Tracking Changes on Fishery Economic Performance

Continuous Economic Data Collection Programs for Hawai‘i and American Samoa Pelagic Longline Fisheries, 2005-2016

NOAA FISHERIES

Every morning, fresh fish caught by the Hawai‘i Pelagic Longline Fishery are traded in the Honolulu Fish Auction. Photo Credit: NOAA Fisheries/Minling Pan

NOAA Fisheries is responsible for evaluating both the benefits and costs of any regulatory changes and taking into account the importance of fishery resources to fishing communities by utilizing economic and social data. (MSA National Standards 7 & 8)

In 2001, NOAA Fisheries implemented a continuous economic data collection program to aid in costs and benefits of fisheries management decisions. The data collected help managers evaluate the economic implications of different activities, prioritize needs, and encourage policies that maximize societal benefits from ocean and coastal resources.

A New Report to Track Changes

A new report, *Tracking Changes on Fishery Economic Performance: Continuous Economic Data Collection Programs for the Hawai‘ian and American Samoa Longline Fisheries 2005–2016*, provides the first comprehensive review of trends of the economic performance indicators in the Hawai‘i and American Samoa longline fisheries.

The primary source of data for the new report came from continuous economic data collection programs established in the Hawai‘i longline and American Samoa longline fisheries in 2004 and 2006, respectively.

National Program History

In 2001, NOAA Fisheries implemented a strategic initiative to improve the collection of commercial fisheries economic data. NOAA Fisheries' programmatic support led to systematic expansions (from five programs in 2002 to 19 programs in 2016) of cost data collection programs. While the goals are the same, each region has different data requirements and methods for collecting those data.

Commercial cost data are collected using a variety of methods. Surveys such as mail, telephone, in-person, web, and add-ons to existing logbook and observer programs are used. Some surveys are mandatory; others are voluntary. As of 2016, operating cost data are available for at least **30%** of fisheries in most regions and **80%** or more in the Northeast and in Atlantic highly migratory species. Fixed cost data are available for at least **20%** to **80%** or more depending on the region.

Regional History and Methods

A continuous economic data collection program was first adopted by the Hawai'i longline fishery in 2004. The program was later adopted by the American Samoa longline fishery in 2006, the same year the Pacific Islands Regional Office (PIRO) Observer Program was implemented in the fishery. The two data collection programs were implemented as an add-ons to the PIRO Observer Program, which was established mainly to collect biological (fish catch) data and to record interactions of fishing activities with protected species.

Data for the program are collected by observers at sea. The observer coverage rate is **100%** coverage in shallow-set fishery and approximately **20%** in the deep-set fishery (including Hawai'i deep-set fishery and American Samoa longline fishery). While participation from fishermen is voluntary, the program has achieved a high response rate (as high as **60%**) over the past 10 years thanks to the generous support of vessel owners and operators.

The Importance of Participation

Information captured in these surveys helps managers make critical decisions affecting conservation and management goals. By participating in this program, you will help us:

- **COMMUNICATE** to policymakers the importance of commercial fisheries to local economies.
- **IDENTIFY** factors that affect local fishing economies.
- **PROPOSE** policies that align resource conservation with economic and societal goals.

Local longliners, in 2013, anchored at the main dock at the port of Pago Pago with "For Sale" signs. Photo Credit: Western Pacific Regional Fishery Management Council/Nate Ilaoa

How Data Are Used

In 2013, the American Samoa longline fishery experienced a crisis: increased operating costs, decreased fish prices, and lower catch rates forced 18 of 21 local longliners to offer their vessels for sale and remain anchored at the main dock in the port of Pago Pago. The data collected through an economic data collection program was vital in helping the Western Pacific Regional Fishery Management Council identify key factors that led to the decline in the fishery's economic performance.

