

### Management Context

The Western Pacific Region includes the state of Hawai'i<sup>1</sup>. Federal fisheries in this region are managed by the Western Pacific Fishery Management Council (WPFMC) and NOAA Fisheries (NMFS) under five fishery ecosystem plans (FEPs). Fishery ecosystem plans manage marine resources from a place-based perspective rather than managing fishing activities in terms of targeted species. These FEPs replaced the Council's existing fishery management plans (FMPs) for Bottomfish and Seamount Groundfish, Coral Reef Ecosystems, Crustaceans, and Precious Corals.

#### Western Pacific Fishery Ecosystem Plans

1. American Samoa Archipelago
2. Hawai'i Archipelago
3. Mariana Archipelago
4. Pacific Remote Island Area
5. Pacific Pelagics

Of the stocks covered in these fishery ecosystem plans, the Hancock Seamount Groundfish Complex is currently considered overfished. This fishery has been closed since 1986. Bigeye tuna is currently subject to overfishing and this status is considered to be primarily due to international fishing pressure. The U.S. harvested 5% (12 million pounds) of the Pacific-wide (western-central and eastern Pacific Ocean) total of Pacific bigeye tuna landings reported in 2009. Currently, there are no catch share programs in place in this region.

In addition to management oversight provided by the WPFMC and NOAA Fisheries, pelagic fish species such as bigeye and yellowfin tunas are also managed by two regional fishery management organizations (RFMOs). The Western and Central Pacific Fisheries Commission (WCPFC) is active in the western and central Pacific Ocean and the Inter-American Tropical Tuna Commission (IATTC) is active in the eastern Pacific Ocean. Species under the purview of the WCPFC and IATTC migrate across international boundaries and require coordinated management between countries with fishing interests in the Pacific Ocean.

The annual bigeye tuna catch limit recommended by WCPFC for the U.S. longline fleet in the Western and Central Pacific Ocean is 8.3 million pounds. NMFS responded to the measure by establishing a quota of 8.3 million pounds of bigeye tuna that may be caught in the Western and Central Pacific Ocean and retained by U.S. longline vessels beginning in 2009. The fishery was closely monitored during the year. The quota in the Western Pacific ocean was reached toward the end of the year and, therefore, the Hawai'i longline fishery was only closed for three days in 2009. In the meantime, the harvest limit established by the IATTC for the U.S. longline fleet in eastern tropical Pacific

bigeye tuna is 1.1 million pounds. However, this quota is only applied to U.S. longline vessels greater than 78.7 feet in length. The U.S. longline vessels less than or equal to 24 meters are not bound by any catch limit in the Eastern tropical Pacific.<sup>2</sup>

### Commercial Fisheries

Fishermen in Hawai'i earned \$71 million from their commercial harvest in 2009, landing almost 27 million pounds of finfish and shellfish. Tunas comprised 67% of this landings revenue (\$48 million) as well as 54% of total landings (15 million pounds). Swordfish (\$7.3 million), mahimahi (\$2.9 million), moonfish (\$2.4 million), and marlin (\$2.1 million) also contributed to landings revenue. Lobsters commanded the highest ex-vessel price in 2009, with an average annual price of \$12.37 per pound.

#### Key Western Pacific Commercial Species

- Lobsters
- Mahimahi
- Marlin
- Moonfish
- Pomfret
- Scad
- Snappers
- Swordfish
- Tunas
- Wahoo

#### Economic Impacts<sup>3</sup>

In 2009, the Western Pacific's seafood industry generated \$629 million in sales impacts, \$184 million in income impacts, and approximately 7,300 full- and part-time jobs. Importers contributed the most to sales (44% of the total), while the retail sector contributed the most to employment impacts (40%), income impacts (35%), and valued added impacts (31%). In contrast, the retail sector contributed most to income (35%) and employment impacts (40% of total jobs) with \$65 million in income and 2,900 jobs. The commercial harvest sector generated 2,500 jobs, \$124 million in sales, \$45 million in income, and \$65 million in value added impacts.

#### Landings Revenue

Landings revenue for finfish and shellfish totaled over \$71 million in 2009, a 4.3% increase from total revenue generated in 2000. When adjusted for inflation, real landings revenues decreased 11%. Landings revenue in 2009 decreased 16% (16% decrease in real terms) from the 2008 level (\$85 million). Finfish and other catch contributed nearly 100% of total revenue in 2009 (\$71 million), a 4.6% increase from 2000 (11% decrease in real terms). Revenue earned from shellfish landings decreased 50% (a 57% decrease in real terms) from \$363,000 in 2000 to \$183,000 in 2009. Landings revenue in 2009 was dominated by tunas which contributed \$48 million or 67% of total landings revenue.

