fisheries, natural events and modernization. From 1982-1985 bottomfish landings was at the highest ever due to it being a new fishery. The steep drop from 1985 to 1987 occurred as a result of the introduction of longlining, a much lucrative fishery compared to bottomfish. Hurricane Tusi in 1987, Ofa in 1990, Val in 1991 and Heta in 2004 caused severe damages to the fishery that echoed in the following years. In the past four years, landings have declined steadily as fuel prices increase. In addition, locals are turning to imported bottomfish mainly because they get more for their dollar. The increase in 1994 was due primarily to improved sampling on Tutuila and increased efforts by the Tutuila highliners. The 1998 decline mirror the 33% decrease in the number of boats participating. The affects of Hurricane Heta is inevitable in 2004 as landings decreased significantly compared to the previous year.

Source: DMWR Offshore Creel Survey Database

Calculation: Bottomfish landings for 1982-84 were calculated by adjusting the sampled Tutuila data by the calculated annual percent coverage of the fleet, and then adding the similarly adjusted Manu'a landings. The landings from 1986 to Present were calculated by expanding the Offsfore Creel Survey Data for Tutuila for the species listed in Table 1. The sampled Manu'a landings were adjusted by adjusting for the monthly perecent coverage of the fleet and added to the Tutuila data. Since the Offshore Creel Survey started in October 1, 1985, The first nine month of the 1985 landings were calculated as it was in 1982-84 and the last three months of the 1985 landings were calculated as it is now.

Year	Landings(lb)
1982	64942
1983	126327
1984	94104
1985	143225
1986	91533
1987	31232
1988	63136
1989	47646
1990	14303
1991	18665
1992	13374
1993	17584
1994	45105
1995	34945
1996	38522
1997	39882
1998	15884
1999	19385
2000	28270
2001	48862
2002	42096
2003	26795
2004	28249
Average	47568
Std. Dev.	34632

Figure 2. American Samoa Estimated Commercial Bottomfish Landings



Interpretation: Commercial landings mirror the total fishery's low catches in recent years compared to the robust 1982-1986 period. The peak in 1983 portrays the high prices of deep-water snappers exported to Hawaii. The trough in 1987 can be attributed to effects of the 1987 hurricane. The February 1990 and December 1991 hurricanes contributed largely to the decreased landings and subsequently a decrease in revenues in the early 1990s. Relative to total landings, commercial landings decreased even more substantially in 1989, because the percent of the catch sold by bottomfish fishermen dropped from an average of about 97% in 1982-88 to 78% in 1989., Increased efforts in 1994 produced a notable increase in revenues and no major changes in commercial landings have been recorded since then. A dramatic drop in commercial landings trailing as far as three

