

Fish Stocks in Rebuilding Plans: A Trend Analysis

Introduction

When a stock is determined to be overfished, the Regional Fishery Management Council (Council) must implement a plan to rebuild the stock to the biomass 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. Thus, it is important to set catch levels at a rate that will appropriately constrain mortality from fishing and 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. Some stocks are in subsequent rebuilding plans because they failed to rebuild under their first rebuilding plan(s). Subsequent rebuilding plans are noted in Table 1 and the rebuilding trends graphs.

Rebuilding Categories of the Trends Analysis

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

- 1) The most recent year's estimate of F or catch is below the overfishing level (not subject to overfishing).
- 2) The most recent year's estimate of F or catch is above the overfishing level (subject to overfishing).
- 3) The biomass has increased since the rebuilding plan was implemented,
- 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, 2022, there were 57 stocks in need of rebuilding over the previous year. Of these 57 stocks, 48 stocks are currently in rebuilding plans, three stocks are required to have a rebuilding plan implemented within two years of Council notification/concurrence of stock status by the AA (for Atlantic HMS stocks), and two stocks were rebuilt. The remaining four stocks do not require rebuilding plans under the Magnuson-Stevens Act (MSA), but are pursuing recovery under the Endangered Species Act or international measures. All of these stocks are listed in Table 1, which indicates which stocks were included in the trend analysis, and an explanation if they were not included. Some stocks may be in rebuilding plans but not included in the analysis for the following reasons:

- 1) The stock is in a rebuilding plan, but the most recent stock assessment does not yet include 2-3 years under the plan.
- 2) A formal rebuilding program was not submitted under the Magnuson-Stevens Act¹.
- 3) Overfishing status is unknown and most recent overfished status is not based on quantitative stock assessment.
- 4) The stock has been recently declared overfished, so a rebuilding plan has not yet been implemented.
- 5) The stock is in a rebuilding plan, but does not have reliable time series estimates of biomass and/or fishing mortality.
- 6) Pacific coast salmon time series data are reported in annual number of returning fish, while stock status is based on a rolling 3-year geometric mean.
- 7) 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.
- 8) There are multiple time series of biomass and fishing mortality trends, none of which are a preferred alternative.
- 9) This stock was assessed by an international fisheries commission, where a time series of biomass and fishing mortality estimates were not provided.

A total of 27 stocks were included in the trend analysis and are grouped into one of the four rebuilding categories described above, and listed by region in Table 2.

The percentage of stocks in each rebuilding category is as follows:

- 1) Not Subject to Overfishing/ Biomass Increasing – 30%
- 2) Not Subject to Overfishing/ Biomass Not Increasing – 41%
- 3) Subject to Overfishing/Biomass Increasing – 7%
- 4) Subject to Overfishing/ Biomass Not Increasing – 22%

Table 3 also lists which of the 25 stocks included in the trend analysis are currently in which rebuilding category.

¹ 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.

Table 1. Stocks in Need of Rebuilding in 2022 (as of December 31, 2022)

