Pacific Islands Fisheries Science Center

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April 2017

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INTRODUCTION AND FLEET BACKGROUND

The purpose of this study is to collect cost-earnings information for the longline fishing fleet based in American Samoa. The objectives of the analysis are to examine the economic health of the fleet and assess vessel operations and activities relevant to economic returns to individual vessels and the fleet as a whole. This information is required by the Magnuson-Stevens Fishery Conservation and Management Act to allow fisheries managers to consider potential economic impacts of future regulations.

In 2001, O'Malley and Pooley (2002) conducted a similar cost/earnings study of the American Samoa-based longline fishery. Their study found that the majority of vessels were profitable, generating revenues sufficient to meet expenses. This current study serves to update the assessment of the overall fleet's economic performance and to assess how the economic performance of the fleet has changed. This analysis uses both primary and secondary sources of data on fleet operations in 2009 to provide the baseline information needed to support the fishery management. Cost data were collected through in-person interviews during the summer of 2010 (the survey form is presented in the Appendix), while other data were provided by the Western Pacific Fisheries Information Network (WPacFIN), National Marine Fisheries Service (NMFS), and the Pacific Islands Fisheries Science Center (PIFSC).

In 2009, 26 boats were active in the American Samoa longline fleet: 1 was Class A (≤ 40 ft), 5 were Class C (50–70 ft), and 20 were Class D (≥ 70 ft). Class A vessels are outboard-engine-powered catamarans, called *alias*. These boats are generally less than 30 ft in overall length, take 1–3 day trips, have no or limited modern technology, and generally fish less than 350 hooks per set. Fishing by these boats is significantly different from that of the larger vessels.

RESEARCH METHODOLOGY AND DATA SOURCES

During July–August 2010, in-person interviews with owners and/or captains of American Samoa longline vessels were conducted in Pago Pago, American Samoa. Survey administrators attempted to collect information from every active vessel. The survey questions elicited variable costs (costs incurred when the vessel actively fishes), and fixed costs (costs incurred regardless of the number of trips the vessel takes), as well as vessel characteristics, owner/operator demographics, and comments and preferences about future management alternatives. Commercial fishing industry members were also interviewed, and they provided pertinent ancillary information about the longline fleet.

The participants in the survey were volunteers and the survey administrators obtained complete survey responses from a total of 23 of the 26 vessels (3 Class C vessels and 20 Class D vessels), which represented a survey response rate of 88%. The one Class A vessel was not interviewed, since it was a small vessel (alia) and its operation was very different from the large vessels (Classes C and D). Two vessels from Class C did not participate in the survey. All of the largest vessels (Class D) were interviewed (Table 1).

Table 1.--Number of active vessels and surveyed vessels by size class and sample size.

Number of Vessels	Class A (≤ 40 ft)	Class B (40–50 ft)	Class C (50–70 ft)	Class D (≥ 70 ft)
Active	1	0	5	20
Surveyed	0	0	5	18

We contacted the owners and scheduled interviews with the assistance of the Pacific Islands Regional Office (PIRO) observer program located in Pago Pago. Usually, the owner of a vessel was interviewed. Each individual owner (or other representative) was asked for data on three types of costs: variable costs, fixed costs, and labor costs.

- **Variable costs** were collected on a per-trip basis: payments for fuel, bait, gear, and provisions were common trip costs. During the interview, vessel owners/captains were asked about trip expenditures for a typical trip for their vessel(s) in 2009. The total annual variable costs were calculated by multiplying the typical trip expenditure estimate by the number of trips taken by the vessel in 2009.

- **Fixed costs** were collected on an annual basis: payments for mooring fees, bookkeeping fees, insurance, loan payment, and drydock/major repair costs were common fixed costs.

- **Labor costs** were collected on a trip basis. During the interview, vessel owners/captains were asked about captain compensation, crew payments (flat rate, crew share, bonuses) and labor expenditures for a typical trip of their vessel(s) in 2009. The total annual labor cost was calculated by multiplying the typical trip labor cost by the number of trips taken by the vessel in 2009.

Specific cost items that was missing from individual vessels (less than 5% of the vessels), either because of incomplete interviews or values outside reasonable ranges, was assumed to be equal to the average cost for similar vesselsThe missed cost items were most related about the vessel value (such as purchasing price, appraisal value, or replacement value). All cost information in this study was provided by the fishermen during interviews and only those fishermen/vessels were included in the cost and earnings estimates.

Data on landings, revenue, and fishing activities by individual vessels in the analysis were mainly obtained from WPacFIN. Longline vessels are required to submit logs of their daily catch and fishing effort for each fishing trip to PIFSC. WPacFIN compiled logbook data and other information, such as prices by species, to generate revenue information. Revenue data were provided by WPacFIN on a trip basis. Thus, the total annual revenue for each individual vessel was the sum of the revenue of all the trips with fish landed.

RECENT TRENDS AND DEVELOPMENT IN THE AMERICAN SAMOA LONGLINE FISHERY

Fleet Composition and Trends

A permit is required for any longline fishing in American Samoa. A limited entry program was enacted in May 2005, when a maximum of 60 permits was implemented in the American Samoa longline fishery. The 60 permits are distributed among 4 vessel size classes: 22 in Class A, 5 in Class B, 12 in Class C, and 21 in Class D. Permits are issued by the vessel size class, and permit holders are restricted to using vessels within their size class or smaller (Federal Register, 2009).

Figure 1 presents the number of permits issued and the active vessels over the past 15 years. Overall participation of active vessels in the fishery peaked in 2001, slowly declined until 2006, and stabilized thereafter. Most of the declining participation in the early 2000s was due to the exiting of Class A vessels (vessels less than 40 ft in length, Fig. 2). The number of Class A vessels (*alias*) peaked in 2000 and 2001 with 37 vessels actively fishing. Thereafter, the number of *alias* rapidly declined and only one *alia* has been active in recent years (2008–2010). As such, the current fleet primarily consists of larger-sized vessels. In 2009, 50 permits were issued of which 26 were active vessels.

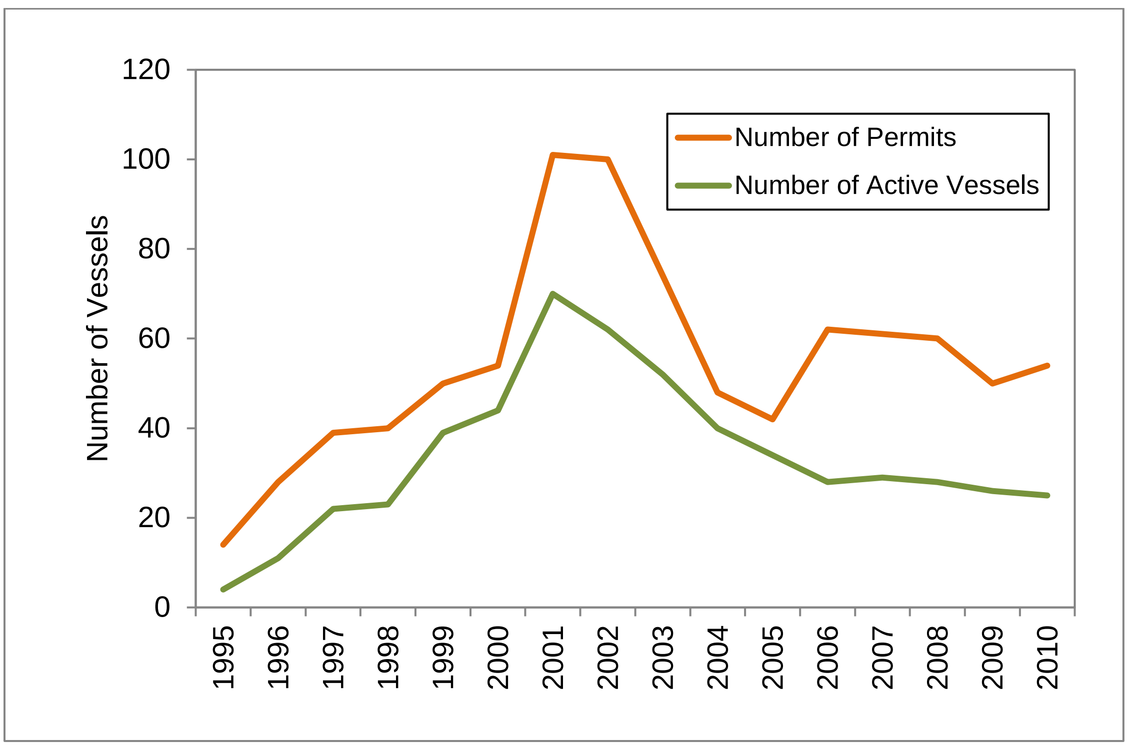

Figure 1.--Number of permits and active vessels, 1995-2010.[1]

[1] Data source: National Marine Fisheries Service (NMFS), Pacific Islands Fisheries Science Center: http://www.pifsc.noaa.gov/wpacfin/as/Pages/as_data_6.php (Last Updated 10/04/2011)

