

# Fish Stock Sustainability Index (FSSI)

## 2011 Quarter 4 Update through December 31, 2011

### Overview

The FSSI is a performance measure for the sustainability of 230 U.S. fish stocks<sup>1</sup> selected for their importance to commercial and recreational fisheries. The FSSI will increase as stock status becomes known, overfishing is ended, and stocks increase to the level that provides maximum sustainable yield.

### FSSI Scoring Method

The FSSI is calculated by assigning a score for each fish stock based on the five following criteria:

<u>Criteria</u>	<u>Points Awarded</u>
1. "Overfished" status is known	0.5
2. "Overfishing" status is known	0.5
3. Overfishing is not occurring (for stocks with known "overfishing" status)	1.0
4. Stock biomass is above the "overfished" level defined for the stock	1.0
5. Stock biomass is at or above 80% of the biomass that produces maximum sustainable yield ( $B_{MSY}$ ) <sup>2</sup> (this point is in addition to the point awarded for being above the "overfished" level)	1.0

The maximum score each stock may receive is 4. The value of the FSSI is the sum of all 230 individual stock scores. The maximum total FSSI score is 920, achieved if all 230 stocks were to each receive a score of 4.

### Current FSSI Score

**2011 Quarter 4 Score = 598.5** (October 1, 2011 to December 31, 2011)

The following table summarizes the current FSSI score and where additional points can be gained to raise the score in the future.

<u>Criteria</u>	<u># Stocks</u>	<u>Current Points</u>	<u>Total Points Possible</u>	<u>Actions that Can Increase the Score</u>	<u>Potential Points to Gain</u>
<b>1. "Overfished" status is known</b> Overfished: 40 Not Overfished: 138	<b>178</b>	<b>89</b>	<b>115</b>	Determine the "overfished" status for the remaining 52 stocks	<b>26</b>
<b>2. "Overfishing" status is known</b> Overfishing: 34 Not subject to overfishing: 159	<b>193</b>	<b>96.5</b>	<b>115</b>	Determine the "overfishing" status for the remaining 37 stocks	<b>18.5</b>
<b>3. Overfishing is not occurring</b> (for stocks with known "overfishing" status)	<b>159</b>	<b>159</b>	<b>230</b>	End overfishing on the 34 stocks subject to overfishing. Ensure the 37 stocks (see #2 above) are not subject to overfishing.	<b>71</b>
<b>4. Stock biomass is above the "overfished" level defined for the stock</b> (for stocks with a known "overfished" status and that are "not overfished")	<b>138</b>	<b>138</b>	<b>230</b>	Increase the biomass above the overfished level for the 40 overfished stocks. Ensure the biomass for the 52 stocks (see #1 above) is above the overfished level.	<b>92</b>
<b>5. Stock biomass is at or above 80% of <math>B_{MSY}</math></b> (this point is in addition to the point awarded for being above the "overfished" level, criteria #4)	<b>116</b>	<b>116</b>	<b>230</b>	For the 40 overfished stocks and the 22 stocks that are not overfished (but biomass is not at or above 80% of $B_{MSY}$ ), increase biomass to at or above 80% of $B_{MSY}$ . Ensure the biomass for the 52 stocks (see #1 above) is at or above 80% of $B_{MSY}$ .	<b>114</b>
<b>TOTAL</b>		<b>598.5</b>	<b>920</b>		<b>321.5</b>

<sup>1</sup> The majority of species are assessed as a single stock; however, there are a few that are assessed as a stock complex, which contain a group of species with similar geographic distribution, co-occurrence in fisheries, and life history.

<sup>2</sup> Stocks rebuilding from a previously overfished condition are not awarded the fourth point until they reach  $B_{MSY}$ , as mandated by the Magnuson-Stevens Act. After they have been fully rebuilt, they may fluctuate within the 80% parameter and retain the score of 4 like the other non-rebuilding stocks.