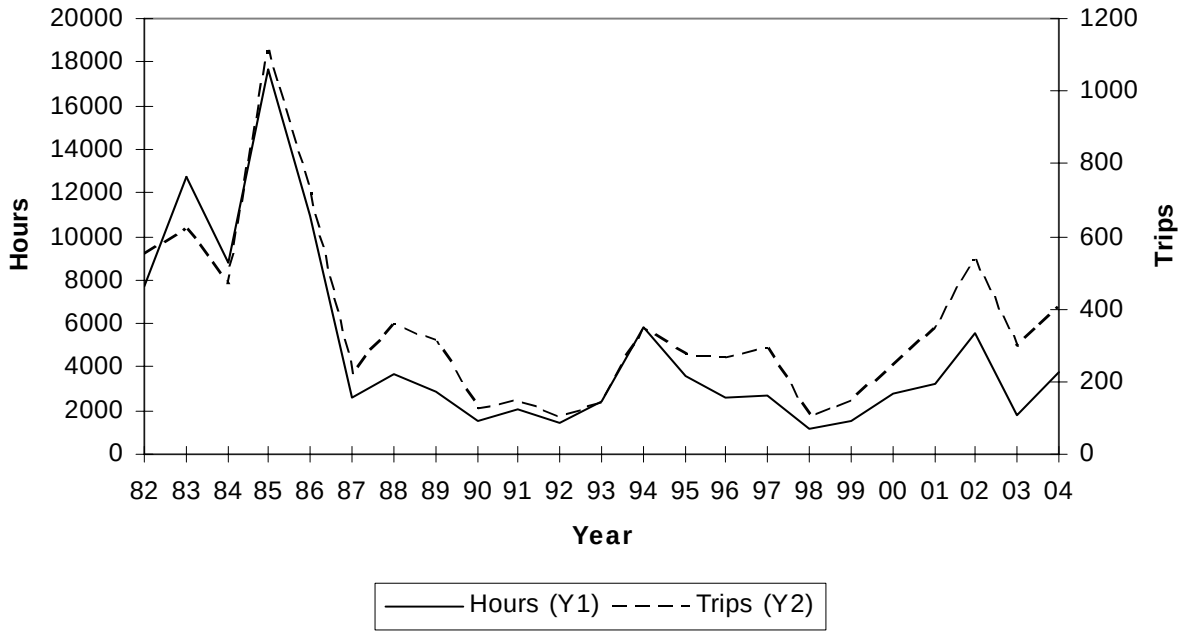
Year	Commercial Landings (lb)	Revenues	CPI Adj.	Adjusted Revenue
1982	62016	$113678	1.875	$213146
1983	125167	$269083	1.861	$500763
1984	92841	$166917	1.825	$304624
1985	102670	$141495	1.808	$255822
1986	90775	$117331	1.751	$205446
1987	30740	$45519	1.677	$76335
1988	60388	$97258	1.627	$158238
1989	36330	$56033	1.560	$87412
1990	12535	$20752	1.449	$30069
1991	17736	$29729	1.386	$41204
1992	13322	$27932	1.330	$37150
1993	15657	$30584	1.329	$40646
1994	41552	$77797	1.304	$101447
1995	34487	$59120	1.275	$75377
1996	37911	$69202	1.229	$85049
1997	38357	$82683	1.200	$99219
1998	14405	$35707	1.184	$42277
1999	17070	$42621	1.173	$49994
2000	26211	$54983	1.126	$61911
2001	38647	$92034	1.111	$102250
2002	37554	$79610	1.109	$88288
2003	12741	$25242	1.055	$26631
2004	16576	$31958	1.000	$31958
Average	42421	$76838		$118055
Std. Dev.	31403	$56198		$110609

years prior is a result of gradual commercial shift of demand catered by imported fish, hurricane effects, gas prices, loss of experienced fishermen and many preferring trolling and longlining.

Source: DMWR Offshore Creel Survey Database

Calculation: A relatively complex set of algorithms are used to estimate the commercial landings from estimates of total landings created by the creel survey data expansion system. In short the percent sold by species and by fishing method is calculated annually and multiplied by the estimated total landings by that method for that year. For 1982-85 sampling was conducted on the commercial fleet only (which included nearly all of the fishing boats), whereas since the 1985 creel sampling has covered all boats (commercial and recreational). Analysis of creel data for 1986-87 indicates that over 98% of the landed bottomfish was being sold. Therefore is it believed to be valid to compare commercial data for years prior to 1986 to creel survey totals for years since 1986.