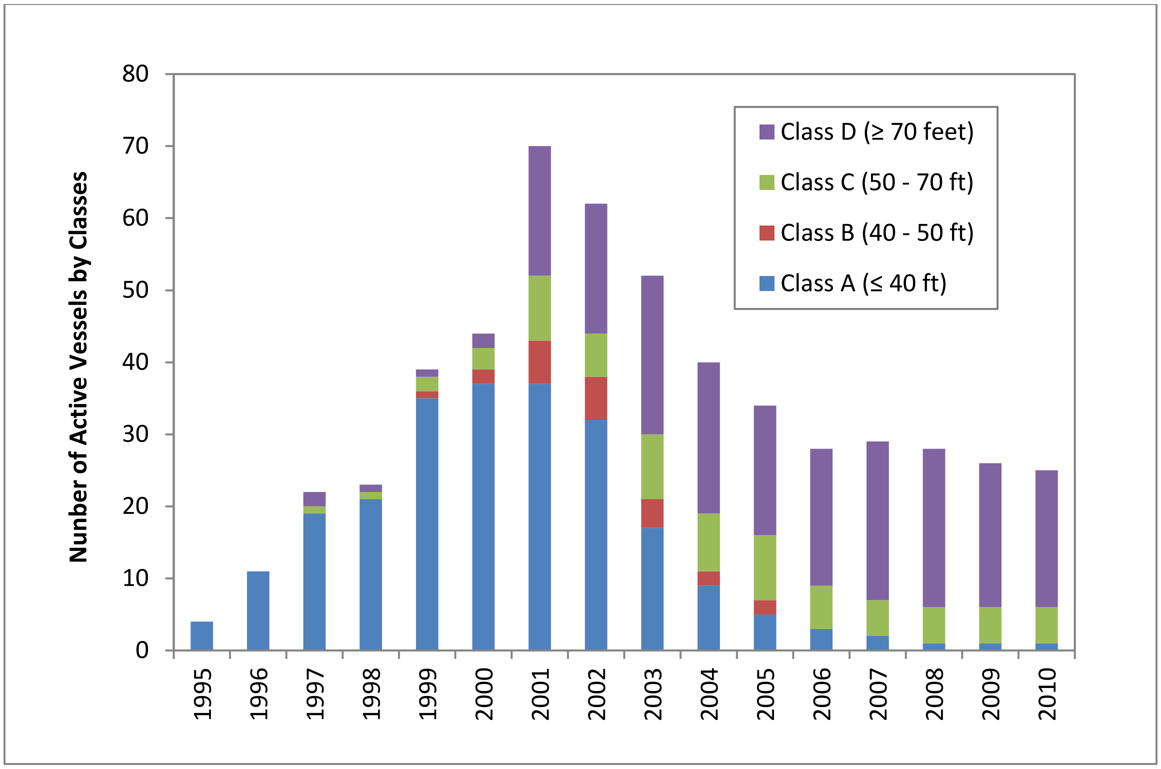

Figure 2.--Number of active longline vessels by size class, 1995–2010.[2]

Landings and Revenue Trends

The longline fishery accounts for up to 99% of the commercial revenue and landings in American Samoa. Historically, the main species landed has been albacore, which has comprised more than 80% of total landings. Other landings have included yellowfin, bigeye, and skipjack tunas, and a small amount of non-tuna pelagic species such as wahoo, mahimahi, blue marlin, and swordfish. In 2009, the longline fishery landed approximately 10.64 million lbs of pelagic fishes, valued at US$10.25 million, slightly higher than the values in 2008 (US$9.50 million nominal vlaue) but slightly lower than that in 2010 (US$10.48 million nominal value).

Figure 3 presents total longline landings and value during 2000–2010. Landings follow a bimodal distribution during that time, i.e., there are two peak landing years. The first peak occurred in 2002, with the fleet generating landings of 15.5 million lbs valued at $13.9 million; the second occurred in 2007, with total landings of 14.35 million lbs valued at $14.18 million. Before 2001, commercial landings and revenue in the longline fishery was less than $2 million and the primary source of landings was from the smaller-sized vessel class. In 2001, when the number of large vessels (vessels over 70 ft in length) in the fleet increased from 2 to 18, the landings were 4 times greater than the previous year.

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2 Data source: National Marine Fisheries Service (NMFS), Pacific Islands Fisheries Science Center: http://www.pifsc.noaa.gov/wpacfin/as/Pages/as_data_6.php (Last updated 10/04/2011)

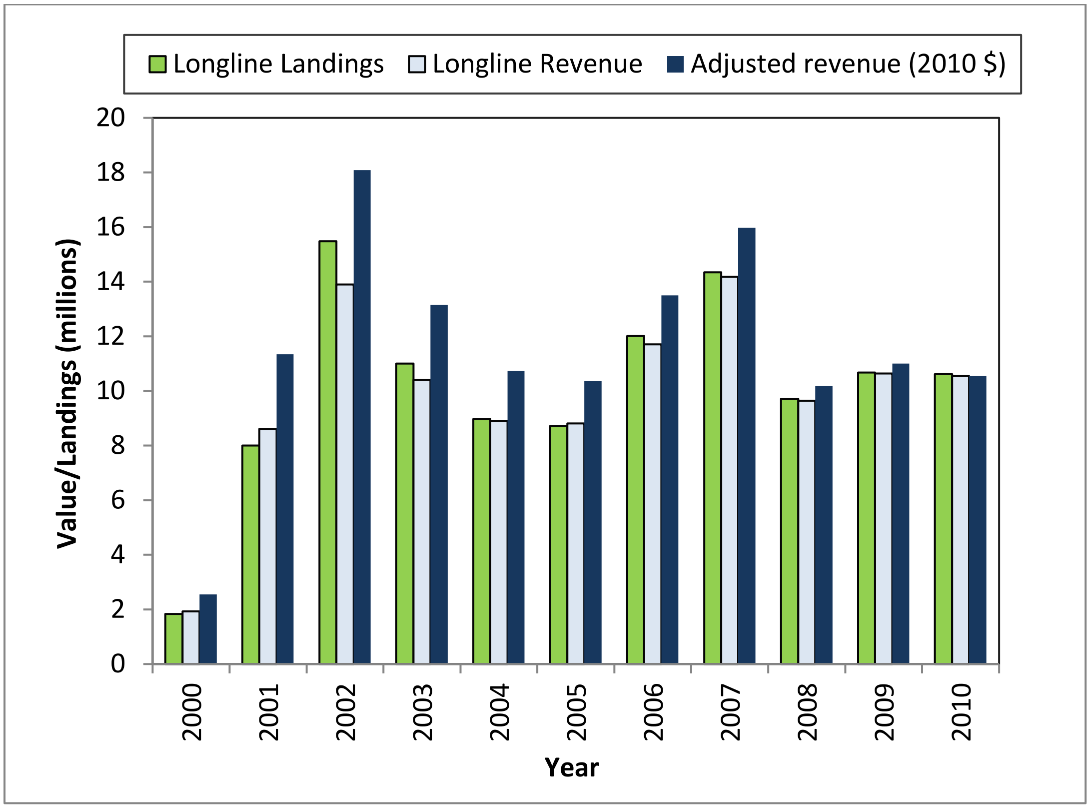


Figure 3.--Longline landings value (nominal and adjusted to 2010 dollars) and pounds landed (2000–2010).[3]

As shown in Figure 4, during 2000–2010, the nominal price of albacore was relatively stable at approximately $1 per lb (WPRFMC, 2000–2010). The only variation was a slight decline during 2002-2005.[4] The adjusted price showed a declining trend, 40% decline from 2000 to 2010.

[3] Data source: Western Pacific Regional Fisheries Management Council, Pelagic Fisheries of the Western Pacific Annual Report, 2000-2010, http://www.wpcouncil.org/pelagic/Documents/AnnualReports

[4] Fish prices are obtained from the Western Pacific Fisheries Information Network (WPacFIN), National Marine Fisheries Service (NMFS), Pacific Islands Fisheries Science Center. Because there are a limited number of buyers for the fish landed, price data are typically highly confidential between fishermen and buyers. As such, the prices presented are estimates.

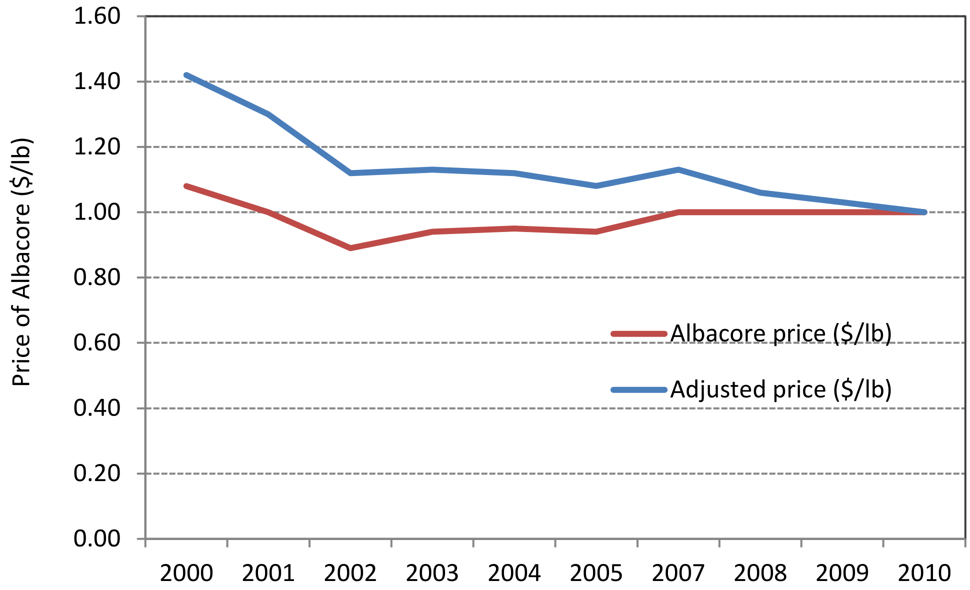


Figure 4.--Albacore price per pound (nominal and adjusted price to 2010 $), 2000–2010.[5]

RESULTS

Vessel Characteristics

All vessels surveyed in this study were large (Classes C and D) longline vessels. Specific physical and operational characteristics of the vessels are presented in Table 2. The average original vessel purchase price was $398,167 each. The appraisal value (vessel purchase price plus additional improvements after purchase) was an average of $541,944 per vessel. The average vessel age is 20.5 years and the average vessel length is 78.5 ft. The average fuel capacity is approximately 13,455 gal, and the average hold capacity is 107,091 lbs.