## Summary of Stock Status Determination Changes from October 1, 2011 through December 31, 2011

### Overview of overfishing status of FSSI stocks through December 31, 2011

- 193 stocks or stock complexes are known with respect to their overfishing status. Of these:
  - 159 stocks or stock complexes are not subject to overfishing.
  - 34 stocks or stock complexes have a fishing mortality rate that exceeds the overfishing threshold (i.e., is subject to overfishing).
- 37 stocks or stock complexes have overfishing thresholds not defined or applicable, or are unknown with respect to their overfishing status.

### Overview of overfished status of FSSI stocks through December 31, 2011

- 178 stocks or stock complexes are known with respect to their overfished status. Of these:
  - 138 stocks or stock complexes are not overfished (4 of these stocks are approaching an overfished condition).
  - 40 stocks or stock complexes are overfished.
- 52 stocks or stock complexes have overfished thresholds not defined or applicable, or are unknown with respect to their overfished status.

### Summary of Overfishing and Overfished Changes of FSSI Stocks

<u>Stock</u>	<u>Region</u>	<u>Previous Status</u>	<u>Current Status</u>	<u>Previous Total FSSI Score</u>	<u>Current Total FSSI Score</u>
Yellowedge grouper - Gulf of Mexico	GMFMC	Overfished – Unknown	Not Overfished B/Bmsy>80%	1.5	4
Summer flounder - Mid-Atlantic Coast	MAFMC	Not Overfished – Rebuilding	Rebuilt	3	4
Winter flounder - Georges Bank	NEFMC	Subject to Overfishing Overfished	Not Subject to Overfishing Not Overfished – Rebuilding	1	3
Winter flounder - Gulf of Maine	NEFMC	Overfishing – Unknown	Not Subject to Overfishing	0	1.5
Winter flounder - Southern New England / Mid-Atlantic	NEFMC	Subject to Overfishing	Not Subject to Overfishing	1	2
Little skate - Georges Bank / Southern New England	NEFMC	B/Bmsy<80%	B/Bmsy>80%	3	4
Smooth skate - Gulf of Maine	NEFMC	Overfished	Not Overfished – Rebuilding	2	3
Snow crab - Bering Sea	NPFMC	Not Overfished – Rebuilding	Rebuilt	3	4
Gulf of Alaska Deepwater Flatfish Complex	NPFMC	Not Overfished B/Bmsy>80%	Overfished – Undefined	4	1.5
Widow rockfish - Pacific Coast	PFMC	Not Overfished – Rebuilding	Rebuilt	3	4
Black sea bass - Southern Atlantic Coast	SAFMC	Overfished	Not Overfished – Rebuilding	1	2
Tilefish - Southern Atlantic Coast	SAFMC	Subject to Overfishing	Not Subject to Overfishing	3	4
<b>TOTAL FSSI SCORE</b>				<b>587</b>	<b>598.5</b>

## Changes to the Number of Stocks contained in FMPs

- In the Southeast Region –
  - Grouper Unit 5 is a new unit contained in the Reef Fish Fishery of Puerto Rico and the U.S. Virgin Islands.
  - Anchor tilefish, blackline tilefish, dog snapper, dwarf sand perch, mahogany snapper, misty grouper, red hind, rock hind, sand perch, and schoolmaster are no longer contained in the Reef Fish Resources of the Gulf of Mexico FMP.
  - Cero is no longer contained in the Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic FMP.
  - Ridged slipper lobster is no longer contained in the Spiny Lobster in the Gulf of Mexico and South Atlantic FMP.
  - Brown rock shrimp and seabob are no longer contained in the Shrimp Fishery of the Gulf of Mexico FMP.
  - Bluefish is no longer contained in the Coastal Migratory Pelagic Resources of the Gulf of Mexico and South Atlantic FMP.
  - Soft corals (Octocorallia) are no longer contained in the Coral and Coral Reefs of the Gulf of Mexico FMP.
  
