

## **Fish Stocks in Rebuilding Plans: A Trend Analysis**

### Introduction

When a stock is determined to be overfished, the Regional Fishery Management Council must implement a plan to rebuild the stock to the level that can produce the maximum sustainable yield.

Rebuilding a stock will generally occur if more fish survive to maturity than are lost to mortality, so it is important to set catch levels at a rate that will allow stocks to rebuild. Sometimes, factors such as habitat loss, environmental variability, and disease outbreaks hamper rebuilding efforts and stocks do not rebuild as expected. In most cases, if fishing mortality is kept within the levels specified in the rebuilding plan, the stock should rebuild as expected.

### Categories of the Trends Analysis

Using the most recent stock assessment, stocks were reviewed and grouped into categories based on the level of fishing mortality (F) compared to the overfishing level (1 and 2 below), and the general trend in biomass (B) (3 and 4 below):

- 1) The most recent year's estimate of F is below the overfishing level (not subject to overfishing);
- 2) The most recent year's estimate of F is above the overfishing level (subject to overfishing);
- 3) The biomass has increased since the rebuilding plan was implemented; and
- 4) The biomass has decreased or there is no substantial increasing trend since the rebuilding plan was implemented.

Inclusion of a stock in the "biomass increasing" category does not necessarily mean that the stock is rebuilding at the rate that is expected in the rebuilding plan.

### Results

As of December 31, 2015, there were 51 stocks in need of rebuilding or were rebuilt in 2015. Of these 51 stocks, 44 stocks are currently in rebuilding plans, one stock has a rebuilding plan that must be implemented by December 2017 and another by April 2018, and two stocks that completed rebuilding under a rebuilding plan. The remaining three stocks do not require rebuilding plans under the Magnuson-Stevens Act, but are pursuing recovery under the Endangered Species Act or international measures. All of these stocks are listed in Table 2, indicating if they were included in the analysis, and if not, an explanation of why they were not included. A total of 34 stocks were included in the analysis and are grouped into one of the three categories described above, and listed by region in Table 1.

The percentage of stocks in each category is as follows:

- 1) Not Subject to Overfishing/ Biomass Increasing – 50%
- 2) Not Subject to Overfishing/ Biomass Not Increasing – 25%
- 3) Subject to Overfishing/ Biomass Not Increasing – 25%

**Table 1. Regional and Total Categories**

Stock	Not Subject to Overfishing/ Biomass Increasing	Not Subject to Overfishing/ Biomass Not Increasing	Subject to Overfishing/ Biomass Not Increasing
American plaice - Gulf of Maine / Georges Bank	√		
Atlantic cod - Georges Bank			√
Atlantic cod - Gulf of Maine			√
Atlantic halibut – Northwestern Atlantic Coast		√	
Atlantic wolffish - Gulf of Maine / Georges Bank	√		
Barndoor skate - Georges Bank / Southern New England	√		
Ocean pout - Northwestern Atlantic Coast		√	
Smooth skate – Gulf of Maine	√		
Thorny skate - Gulf of Maine		√	
White hake - Gulf of Maine / Georges Bank	√		
Windowpane - Gulf of Maine / Georges Bank		√	
Winter flounder – Georges Bank			√
Winter flounder - Southern New England / Mid-Atlantic		√	
Witch flounder - Northwestern Atlantic Coast			√
Yellowtail flounder - Cape Cod / Gulf of Maine			√
Yellowtail flounder - Georges Bank			√
<b>Percentage of Stocks in Category</b>	31%	31%	38%
Gray triggerfish – Gulf of Mexico		√	
Greater amberjack – Gulf of Mexico	√		
Red porgy - Southern Atlantic Coast	√		
Red snapper – Gulf of Mexico	√		
Snowy grouper - Southern Atlantic Coast	√		
<b>Percentage of Stocks in Category</b>	80%	20%	

Stock	Not Subject to Overfishing/ Biomass Increasing	Not Subject to Overfishing/ Biomass Not Increasing	Subject to Overfishing/ Biomass Not Increasing
Bocaccio - Southern Pacific Coast	√		
Canary rockfish - Pacific Coast	√		
Cowcod - Southern California	√		
Darkblotched rockfish - Pacific Coast	√		
Pacific ocean perch - Pacific Coast	√		
Petrale sole – Pacific Coast	√		
Yelloweye rockfish - Pacific Coast	√		
<b>Percentage of Stocks in Category</b>	100%	-	-
Blue king crab – Pribilof Islands		√	
<b>Percentage of Stocks in Category</b>	-	100%	-
Albacore - North Atlantic	√		
Blue Marlin – Atlantic			√
Bluefin Tuna – Western Atlantic	√		
Dusky Shark - Atlantic			√
Sandbar Shark - Atlantic		√	
<b>Percentage of Stocks in Category</b>	40%	20%	40%
<b>National Totals</b>			
<b>Percentage of Stocks in Category</b>	50%	25%	25%

