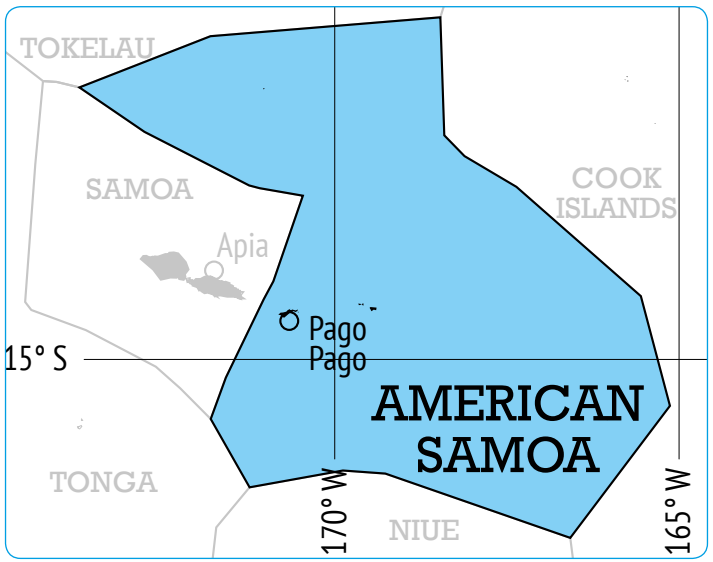
20 American Samoa



20.1 Volumes and Values of Fish Harvests in American Samoa

Coastal Commercial Fisheries

The following are the major historical attempts to estimate the production of the coastal commercial fisheries of American Samoa:

- Dalzell et al. (1996) used information from a 1994 statistical report and a 1993 journal article to estimate a mean annual commercial fisheries production in American Samoa of 52 mt, worth US$178,762.
- Gillett (2009) estimated that the production from the coastal commercial fishery of American Samoa in 2007 (including the pelagic, bottomfish and reef components) was 34.6 mt, worth US$166,000 to fishers.

In American Samoa there are currently a number of US-funded schemes for monitoring fish catches. Box 20-1 summarises the evolution of the schemes and the present situation.

Box 20-1: Monitoring Fish Catches in American Samoa

Prior to 1985, only commercial landings were monitored. From October 1985 to the present, data was collected through a Boat-based creel survey including subsistence and recreational fishing as well as commercial fishing. In September, 1990 a Commercial Purchase (receipt book) System was instituted requiring all businesses in Samoa, except for the canneries, that buy fish commercially to submit to Department of Marine and Wildlife Resources (DMWR) a copy of their purchase receipts. In January 1996, in response to the developing longline fishery a federal longline logbook system was implemented. From 1996 to 1999, the logbooks submitted by the local longliners were edited in Samoa for any missing data and were then sent to the NMFS Honolulu Lab every week for further editing and data processing. Starting with 2000, logbook data was entered and maintained in Samoa and downloaded to NMFS in Hawaii periodically.

- DMWR has currently has the following major data collection programs in place:
- Vessel Classification Program – a vessel history and tracking system for all American Samoa vessels, managed by the Department of Public Safety.
- Boat-based Creel Survey Program (formerly the Offshore Creel Survey System) – access-point creel surveys at boat ramps on Tutuila and in the Manu'a Islands.
- Shore-based Creel Survey Program – roving creel surveys along the shoreline of Tutuila and the Manu'a Islands.
- Commercial Purchase Program – a mandatory purchase receipt system for fish businesses on Tutuila.

Source: DMWR (2013, 2015)

There are some difficulties in using the data generated by these monitoring programmes for the present study. According to the Hawaii-based officer at the US National Marine Fisheries Service with overall responsibility for the monitoring work, not all geographic areas of American Samoa are covered. According to the Director of the Department of Marine and Wildlife Resources, there are challenges with both the gaps in and the overlaps of the various catch monitoring programmes (R. Matagi-Tofiga, per. com. September 2015). Another difficulty is that the results of the programmes do not fit neatly into the categories of the present study. For example, the "commercial fisheries" of the American Samoa statistical systems include what is part of "locally based offshore fisheries" in the present study.

In this situation, the approach taken in the present study for estimating coastal fisheries production is to take the commercial fish landings from the surveys, and remove the longline components to obtain the commercial catches taken by the other methods (mainly trolling, bottomfishing, and spearfishing). To this amount must be added the commercial catch (i.e. the catch that is sold) from the coral reef fishery.