Figure 3. American Samoa Estimated Bottomfish Hours and Trips



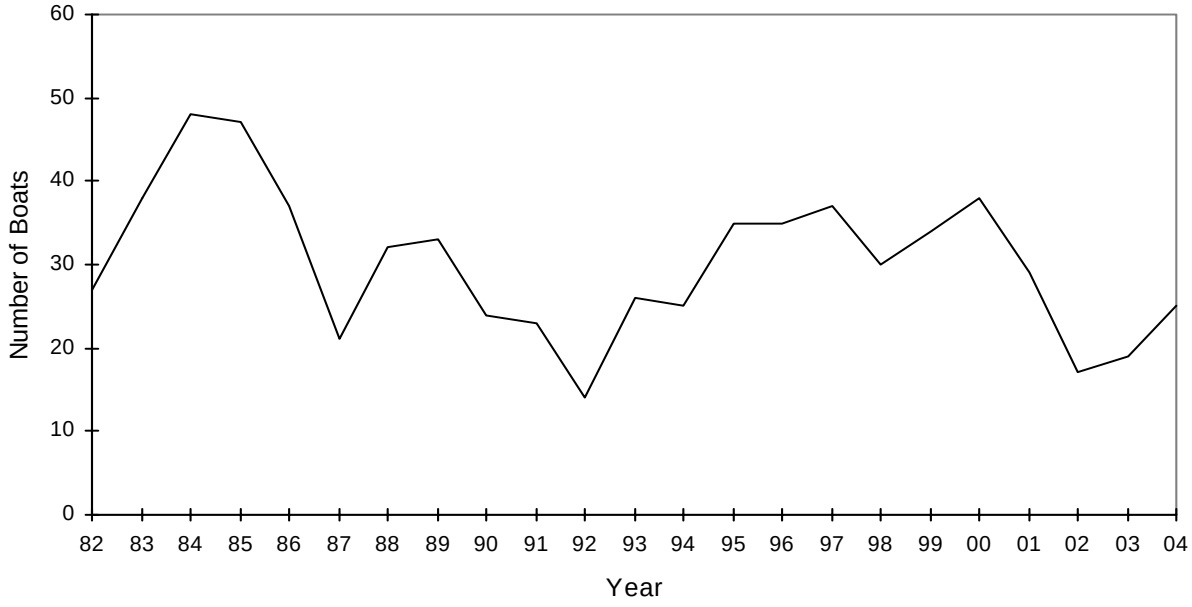
Interpretation: The sharp decline in the bottomfish landings since 1986, noted in Fig.1 is mirrored in this figure by a sharp decline in the level of effort expended in that fishery. Rather than indicating a problem with the resource , this decline depicts an actual trend of commercial boat owners and fishermen seeking other more lucrative and stable work. The 1994-1996 estimated efforts were greater than those for the 1990-93 period due to the highliners increased efforts, with some boat owners employing teams (usually 2-3 fishermen) in continuous shifts during good weather. In 1997 and 1998 the number of boats participating in this fishery dropped significantly (see Figure 4) resulting in the notable declines in the number of trips and hours fished that period. The 1999 increase in effort can be attributed to some Alias that normally longline and troll, doing occasional bottomfishing. With so many vessels in the bottomfish fishery this year, there is that much more hours invested in the effort to create a profit efficiently. With longlining slowing down, notice the increase in hours and trips in 2004 in bottomfishing.

Source: DMWR Offshore Creel Survey Database

Year	Hours	Trips
1982	7671	548
1983	12695	621
1984	8796	468
1985	17682	1116
1986	10983	717
1987	2632	220
1988	3654	353
1989	2854	314
1990	1548	122
1991	2041	145
1992	1433	101
1993	2402	141
1994	5873	342
1995	3551	275
1996	2608	265
1997	2713	290
1998	1134	100
1999	1506	144
2000	2775	244
2001	3205	342
2002	5524	538
2003	1752	296
2004	3782	405
Average	4731	352
Std. Dev.	4114	232

Calculation: The annual estimated hours spent bottomfishing is calculated by dividing the annual total bottomfish catch by the average CPUE (pounds per hour) from trips doing only bottomfish fishing. The annual estimated number of trips is calculated by dividing the estimated annual hours by the average length of a bottomfish fishing trip. The average length of a bottomfish fishing trip (not shown) is calculated by using only trips which exclusively bottomfished and for which the trip length was recorded. The total hours fished from those trips is then divided by the number of trips. Recorded hours are trip hours.

