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FOR AN OVERSIGHT HEARING ON REBUILDING OVERFISHED FISHERIES UNDER THE MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

BEFORE THE
COMMITTEE ON NATURAL RESOURCES
SUBCOMMITTEE ON FISHERIES, WILDLIFE AND OCEANS

DECEMBER 5, 2007

Good morning Madam Chairwoman and members of the Subcommittee. My name is Steven Murawski, and I am the Director of Scientific Programs and Chief Science Advisor of the National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce. Thank you for the opportunity to testify on the implementation of rebuilding programs for overfished fisheries under the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

In 1996, Congress passed the Sustainable Fisheries Act (SFA) which included new requirements for the National Marine Fisheries Service (NMFS) and the Fishery Management Councils with respect to overfished fisheries. Specifically, NMFS was required to report annually on the status of U.S. fish stocks and identify any stocks that were overfished and in need of rebuilding. In turn, the appropriate Councils were required to develop plans to end overfishing and rebuild those stocks in as short a time frame as possible and not to exceed ten years, subject to a few exceptions including where the biology of stocks would not allow rebuilding within that time. Today I would like to review successes and ongoing challenges in stock rebuilding efforts and provide some context on the importance of the 2006 amendments to the Act. The Subcommittee's invitation letter posed five questions to NMFS, and I will address them in order.

Question 1. Have rebuilding plans been established for fisheries identified as overfished and has overfishing ended in these fisheries?

The 1996 amendments required NMFS to provide an annual Report to Congress on the status of fisheries and stocks – identifying those that have been determined to be overfished and ones where overfishing is occurring. These annual reports are followed by formal notification to the Councils that rebuilding plans are required to be developed for those fisheries determined to be overfished. In addition to this annual report requirement, NMFS also provides a quarterly assessment of the status of stocks available widely over the internet:

http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm

As part of this quarterly reporting, NMFS developed a "fish stock sustainability index" (FSSI) that provides a comprehensive way to rate the adequacy of information as well as management success in eliminating overfishing and overfished conditions. The FSSI is also a high level performance measure for fisheries management under the Government Performance and Results Act (GPRA).

Based on this reporting of fishery performance, the Fishery Management Councils have developed required rebuilding plans. Currently there are 56 fishery stocks under rebuilding plans (see attached Appendix 1 for a complete accounting of these stocks). Additionally, there are four stocks for which Councils are in the process of establishing rebuilding plans. All stocks previously reported to Congress as being in an overfished state are now subject to these rebuilding plans.

Importantly, there has been measurable progress in removing the overfished condition (achieving rebuilding) for a number of important species. A total of nine fishery stocks have been rebuilt under SFA requirements, and are therefore no longer subject to these provisions. These nine stocks are listed in Appendix 1 as well, and include some of the most valuable fisheries in the United States. Rebuilding these stocks is providing hundreds of millions of dollars of additional benefits to fishermen, their communities, consumers and the nation as a whole. Additionally, there are seven stocks currently under rebuilding that are at least 80% of their biomass rebuilding targets and can reasonably be expected to be rebuilt in the near future, including: bluefish (Atlantic Coast), king mackerel-Gulf of Mexico group, Canary rockfish (Pacific Coast), widow rockfish (Pacific Coast), Tanner crab – Eastern Bering Sea, Bigeye tuna (Atlantic), and Swordfish, (North Atlantic). These seven stocks are already producing significantly higher benefits to the nation than when originally placed in rebuilding status.

As of the third quarter of 2007, there are 43 stocks where overfishing is occurring, and 47 stocks where the stocks have been determined to be overfished (see attached figures listing all stocks by region).

Question 2. What is the likelihood that these plans will achieve their rebuilding goals within the required time frames?

All rebuilding plans are established to have at least a 50% chance of achieving their rebuilding goal within the required time frame. The minimum threshold of 50% rebuilding probability was established in a 2000 ruling by the U.S. Court of Appeals for the D.C. Circuit. For example, some rebuilding plans, such as the west coast groundfish plan have set fishing mortality rates low enough to have an 80% chance of rebuilding within the required timeframe. It is important that the fishing mortality rate during the rebuilding period be less than the fishing mortality rate that would tend to stabilize the stock near the rebuilding target level. Otherwise, the final stages of rebuilding can be very slow unless there are above average recruitments over several years. Even when the target chance of rebuilding within the required time frame is set as low as 50%, we expect substantial rebuilding prior to the end of the required timeframe. In the year just before the end, there may still be only a 50% chance of getting rebuilt, but even in those 50% of the cases that do not get rebuilt in the last year, they are expected to be close to rebuilt in that last

year. NMFS monitors the progress of rebuilding and will adjust the fishery level as necessary to maintain the target probability of rebuilding in the required time frame. NMFS is now developing revised guidelines for the implementation of the 2006 amendments of the MSA. These guidelines will focus on new overfishing and rebuilding provisions, including the use of annual catch limits and accountability measures to address overfishing.

Question 3. How are the rebuilding targets for overfished stocks established?