<sup>1</sup>The Western Pacific Region also includes the U.S. territories of American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands. However, due to data availability, only information from Hawai'i is reported here.

<sup>2</sup>Under the Tuna Conventions Act of 1950 (64 Stat. 777) as amended (16 U.S.C., 951-961), NMFS must publish regulations that carry out IATTC recommendations and resolutions that have been approved by the Department of State.

<sup>3</sup>The NMFS Commercial Fishing Industry Input/Output Model was used to generate the impact estimates (see NMFS Commercial Fishing & Seafood Industry Input/Output Model, available at: [www.st.nmfs.noaa.gov/documents/commercial\\_seafood\\_impacts\\_2007-2009.pdf](http://www.st.nmfs.noaa.gov/documents/commercial_seafood_impacts_2007-2009.pdf))

On average, tunas contributed 68% to total revenue over the 10 year time period. The largest increases in landings revenue from 2000 to 2009 were for pomfret (176% or 136% in real terms) and moonfish (119% or 87% in real terms).

### Commercial Fisheries Facts

#### Landings revenue

- On average, the key species or species groups account for 96% of total revenue, (\$68 million) generated in the Western Pacific Region.
- Tunas contributed more than any other species or species group, averaging \$44 million in landings revenue from 2000 to 2009.
- Swordfish had the largest annual increase in landings revenue over the 10 year time period, increasing 534% from \$1.2 million in 2004 to \$7.8 million in 2005.
- Swordfish had the largest annual decrease in landings revenue over the 10 year time period, decreasing 89% from \$12 million in 2000 to \$1.4 million in 2001.

#### Landings

- Key species or species groups contributed an average of 94% annually to total landings between 2000 and 2009.
- Tunas, contributed the most to landings in the region, averaging 16 million pounds from 2000 to 2009.
- Swordfish had the largest annual increase in landings over the 10 year time period, increasing 561% from 520,000 in 2004 pounds to 3.4 million pounds in 2005.
- Swordfish had the largest annual decrease in landings over the 10 year time period, decreasing 91% from 6.4 million pounds in 2000 to 559,000 pounds in 2001.

#### Prices

- Lobsters had the highest average annual ex-vessel price per pound (\$11.74) over the time period, followed by snappers (\$4.31), and tunas (\$2.79).
- Marlin had the lowest average annual ex-vessel price per pound (\$1.19) over the time period, followed by moonfish (\$1.56), and pomfret (\$1.97).
- Marlin had the largest annual increase in ex-vessel price over the 10 year time period, increasing 58% from \$0.85 per pound in 2003 to \$1.34 in 2004.
- Marlin had the largest decrease in ex-vessel price over the 10 year time period, decreasing 37% from \$1.34 per pound in 2002 to \$0.85 in 2003.

#### Landings

In 2009, Hawai'ian commercial fishermen landed 27 million pounds of finfish and shellfish, a 6% decrease from 2000 landings totals. This was a 12% decrease compared to landings in 2008 (31 million pounds). Finfish and other catch accounted for nearly 100% of total landings annually. Shellfish landings decreased 22% from 28,000 pounds landed in 2000 to 22,000 pounds in 2009 and also decreased 24% from 2008 to 2009.

Tunas contributed more to the Western Pacific's total landings than any other species or group with 15 million pounds landed in 2009. This was a 2.8% decrease from 2000 total landings of tunas

(15 million pounds). Swordfish followed with 3.9 million pounds landed in 2009. Swordfish landings experienced dramatic changes from 2000 to 2009. From 2000 to 2001, landings decreased 91% from 6.4 million pounds to 559,000 pounds when the Hawai'i longline fishery was largely closed to protect sea turtles. Landings increased 561% between 2004 and 2005 from 520,000 pounds to 3.4 million pounds when the swordfish fishery was reopened. Swordfish landings between 2001 and 2004 averaged approximately a half million pounds, while in 2000, and between 2005 and 2009 the average was 3.9 million pounds.

#### Prices

Overall, the 2009 ex-vessel price for seven of the key species or species groups were above their ten year average annual price. Mahimahi (dolphin) had a lower price per pound (\$2.21) in 2009 relative to its annual average (\$2.27) over the time period, the price per pound for moonfish was \$1.28 which was \$0.28 less than the ten year average, and the ex-vessel price for swordfish in 2009 was \$0.22 less than the ten year average. Relative to ex-vessel prices in 2008, marlin (21%) experienced a double digit increase in 2009. Double digit decreases between 2008 and 2009 occurred in pomfret, mahimahi, and moonfish declining 11%, 13%, and 23% respectively. In real terms, mahimahi, moonfish, pomfret, scad, and tunas experienced declines in ex-vessel prices between 2008 and 2009.