5 Data source: Western Pacific Regional Fisheries Management Council, Pelagic Fisheries of the Western Pacific Annual Report, 2000-2010, http://www.wpcouncil.org/pelagic/Documents/AnnualReports

Table 2.--Physical and operational characteristics of surveyed classes C and D longline vessels (n = 23) based in American Samoa.[6]

Physical Characteristics	Mean	Median	Std
Vessel purchase price ($)	389,167	362,500	187,456
Vessel appraisal value ($)	541,944	450,000	290,938
Fuel capacity (gal)	13,455	12,000	7,393
Vessel age (yr)	21	19	7
Vessel length (ft)	79	78	12
Vessel width (ft)	22	22	2
Maximum speed (kn)	8	9	2
Average speed (kn)	7	7	1
Fish holding capacity (lbs)	107,091	88,500	66,765
Engine horsepower	451	450	168

Definitions of Net Return, Variable Costs, Fixed Costs, and Labor Costs

The key concepts applied in this study are introduced before discussing the results. First, the net return measured in this study is "cash flow" net return. The "cash flow" net return is equal to revenue from fish sales minus variable costs (or operating costs), labor costs, and fixed costs. All these variables are measured on an individual vessel basis. Revenue per vessel was generated by annual total landings reported in a vessel's logbook, multiplied by the fish price of species. Variable costs are mainly trip expenditures, including fuel, oil, ice, bait, provisions, fishing supplies, etc. The survey asked for the cost of these items for a "typical" trip. Then, the annual variable costs were found by multiplying the trip variable costs by the number of trips taken by a vessel in 2009. Labor costs usually were calculated as the share of revenue after subtracting operating costs. Shares earned by a captain and other crew members vary and were arranged differently vessel by vessel. Some of the crew earn a flat rate per month or trip instead of a share. Therefore, labor costs were calculated accordingly for each individual vessel. Fixed costs consist of maintenance, insurance, loan payments, other non-trip miscellaneous costs (such as accounting, etc.), drydock, overhaul, major repairs, and routine repairs. Drydock expenses are calculated on a pro-rated basis, meaning that if a vessel goes into drydock once every 3 years, one third of the cost is included as the annual drydock expense. Some vessels may not have had any major repair costs in 2009 if it went into drydock that year. Some vessels may not have any major repair costs in 2009, especially if it spent a great deal on routine repairs. The figure presented here is the average for all 23 of the vessels surveyed. Depreciation was not included in the net-return calculation, because it is a non-cash charge and not an out-of-pocket expense. Accordingly, the net returns reported here can be regarded as optimistic.

Instead of using cash flow to measure the cost-earnings status, some studies on fishery economic performance used the term "economic return," which considers opportunity cost of capital (but excludes actual loan payments) and depreciation of fishing vessels and equipment as part of the

[6] Data source: 2010 in-person survey conducted by PIFSC.

annual fixed costs (George and New, 2013). The reasons that the current study used “cash returns” instead are as follows. First, the previous cost-earnings studies in the Hawaii longline fishery (Hamilton et. al., 1996) and American Samoa longline fishery (O’Malley and Pooley, 2002) used “cash returns” to measure cost-earnings status. Since tracking the changes in the economic performance is an important objective of the cost-earnings study, using the same definition and measurement in this updated study allows comparison across different time periods and fisheries in the Pacific Islands area. Second, the results of economic return may vary due to the methods applied to calculate depreciation costs of the fishing vessel and equipment. For example, the standard for “depreciable life of a fishing vessel” is characterized differently in different studies. The U.S. Government Internal Revenue Service (IRS) defines fish tender vessels and fish processing vessels as being depreciated over a 10-year period (http://www.irs.gov/Businesses/Small-Businesses-&-Self-Employed/Depreciation-and-Amortization-for-the-Fishing-Industry). Whereas the standard established by the Bureau of Economic Analysis (BEA) for the depreciation value is set at 6% of the vessel’s value per year. Some suggest that depreciation charges should be based on a 30-year useful vessel life because a properly maintained vessel can be used for fishing for up to 30 years (Hamilton et al., 1996). Thus, the different methods for calculating depreciation value may result in inconsistent measurements.

Fleet-wide Cost-earnings Analysis

Table 3 shows the cost-earnings estimates for the longline fleet operating in American Samoa. The results presented are the average figures and standard deviation for revenue, variable costs, fixed costs, and net returns for the 23 surveyed vessels. Labor costs were not included in variable costs or fixed costs, since payments to captains and crew were usually calculated based on a certain share of trip net revenue (trip revenue minus trip costs or variable costs). The average total annual cost per vessel was $442,438, which includes variable costs (trip expenditures), labor costs, and fixed costs. As mentioned, vessel depreciation cost was not included as a cost in this cash-return analysis. The average annual revenue per vessel was $448,817, just slightly higher than total expenditures; as a result, the average annual net return (profit) per vessel is $6,379. This implies that the average annual return on investment (profit divided by the initial purchase price of vessel) was 1.6%. If also considering depreciation costs, the average net return to the owners of the American Samoa fleet was indeed negative[7]. Operating longline fishing boats in American Samoa gained a negative return in 2009 on average. However, there was great variation in the net return among vessels; the standard deviation in vessel profit was 10 times greater than the mean.

Table 3 also listed the itemized cost-earnings status for C class and D class respectively. Compared the D class vessels with C, the D class vessels had better economic returns based on the 2009 operation. On average, C class vessels had negative returns while the D class vessels had positive economic return. It seems that large vessels in this fleet had higher economic efficiency since the vessel length of the D classes were 83 ft on average, but C class vessels 63 feet on average. In contrast to the small return described in this study, the 2001 cost-earnings

[7] A conservative estimate of depreciation for the American Samoa fleet with an average purchase price of $389,167 and assuming a 30-year useful life of a fishing vessel was either $12,972 a year or $23,350 if assuming 6% depreciation per year. The economic return (cash returns – deprecation) became negative in 2009.

study on the same fleet by O'Malley and Pooley (2002) reported a significantly larger positive fleet-wide profit. In later sections of this report, we will present the detailed cost structure of the current fleet, the economic characteristics between profitable vs. unprofitable vessels in the current fleet, and also compare the 2001 and 2009 periods.

About 83.3% of revenue came from albacore caught in 2009. Albacore were frozen at sea and usually landed and sold directly to the canneries located in American Samoa (Pago Pago). In addition to albacore, the longline vessels also caught other tunas. Bigeye, skipjack, and yellowfin landings comprised 14% of the total landings in 2009. These three tuna species were also sold to the canneries, and the prices received were slightly lower than albacore, $0.91/lb vs. $1.00/lb. The revenue from the three species comprised 13.4% of the gross revenue of the fleet. Wahoo was another main species landed by the longline fleet, and it contributed 3% of landings and 1.7% of revenue to the totals. The canneries located in American Samoa were the target market for the American Samoa longline catch, although some of the landings were sold to the local markets when fish were rejected by canneries due to low quality or when some fish (species like mahimahi and wahoo) found a better price in the local restaurants. Table 4 presents the American Samoa longline 2009 estimated commercial landings, value, and average price of main species landed.

Table 3.--Cost-earnings of the 2009 American Samoa longline fleet (fleet-wide and C and D)[8]

	Average All vessels (N=23)*	Std.	Average C class (N=5)*	Std.	Average D class (N=18)*	Std.
Vessel Information						
Vessel Length	78.5	11.8	62.9	4.0	83.1	9.1
Vessel Width	21.5	2.4	18.6	1.9	22.2	2.0
Number of Total Trips	5.7	1.9	6.8	2.0	5.3	1.8
Average Trip Days at Seas	48.6	15.1	33.0	14.0	53.0	13.0
Vessel Purchasing Price	389,167	187,456			419,063	182,357
Number of Crew	6.5	0.7	6.4	0.4	6.6	0.8
Annual Revenue per Vessel	448,817	175,371	270,554	152,026	498,335	155,657
Annual Variable Costs per Vessel	268,016	122,624	180,427	86,674	292,346	125,271
Fuel Costs	121,648	71,257	68,520	33,664	136,406	74,446
Oil Costs	6,064	2,757	6,074	4,601	6,061	2,303
Freezer Costs	8,389	28,330	2,000	4,472	10,164	32,646
Bait Costs	53,312	20,059	38,963	16,701	57,298	20,034
Provisions	20,109	9,170	16,900	10,621	21,000	9,129
Communication	3,846	5,165	2,470	1,335	4,228	5,913
Fishing Gear Costs	22,843	11,584	21,800	13,165	23,133	11,847
Misc. Trip Costs	31,804	37,447	23,700	24,793	34,056	41,567
Annual Labor Costs per Vessel	78,167	59,843	43,866	28,107	87,694	64,939
Total Capt Share	30,594	24,771	17,123	9,346	34,336	27,229
Total Crew Payments	47,573	37,199	26,744	20,281	53,358	40,153
Total Flat Rate	3,132	5,890	1,270	1,205	3,649	6,730
Total Crew Share	36,238	31,834	19,179	17,199	40,976	34,527
Total Bonus	209	455	240	537	200	460
Total Initial Payments	7,995	5,935	6,055	6,030	8,533	6,138
Annual Fixed Costs per Vessel	96,256	40,703	66,596	29,615	104,495	41,285
Mooring	3,365	763	4,046	873	3,175	659
Bookkeeping	3,467	2,576	2,787	1,331	3,656	2,896
Insurance	24,970	19,996	11,461	11,469	28,722	21,011
Loan Payments	19,251	26,417	4,546	6,620	23,336	29,199
Other Fixed Costs	3,413	4,856	1,920	1,805	3,828	5,504
Dry Dock Costs	16,541	8,947	10,709	9,705	18,161	8,565
Overhaul Costs	5,584	3,694	4,488	1,561	5,889	4,176
Major Repairs	10,761	22,230	18,400	17,743	8,639	23,929
Routine repairs	8,904	10,424	8,240	9,853	9,089	11,136
Total Expenditures	442,438	154,886	290,888	106,248	484,535	145,496
Cash Return	6,379	77,003	(20,335)	84,220	13,799	78,007
Return rate on investment per Vessel						
Return Rate on Investment per Vess	-13%				3%	

* A few vessels have missing value on "Vessel information", thus, not all the items are the results with full samples.