Figure 4. American Samoa Annual Estimated Number of Boats Landing Bottomfish



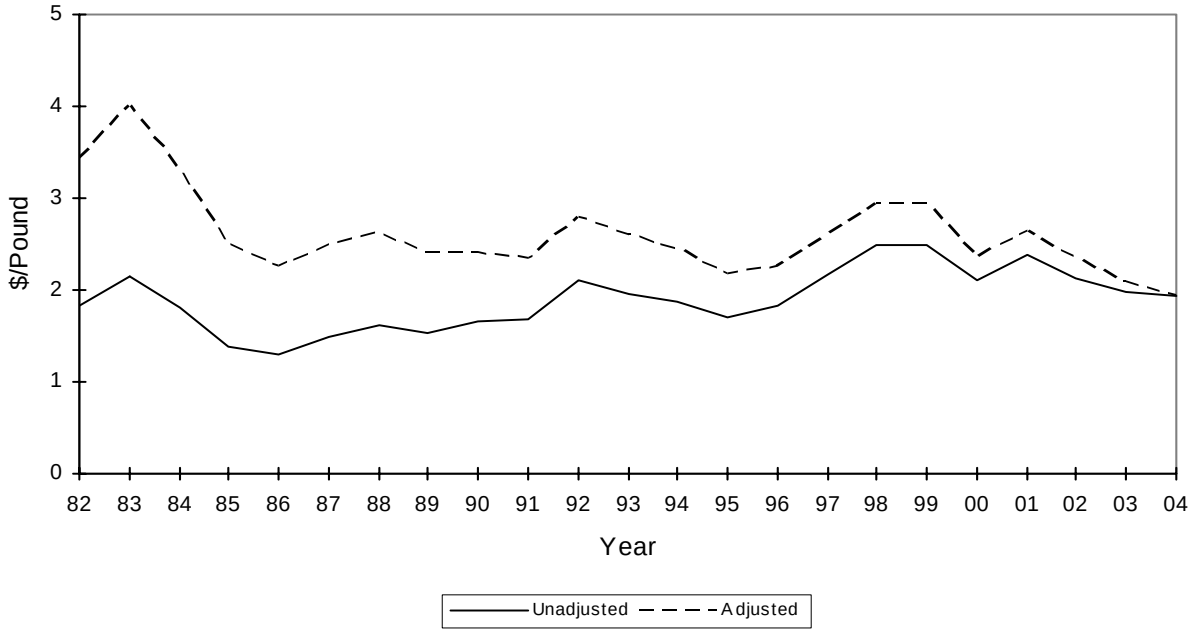
Interpretation: The decline in the fishery since 1985-86 is reflected by a decline in the number of boats participating in it. The 1987 hurricane caused the loss of the whole Manu'a fleet, plus some of the Tutuila fleet. Several Boats that contributed to the 1989 bottomfish annual landings did not land any bottomfish in 1990, due to much needed boat repairs and their participation in non-bottomfish chartered trips. About 90% of the domestic fishing fleet was affected by the December 1991 hurricane, hence the slight decline in 1992. The increase in 1993 is due mainly to the re-entry to this fishery of a few boats after repairs, trips by two 14-foot vessels that didn't bottomfish in 1992, and the entry of one new Alia into the sampling area. A few new Alias were bought from western Samoa and entered the fishery in 1995-1996. The continued increase in the number of bottomfish Alias electing to longline, attracted by the relatively higher revenues obtained mainly from albacore sold to the canneries, is reflected in the significant drop in the number of boats bottomfishing in 1998. In 2004, a 44% increase in boats landing any bottomfish species suggesting many unsuccessful small scale longlining Alias returning to bottomfishing.

Source: DMWR Offshore Creel Survey database

Calculation: The annual estimate of the number of boats in the bottomfish fishery is obtained from the data base by counting the unique boats sampled during the year which landed any bottomfish species regardless of fishing method.