- In the Northwest Region –
  - Chinook salmon - Columbia River Basin: Klickitat, Warm Springs, John Day, and Yakima (spring), Chinook salmon - Southern British Columbia: Coastal, Chinook salmon - Southern British Columbia: Fraser, Coho salmon - Puget Sound: Eastern Strait of Juan de Fuca, Coho salmon - Southern British Columbia: Coastal, Coho salmon - Southern British Columbia: Fraser, Pink salmon - Southern British Columbia: Fraser (odd-numbered years) are no longer contained in the Pacific Coast Salmon FMP.
  
- In the Pacific Islands / Southwest Regions –
  - Bigeye thresher and pelagic thresher contained in the U.S. West Coast Fisheries for Highly Migratory Species / Pacific Pelagic Fisheries of the Western Pacific Region FMPs are no longer contained in the fishery management unit, but are now classified as Ecosystem Component Species.
  
- In the Pacific Islands Region –
  - American Samoa Black Precious Coral Complex, American Samoa Exploratory Area Precious Coral Complex, Deepwater shrimp - American Samoa, Kona crab - American Samoa, Slipper lobster - American Samoa, Brooks Bank Precious Coral Complex, Deepwater shrimp - Main Hawaiian Islands, Hawaiian Archipelago Exploratory Area Precious Coral Complex, Kaena Point Bed Precious Coral Complex, Keahole Bed Precious Coral Complex, Kona crab - Main Hawaiian Islands, Main Hawaiian Islands Non-Deep 7 Bottomfish Multi-species Complex, Northwest Hawaiian Islands Bottomfish Multi-species Complex, Slipper lobster - Main Hawaiian Islands, Deepwater shrimp – Guam Deepwater shrimp - Northern Mariana Islands, Guam Black Precious Coral Complex, Guam Exploratory Area Precious Coral Complex Kona crab – Guam, Kona crab - Northern Mariana Islands, Northern Mariana Islands Black Precious Coral Complex, Northern Mariana Islands Exploratory Area Precious

Coral Complex, Slipper lobster – Guam, Slipper lobster - Northern Mariana Islands, Pacific Remote Island Areas Black Precious Coral Complex, Pacific Remote Island Areas Bottomfish Complex, and Pacific Remote Island Areas Exploratory Area Precious Coral Complex are all new complexes contained in the Hawaii Archipelago, Mariana Archipelago, American Samoa Archipelago, and Pacific Remote Islands Areas Fishery Ecosystem Plans.

- Western Pacific Squid Complex contained in the Pacific Pelagic Fisheries of the Western Pacific Region Ecosystem FMP is not contained in the management unit, but is a Data Collection Only complex.
- In the Alaska Region –
  - Bering scallop, Giant rock scallop, Reddish scallop, Spiny scallop, White scallop contained in the Scallop Fishery off Alaska FMP are no longer contained in the fishery management unit, but are classified as Ecosystem Component Species.
- Other –
  - Pacific halibut - Pacific Coast / Alaska will no longer be reported as a non-FSSI stock since this stock is not contained in a federal FMP, but is managed under an International agreement.

### **Overview of overfishing status of non-FSSI stocks through December 31, 2011**

- 65 stocks or stock complexes are known with respect to their overfishing status. Of these:
  - 63 stocks or stock complexes are not subject to overfishing.
  - 2 stocks have a fishing mortality rate that exceeds the overfishing threshold (i.e., is subject to overfishing).
- 242 stocks or stock complexes have overfishing thresholds not defined or applicable, or are unknown with respect to their overfishing status.