- In FY 2013 the catch by the other methods (excluding longline) was 73,479 pounds (33,285 kg) (Department of Commerce 2014).
- Estimating the commercial component of coral reef fishing is difficult due to problems with monitoring and in distinguishing the commercial and subsistence components. Spurgeon et al. (2004) estimated the annual catches of the "artisanal reef fishery" to be 8.4 mt per year, with retail market prices for locally caught fish products of US$5.51 per kg. Fenner et al. (2008) considered six sources of information on the commercial coral reef fishery of Tutuila, concluding that catches were about 10,000 pounds (4,530 kg) in 2004 and 19,000 pounds (8,607 kg) in 2005.

The following further information may assist in estimating coastal fisheries production in American Samoa:

- According to SPC's PRISM website data, the population of American Samoa declined by 11.9% between 2007 and 2014.
- Sabater (2007) reviewed many studies of coral reef fisheries in American Samoa, and concluded that fishing effort in American Samoa has decreased over the past two or three decades, and that reef fish populations are either remaining stable or increasing.
- According to DMWR (2015) the average price paid for pelagic fish in 2014 was US$2.61 per pound (US$5.76 per kg). During the present study it was observed that reef fish were being sold in two markets for an average price of about US$6 per kg.
- American Samoa, suffered considerably from a tsunami in 2009, including damage sustained to its fishing infrastructure. On 29 September 2009 a severe tsunami damaged Leone Village, and low-lying docks, shores and villages within Pago Pago Harbor. The tsunami took a huge toll on the boat-based fishery. (DMWR 2013)

While the above information is inadequate for enabling a firm estimate of the production of the coastal commercial fisheries of American Samoa, a crude estimate of 2014 production would be about 42 mt, worth US$244,000 to fishers.

Coastal Subsistence Catches

No recent information is readily available on the production from coastal subsistence fisheries in American Samoa. The older estimates for the production from subsistence fishing in American Samoa include the following:

- Dalzell et al. (1996) estimated 215 mt (worth US$814,238) for the early 1990s.
- Spurgeon et al. (2008) reviewed several studies of various components of the subsistence fishery – which together give a subsistence production of 103 mt.
- Zeller et al. (2006) used a "reconstruction approach" to show a remarkably large decline in subsistence catch rates on the main island of Tutuila over several decades. This was attributed to over-exploitation of the coral reef fish – an explanation disputed by several fishery specialists with considerable local knowledge (M. Sabater and D. Hamm, per. com. September 2008; Sabater and Carroll 2008). However, the Zeller estimate of the 2002 subsistence catch, of 121 mt in 2002 (Tutuila 39 mt, outer islands 82 mt), appears well substantiated.
- Gillett (2009) relied on the above Zeller estimate, and indicated that the 2007 production was likely to have been 120 mt in 2007, worth US$478,000 to fishers.

Considering the above information, and that presented in the preceding section, it is estimated that the 2014 coastal subsistence production was 120 mt. Using the farm gate approach to valuing subsistence production, it was worth about US$487,000 to fishers.

Locally Based Offshore Catches

For the purpose of the present study, the locally based offshore fleet consists solely of longline vessels. The purse seiners that frequent Pago Pago are not considered to be locally based. This is for two reasons: (1) the centre of their economic activity does not lie in American Samoa, as they come to the territory primarily for discharging their catch at a cannery; and (2) the country of registration (USA) implies, through official submissions to the Western and Central Pacific Fisheries Commission, that the purse seiners are not based in American Samoa.[1]

1 In the United States submission to the Scientific Committee of the Western and Central Pacific Fisheries Commission (NMFS 2015) the terminology is "American Samoa-based longline vessels", but for the purse seiners, it is simply "U.S. purse seine vessels".

According to the Director of the Department of Marine and Wildlife Resources, in late 2015 the longliners consisted of one "alia"[2] and 10 larger mono-hulls. In past decades there were many alia longliners, but for various reasons (see Box 20-2) the fleet is almost non-existent at present.