Year	Boats
1982	27
1983	38
1984	48
1985	47
1986	37
1987	21
1988	32
1989	33
1990	24
1991	23
1992	14
1993	26
1994	25
1995	35
1996	35
1997	37
1998	30
1999	34
2000	38
2001	29
2002	17
2003	19
2004	25
Average	30
Std. Dev.	9

Figure 5. American Samoa Average Price of Bottomfish



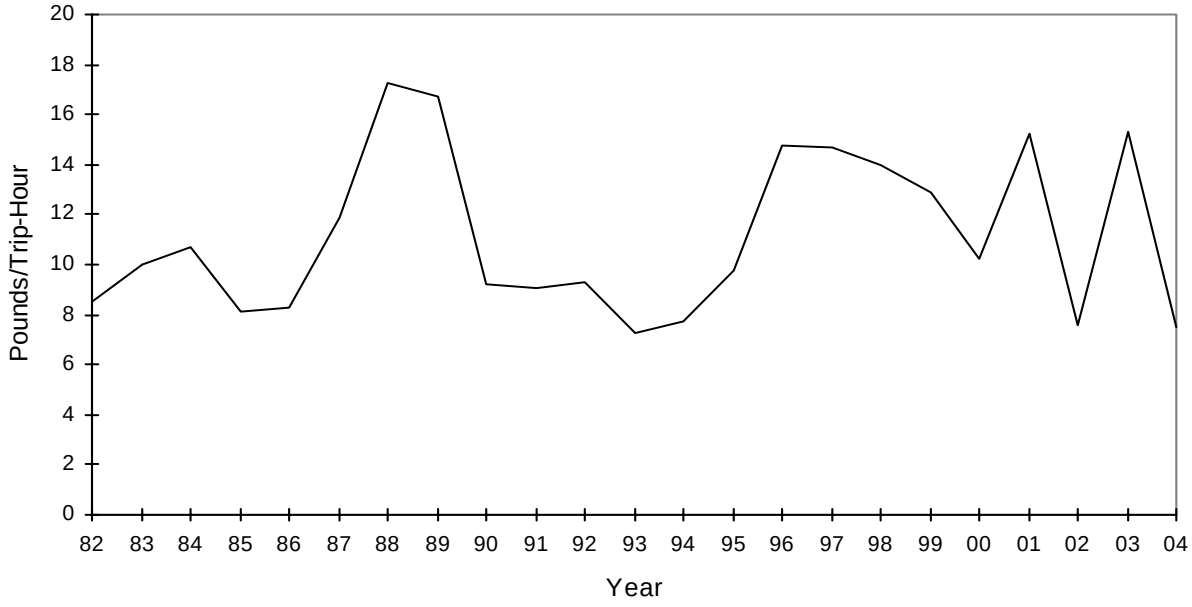
Interpretation: Prices were generally higher between 1982 and 1984 during the exportation of high-priced deepwater snappers to Hawaii. After this period, inflation-adjusted local prices have generally been stable. Prices of locally caught bottomfish are generally higher than imported fish, and could have been even higher had the local markets not been flooded by imported fish, which are usually of lower quality. The only imported bottomfish in 1994 were from western Samoa and these were sold at an average price of $1.67/lb, this year it is $1.85/lb. Imported bottomfish (mainly from western Samoa) have always helped in meeting the demand for bottomfish. Since 1999 there has been a general increase (16% in 1999 and 48% this year) in pounds of fish (miscellaneous bottomfish and pelagics) imported from western Samoa creating a (increase supply) price drop in the markets. A relatively unchanged price/lb was recorded for this year.

Source: DMWR Offshore Creel Survey database

Calculation: The average price of all bottomfish species combined is calculated by dividing total bottomfish revenue by total sold weight. The inflation-adjusted price is calculated by multiplying the unadjusted annual average price by the annual calculated consumer price index (CPI) for American Samoa using the current year as base.