### Recreational Fisheries

In 2009, there were 246,000 recreational anglers who fished in the state of Hawai'i. These anglers took 2.2 million fishing trips and of these, 80% were shore-based trips. Scads (bigeye and mackerel) was the most caught species group with 1.1 million fish caught in 2009. Almost all of these fish were harvested by anglers rather than released. The most released species or species group was trevallys and other jacks (41%). All others were harvested at least 86% of the time in 2009.

#### Economic Impacts and Expenditures<sup>1</sup>

In 2009, approximately 4,300 jobs in the Western Pacific were generated by recreational fishing activities and over \$442 million was spent by anglers who fished in the region. Most of these employment impacts were generated by industries that provided services to anglers who fished from shore (1,019) or a private boat (353). These fishing trip modes also generated the most in trip-related expenditures: \$76 million for shore-based fishing trips (66% of total trip expenditures) and \$32 million for private boat trips (28% of total trip expenditures). Only 8.5% of total trip-related expenditures in the Western Pacific came from non-resident anglers.

In addition to employment impacts generated by recreational fishing activities, other economic impacts include sales impacts and the contribution of recreational fishing activities to gross domestic product (value added impacts). For-hire fishing trips generated \$10 million in sales impacts (7.7% of total trip-related sales) and \$5.7 million in value added impacts (8% of total trip-related value added impacts) in 2009. Private boat trips

<sup>1</sup>Expenditures and economic impacts from recreational fishing activities were generated using the NMFS Recreational Economic Impact Model (see Marine Angler Expenditures in the United States, 2006, available at: [http://www.st.nmfs.noaa.gov/st5/publication/AnglerExpenditureReport/AnglerExpendituresReport\\_ALL.pdf](http://www.st.nmfs.noaa.gov/st5/publication/AnglerExpenditureReport/AnglerExpendituresReport_ALL.pdf))

contributed \$37 million in sales (28%) and \$19 million (27%) in value added impacts. Shore-based fishing trips contributed \$87 million in trip-related sales (65%) and \$46 million in trip-related value added impacts (65%).

Anglers spent almost \$327 million on durable equipment in 2009, contributing 74% to total expenditures in the region (trip and durable equipment combined). Fishermen spent more on fishing tackle (\$136 million) than any other durable good. Expenditures related to vehicle expenses (\$71 million), other equipment (\$62 million), and boat expenses (\$39 million) followed in size of expenditures.

Economic impacts from durable equipment expenditures in 2009 include almost 2,800 jobs, \$326 million in sales impacts, and \$158 million in value added impacts.

**Key Western Pacific Recreational Species**

- Blue marlin
- Dolphinfish
- Goatfishes
- Trevallys and other jacks
- Bigeye and mackerel scad
- Skipjack tuna
- Smallmouth bonefish
- Snappers
- Wahoo
- Yellowfin funa

*Participation<sup>1</sup>*

In 2009, there were 246,000 recreational anglers who fished in Hawai'i. This was an 44% decrease from 2003 (440,000 anglers) and a 25% decrease from 2008 (329,000 anglers). In 2009, non-resident anglers made up 43% of total anglers (106,000 anglers). There was a 41% decrease in non-resident anglers from 2003 (180,000 anglers) and a 23% decrease from 2008 (137,000 anglers). In terms of resident anglers, there were 140,000 resident anglers who fished in Hawai'i in 2009, which was a 46% decrease from 2003 and a 27% decrease from 2008.

*Fishing Trips<sup>1</sup>*

Anglers who fished in Hawai'i took approximately 2.2 million fishing trips in 2009. This was a 10% decrease from the 2.4 million fishing trips taken in 2003. From 2008 to 2009, there was a 15% decrease in the number of trips taken (2.5 million trips) in 2008.

*Harvest and Release<sup>1</sup>*

Of Hawai'i's key species and species groups, bigeye and mackerel scad, goatfishes, and skipjack tuna were most frequently caught by recreational fishermen. In 2009, 1.1 million bigeye and mackerel scad, 720,000 goatfishes, and 230,000 skipjack tuna were caught by anglers in Hawai'i. Dolphinfish (100% harvested), bigeye and mackerel scad (100%), and skipjack tuna (100%) were more often harvested than released, while trevallys and

other jacks were released more often (41%) than any of the other key species or species groups.