Table 2 includes all stocks that are in need of rebuilding or were rebuilt in 2015, and their status of inclusion or rationale for exclusion in the analysis. Some stocks may be in rebuilding plans but not included in the analysis for the following reasons:

- 1) A formal rebuilding program was not submitted under the Magnuson-Stevens Act<sup>1</sup>.
- 2) The stock has been recently declared overfished, so a rebuilding plan has not yet been implemented.
- 3) In a rebuilding plan, but the stock does not have reliable time series estimates of biomass and/or fishing mortality.
- 4) In a rebuilding plan, but the most recent stock assessment does not yet include a full year under the plan.
- 5) Stock does not require a domestic rebuilding plan under section 304(i) of the Magnuson-Stevens Act because status is due to excessive international fishing pressure; NMFS is working internationally to rebuild this stock.
- 6) There are multiple time series with different trends, none of which are a preferred alternative; stock is internationally assessed.

**Table 2. Stocks in Need of Rebuilding or Rebuilt in 2015**

Stock	Jurisdiction	Current Rebuilding Program Progress	Status in Analysis
<b>NORTHEAST REGION</b>			
American plaice - Gulf of Maine / Georges Bank	NEFMC	2/10-year plan Second rebuilding plan	Included
Atlantic cod - Georges Bank	NEFMC	12/23-year plan	Included
Atlantic cod - Gulf of Maine	NEFMC	2/10-year plan Second rebuilding plan	Included
Atlantic halibut - Northwestern Atlantic Coast	NEFMC	12/52-year plan	Included
Atlantic salmon - Gulf of Maine	NEFMC	N/A	Excluded – 1
Atlantic wolffish - Gulf of Maine / Georges Bank	NEFMC	Year 6 of plan	Included
Barndoor skate - Georges Bank / Southern New England	NEFMC	Year 13 of plan	Included
Ocean pout - Northwestern Atlantic Coast	NEFMC	12/10-year plan	Included
Smooth skate - Gulf of Maine	NEFMC	6/10-year plan	Included
Thorny skate - Gulf of Maine	NEFMC	13 of 25-year plan	Included
White hake - Gulf of Maine / Georges Bank	NEFMC	12/10-year plan	Included
Windowpane - Gulf of Maine / Georges Bank	NEFMC	6/7-year plan	Included
Winter flounder - Georges Bank	NEFMC	6/7-year plan	Included
Winter flounder - Southern New England / Mid-Atlantic	NEFMC	3/10-year plan Second rebuilding plan	Included
Witch flounder - Northwestern Atlantic Coast	NEFMC	6/7-year plan	Included
Yellowtail flounder - Cape Cod / Gulf of Maine	NEFMC	12/19-year plan	Included
Yellowtail flounder - Georges Bank	NEFMC	10/26-year plan	Included
Yellowtail Flounder - Southern New England/Mid-Atlantic	NEFMC	N/A	Excluded - 2

<sup>1</sup> Applicable to Atlantic salmon only - a Final Recovery Plan for the Gulf of Maine Distinct Population Segment of Atlantic Salmon has been developed under the Endangered Species Act.