Year	Unadjusted Price/Lb	Adjusted Price/Lb
1982	$1.83	$3.43
1983	$2.15	$4.00
1984	$1.80	$3.29
1985	$1.38	$2.50
1986	$1.29	$2.26
1987	$1.48	$2.48
1988	$1.61	$2.62
1989	$1.54	$2.40
1990	$1.66	$2.41
1991	$1.68	$2.33
1992	$2.10	$2.79
1993	$1.95	$2.59
1994	$1.87	$2.44
1995	$1.71	$2.18
1996	$1.83	$2.25
1997	$2.16	$2.59
1998	$2.48	$2.94
1999	$2.50	$2.93
2000	$2.10	$2.36
2001	$2.38	$2.64
2002	$2.12	$2.35
2003	$1.98	$2.09
2004	$1.93	$1.93
Average	$1.89	$2.60
Std. Dev.	$0.32	$0.46

Figure 6. American Samoa Annual Bottomfish CPUE



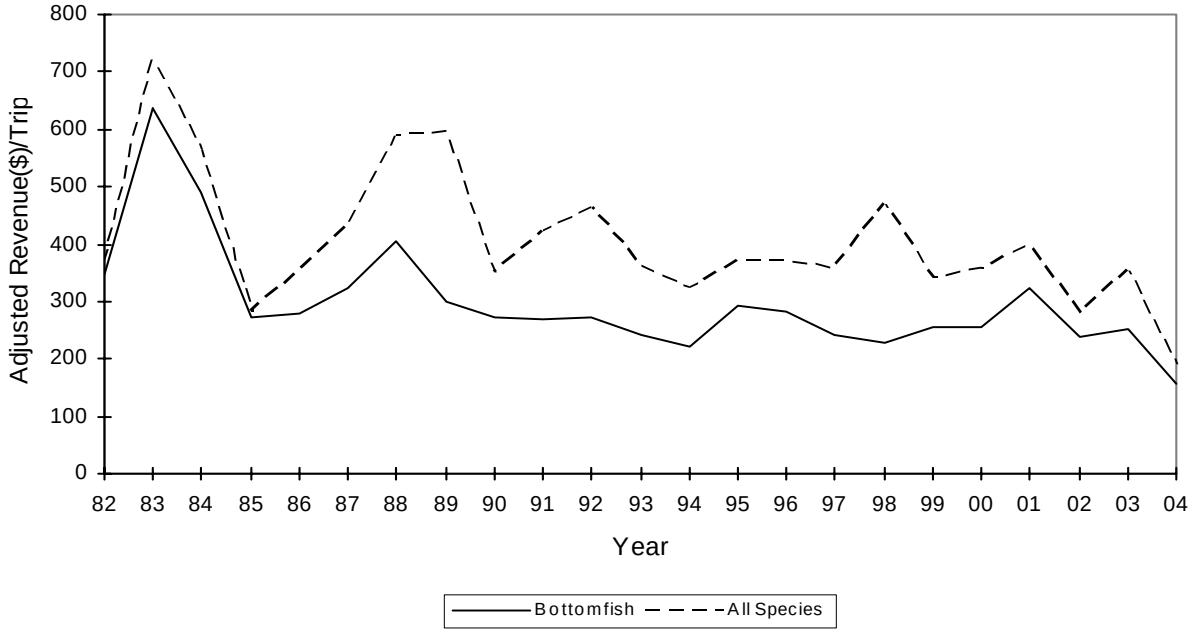
Interpretation: The initial increased CPUE in 1983 and 1984 occurred during the intense fishing of some new fishing grounds for deepwater snappers for export to Hawaii. A relatively high number of boats and local fishermen participated in the fishery during this period. The decline in 1985 and 1986 might be expected following the ardent harvesting of the limited fishing grounds. Reasons for the CPUE peak in 1988-89 are unknown. The decline in CPUE from 1989 to 1991 can be partially attributed to a combination of some new inexperienced fishermen entering the fishery and the exit of experienced and full-time commercial fishermen. CPUE has essentially remained stable during 1990-1992, increased for a few years and was relatively stable in 1996-1998. Bottomfishing techniques and gear have generally remained the same in the past years with the Alias being the highliners since the early 1970's. The 1996 high CPUE estimates (and most probably the 1988-89 CPUE increase) can be attributed mainly to improved sampling and may also be related to favorable environmental conditions. The past five year's CPUE was not less than 50% of the average aggregate CPUE for the first three years of available data and this years' CPUE is the lowest ever recorded. This year a drastic drop is noted in CPUE due to many boats doing both trolling and bottomfishing. Furthermore, a combination of many factors contribute to the drop, such as inexperience fishermen, everyone fishing in the same banks (more effort - less fish), data collection inconsistencies, hurricane aftermath effects and shift in fish preference from bottomfish to reef fish