[8] Data source: 2009 in-person survey conducted by PIFSC.

Table 4.--American Samoa longline 2009 estimated commercial landings, value, and average price of main species landed.

Species	Landings (1000 lbs)	Revenue ($1,000)	Price ($/lb)	% of Revenue
Albacore	8,604	8,616	1.00	83.3
Yellowfin	853	797	0.93	7.7
Bigeye	321	379	1.18	3.7
Skipjack	342	206	0.60	2.0
Wahoo	299	181	0.60	1.7
Mahimahi	24	57	2.35	0.6
Blue marlin	56	53	0.95	0.5
Swordfish	19	41	2.18	0.4
Others	15	13	0.87	0.1
Total/Avg.	10,533	10,343	0.98	

Variable costs (trip expenditures) accounted for approximately 60% of average total annual costs. Labor and fixed costs accounted for 18% and 22% of total costs, respectively. All variable trip costs were reported on an average trip basis during the in-person survey and were annualized by multiplying the cost per trip by the number of trips the vessel made during the year according to federal logbooks. Although, a continuous data collection program to collect trip costs had been established on the fishery, the trips with cost information collected by the observers were very limited due to the low observe rate. In 2009, only 7 trips out of a total of 195 longline trips were collected with trip cost data from all the active vessels. Due to the variation of the trip length among trips and vessels, data collected by the observer program were not used in the study. Annual repairs, although somewhat dependent on the number of trips, were considered fixed costs. Major repair costs included upkeep of freezers, vessel/hull, pipes, longline spool, generator, and other equipment. Drydock costs may include repair/replacement of the propeller and shaft and painting and sandblasting costs. Since these costs are not incurred every year, annual costs are calculated by dividing the cost of the most recent expense by the typical interval (years) between two service instances. Daily maintenance costs include minor engine repairs; spot painting; and replacement of hoses, wire traces, longlines, branchlines, and hooks. Depreciation was not considered as a fixed cost because if a vessel is adequately maintained, its useful life is virtually unlimited (Hamilton et al., 1994).

Table 5 shows the breakdown of costs by specific inputs. Fuel was the single largest cost, representing approximately 27% of average total annual expenditures, or 45% of average total annual variable costs. Bait was the second highest expenditure, representing 12% of average total annual expenditures, or 20% of average total annual variable costs (trip expenditures). The cost structure between C and D classes were quite similar. Only two cost items had more than 4% differences. The fuel costs composed 23.6% of the total expenditure for smaller vessels (C class) while 28.2% for the larger vessels (D class). On the other hand, smaller vessels spent more in major repairs, 6.3% of the total expenditure, while larger vessels spent less in the same item.

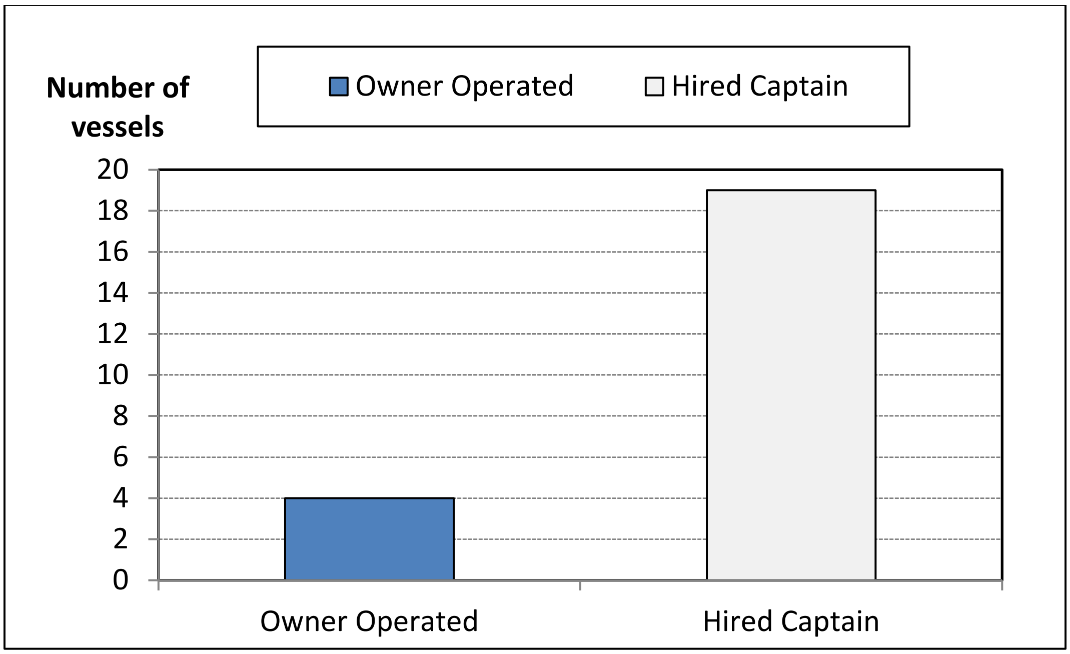
Table 5.--Input costs as a percent of total vessel expenditures for the 2009 American Samoa longline fishery.[9]

	Average All vessels (N = 23)*	**Average C class (N = 5)***	**Average D class (N = 18)***
Annual Variable Costs per Vessel	60.6	62.0	60.3
Fuel Costs	27.5	23.6	28.2
Oil Costs	1.4	2.1	1.3
Freezer Costs	1.9	0.7	2.1
Bait Costs	12.0	13.4	11.8
Provisions	4.5	5.8	4.3
Communication	0.9	0.8	0.9
Fishing Gear Costs	5.2	7.5	4.8
Misc. Trip Costs	7.2	8.1	7.0
Annual Labor Costs per Vessel	17.7	15.1	18.1
Total Capt Share	6.9	5.9	7.1
Total Crew Payments	10.8	9.2	11.0
Total Flat Rate	0.7	0.4	0.8
Total Crew Share	8.2	6.6	8.5
Total Bonus	0.0	0.1	0.0
Total Initial Payments	1.8	2.1	1.8
Annual Fixed Costs per Vessel	21.8	22.9	21.6
Mooring	0.8	1.4	0.7
Bookkeeping	0.8	1.0	0.8
Insurance	5.6	3.9	5.9
Loan Payments	4.4	1.6	4.8
Other Fixed Costs	0.8	0.7	0.8
Dry Dock Costs	3.7	3.7	3.7
Overhaul Costs	1.3	1.5	1.2
Major Repairs	2.4	6.3	1.8
Routine repairs	2.0	2.8	1.9
Total Expenditures	100.0	100.0	100.0

9 Data source: 2010 in-person survey on 2009 operation conducted by PIFSC.

Operator and Labor Costs

Vessel owners primarily contracted captains to operate their vessels. Of the 23 boats surveyed, 4 (17%) were owner-operated with the remaining 19 (83%) employing captains (Fig. 5). These captains were usually compensated by shares of net trip revenue (trip revenue minus trip expenditures). The average captain's share was approximately 17% of the annual net revenue or $30,594 per year. Payment to captains accounted for approximately 7% of total annual costs, and 39% of total annual labor costs.



Survey data, PARR reference: https://inport.nmfs.noaa.gov/inport/item/29943

Figure 5.--Composition of vessel operators in the 2009 American Samoa longline fishery.[10]

Longline vessels employed 6 or 7 crew members. The vast majority of crew members employed were from foreign countries (approximately 5 per boat, or 80% of all crew members). These crew members were primarily from the Philippines, with Independent Samoa, Tonga, Vanuatu, China, and other countries also represented. These crew members were compensated through different payment schemes that primarily consisted of crew shares, with flat rate payments used to a much lesser degree. In addition to salary, other expenses associated with hiring foreign crew included agency and immigration fees, airfares, and supplying the necessary fishing and personnel gear for each crewmember. These costs accounted for approximately 16.8% of average annual crew costs. The average total annual crew payments (flat rate, shares, bonuses, and initial payments) were $47,573 per vessel, which was 11% of average total annual costs, and 61% of

10 Data source: 2010 in-person survey on 2009 operation conducted by PIFSC.

average annual labor costs. The average annual payment to each crewmember was $7,294. The use of foreign crew members serves to keep the overall labor expenses low.[11]

Profitable vs. Unprofitable Vessels

Considerable variability in income to fishery participants is caused by variations in revenue and costs among vessels. Of the 23 vessels surveyed, only 52% (12 vessels) were able to make a net gain (earn a profit). Table 6 compares vessel characteristics and the vessel cost earnings performance for vessels that made a net gain with the vessels that suffered a net loss. The average annual net profit of the 12 profitable vessels was $64,192 each, representing a 13% return on investment (profit divided by vessel initial purchase price). The average annual net loss of the 11 unprofitable vessels was $56,690 per vessel. Assessing the physical characteristics of profitable vs. unprofitable vessels, we can see that profitable vessels featured significantly higher purchase prices. The average cost of a profitable vessel was approximately 93% more than the average unprofitable vessel. We also find that, on average, profitable vessels have greater fuel capacity (15,318 lbs vs. 11,591 lbs), are larger size (81 ft vs. 76 ft), and have greater hold capacity (126,727 lbs vs. 87,455 lbs). Furthermore, on average, profitable vessels are also somewhat faster and have higher horsepower than unprofitable vessels. However, there was no large difference in the age of vessels between these two groups on average.

[11] There has been a steady rise in foreign crewmembers for the American Samoa longline sector. In 2000, approximately half the vessels employed foreign crew (O'Malley and Pooley, 2002). In 2005 more than 80% of the vessels employed foreign crew. The willingness of foreign crewmembers to accept less compensation for work has allowed vessels to dramatically reduce their overall labor costs.