Box 20-2: The Decline of the *Alia* Fleet in American Samoa

American Samoa's local *alia* fleet collapsed for a number of compounding reasons. Obtaining crew members to outfit *alias* was a significant challenge; the majority of fishing crew for the few operating *alias* are now from Western Samoa, as American Samoans prefer government jobs or military employment to working as a boat crew member or cannery employee. However, recent enforcement of immigration laws has made it more difficult to obtain foreign crew. In addition, cannery "leakage" of incidental catch from longliners is sold locally, providing large quantities of inexpensive fish to the local market in competition with fish caught and marketed by *alias*. Fish have also been imported from Western Samoa for the past 20 years, and now daily imports of fish from Western Samoa serve to drive down the price of fish in American Samoa. These factors, as well as an increase in fuel prices and vessel and engine breakdown and repair problems, combined to make small scale *alia* operations challenging and largely unprofitable in American Samoa.

Source: Levine and Allen (2009)

DMWR (2015) states that the American Samoa-based longliners landed 4,755,486 pounds (2,154 mt) of fish in 2014, with a value of US$5,113,395.

Foreign-Based Offshore Catches

All the longline catch in the zone is from locally based vessels and is included in the locally based offshore catches, above. No purse seine catches have been made in the waters of American Samoa in the 1997-2014 period (FFA 2015).

Freshwater Catches

Craig (2009) states that Tutuila has about 141 streams that support about a dozen important native species of freshwater fish and invertebrates. The principal groups are eels, gobies, mountain bass, shrimp and snails.

No catch estimates of the production from freshwater fishing have been made. For the purpose of this study it is estimated that the annual catch is 1 mt, worth US$4,000.

2 The widespread use of "alia" catamaran fishing craft is unique to Samoa and American Samoa. Categorising the fishing activity of these 9 metre catamarans requires some special attention. While it is recognised that those vessels are not of industrial scale, due to the type of gear used and the difficulty and logic of separating the catch of those vessels from larger catamaran and mono-hull vessels, the catch from alia longliners in this book is considered to be a component of the "offshore-locally based" catch.

Aquaculture Harvests

The 2007 census of American Samoa Agriculture (USDA 2011) indicates that, in 2007, 15,000 pounds (6.8 mt) of "fish and other aquaculture products" were sold, and 24,500 pounds (11.1 mt) was "used by family". According to the Director of the Department of Marine and Wildlife Resources, aquaculture in American Samoa is currently limited to the production of a small amount of tilapia, but the precise amount is unknown.

For the purpose of the present study the aquaculture production of American Samoa in 2014 is deemed to be 9 mt, with a farm gate value of US$44,500.

Summary of Harvests

From the above sections, a crude approximation of the annual volumes and values[3] of the fishery and aquaculture harvests in 2014 can be made (Table 20-1).

Table 20-1: Annual Fisheries and Aquaculture Harvest in American Samoa, 2014

Harvest Sector	Volume (mt)	Value (US$)
Coastal Commercial	42	244,000
Coastal Subsistence	120	487,000
Offshore Locally based	2,154	5,113,395
Offshore Foreign-based	0	0
Freshwater	1	4,000
Aquaculture	9	44,500
Total	**2,326**	**5,892,895**

3 The values in the table are dockside/farm gate prices.

Figures 20-1 and 20-2 show the volumes and values of the 2014 American Samoa fisheries production.

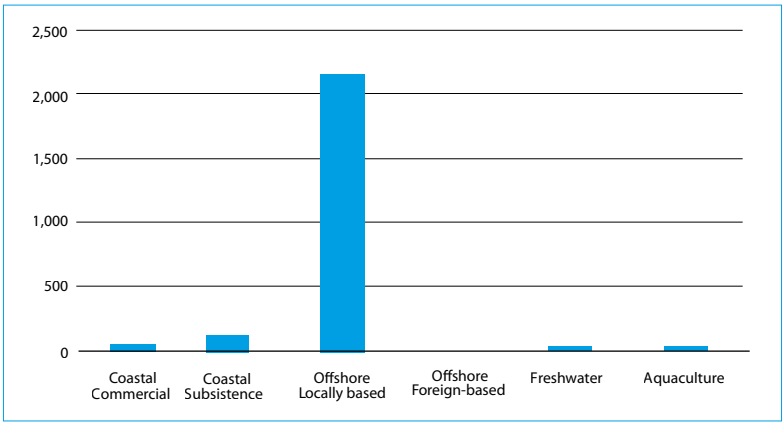


Figure 20-1: Fisheries Production 2014 by Volume (mt)