Between 2003 and 2009 two of Hawai'i's key species or groups experienced increases in catch totals: smallmouth bonefish (33%) and yellowfin funa (6%). Over the same time period, the largest decreases were experienced by: skipjack tuna (48%), bigeye and mackerel scad (44%), and wahoo (42%).

In the short term, the largest increases in catch were experienced by bigeye and mackerel scad (175%) and goatfishes (52%) from 2008 to 2009. Decreases over the same time period occurred in seven of the species or species groups, the largest of which were experienced by blue marlin (72%) and skipjack tuna (60%).

**Recreational Fishing Facts**

*Participation*

- An average of 358,000 anglers fished in the Western Pacific annually from 2003 to 2009.
- In 2009, in-state residents made up 57% of total anglers in this region. These anglers averaged 54% of total anglers annually over the seven year time period.

*Fishing trips*

- In the Western Pacific, an average of 2.5 million fishing trips were taken annually from 2003 to 2009.
- Private or rental boat and shore-based fishing trips accounted for 441,000 and 1.7 million fishing trips, respectively in 2009.

*Harvest and release*

- The bigeye and mackerel scad species group was the most commonly caught key species or species group, averaging 897,000 fish caught over the 10 year time period. Of these, 0.26% were released rather than harvested.
- Of the ten commonly caught key species or species groups none were released more often than harvested over this time period. The species or species group that was most commonly released was trevallys and other jacks (41% released).
- Species or species groups that were harvested 100% of the time included wahoo, dolphinfish, and bigeye and mackerel scad
- Between 2008 and 2009, bigeye and mackerel scad experienced the largest annual increase in catch (175%), and blue marlin had the largest decrease (72%).

**Marine Economy<sup>2</sup>**

In 2008, almost 33,000 establishments employed approximately 518,000 full- and part-time employees in Hawai'i. Annual payroll totaled \$19 billion, employee compensation totaled \$38 billion, and gross product by state totaled \$66 billion. Gross state product, annual payroll, and employee compensation increased 60%, 50%, and 59%, respectively between 2000 and 2008. The commercial fishing location quotient (CFLQ) for Hawai'i was not available for

<sup>1</sup>Due to data availability, the time period 2003 to 2009 is discussed in this section

<sup>2</sup>Information for 2008 is reported in this section; 2009 data were not available for this report.

<sup>1</sup>The CFLQ for the U.S. is 1.0. This provides a national baseline from which state CFLQs can be compared.

2008. Between 2002 and 2007, the CFLQ for Hawai'i decreased 37% from 7.26 to 4.55. Between 2006 and 2007, the CFLQ mirrored this declining trend, decreasing 1.3%. Despite these declines, Hawai'i's level of commercial fishing-related employment was still higher than the national baseline.<sup>1</sup>

#### *Seafood Sales and Processing*

There were 9 nonemployer firms, businesses that have no paid employees and are subject to federal income tax, engaged in seafood product preparation and packaging in 2008. This was a 200% increase from 2000 levels. Annual receipts for this industry increased 2218% from \$44,000 in 2000 to \$1 million in 2008 (a 1876% increase in real terms). The number of employer establishments engaged in this industry decreased to one establishment in 2008. Employee and annual payroll totals were not available. In 2008, there were 37 seafood wholesale establishments that employed 695 full- and part-time workers with an annual payroll of \$21 million. The number of employees increased 36% and the annual payroll increased 16% (a 1.1% decrease in real terms) from 2000 to 2008. Despite the change in employment, the number of establishments decreased 24%.

Nonemployer firms involved in seafood retail increased 61% between 2000 and 2008 from 23 firms to 37 firms. Annual receipt totals also increased 20% (a 2.1% increase in real terms) to \$4.4 million in 2008. Similarly, employer establishments involved in this industry increased 8.7% to 25 in 2008. These establishments employed 173 workers with an annual payroll of \$3.7 million. Employee numbers decreased 5.5% while the annual payroll increased 24% (5.5% increase in real terms) from 2000 to 2008.

#### *Transport, Support, and Marine Operations*

Data were largely unavailable for the transport, support, and marine operations sector. According to the available information, the ship and boat building had the highest numbers of establishments in 2008 (14 establishments). The marine cargo handling sector had the largest payroll (\$89 million) and the largest number of employees was also in the marine cargo handling sector (1,098). The largest increase in number of establishments between 2000 and 2008 was in the port and harbor operations sector (100%) and the greatest decrease occurred in the coastal and Great Lakes freight transportation sector (62%).