Table 6.— Comparison of the cost-earnings status and the vessel characteristics between profitable and unprofitable vessels in the 2009.[12]

	Profitable Vessel (n=12)			Unprofitable Vessel (n=11)		
Vessel Information	Mean	Median	Std.	Mean	Median	Std.
Vessel Length (ft)	80.9	78.4	12.7	76.2	78.5	11.5
Vessel Width (ft)	21.5	22.0	3.1	21.5	22.0	1.6
Number of Total Trips	5.7	5.5	2.3	5.6	5.0	1.4
Vessel Purchasing Price	495,000	450,000	190,321	256,875	262,500	82,536
Number of Crew	6.6	6.0	0.8	6.5	7.0	0.7
# foreign	5.3	5.5	0.9	5.2	5.0	0.6
Revenue	515,792	514,521	158,683	375,754	391,328	178,279
Annual Trip Costs	253,620	251,088	85,060	283,721	279,250	161,571
Fuel Costs	112,338	110,250	44,875	131,805	112,500	96,156
Oil Costs	6,388	6,000	3,324	5,711	6,000	2,251
Freezer Costs	1,225	-	2,580	16,205	1,250	41,350
Bait Costs	55,598	54,300	20,517	50,819	52,000	21,196
Provisions	21,688	19,375	10,851	18,386	18,750	7,591
Communication	5,196	2,350	7,048	2,373	2,500	1,465
Fishing Gear Costs	25,750	24,000	14,035	19,673	18,400	8,411
Misc. Trip Costs	25,438	15,000	25,128	38,750	15,000	49,284
Total Labor Costs	107,223	97,248	57,045	46,468	33,750	50,386
Total Capt Share	40,446	33,482	23,214	19,846	23,978	84,980
Total Crew Payments	66,777	63,767	37,012	26,623	100,249	11,562
Total Flat Rate	2,142	-	6,182	4,211	21,600	4,800
Total Crew Share	54,243	50,517	30,244	16,595	73,649	4,762
Total Bonus	100	0.0	346	327	0.0	0.0
Total Initial Payments	10,292	13,250	7,261	5,489	5,000	2,000
Fixed Costs	90,757	85,571	39,925	102,254	105,101	44,510
Mooring	3,405	3,365	600	3,321	3,365	969
Bookkeeping	3,206	2,583	2,672	3,752	3,467	2,691
Insurance	33,958	27,500	22,523	15,164	13,500	12,606
Loan Payments	10,314	1,682	21,006	29,001	16,000	30,320
Other Fixed Costs	5,200	3,000	6,281	1,464	1,000	1,678
Dry Dock Costs	16,344	13,833	10,333	16,756	17,293	8,160
Overhaul Costs	4,847	5,000	2,733	6,389	5,838	4,670
Major Repairs	4,083	0.0	0.0	18,045	5,000	30,598
Routine repairs	9,400	8,600	8,605	8,364	0.0	12,956
Total Expenditures	451,600	447,959	127,694	432,444	418,588	192,431
Cash Return	64,192	55,502	49,115	(56,690)	(37,717)	50,969

[12] Data source: 2010 survey in-person survey on 2009 operation conducted by PIFSC.

Comparing the cost earnings performance of profitable to unprofitable vessels, the analysis indicates that, on average, profitable vessels generate substantially greater revenue annually ($515,792 vs. $375,754), 37% greater revenue than unprofitable vessels, while spending just 11% more on variables and on fixed costs. In addition, we find that the higher labor expenditures of the profitable vessels stem from mainly higher earned production shares. In other words, the captain and crew in the profitable vessels received much higher pay than those who worked on the unprofitable vessels because their profit shares were greater in absolute terms.

Comparison with 2001 Cost-earnings Study

Table 7 compares the economic performance of vessels in American Samoa with results from the 2001 cost earnings study of the same fishery (O'Malley and Pooley, 2002). It is important to note that the O'Malley and Pooley study estimated revenues based on a subsample of longline vessels, which may not have been a representative sample of all vessel activity.[13] O'Malley and Pooley indicated that the revenue may have been overestimated because, during the study period, the majority of vessels arrived in midyear. Albacore are more abundant from May to October in American Samoa's waters (Domokos et al., 2007) than in the early months of a year, hence the catch per unit effort (CPUE) measured by hooks and sets after midyear is usually higher than annual average. O'Malley and Pooley's (2002) estimate of annual revenue, based on CPUE from May to December while fishing is absent from January to April before most of the vessels arrived, could be higher than the actual full-year CPUE. In contrast, the revenue data used to evaluate the 2009 fishery's economic performance in this current study was based on a full year of logbook data for each vessel in the surveyed sample, reflecting a more accurate depiction of vessel performance. As a result of these methodological differences, our ability to meaningfully make comparisons between the two studies is limited.

[13] In the 2001 study, activity from 3 vessels was used to extrapolate to the rest of the fleet.

Table 7.--Comparison of cost-earnings performance in 2001 and 2009 in the American Samoa longline fishery.[14]

	2009	2001*	% Change
Average Annual Revenue per Vessel	448,817	930,476	-52%
Average Annual Trip Costs per Vessel	268,016	284,530	-6%
Fuel	121,648	103,821	17%
Oil	6,064	7,201	-16%
Freezer Operations	8,389	14,289	-41%
Bait	53,312	85,417	-38%
Provisions	20,109	32,201	-38%
Communication	3,846	n/a	
Fishing Gear	22,843	41,603	-45%
Misc. Trip Costs	31,804	n/a	
Average Annual Labor Costs per Vessel	78,167	251,918	-69%
Total Captain Share	30,594	96,892	-68%
Total Crew Payments	47,573	155,028	-69%
Total Flat Rate	3,132	n/a	
Total Crew Share	36,238	n/a	
Total Bonus	209	n/a	
Total Initial Payments	7,995	n/a	
Average Annual Fixed Costs per Vessel	96,256	143,083	-33%
Mooring	3,365	9,176	-63%
Bookkeeping	3,467	2,279	52%
Insurance	24,970	37,574	-34%
Loan Payments	19,251	50,382	-62%
Other Fixed Costs	3,413	11,584	-71%
Drydock Costs	16,541	5,773	186%
Overhaul Costs	5,584	2,206	153%
Major Repairs	10,761	4,720	128%
Routine repairs	8,904	19,388	-54%
Average Total Annual Expenditures per Vessel	442,438	679,531	-35%
Average Annual Net Return per Vessel	6,379	250,945	-97%

[14] Data source: 2001 data are from O'Malley and Pooley (2002), and 2009 data are from the in-person survey conducted by PIFSC. The 2001 value presented was adjusted to 2009 dollars (1 2009 dollar = 1.416 2001 dollars)

Table 8.--Comparison of input costs as a percent of total vessel expenditures in the American Samoa longline fishery, 2009, and 2001.[15]

	2009 (%)	2001* (%)
Annual Trip Costs	**61**	**42**
Fuel Costs	27	15
Oil Costs	1	1
Freezer Costs	2	2
Bait Costs	12	13
Provisions	5	5
Communication	1	
Fishing Gear Costs	5	6
Misc. Trip Costs	7	
Total Labor Costs	**18**	**37**
Total Captain's Share	7	14
Total Crew Payments	11	23
Total Flat Rate	*1*	
Total Crew Share	*8*	
Total Bonus	*0*	
Total Initial Payments	*2*	
Fixed Costs	**22**	**21**
Mooring	1	1
Bookkeeping	1	0
Insurance	6	6
Loan Payments	4	7
Other Fixed Costs	1	2
Dry Dock Costs	4	1
Overhaul Costs	1	0
Major Repairs	2	1
Routine repairs	2	3

15 Data source: *2001 data are from O'Malley and Pooley (2002), and 2009 data are from the 2010 in-person survey conducted for this study.

Table 8 compares the expenditure shares (input/total annual expenditures) of selected inputs between the two periods. There are two main changes in cost structure. First, there was a substantial increase in fuel expenditures. The annual average expenditure per vessel on fuel rose by 66%. While fuel costs accounted for 27% of total expenditures in 2009, they accounted for less than 15% in 2001. A second dramatic change was the decline in labor costs. Average annual crew expenditures per vessel fell by 55%, and the share of total expenditures represented by crew payments fell from 23% in 2001 to 11% in 2009. These changes were likely caused by the wider use of foreign crew members who were paid at a lower rate (see footnote 3). The lower average annual net revenue per vessel in 2009, due both to lower revenues and higher variable costs, also contributes to the lower profit-share payments to crew and captain.

A decline in albacore CPUE was afactor that contributed to lower revenues in 2009, compared to 2001. In 2009, about 83% of the revenue was composed of albacore landings (WPRFMC, 2009). Figure 6 shows the CPUE trend from 2001 to 2009 for American Samoa longline vessels longer than 50 ft. In 2009, CPUE was approximately 14.8 fish per 1000 hooks, which was 56% lower than the 2001 CPUE of 34 fish per 1000 hooks. If we measure CPUE by fish per set (as opposed to fish per hooks), CPUE fell from 66.5 fish per set in 2001 to 45.5 fish per set in 2009, a 32% decline.