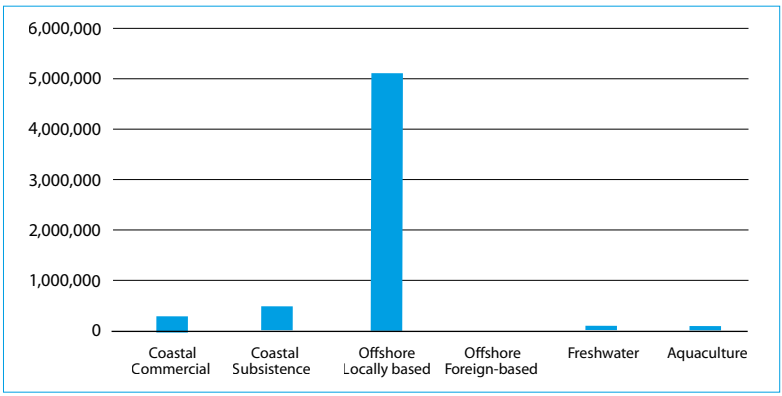


Figure 20-2: Fisheries Production 2014 by Value (US$)

Past Estimates of Fishery Production Levels by the Benefish Studies

Similar studies of the benefits to Pacific Island countries and territories from fisheries ("Benefish" studies) have been carried out in the past. Gillett and Lightfoot (2001) focused on the year 1999, Gillett (2009) focused on 2007 and the present study focuses on 2014. The estimated fishery production levels for American Samoa from those three studies are presented in Table 20-2.[4]

4 The earliest Benefish study, Gillett and Lightfoot (2001), did not include aquaculture, freshwater fisheries or the non-independent territories.

Table 20-2: Estimates by the Benefish Studies of Annual Fisheries/Aquaculture Harvests

Harvest Sector	Estimate Year	Volume (mt)	Nominal Value (US$)
Coastal Commercial	1999	n/a	n/a
	2007	35	166,000
	2014	42	244,000
Coastal Subsistence	1999	n/a	n/a
	2007	120	478,000
	2014	120	487,000
Offshore Locally based	1999	n/a	n/a
	2007	6,632	14,135,083
	2014	2,154	5,113,395
Offshore Foreign-based	1999	n/a	n/a
	2007	0	0
	2014	0	0
Freshwater	1999	n/a	n/a
	2007	1	4,000
	2014	1	4,000
Aquaculture	1999	n/a	n/a
	2007	9	10,000
	2014	9	44,500

Source: The present study, Gillett (2009), Gillett and Lightfoot (2001)

The apparent changes in production for the three years sometimes represents a real change in production, but it can also reflect a change in the methodology for how the production is measured (hopefully an improvement) or that new and better information has become available. In the table above, the production levels for coastal commercial fishing change between the years, but some of that change is due to new/better information. In contrast, changes in production figures in the table for locally based offshore fishing (based on the historical availability of better quality data) are likely to reflect real changes in the amounts being harvested.

20.2 Contribution of Fishing to GDP

Current Official Contribution

The Bureau of Economic Analysis (BEA) of the US Department of Commerce has made estimates of the GDP of American Samoa, under the Statistical Improvement Program funded by the Office of Insular Affairs of the US Department of the Interior.

The BEA estimated that the GDP of American Samoa was US$718 million in 2012 and US$711 million in 2013 (BEA 2014).

Method Used to Calculate the Official Fishing Contribution to GDP

The national accounts of American Samoa are at a rudimentary stage of development. As mentioned above, the BEA estimates the GDP for the Department of Commerce of the American Samoa Government. Staff of the Statistics Division of the Department of Commerce are unsure of the methodology used to calculate the GDP, or whether those calculations have a fishing component (M. Timoteo, per. com. September 2015).

Estimate of Fishing Contribution to GDP

Table 20-3 below represents one method for estimating fishing contribution to GDP in American Samoa. It is a simplistic production approach that takes the values of five types of fishing/aquaculture activities for which production values were determined in Section 20.1 above (summarised in Table 20-1), and determines the value added by using value added ratios (VARs) characteristic of the type of fishing concerned. Those VARs were determined by a knowledge of the fisheries sector and by the use of specialised studies (Appendix 3).