Stock	Jurisdiction	Current Rebuilding Program Progress	Status in Analysis
GREATER ATLANTIC REGION			
Atlantic cod - Georges Bank	NEFMC	19/23-year plan	Included
Atlantic cod - Gulf of Maine	NEFMC	9/10-year plan Second rebuilding plan	Included
Atlantic halibut - Northwestern Atlantic Coast	NEFMC	19/52-year plan	Included
Atlantic herring - Northwestern Atlantic Coast	NEFMC	N/A	Excluded - 1
Atlantic mackerel - Gulf of Maine / Cape Hatteras	NEFMC	3/5-year plan	Excluded - 1
Atlantic salmon - Gulf of Maine	NEFMC	N/A	Excluded – 2
Atlantic wolffish - Gulf of Maine / Georges Bank	NEFMC	Year 13 of plan	Included
Bluefish - Atlantic Coast	MAFMC	Year 1/7-year plan	Excluded - 1
Ocean pout - Northwestern Atlantic Coast	NEFMC	4/10-year plan Second rebuilding plan	Included
Red hake - Southern Georges Bank / Mid-Atlantic	NEFMC	Year 1/10-year plan	Excluded - 1
Thorny skate - Gulf of Maine	NEFMC	20 of 25-year plan	Included
White hake - Gulf of Maine / Georges Bank	NEFMC	2/10-year plan Revised rebuilding plan	Included
Windowpane - Gulf of Maine / Georges Bank	NEFMC	4/10-year plan Revised rebuilding plan	Included
Winter flounder - Georges Bank	NEFMC	4/10-year plan Revised rebuilding plan	Included
Winter flounder - Southern New England / Mid-Atlantic	NEFMC	Rebuilt	Included
Witch flounder - Northwestern Atlantic Coast	NEFMC	4/23-year plan Second rebuilding plan	Excluded - 3
Yellowtail flounder - Cape Cod / Gulf of Maine	NEFMC	Rebuilt	Included
Yellowtail flounder - Georges Bank	NEFMC	16/26-year plan	Included
Yellowtail Flounder - Southern New England/Mid-Atlantic	NEFMC	4/10-year plan	Included
SOUTHEAST REGION			
Gag - Southern Atlantic Coast	SAFMC	N/A	Excluded - 4
Gag – Gulf of Mexico	GMFMC	N/A	Excluded - 4
Goliath grouper – Caribbean	CFMC	17/30-year plan	Excluded – 5
Gray triggerfish – Gulf of Mexico	GMFMC	5/8-year plan Second rebuilding plan	Included
Greater amberjack – Gulf of Mexico	GMFMC	5/10-year plan Third rebuilding plan	Included
Nassau grouper – Caribbean	CFMC	17/25-year plan	Excluded – 5
Hogfish – Florida Keys/East Florida	SAFMC	6/10-year plan	Excluded - 1
Queen conch – Caribbean	CFMC	17/15-year plan	Excluded – 5
Red grouper - Southern Atlantic Coast	SAFMC	10/9-year plan	Included
Red porgy - Southern Atlantic Coast	SAFMC	23/19-year plan	Included
Red snapper - Gulf of Mexico	GMFMC	18/28-year plan Second rebuilding plan	Included
Red snapper – South Atlantic	SAFMC	12/35-year plan	Included
Snowy grouper - Southern Atlantic Coast	SAFMC	17/34-year plan	Included
WEST COAST REGION			
Chinook salmon - Northern California Coast: Klamath River Fall	PFMC	4/2-year plan	Excluded - 6
Coho salmon - Puget Sound: Snohomish	PFMC	5/3-year plan	Excluded - 6

Stock	Jurisdiction	Current Rebuilding Program Progress	Status in Analysis
Coho salmon - Washington Coast: Queets	PFMC	5/2-year plan	Excluded - 6
Coho salmon - Washington Coast: Strait of Juan de Fuca	PFMC	5/6-year plan	Excluded - 6
Pacific bluefin tuna – Pacific	PFMC / WPFMC	N/A	Excluded - 7
Pacific sardine - Northern subpopulation	PFMC	2/14-year plan	Excluded - 1
Yelloweye rockfish - Pacific Coast	PFMC	19/25-year plan	Included
PACIFIC ISLANDS REGION			
American Samoa Bottomfish Multi-species Complex	WPFMC	1/10-year plan	Excluded – 1
Guam Bottomfish Multi-species Complex	WPFMC	1/9-year plan	Excluded - 1
Oceanic whitetip shark - Central and Western Pacific	WPFMC	N/A	Excluded - 7
Hancock Seamount Groundfish Complex	WPFMC	Year 37 of plan	Excluded – 5
Striped marlin - Western and Central North Pacific	PFMC / WPFMC	N/A	Excluded - 7
ALASKA REGION			
Blue king crab - Saint Matthew Island	NPFMC	3/26-year plan	Included
Blue King Crab - Pribilof Islands	NPFMC	Year 8 of plan Second rebuilding plan	Included
Snow crab – Bering Sea	NPFMC	N/A	Excluded - 4
HIGHLY MIGRATORY SPECIES			
Bigeye tuna – Atlantic	HMS	Year 24 of plan	Excluded – 8
Blacknose shark – Atlantic	HMS	10/30-year plan	Excluded – 1
Blue marlin – North Atlantic	HMS	22/28-year plan	Included
Dusky shark – Atlantic	HMS	15/100-year plan	Included
Porbeagle shark – Atlantic	HMS	15/100-year plan	Excluded – 9
Sailfish – Western Atlantic	HMS	Year 24 of plan	Excluded – 5
Sandbar shark – Atlantic and Gulf of Mexico	HMS	18/66-year plan	Included
Scalloped hammerhead – Atlantic	HMS	10/10-year plan	Excluded – 1
Shortfin mako – North Atlantic	HMS	Year 4 of plan	Excluded – 1
White marlin – North Atlantic	HMS	Year 22 of plan	Included

Table 2. Stocks Included within Trends Analysis by Rebuilding Category - Regional and Cumulative Percentages