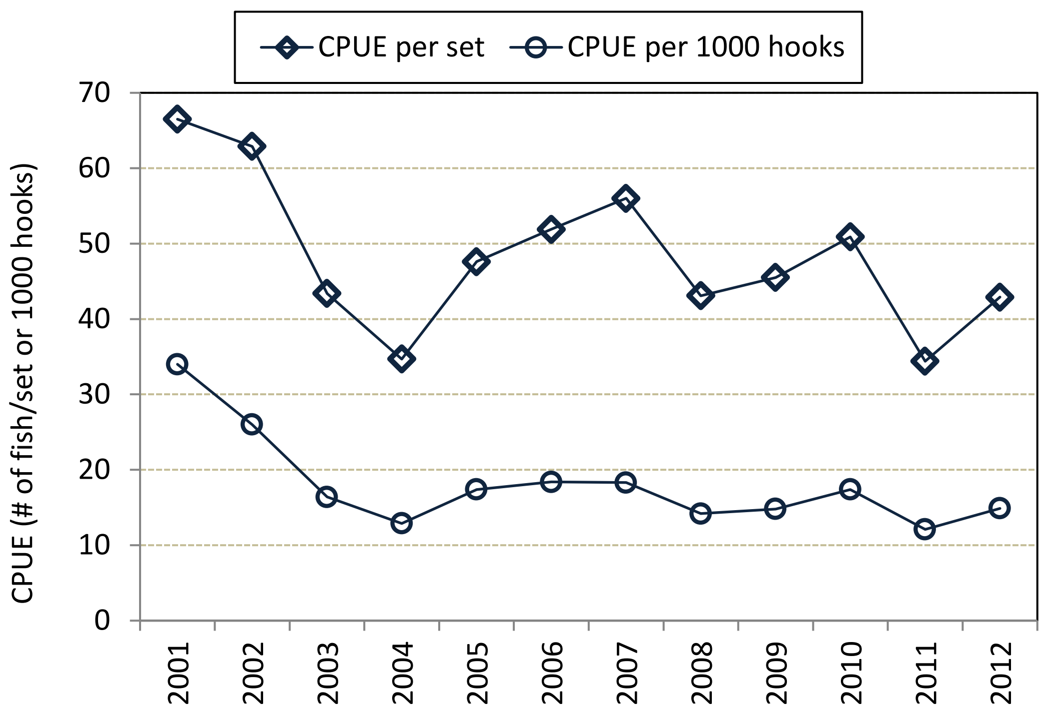


Figure 6.--Trend in CPUE for albacore in American Samoa longline fleet, 2001–2012.[16]

[16] Data source: WPRFMC, Pelagic Fisheries of the Western Pacific Annual Reports, 2000-2012, Honolulu, Hawaii. http://www.wpcouncil.org/pelagic-data.html.

Lower ex-vessel fish prices also contributed to the decline in revenue from 2001 to 2009. The price of albacore in the 2001 report was $1.13/lb., which was 13% higher in nominal value (60% higher in real price) than the 2009 price of $1.00/lb. However, it is unclear whether the difference in the price reflects an actual change of price between the two periods, or results from price data being obtained from different sources in the 2009 and 2001 analyses. The price information in the 2001 cost-earnings study (O'Malley and Pooley, 2002) was obtained from the Forum Fisheries Agency (FFA), while the price information for the current study was obtained from the PIFSC's WPacFIN program (published in the WPRFMC annual reports). FFA recorded albacore prices from different cannery markets, but the O'Malley and Pooley (2002) study did not specify from which market the price in their study was derived.

Figure 7 shows the difference of the price information between these two sources (FFA, reporting Thai market data, and WPacFIN reporting America Samoa market data). It shows that in the early 2000s (2000–2004), the America Samoa and Thai market prices for albacore had similar trends. However, the price for albacore in America Samoa was much lower than the Thai market price. While O'Malley and Pooley (2002) used $1.13/lb. as the 2001 albacore price in their report, the WPacFIN albacore price was only $1.00/lb in 2001. In 2009, FFA reported the albacore price of Thai imports at $1.20/lb., whereas the WPacFIN reported price remained at $1.00/lb. in 2009.

These price differences have significant implications for the profitability of the American Samoa longline fleet. In this analysis, the average annual profit per vessel of $6,379 was calculated based on the albacore price of $1.00/lb. Alternatively, using FFA data ($1.20/lb), and keeping the other elements (costs and prices of other landings) constant, the average annual revenue per vessel would be $523,000. This estimate is 17% higher than the revenue per vessel calculated using a price of $1.00/lb. Subtracting the annual costs (including variable and fixed costs and labor costs) per vessel, profit per vessel would be approximately $53,000 given a price of $1.20/lb of albacore, significantly greater than the current estimate of $6,379 developed using $1.00/lb.

Albacore prices are highly confidential between fishermen and buyers. As such, the price presented in the WPRFMC annual report was based on rough estimation and may not reflect the actual prices (personal communication, WPacFIN). Nonetheless, we decided to use the price reported by WPRFMC annual report, since: 1) it is unclear the extent to which the America Samoa cannery market price tracks with the Thai import market price; and 2) using the American Samoa price ensures the same data source for prices, revenues, and CPUE data published from the website of the PIFSC.

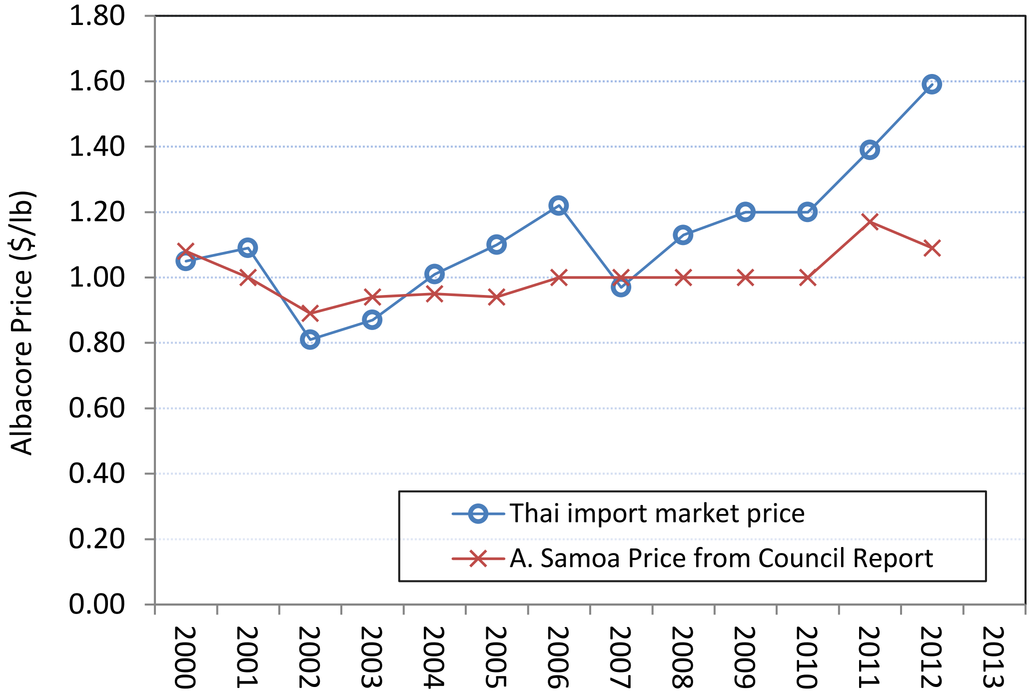


Figure 7.--Albacore price trends from two different data sources.[17]

Mindful of the limitations in comparing economic performance between the two studies, we nevertheless attempt to assess the overall trend during the past decade. We find that over the past 10 years, the average annual economic return per vessel has declined. The substantial increase in fuel expense was greater than the decline in crew costs, while average overall revenues fell by 32%. While the average vessel generated net revenues (profit) of $177,207 in 2001, after fixed and variable costs (including labor) were deducted, the average vessel in 2009 generated only $6,379 in net revenues (profit).

Sensitivity Analysis of Correlation between Albacore Price, CPUE, and Profit

As indicated above, albacore price and CPUE play important roles in determining profit in the American Samoa longline fleet. We estimated a matrix of CPUE and price to examine how profit correlates to albacore price and CPUE, while keeping unchanged other factors, such as fixed and variable costs, total effort, and non-albacore catches. The average annual fishing effort per vessel was 650,470 hooks and albacore comprised 83% of the total revenue based on 2009 operations (WPRFMC, 2009). A matrix was developed to construct isoprofit curves associated with

17 Data sources: Thai market data reported by FFA on the internet at www.ffa.int/catch_value [Accessed April 21, 2013] while America Samoa market data reported by WPacFIN (same as Fig. 4).

albacore CPUE and albacore price changes, with the price ranging from $500 to $4,000 per metric ton whole weight (which is approximately $0.227/lb to $1.815/lb), and CPUE ranging between 10 to 40 fish per 1000 hooks. Revenue is generated given different combinations of CPUE and price level, thus the profit at each CPUE or price level can be calculated accordingly, while keeping unchanged other factors such as fixed and variable costs, total effort, and non-albacore catches. The matrix of CPUE, price, and profit resulting from the simulation is illustrated in Figure 8.

Each curve (isocurve) in this figure presents a fixed profit level given combinations of albacore CPUE (catch per 1,000 hooks) and albacore price. For example, the $0 isocurve shows that the combinations of CPUE-price pairs, such as (14.8, 2139) or (14.3, 2200), would yield $0 profit, while holding other factors unchanged. However, if albacore CPUE and price increases, it will yield positive profit levels and lead to higher value isoprofit curves, and vice versa. The American Samoa longline 2009 profit level, an average $6,379 per vessel concluded from the cost-earnings study, is illustrated in the graph (where the white star is located). At that profit level, the pair of the CPUE-price values is 14.8 fish per 1000 hooks and $2200 per metric ton ($1.00/lb.), respectively. From the graph, it is easily observed that the 2009 profit level is quite near to the $0 isoprofit curve. If CPUE decreases slightly from 14.8 fish per 1000 hooks to 14.3 fish per 1000 hooks (holding the CPUE of other species and fish prices constant) the profit of an individual vessel would be negative (i.e., a net loss). And if the price of albacore declines slightly, from $1.00/lb. to $0.97/lb., assuming no changes in the CPUE of all species, the profit would again become negative (i.e., a net loss). This suggests that the American Samoa longline fleet operated on a very thin profit margin in 2009.