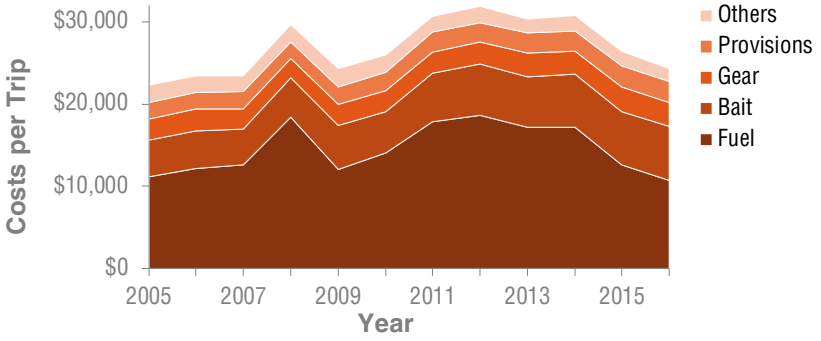
With these data, the Council was able to grant a temporary exemption to American Samoa longline vessels to fish within the Large Vessel Prohibited Area, extending their fishing grounds closer to shore. Along with support from the local processor industry, the majority of vessels were able to remain in the fishery as economic performance improved.

Hawai'i Longline Fishery

The Hawai'i-based longline fishery is the dominant commercial fishery managed under the Western Pacific Region Fisheries Management Council. In 2016, Hawai'i ranked **6th most valuable** U.S. port in seafood landed; a key contributor to this is the Hawai'i-based longline fishery. In 2016, **140 active vessels** landed over **30 million pounds** of pelagic fish valued at over **$100 million**.

The Hawai'i-based longline fishery has two components: (1) the deep-set longline fishery, targeting mainly bigeye tuna, and (2) the shallow-set longline fishery, targeting mainly swordfish. The fishery shows an increasing trend in both landings and revenue during the period from 2005 to 2016. The fishery landed **23 million pounds** of fish valued at **$61 million** in 2005 (adjusted to 2016 dollars), increasing to **30 million pounds** valued at **$102 million** in 2016.

The Economic Performance Trends of Deep-Set Fishing Trips (Targeting Bigeye Tuna), 2005–2016

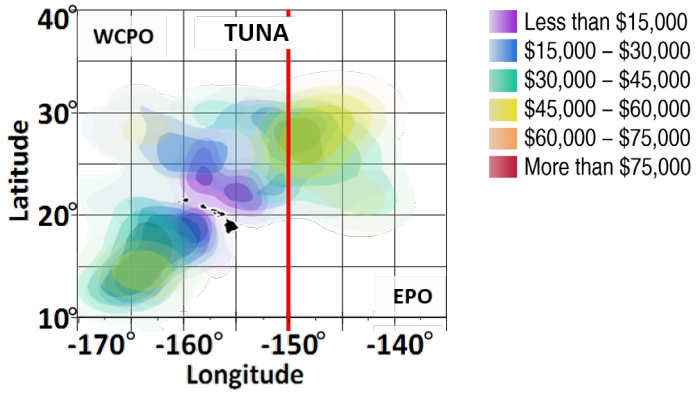


COST TRENDS (adjusted to 2016 dollars)

Average costs for Hawai'i deep-set tuna trips generally increased from 2005 to 2012, and subsequently declined (spike in 2008 was due to fuel price increase). Average cost peaked at **$32,000** in 2012, and plunged to the lowest value in 2016 (**$24,000**). Fuel accounted for the largest share of total fishing trip costs, ranging from **44%** to **62%**. In general, the rise and fall of trip costs have been due to changes in fuel prices.

NET REVENUE (adjusted to 2016 dollars)

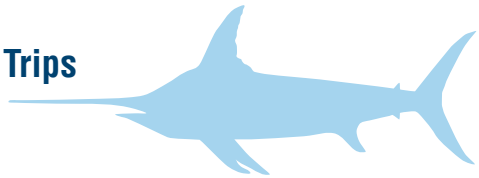
Net revenue for Hawai'i deep-set tuna trips, defined as trip revenue minus trip costs (not including labor or fixed costs), increased **83%** from 2005 (**$27,000 per trip**) to 2016 (**$49,000 per trip**).