Table 20-3: Fishing Contribution to American Samoa GDP in 2014

Harvest Sector	Gross Value of Production (US$, from Table 20-1)	VAR	Value Added (US$)
Coastal Commercial	244,000	0.69	168,360
Coastal Subsistence	487,000	0.85	413,950
Offshore Locally based	5,113,395	0.20	1,022,679
Freshwater	4,000	0.90	3,600
Aquaculture	44,500	0.74	32,930
Total	**5,892,895**	---	**1,641,519**

The contribution of fishing to GDP in 2014 estimated in the table ($1.6 million) represents about 0.2% of the US$711 million GDP estimate for 2013 – the latest year for which an estimate is available.

20.3 Exports of Fishery Production

The fishery exports of American Samoa consist largely of canned tuna and by-products of the canneries. Table 20-4 shows the annual values of the fishery exports, and compares them with the value of all domestic exports.

Table 20-4: Value of Fishery Product Exports (US$)

	2009	2010	2011	2012	2013
Fish meal	3,593,242	3,606,103	3,627,152	2,340,313	n/a
Canned tuna	471,307,000	302,151,000	272,790,000	415,703,000	383,730,000
Pet food	8,622,000	7,496,000	0	0	n/a
All fishery exports	483,522,242	313,253,103	276,417,152	418,043,313	385,664,013
Total domestic exports	491,239,242	315,570,103	278,291,152	418,784,313	386,272,000
Fishery exports as a % of all exports	98.4%	99.3%	99.3%	99.8%	n/a

Source: Department of Commerce (2014)

For 2013 there is no data for fish meal. If the fish meal exports in 2013 are assumed to be US$1.8 million (i.e. the same ratio to canned tuna in 2012), then in 2013 fishery exports were about 99.8% of all exports.

Small amounts of fresh fish are occasionally shipped to Hawaii, but the volumes and values of this trade are insignificant compared to the export of tuna products from the canneries.

20.4 Government Revenue from Fisheries

Access Fees for Foreign Fishing

There is currently no foreign fishing in the American Samoa zone. United States vessels are considered to be domestic vessels.

Other Government Revenue from Fisheries

The Department of Marine and Wildlife Resources issues about 10 fishing licences per month, at a cost of US$10 per licence – or about US$1,200 per year. The revenue generated is deposited in the general fund of the Government of American Samoa.

Information on other forms of government revenue from the fisheries sector in American Samoa is not readily available (if it exists at all).

20.5 Fisheries-Related Employment

Employment in American Samoa that is directly related to fisheries has two distinct main components: jobs at tuna canneries and involvement in activities related to fishing.

Information on participation in small-scale coastal fisheries is provided in Kilarski et al. (2006) – a survey of 425 people from 34 villages in American Samoa. The results indicated the following:

- Fifty-five percent of respondents fished for subsistence to some degree, although most people fished only infrequently. Of those who did fish, 72% fished once a week or less (44% of these fished only one to two times per month), while 16% reported fishing 10 or more times per month.
- Approximately 9% of the population surveyed could be considered "frequent subsistence fishermen".
- About half of the respondents stated that they fished for recreation, although this was also fairly infrequent, with 71% of these individuals fishing once a week or less.

- Fishermen also fished infrequently for cultural purposes, although cultural, subsistence and recreational fishing categories are difficult to distinguish, as one fishing outing could be motivated by all three reasons.

A prerequisite for understanding fisheries-related employment in the formal sector in American Samoa is knowledge of the Pago Pago tuna canneries. Box 20-3 gives background on the two canneries.

Box 20-3: Tuna Canning in American Samoa

The deepwater harbor at Pago Pago has given American Samoa a natural advantage with respect to landing fish for processing. (Bank of Hawaii, 1997). This harbor, combined with four special provisions of U.S. law, has formed the basis for the success of American Samoa's canneries. The territory is exempt from the Nicholson Act, which prohibits foreign ships from landing their catches in U.S. ports. American Samoan products can enter the United States duty-free if less than 50% of their market value is derived from foreign sources. The parent companies of American Samoa's fish processing plants also enjoy special tax benefits. Additionally, until the new minimum wage act went into effect in July 2007, employers in American Samoa were exempt from Federal Minimum Wage standards, allowing the territory to compete with cheap labor available in other Pacific Islands.