Stock	Jurisdiction	Current Rebuilding Program Progress	Status in Analysis
<b>SOUTHEAST REGION</b>			
Goliath grouper – Caribbean	CFMC	11/30-year plan	Excluded – 3
Gray triggerfish – Gulf of Mexico	GMFMC	8/10-year plan	Included
Greater amberjack – Gulf of Mexico	GMFMC	12/10-year plan New plan starts January 1, 2016	Included
Nassau grouper – Caribbean	CFMC	11/25-year plan	Excluded – 3
Hogfish - Southeast Florida	SAFMC	N/A	Excluded - 2
Queen conch – Caribbean	CFMC	11/15-year plan	Excluded – 3
Red grouper - Southern Atlantic Coast	SAFMC	4/10-year plan	Excluded – 4
Red porgy - Southern Atlantic Coast	SAFMC	17/18-year plan	Included
Red snapper - Gulf of Mexico	GMFMC	15/27-year plan	Included
Red snapper – South Atlantic	SAFMC	5/35-year plan	Excluded – 4
Snowy grouper - Southern Atlantic Coast	SAFMC	10/34-year plan	Included
<b>NORTHWEST REGION</b>			
Bocaccio - Southern Pacific Coast	PFMC	16/22-year plan	Included
Canary rockfish - Pacific Coast	PFMC	Rebuilt	Included
Cowcod - Southern California	PFMC	15/67-year plan	Included
Darkblotched rockfish - Pacific Coast	PFMC	14/23-year plan	Included
Pacific bluefin tuna – Pacific	PFMC / WPFMC	N/A	Excluded - 5
Pacific ocean perch - Pacific Coast	PFMC	16/51-year plan	Included
Petrale sole - Pacific Coast	PFMC	Rebuilt	Included
Yelloweye rockfish - Pacific Coast	PFMC	13/71-year plan	Included
<b>PACIFIC ISLANDS REGION</b>			
Seamount Groundfish Complex - Hancock Seamount	WPFMC	Year 30 of plan	Excluded – 3
Striped marlin - Central Western - Pacific	PFMC / WPFMC	N/A	Excluded - 5
<b>ALASKA REGION</b>			
Blue King Crab - Pribilof Islands	NPFMC	Year 1 of plan Second rebuilding plan	Included
<b>HIGHLY MIGRATORY SPECIES</b>			
Albacore - North Atlantic	HMS	6/10-year plan	Included
Bigeye tuna – Atlantic	HMS	Year 17 of plan	Excluded - 6
Blacknose shark – Atlantic	HMS	3/30-year plan	Excluded – 4
Blue marlin – North Atlantic	HMS	Year 15 of plan	Included
Bluefin tuna – Western Atlantic	HMS	17/20-year plan	Included
Dusky shark – Atlantic	HMS	8/100-year plan	Included
Porbeagle shark – Atlantic	HMS	8/100-year plan	Excluded – 4
Sailfish – Western Atlantic	HMS	Year 17 of plan	Excluded – 3
Sandbar shark – Atlantic	HMS	11/66-year plan	Included
Scalloped hammerhead – Atlantic	HMS	3/10-year plan	Excluded – 4
White marlin – North Atlantic	HMS	Year 15 of plan	Excluded – 3

**Table 3. Rebuilding stocks quadrant**

	<b>Not Subject to Overfishing</b>	<b>Subject to Overfishing</b>
<b>Biomass Increasing</b>	<ul style="list-style-type: none"> <li>• Albacore - North Atlantic</li> <li>• American plaice - Gulf of Maine / Georges Bank</li> <li>• Atlantic wolffish - Gulf of Maine / Georges Bank</li> <li>• Barndoor skate - Georges Bank/Southern New England</li> <li>• Bluefin tuna - Western Atlantic</li> <li>• Bocaccio - Southern Pacific Coast</li> <li>• Canary rockfish - Pacific Coast</li> <li>• Cowcod - Southern California</li> <li>• Darkblotched rockfish - Pacific Coast</li> <li>• Greater amberjack - Gulf of Mexico</li> <li>• Pacific ocean perch - Pacific Coast</li> <li>• Petrale sole – Pacific Coast</li> <li>• Red porgy - Southern Atlantic Coast</li> <li>• Red snapper – Gulf of Mexico</li> <li>• Smooth skate – Gulf of Maine</li> <li>• Snowy grouper - Southern Atlantic Coast</li> <li>• White hake - Gulf of Maine / Georges Bank</li> <li>• Yelloweye rockfish - Pacific Coast</li> </ul>	None
<b>Biomass Not increasing</b>	<ul style="list-style-type: none"> <li>• Atlantic halibut - Northwestern Atlantic Coast</li> <li>• Blue king crab - Pribilof Islands</li> <li>• Gray Triggerfish - Gulf of Mexico</li> <li>• Ocean pout - Northwestern Atlantic Coast</li> <li>• Sandbar Shark – Atlantic</li> <li>• Thorny skate - Gulf of Maine</li> <li>• Windowpane - Gulf of Maine / Georges Bank</li> <li>• Winter Flounder – Southern New England / Mid-Atlantic</li> </ul>	<ul style="list-style-type: none"> <li>• Atlantic cod – Georges Bank</li> <li>• Atlantic cod - Gulf of Maine</li> <li>• Blue marlin – Atlantic</li> <li>• Dusky Shark – Atlantic</li> <li>• Winter flounder - Georges Bank</li> <li>• Witch flounder - Northwestern Atlantic Coast</li> <li>• Yellowtail flounder - Cape Cod/Gulf of Maine</li> <li>• Yellowtail Flounder - Georges Bank</li> </ul>