### **Changes in overfishing status of non-FSSI stocks**

- In the Southeast Region –
  - Caribbean Aquarium Trade Species Complex – is undefined (was previously listed as a Data Collection Only complex).
- In the Northwest Region –
  - Krill - Pacific coast – is undefined (was previously not listed in the FMP).
  - Chinook salmon - Columbia River Basin: Upper River (summer), Chinook salmon - Columbia River Basin: Upper River Bright (fall), Chinook salmon - Washington Coast: Grays Harbor (fall), Chinook salmon - Washington Coast: Grays Harbor (spring), Chinook salmon - Washington Coast: Hoh (fall), Chinook salmon - Washington Coast: Hoh (spring/summer), Chinook salmon -

Washington Coast: Hoko (summer/fall), Chinook salmon - Washington Coast: Queets (fall), Chinook salmon - Washington Coast: Queets (spring/summer), and Chinook salmon - Washington Coast: Quillayute (fall) – are not subject to overfishing (were previously listed as N/A under an exception to the overfishing criteria).

- Chinook salmon - Northern California Coast: Eel, Mattole, and Mad (fall/spring), Chinook salmon - Northern California Smith (fall/spring), Chinook salmon - Puget Sound: Mid Hood Canal (summer/fall), Chinook salmon - Puget Sound: Puyallup (summer/fall), Coho salmon - Oregon Production Index Area: Oregon Coastal (hatchery), Coho salmon - Washington Coast: Willapa Bay (natural) – are all new stocks contained in the Pacific Coast Salmon FMP.
- Coho salmon - Washington Coast: Eastern Strait of Juan de Fuca and Coho salmon - Washington Coast: Western Strait of Juan de Fuca are now a combined stock.

- In the Alaska Region –

- Gulf of Alaska Squid Complex – is unknown (is a new complex, formerly part of the Other Species Complex).

There are no changes to any of the other Regions.

### **Overview of overfished status of non-FSSI stocks through December 31, 2011**

- 41 stocks or stock complexes are known with respect to their overfished status. Of these:
  - 36 stocks or stock complexes are not overfished (1 of these stocks is approaching an overfished condition).
  - 5 stocks are overfished.
- 266 stocks or stock complexes have overfished thresholds not defined or applicable, or are unknown with respect to their overfished status.

### **Changes in overfished status of non-FSSI stocks**

- In the Southeast Region –

- Caribbean Aquarium Trade Species Complex – is undefined (was previously listed as a Data Collection Only complex).

- In the Northwest Region –

- Coho salmon - Washington Coast: Queets – is rebuilt.
- Krill - Pacific coast – is undefined (was previously not listed in the FMP).
- Chinook salmon - Columbia River Basin: Upper River (summer), Chinook salmon - Columbia River Basin: Upper River Bright (fall), Chinook salmon - Washington Coast: Grays Harbor (fall), Chinook salmon - Washington Coast:

Grays Harbor (spring), Chinook salmon - Washington Coast: Hoh (fall), Chinook salmon - Washington Coast: Hoh (spring/summer), Chinook salmon - Washington Coast: Hoko (summer/fall), Chinook salmon - Washington Coast: Queets (fall), Chinook salmon - Washington Coast: Queets (spring/summer), and Chinook salmon - Washington Coast: Quillayute (fall) – are not overfished (were previously listed as N/A under an exception to the overfished criteria).

- Chinook salmon - Northern California Coast: Eel, Mattole, and Mad (fall/spring), Chinook salmon - Northern California Smith (fall/spring), Chinook salmon - Puget Sound: Mid Hood Canal (summer/fall), Chinook salmon - Puget Sound: Puyallup (summer/fall), Coho salmon - Oregon Production Index Area: Oregon Coastal (hatchery), Coho salmon - Washington Coast: Willapa Bay (natural) – are all new stocks contained in the Pacific Coast Salmon FMP.
- Coho salmon - Washington Coast: Eastern Strait of Juan de Fuca and Coho salmon - Washington Coast: Western Strait of Juan de Fuca are now a combined stock.

- In the Alaska Region –

- Gulf of Alaska Squid Complex – is undefined (is a new complex, formerly part of the Other Species Complex).
- Gulf of Alaska Shallow Water Flatfish Complex – is not overfished (was previously unknown).

There are no changes to any of the other Regions.

**FSSI stock status updates are posted quarterly at:**

**<http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm#07>**