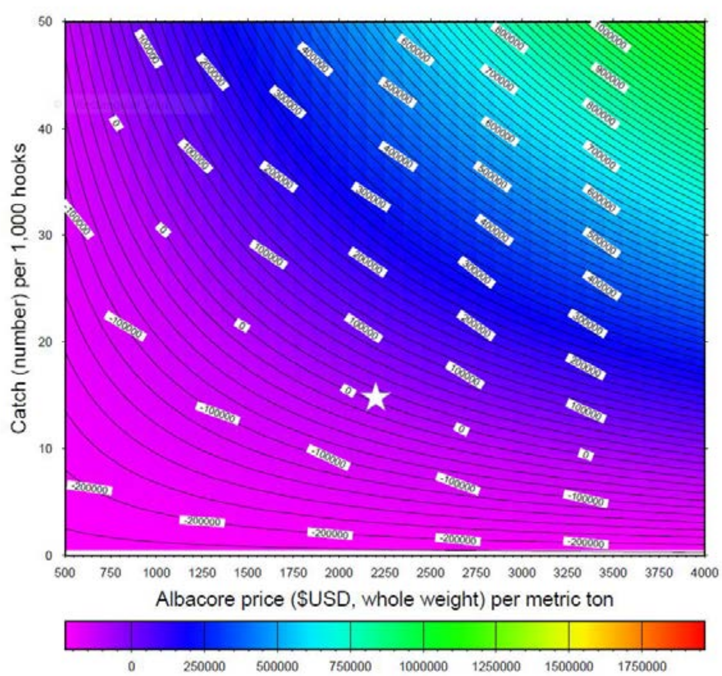


Figure 8.--Isocurves of profit in response to changes of albacore CPUE and price in the American Samoa longline fishery.[18]

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[18] Data Source: The data for the isocurves were developed from the cost-earnings (Table 4).

The Fishery Downturn at the End of 2013

At the end of 2013, the majority of vessels in the American Samoa longline fleet were tied up at the docks in Pago Pago, and according to the *Samoa News* (2013), “For Sale” signs had been posted on 18 of the 22 vessels. Based on our analysis, the situation in 2013 was clearly associated with poor economic performance resulting from: (a) a continuous decline in albacore CPUE, (b) increasing fuel prices, (c) a sharp drop in market prices for albacore, and (d) a baseline of already limited profit margins.

Pre-existing problems very likely contributed to the situation observed in 2013. For example, in 2009, the albacore CPUE was 14.8 fish per 1000 hooks and the market price for the species was $2,200 per metric ton, or approximately $1.00/pound. Sensitivity analysis reveals that if market price and other exogenous factors are held constant, and if CPUE is less than 14.3 fish per 1,000 hooks, net cash return on investment would be negative for any given vessel in the fleet. Thus, most owners and operators were operating very close to the zero profit in 2009. But in 2013, CPUE for albacore fell to 11.9 fish per 1,000 hooks and the albacore price was similar to 2009 but dropped to $1.01/lb in 2013 from $1.47/lb in 2012)[19]. The situation yielded extensive losses across the fleet.   The fish price information for 2013 was based on reliable resource as the economic data collection program that collected the trip cost information started to collect fish price data from fishermen since 2012.

PIFSC’s ongoing economics monitoring program (Pan et al., 2014) indicates that fishing costs continued to increase after 2009. As noted in Figure 9 below, expenditures finally exceeded revenues in 2013. The costs of fishing are many and various, in this case including costs associated with: diesel fuel, engine oil, bait, freezer operations, fishing gear, provisions, communications, and miscellaneous items. Labor costs are not included in our calculations. Fishermen reported fuel price in 2013 was $3.20 per gallon, while it was $2.53 (real price) per gallon in 2009 (Pan et al. 2014). Figure 10 further illustrates poor economic performance across the fleet in recent years. As can be noted in the table, net revenues in 2011 and 2012 were $257 and $727 per set (in 2013 value), respectively – substantially lower than the $1,509 per set assessed in 2009. Per-set net revenues declined even further in 2013, ultimately reaching negative $396 that year.

Please note that the continuing decline of the American Samoa longline fishery was not an isolated event, but was a part of a region-wide economic collapse of the South Pacific albacore fishery. According to report of the SPC Fisheries Newsletter #142 (September–December 2013), domestic fishing fleets targeting primarily albacore in Pacific Island Countries and Territories (PICTs) had reported difficulties in maintaining profitability in recent years.

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[19] Price information was collected by the PIFSC data collection program (Pan et al., 2014) where the price data for 2012 and 2013 were gathered from in-person interviewed with the longline owners/agents in the September 2012 and 2013, respectively.

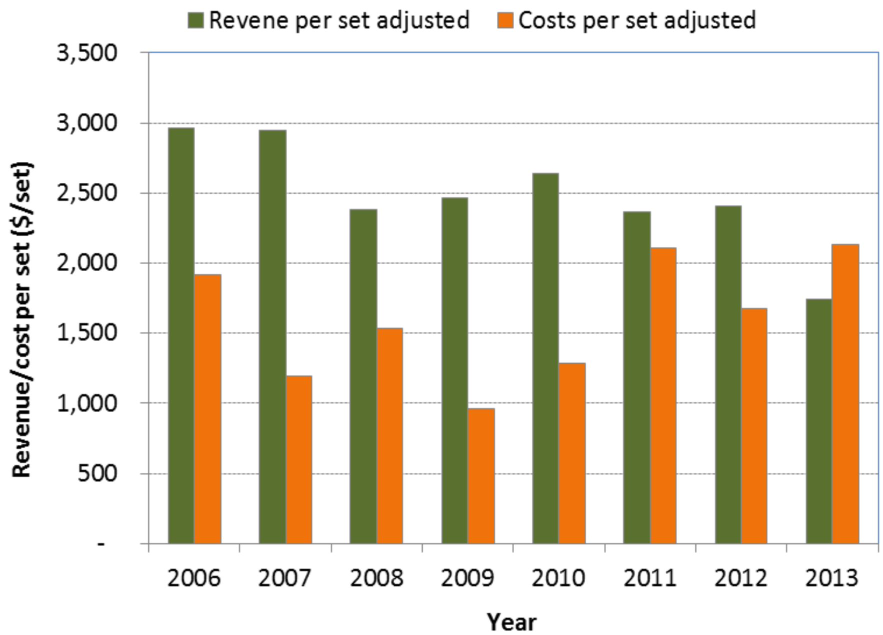
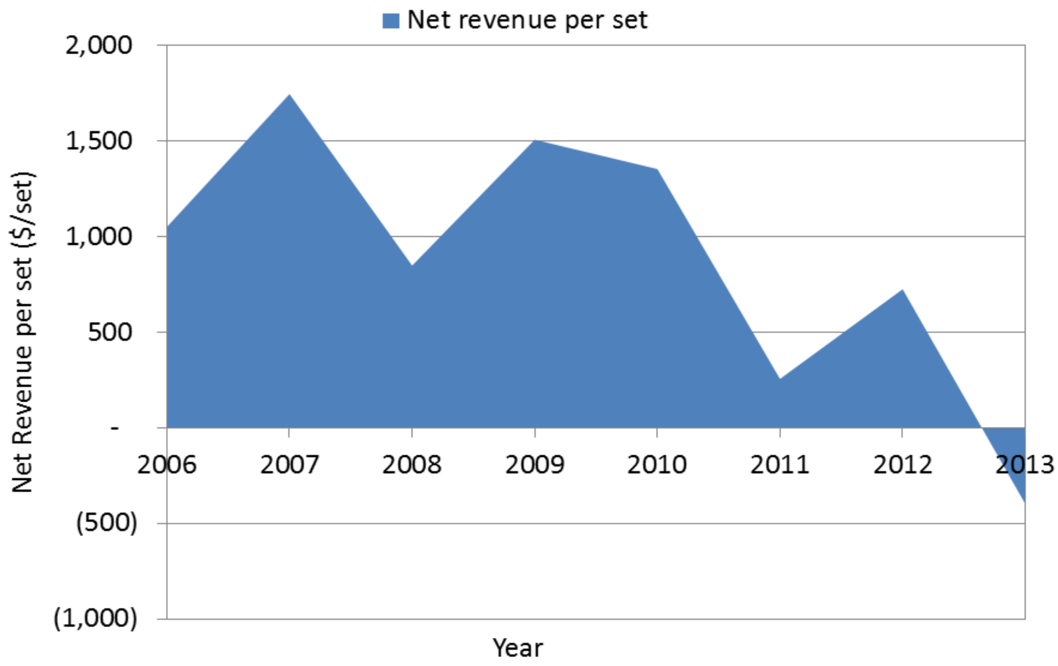


Figure 9.--Revenue and variable costs (not included labor costs) per set of American Samoa longline fishery, 2006–2013 (value is adjusted to 2013 dollar).[20]



[20] Data source: cost information are from the continuous economic data collection program (Pan et al., 2012) and revenue per trip was calculated using the annual revenue and the number of sets collected by PIFSC's WPacFIN Program and published at http://www.pifsc.noaa.gov/wpacfin/as/Pages/as_data_5.php

Figure 10.--Net revenue per set of American Samoa longline fishery, 2006–2013 (value is adjusted to 2013 dollar).

CONCLUSION

Analysis of recent trends in the American Samoa longline fishery makes clear that owners or owner-operators of the fishery earned scant profits during 2009, subject to the assumption where albacore price was $1.00/lb as the published price data (while it could be 20% higher reality). We found that the average vessel generated an annual cash net return (profit) of $6,379 to the vessel owner in 2009, while albacore price was $1.00/lb. If a conservative estimation for depreciation charges is considered, the longline operation suffered negative returns to its owners. Increasing in fuel cost, which accounted for approximately 27% of average total annual expenditures in 2009 while it was 15% in 2001, were a major contributor to the higher total costs in 2009. On the other hand, the wider use of foreign crew members enabled vessels to keep labor costs down; overall crew payments were relatively low, accounting for 11% of average total annual expenditures, compared to the 23% in 2001. On average, it seems that large vessels (D class vessels) in this fleet had higher economic returns to the owners compared to smaller (C class) vessels. In addition, we found an observable distinction in the operating profiles of profitable vessels compared to unprofitable vessels. Despite a higher vessel purchase price (on average), profitable vessels generated substantially greater annual revenues, while also featuring lower non-labor costs compared to unprofitable vessels.