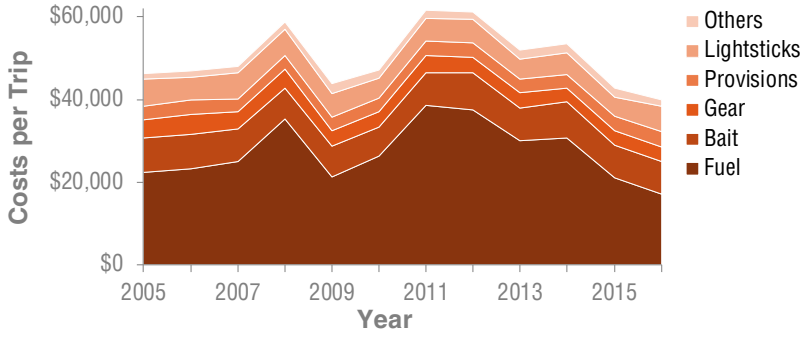


SPATIAL VARIATION IN TRIP COSTS

This map shows the spatial variation of average trip costs for Hawai'i deep-set tuna fishing. The 150°W longitude line divides the Western and Central Pacific Ocean (WCPO) from the Eastern Pacific Ocean (EPO). Moving further away from Honolulu, the homeport for the vast majority of the Hawai'i pelalagic longline fleet, average trip costs generally increased; higher costs are generally associated with the EPO than the WCPO. The map was developed based on the estimated cost functions using trip cost data from 2010 to 2012.

The Economic Performance Trends of Shallow-Set Fishing Trips (Targeting Swordfish), 2005–2016



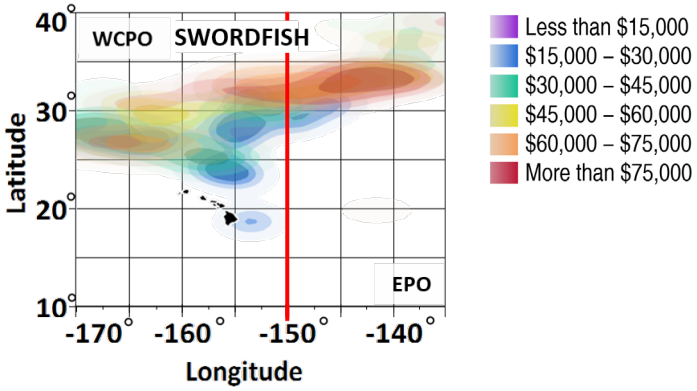


COST TRENDS (adjusted to 2016 dollars)

Hawai'i shallow-set swordfish trips are usually longer than deep-set tuna trips, which makes them more expensive in general. Similar to tuna fishing, fuel accounted for the largest share of swordfish trip costs, ranging from **43%** to **63%**. At their peak in 2011 and 2012, average trip costs totaled over **$61,000**.

NET REVENUE (adjusted to 2016 dollars)

For Hawai'i shallow-set swordfish trips, net revenue fluctuated greatly from 2005 to 2016, differing from the trend for tuna fishing. In some years, average net revenue was about **$35,000 per trip**; in other years, it was over **$55,000 per trip** (more than a **50%** increase).



SPATIAL VARIATION IN TRIP COSTS

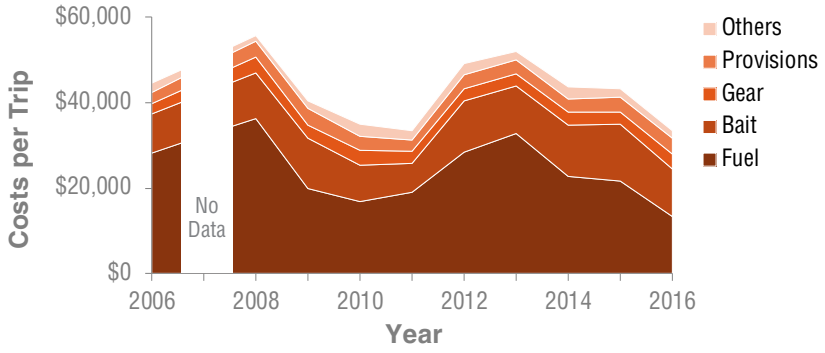
Fishing grounds for Hawai'i shallow-set swordfish fishing were even broader than for Hawai'i deep-set tuna fishing. Moving further away from Honolulu, the homeport for the vast majority of the Hawai'i pelalagic longline fleet, average trip costs generally increased; higher costs are generally associated with the EPO than the WCPO. The map was developed based on the estimated cost functions using trip cost data from 2010 to 2012.

American Samoa Longline Fishery

The American Samoa longline fishery is an important commercial fishery, contributing **99%** of the total commercial fishing revenue of America Samoa in 2016. It is a limited entry fishery that primarily harvests albacore in the U.S. Exclusive Economic Zone around the South Pacific Ocean. There were **20 active permits** (vessels) in 2016.