Stock	Not Subject to Overfishing/ Biomass Increasing	Not Subject to Overfishing/ Biomass Not Increasing	Subject to Overfishing/ Biomass Increasing	Subject to Overfishing/ Biomass Not Increasing
Atlantic cod - Georges Bank	NA	NA	NA	Yes
Atlantic cod - Gulf of Maine	NA	NA	NA	Yes
Atlantic halibut – Northwestern Atlantic Coast	NA	Yes	NA	NA
Atlantic wolffish - Gulf of Maine / Georges Bank	Yes	NA	NA	NA
Ocean pout - Northwestern Atlantic Coast	NA	Yes	NA	NA
Thorny skate - Gulf of Maine	NA	Yes	NA	NA
White hake - Gulf of Maine / Georges Bank	Yes	NA	NA	NA
Windowpane - Gulf of Maine / Georges Bank	NA	Yes	NA	NA
Winter flounder – Georges Bank	Yes	NA	NA	NA
Winter flounder - Southern New England / Mid-Atlantic	NA	Yes	NA	NA
Yellowtail flounder - Cape Cod / Gulf of Maine	Yes	NA	NA	NA
Yellowtail flounder - Georges Bank	NA	NA	NA	Yes
Yellowtail Flounder - Southern New England/Mid-Atlantic	Yes	NA	NA	NA
Greater Atlantic Region Percentage of Stocks in Category	38%	38%	0%	24%
Gray triggerfish – Gulf of Mexico	NA	Yes	NA	NA
Greater amberjack – Gulf of Mexico	NA	NA	NA	Yes
Red grouper - Southern Atlantic Coast	NA	Yes	NA	NA
Red porgy - Southern Atlantic Coast	NA	Yes	NA	NA
Red snapper – Gulf of Mexico	Yes	NA	NA	NA
Red snapper – Southern Atlantic Coast	NA	NA	Yes	NA
Snowy grouper - Southern Atlantic Coast	NA	NA	Yes	NA
Southeast Region Percentage of Stocks in Category	14%	43%	29%	14%

Stock	Not Subject to Overfishing/ Biomass Increasing	Not Subject to Overfishing/ Biomass Not Increasing	Subject to Overfishing/ Biomass Increasing	Subject to Overfishing/ Biomass Not Increasing
Yelloweye rockfish - Pacific Coast	Yes	NA	NA	NA
West Coast Region Percentage of Stocks in Category	100%	0%	0%	0%
Blue king crab – St. Matthew Island	NA	Yes	NA	NA
Blue king crab – Pribilof Islands	NA	Yes	NA	NA
Alaska Region Percentage of Stocks in Category	-	100%	-	-
Blue Marlin – Atlantic	NA	NA	NA	Yes
Dusky Shark – Atlantic and Gulf of Mexico	NA	NA	NA	Yes
Sandbar Shark – Atlantic and Gulf of Mexico	NA	Yes	NA	NA
White Marlin - Atlantic	Yes	NA	NA	NA
Highly Migratory Species Division Percentage of Stocks in Category	25%	25%	0%	50%
	National Totals			
Percentage of Stocks in Category	30%	41%	7%	22%

Table 3. Rebuilding stocks quadrant

	Not Subject to Overfishing	Subject to Overfishing
Biomass Increasing	<ul style="list-style-type: none"> • Atlantic wolffish - Gulf of Maine / Georges Bank • Red snapper – Gulf of Mexico • White hake - Gulf of Maine / Georges Bank • White marlin – Atlantic • Winter flounder - Georges Bank • Yelloweye rockfish - Pacific Coast • Yellowtail flounder - Cape Cod/Gulf of Maine • Yellowtail Flounder - Southern New England/Mid-Atlantic 	<ul style="list-style-type: none"> • Red snapper – Southern Atlantic Coast • Snowy grouper - Southern Atlantic Coast
Biomass Not increasing	<ul style="list-style-type: none"> • Atlantic halibut - Northwestern Atlantic Coast • Blue king crab – Pribilof Islands • Blue king crab – St. Matthew Island • Gray triggerfish - Gulf of Mexico • Ocean pout - Northwestern Atlantic Coast • Red grouper - Southern Atlantic Coast • Red porgy - Southern Atlantic Coast • Sandbar shark – Atlantic and Gulf of Mexico • Thorny skate - Gulf of Maine • Windowpane - Gulf of Maine / Georges Bank • Winter Flounder – Southern New England / Mid–Atlantic 	<ul style="list-style-type: none"> • Atlantic cod – Georges Bank • Atlantic cod - Gulf of Maine • Blue marlin – Atlantic • Dusky shark – Atlantic and Gulf of Mexico • Greater amberjack - Gulf of Mexico • Yellowtail flounder - Georges Bank