By conducting a sensitivity analysis, the study found that very small changes in the price of albacore (i.e., $0.03) or in the number of fish caught per 1000 hooks, can result in profitability or unprofitability for an average vessel. Recent years have seen poor economic conditions for the fleet with a downward trend in economic performance continuing through 2013, when negative returns on fishing effort were reported by most participants in the fleet. Lack of profitability is linked in large part to diminishing CPUE and poor market prices for albacore. Economic recovery of the fishery will require near-term improvements in catch and prices paid for albacore, and an easing of costs associated with commercial fishing. Finally, improving the fish price data collection would allow better assessment on the profitability measure, as the profitability is sensitive to the fish price. The fish price information for this fishery was more reliable since 2012 as the economic data collection program collected fish price data through in-person interview with the fishermen.

ACKNOWLEDGMENTS

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Appendix: American Samoa Longline Fleet Cost-Earnings Questionnaire

Date of interview: ____________________

Vessel Name: ______________________
Vessel's permit number: ______________
Interviewee's name:________________________ Contact (phone): _______________
Interviewee position: ❑Vessel owner ❑Captain
Vessel operator: ❑Owner operated ❑ Hired Captain

I. About the owner OR owner operator (skip questions 1-2 if you are interviewing a hired captain, go to Q. 3)

How many fishing vessels do you own? _______ vessel(s)
How many vessels fish in **Am. Samoa Longline** Fishery_______
How many vessels fish in **other fisheries** _______

How many years have you owned a longline vessel in Am. Samoa? __________ years
How long have you owned this vessel? ______ years
What is the ownership? ❑ Sole ownership (or w/ family) ❑ Shared w/ others (corporation)
Have you ever owned a different longline vessel? ❑ Yes ❑ No If yes, how many? _______

1. Do you live in Am. Samoa? ❑ Yes ❑ No
If No Did you travel to or from Am. Samoa to handle fishing business? ❑ Yes ❑ No
If Yes a) What were the travel costs? $___________________

2. Besides Am. Samoa, did you fish in another port in 2009? ❑ Yes ❑ No

If yes 1) How many trips? _____________

II. About the hired captain *(Skip questions 3-6 if you are interviewing an owner or owner-operator, go to # 7)*

3. How did you find the captain for this vessel (if it was operated by a hired a captain) – *write down the details*
❑ your family member ❑ relative ❑ friend

4. How many years of commercial fishing experience does your captain have? ________ years

5. How many longline vessels have you worked on as a captain in the Am. Samoa longline fishery? _____ vessels

6. How long has your captain been in charge of this vessel? ________ years

III. About the Vessel

7. What was the vessel purchasing price? $______________

8. What is the vessel current (appraisal) value? $_____________

9. What is the vessel replacement value? $______________

10. What were the start-up costs when the vessel was purchased? $_____________

11. Fuel capacity: ____________ gallons

12. When was the vessel built? ___________ year

13. When was the vessel purchased?___________ year

14. What is the vessel length? _____________ ft

15. What is the vessel width/beam? _____________ ft

16. How fast does the vessel travel?
    Speed range: (max) ____________knot/hr
    Average: ________ knot/hr

17. Fish holding capacity:___________ tuna trip (lbs) _____________ swordfish trip (lbs)

18. Number and horsepower of engines

    Engine 1: ___________________ horsepower
    Engine 2: ___________________ horsepower

19. Do you use more than one reel? If yes, how many?_________

20. Did you use an icemaker in 2009? ❑Yes ❑ No

We need some information about the cost of a normal trip. Can I ask you some questions about this or would you prefer to show us your receipts or accounting records and we can add them up?

IV. Trip costs

Trip costs

21. How familiar are you with trip expenses?
❑ In charge of keeping track of trip expenses/ Very familiar with numbers
❑ Not very Familiar with expenses

22. FUEL

PRICE PER GALLON	GALLONS USED	TOTAL COST OF FUEL
$ _ . _ _	_ _ _ _	$ _ _ _ _ _ . _ _

23. ENGINE OIL

UNIT (Check One)	PRICE PER UNIT	QUANTITY PER UNIT USE	TOTAL COST
☐ 1 GALLONS	$ _ _ _ . _ _	____ GALLONS	$ _ _ _ . _ _
☐ 5 GALLONS (1 BAG/BUCKET)		____ BAG/BUCKET	
☐ 55 GALLONS (1 BARREL)		____ BARRELS	

24. BAIT

TYPE 1 (Check One)

	SQUID		MACKEREL
	SARDINE		ANCHOVY
	SANMA		

PRICE PER BOX $.

BOXES USED

TOTAL COST $.

TYPE 2 (Check One)

	SQUID		MACKEREL
	SARDINE		ANCHOVY
	SANMA		

PRICE PER BOX $.

BOXES USED

TOTAL COST $.

25. ICE (Check One)

UNIT (Check One)

	BLOCKS
	TONS
	LBS

PRICE PER UNIT $.

UNITS USED

TOTAL COST $.

26. FISHING GEAR COSTS (i.e. replaced items such as hooks, line, floats, raingear, etc)

$.

27. PROVISIONS COSTS (i.e. groceries, bottled water, etc.)

$.

28. TRIP COMMUNICATIONS COST (i.e. satellite phone calls, email, etc.)

$.

29. MISCELLANEOUS COSTS

$. Please list details of the miscellaneous costs:

Items	Costs ($)
(1).	$
(2).	$

30. TOTAL ESTIMATED TRIP COSTS **(Ask, Don't Add!)**

$.

Labor Costs

In the following questions the terms 'share' and 'percentage' (%) are generally interpreted as the same concept—part of the revnue from a fishing trip goes towards the crew. This is in contrast to 'flat rate' ($) which is when a crewmember earns the same amount of money regardless of the revenues from a fishing trip.

31. Were the crew (not including captain) paid by flat rate or by shares?
❑ Flat rate ❑ Shares ❑ Some flat rate, some shares

32. Which of the following trip expenses do you subtract from the trip revenue to get net revenue?
❑ Trip Costs ❑ Insurance
❑ Swordfish certificate ❑ Routine maintenance
❑ Communications

33. How many crew does the vessel usually have? __________ ❑including captain or ❑not
34. How many of them are other crew? _______ How many are of them paid by flat rate? ________Do flat rate crew receive bonus? ❑ Yes ❑ No

35. Did you have difficult time finding crew as you needed?
❑ Yes, always ❑ Yes, sometime ❑ No

36. What is the longest time a current crew has been working with this vessel? _________ yr

37. What is the shortest time a current crew has been working with this vessel? _________ yr

38. What are the flat rates and/or share percentages? (please list details)
Trip Revenue is defined as after sale revenue. Net revenue is defined as after sale and trip costs are deducted.

Position	Shares or %	Foreign (Y/N)	Of Trip Revenue or Of Net Revenue	Flat Rate Per Trip Or Per Month	Bonuses Per Trip Or Per Month	Initial payment	What year (for initial payment)
Owner(s)							
Owner/Operator							
Captain				$			
Crewmember1				$			
Crewmember2				$			
Crewmember3				$			
Crewmember4				$			
Crewmember5							
Crewmember6				$			

Any additional labor costs (such as VISA extension fee, return fees…)

Fish Sale Costs

39. Where do you sell your fish? Is there a fee? How much?
    - ❑ Tuna Cannery. If Cannery, is the paycheck of crew or captain handled by the cannery? ❑ Yes ❑ No
    - ❑ Other distributors or brokers (list the name(s)): ______________________ Handling fee _____________

40. Did you have any shipping or transporting costs to the market (other than vessel fuel costs)? ❑ Yes ❑ No

If yes 1) Please describe the method of transport and costs:

___________________________________ $____________________

Fixed Costs

40. What were your mooring fees**/per month** in 2009? $ ___________ or **/per year**

41. How much did you spend on bookkeeping / accounting costs in 2009?

$__________________ ❑ per month or ❑ per year

42. What were your insurance costs per year in 2009? $ ________________

    This includes (please check):
    - ❑ Vessel only
    - ❑ Vessel and liability
    - ❑ Pollution
    - ❑ Liability only ("P" and "I")
    - ❑ Health (Please specify who is covered) __________________
    - ❑ Vessel, liability, and health

43. When did you last dry dock your vessel? ______________ yr
    - 43.1.1. How often do you dry dock? _______ yrs
    - 43.1.2. What was the total cost for your drydock (including costs paid to shipyard, repairs, painting, etc)? $____________________

    If the vessel dry docked in 2009, ask for cost information…
    a) What major repairs were done in drydock? How many yrs between repairs?
    ____ cost________________

    ____ cost________________

    ____ cost________________

    ____ cost________________

44. Have you overhauled your engine in the past? ❑ Yes ❑ No

If yes 1) When did you last overhaul your engine? ______________ yr

2) How much did it cost $ ____________________

3) How often do you overhaul your engine? _______ yrs

How much did you spend on routine repairs and maintenance (performed at least once a year) in 2009 (Beyond dry dock & trip costs)? $_________________

45. Not including dry dock and trip variable repair costs, what major repairs (not done every year) were done in 2009? What were the costs?

____ $_________________

____ $ _________________

____ $ _________________

46. What gear/equipment did you replace or add in 2009? What were the costs and how often do you replace them?

____ $ _________________ yrs__________

____ $ _________________ yrs__________

____ $ _________________ yrs__________

____ $ _________________ yrs__________

47. Did you have any vessel loan payments in 2009? ❑ Yes ❑ No

If yes 1) How much were your payments per month? $ __________________

2) How much time is left on this loan? __________ ❑ Years or ___________ ❑ Months

48. Besides Am. Samoa, did you fish in another port in 2009 ? ❑ Yes ❑ No

If yes 1) How many trips? _____________

49. Are there any other vessel costs which I haven't included? ❑ Yes ❑ No

If yes (Please list)____ $________________

____ $________________

____ $________________

____ $ ________________