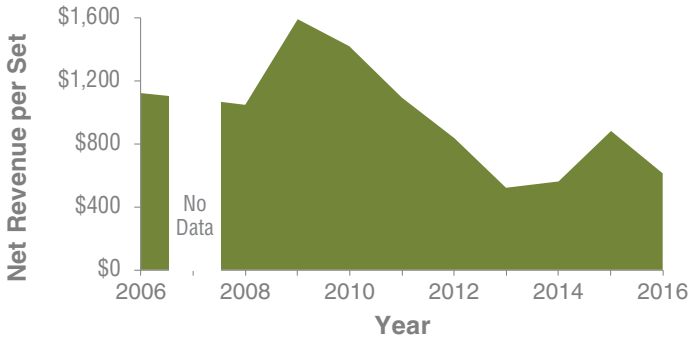
In 2016, the total fleet revenue was **$4.7 million**. Albacore accounted for over **86%** of that total revenue, followed by yellowfin (**6%**). Other species, such as bigeye, skipjack, and wahoo, each accounted for only **1%** of the total revenue. These five species accounted for 95% of the total. From 2006 to 2016, the fishery was in a declining trend in terms of total landings and gross revenue. Total revenue was **$12 million** in 2006, and peaked in 2007 at **$14 million**.

The Economic Performance Trends of Deep-Set Fishing Trips (Targeting Albacore), 2006–2016



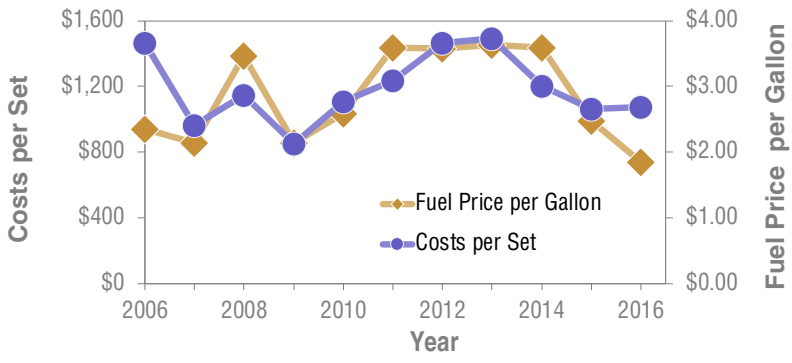
COST TRENDS (adjusted to 2016 dollars)

In the American Samoa longline fishery, fuel costs generally accounted for over **50%** of trip costs, similar to the Hawai'i longline fishery. Due to decreased fuel prices, the fuel share in trip costs was lowest in 2016. The second highest cost item was bait.



NET REVENUE (adjusted to 2016 dollars)

From 2006 to 2016, the economic performance of the American Samoa longline fishery declined. Net revenue was lowest in 2013 due to the continuous decrease in albacore catch per unit effort, increasing fuel prices, and a sharp drop in market prices for albacore.



FUEL IMPACT ON TRIP COSTS

From 2006 to 2016, fuel price per gallon and costs per set rose and fell together, indicating that the values are highly correlated.

Hawai'i pelagic longline vessels docked in Honolulu Harbor next to the Honolulu Fish Auction. Photo Credit: NOAA Fisheries/Minling Pan

Acknowledgements

The success of these data collection programs and their findings would not have been possible without the collaborative efforts of the Pacific Islands Fisheries Science Center, the Pacific Islands Regional Office Observer Program, and the voluntary participation of vessel owners and operators.

Looking Forward

We constantly strive to improve our data collection programs. While continuing to improve the database and further develop advanced automated reporting tools and summaries for more timely analyses and website publications, we are conducting a pilot project using a mobile tablet-based data collection form for in-person surveys in the American Samoa longline fishery. We will further explore the applications of advanced technologies as data collection tools in both fisheries.

Learn More

For more information on the economic data collection programs, please contact:

Dr. Minling Pan, NOAA Fisheries Pacific Islands Fisheries Science Center
minling.pan@noaa.gov, (808) 725-5300

For more detailed information on the report, please visit:

https://www.fisheries.noaa.gov/resource/document/tracking-changes-fishery-economic-performance

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