Source: DMWR Offshore Creel Survey database

Calculation: CPUE is calculated using only trips in which only the bottomfish method was used and trip hours were recorded. The average is calculated by using each CPUE from each trip as an observation and dividing by the number of trips.

Year	CPUE
1982	8.50
1983	10.00
1984	10.70
1985	8.10
1986	8.30
1987	11.90
1988	17.30
1989	16.70
1990	9.20
1991	9.10
1992	9.30
1993	7.30
1994	7.70
1995	9.80
1996	14.80
1997	14.70
1998	14.00
1999	12.90
2000	10.20
2001	15.20
2002	7.60
2003	15.30
2004	7.50
Average	11.13
Std. Dev.	3.18

Figure 7. American Samoa Average Inflation-Adjusted Revenue Per Trip Landing Bottomfish.



Interpretation:. been no notable changes in revenues since 1990. The distance between these two lines reflects the relative importance of bottomfish species in the total catch whenever any bottomfish are landed. The prominent importance of bottomfish between 1982 and 1985 occurred during the targeting of deepwater snappers (mainly ***Etelis*** and ***Prisitipomoides***) for export to Hawaii. Bottomfish fishing was also the more profitable method of fishing during that period. The relative importance of bottomfish has generally been declining since 1985 as most of the full-time commercial fishermen quit this fishery with the remaining opting for trolling and lately,

Year	Bottomfish Unadjusted	Bottomfish Adjusted	All Species Unadjusted	All Species Adjusted
1982	$185	$346	$196	$367
1983	$341	$635	$388	$723
1984	$269	$490	$309	$564
1985	$151	$273	$157	$283
1986	$159	$279	$202	$353
1987	$192	$322	$257	$432
1988	$249	$405	$362	$589
1989	$193	$301	$382	$595
1990	$188	$272	$241	$349
1991	$194	$270	$304	$422
1992	$206	$274	$348	$462
1993	$181	$241	$271	$360
1994	$170	$221	$247	$322
1995	$230	$293	$290	$370
1996	$229	$282	$301	$370
1997	$201	$241	$299	$359
1998	$193	$229	$397	$470
1999	$218	$256	$291	$341
2000	$228	$256	$318	$358
2001	$293	$325	$360	$400
2002	$214	$237	$250	$278
2003	$238	$251	$335	$354
2004	$158	$158	$190	$190
Average	$212	$298	$291	$405
Std. Dev.	$44	$97	$65	$116

longlining. The supply of locally caught bottomfish has been supplemented by bottomfish imported from Western Samoa.

These values are higher in this year's report than they were in previous year's reports because the trips included are only those that sold their catch commercially to be more consistant with the revenue/trip values from other islands which are based on sales receipt data.

Source: DMWR Offshore Creel Survey database

Calculation: The average revenue per trip for all species is calculated by summing the revenues of all sales for any trip which landed any bottomfish species and sold all or part of their catch commercially, and dividing by the number of such trips. The average bottomfish revenue per trip is calculated from those same trips by summing the sales of only bottomfish species and dividing by the number of trips that sold their catch. Figure 7 plots the inflation-adjusted bottomfish and all species revenue per trip for the period 1982-2001.