American Samoa is homeport to a distant-water fleet of large commercial vessels that delivers tuna to the canneries in Pago Pago. The captains of the distant-water vessels fish beyond American Samoa's Exclusive Economic Zone in the central and western Pacific Ocean. Annual tuna landings processed by the canneries in American Samoa have run about 160,000 to 220,000 mt in recent years. Skipjack tuna accounted for most of the deliveries, followed by yellowfin and albacore tuna. The current fleet consists primarily of U.S. purse seiners that fish for skipjack and yellowfin tuna, U.S. trollers that fish for albacore tuna, and foreign longliners that fish for albacore, yellowfin, and bigeye tuna. Of the three major companies that dominate the U.S. tuna market, two are engaged in the processing of canned tuna in American Samoa. These are StarKist Samoa (a subsidiary of StarKist Seafood, recently purchased from Del Monte by Korean fishing company Dongwon Enterprise) and Chicken of the Sea (owned by Thai Union Frozen Products of Bangkok). The StarKist Samoa cannery is the largest tuna cannery in the world, producing more than 60% of American Samoa's canned tuna; the rest is produced by Chicken of the Sea. The viability of the tuna industry in American Samoa depends on its continued duty-free status, tax exemption, competitive wage scale, and continued use of the harbor by fishing vessels whose catch comes from outside of American Samoa's EEZ. Without tax exemptions, and with the growth of foreign competitors with lower payroll costs, the future of the canneries could be in jeopardy.

Source: Levine and Allen (2009)

In 2013 (the latest year for which American Samoa employment is available) the tuna canneries employed 2,108 people. This represents 13.1% of the 16,089 people employed in American Samoa. This employment has declined sharply in recent years. In 2003 5,036 people were employed at the canneries, which represented about 28.9% of people then employed in American Samoa.

Much of the reduced cannery employment in American Samoa is related to rising wages. Levine and Allen (2009) state that the minimum wage for various industries in American Samoa remained stagnant from 2002 until 24 July 2007, with fish canning and processing workers earning a minimum US$3.26 per hour. The Fair Minimum Wage Act of 2007 (Public Law 110-28) ordered wage increases for American Samoan workers. The law stipulated US$0.50 increases to current local minimum wages every year until it reaches the US minimum wage of US$7.25 an hour. An article in the FFA Trade and Industry News (Campling et al. 2015) states that, in October 2015, the US Congress signed a law that increases American Samoa's minimum hourly wage by US$0.40. In tuna processing this has boosted minimum wages from US$4.76/hour to US$5.06/hour.

Information is not readily available on gender aspects of fisheries-related employment in American Samoa. Observations at the canneries indicate that most of the workers on the production lines are women.

20.6 Levels of Fishery Resource Consumption

Staff of the Statistics Division of the Department of Commerce and of the Department of Marine and Wildlife Resources in American Samoa indicate that they are not aware of any recent surveys covering fish consumption in the territory. The following information comes from earlier studies:

- Gillett and Preston (1997) estimated that the production from coastal fisheries (commercial and subsistence) in American Samoa in the early 1990s equated to an annual per capita fish supply of 5.7 kg.
- A household income and expenditure survey was carried out in American Samoa in 2005. The HIES determined that annual per capita fish consumption (whole fish equivalent) was 13.6 kg (SPC unpublished data), but this did not include fish taken for subsistence purposes. If the subsistence catch in 2005 was 120 mt and the population was 63,000 (Gillett 2009), this would add 1.9 kg, bringing the total (purchased and subsistence) annual consumption to 15.5 kg per capita.

- Craig et al. (2008) examined fish consumption in the outer islands of American Samoa. The per capita catch in 2002 was 71 kg/person, of which 63 kg/person was consumed and the remainder was sent to family members on the main island of Tutuila. The annual subsistence harvest of 37.5 mt consisted of the coastal pelagic bigeye scad (*Selar crumenophthalmus*) (31%), reef-associated fish (57%) and invertebrates (12%).

The present study estimates the production from coastal fisheries (commercial and subsistence), freshwater and aquaculture in American Samoa in 2014 to be 172 mt. This equates to 3.0 kg per person per year. It is difficult to determine the actual annual per capita consumption of fish in American Samoa because the amounts of fish from several contributors to the domestic fish supply are not readily available, including: (1) fish from the locally based offshore fleet that is consumed domestically, (2) the "leakage" of fish from foreign-based offshore fishing, (3) imports of fishery products, and (4) the products of the American Samoa canneries that are domestically consumed.

20.7 Exchange Rates

American Samoa uses the US dollar (US$).