The rebuilding target for overfished stocks is the level of abundance that would produce the maximum sustainable yield from the stock. Abundance is measured in terms of reproductive potential and is commonly expressed as the stock's spawning biomass. Generally, this level of abundance is approximately 30-50% of the stock's unfished (i.e., virgin) level of abundance, but the exact relationship depends upon the stock's productivity and the characteristics of its fishery. Where possible, NMFS will directly estimate the rebuilding target as the level of abundance that would produce the maximum sustainable yield, but precise calculation of this level depend upon several factors: the time history of fishing intensity, the duration and quality of fishery and survey data, and the degree of year-to-year fluctuations in stock productivity. In many cases, NMFS uses a proxy for the rebuilding target. The most commonly used proxies are: (a) 40% of the estimated abundance of an unfished stock, and (b) the level of abundance that would occur as a product of the long-term mean level of recruitment and the biomass per recruit that corresponds to the fishing mortality rate limit.

The time frame for rebuilding is determined by calculating the time it would take for the stock to rebuild from its level at the time of the overfished determination to the target level in the absence of fishing; this is termed Tmin. If this time is less than 10 years, the MSA requires that the maximum time to rebuild be set at 10 years. If the time is greater than 10 years, then the maximum time to rebuild is Tmin plus one generation time. These calculations are all done in terms of probabilities because it is known that recruitment to the stock fluctuates randomly around an average level and the exact sequence of these fluctuations cannot possibly be forecast for the duration of a rebuilding plan. Instead, the rebuilding analysis simulates a large number of possible future recruitment levels based on the observed degree of recruitment fluctuations and the linkage of mean recruitment to spawning biomass, then summarizes these possible future levels as a probability distribution. Rebuilding times can be long when the overfished state of the stock has caused a decline in the mean recruitment level below that which is expected from a rebuilt stock. In these cases, the stock rebuilding is multi-generational as it must first rebuild enough spawning biomass to produce enough recruits to complete the rebuilding. More resilient stocks that have not experienced substantial decline in mean recruitment can rebuild more quickly as the fishing mortality rate is eased.

Questions 4 & 5. What type and quality of information and data is factored into those targets? How are non-fishing impacts—such as habitat loss, pollution and predator-prey relationships—factored into those targets?

Rebuilding targets and productivity levels that will achieve these targets are based on the results of NMFS' stock assessments. These assessments estimate the history of a stock's abundance, productivity (growth and recruitment), and fishing mortality as a basis for determining its status

relative to overfishing criteria, its sustainable harvest level, and other factors. These assessments generally use a wide suite of fishery and survey data including total catch, catch age composition, survey abundance index, etc. In some cases, the level of abundance that corresponds to the rebuilding target has occurred within the recent history of the stock and is directly represented in the data. In other cases, especially where the time series of high quality data is much shorter than the history of substantial levels of fishing, the level of abundance that corresponds to the rebuilding target occurred prior to the data-rich period. In these cases, good estimates of the rebuilding target can still be made by using the average level of productivity (recruitment) that occurred during the data-rich period and the biomass per recruit that would occur when fishing at target levels and using the stock's biological characteristics and fishery characteristics from the data-rich period.

NMFS continues to strive to include environmental and ecosystem factors in its stock assessments and rebuilding plans. In some cases, we are already including environmental factors to improve estimates and short-term forecasts of recruitment and to improve calibration of indices of abundance. The rebuilding analyses are done in a way that recognizes the random fluctuations in stock productivity, but it is a much taller order to be able to forecast whether these fluctuations will tend to be above or below average in the future. Thus, the rebuilding plans are based on the expectation that conditions during the rebuilding period will, on average, be comparable to environmental, ecosystem, and habitat conditions that occurred during the period to which the stock assessment applies. We investigate possible relationships between fish stock productivity and various habitat, pollution, predator-prey, and environmental factors, but such research is difficult and cannot produce quick results due to the need to make observations over a range of conditions spanning several years. Our long-term goal is to develop the capability to conduct integrated ecosystem assessments including such factors. But in the short-term a primary focus remains tracking the fluctuations in fish stock productivity in order to make necessary fishery forecasts and to provide the basis for calibrating the effects of environmental and ecosystem factors on productivity.

Rebuilding parameters are necessarily based on scientific estimates. These parameters are expected to be relatively stable, but some modification is normal as more data is collected, time series are extended, and models improve. For example, as time passes, stock assessment updates calculate recruitment for more years, thus improving the estimate of the long-term average recruitment and improving the chance for detecting long-term patterns. This is particularly important as climate change and other environmental factors may modify the rates of growth, recruitment and other vital rates, and may shift species distributions. New stock assessment models may be better able to extend estimates further back in time or may improve calibration of available data in ways that change and improve the results.

Below we summarize the processes used to establish rebuilding targets and overfishing levels for a few selected species.

For summer flounder, biomass targets have been established based on multiplying the theoretical spawning biomass contribution per individual over its life span by the mean value of recruitment (annual production of young fish). Yield and biomass "per recruit" are estimated using contemporary estimates of sexual maturity at age, mean fish weight at age, and fishery selection pattern at age. Next, these yield and biomass per recruit are multiplied by a median or mean

value of the recruitment expected to be representative of the long-term productivity of the stock. This calculation provides an estimate of the biomass (in terms of total or spawning stock biomass) that would be expected if the stock were fished at F_{MSY} over the long-term.

For summer flounder, biological reference points under the 1996 SFA criteria were first developed in 1997, and have since been peer reviewed and revised four times. In general, the fishing mortality reference point has increased, due to management actions that have resulted in an improved selection pattern to focus on older fish (shifting the full force of fishing mortality from age 2 to age 3). Changes in the biomass reference points (total or spawning stock) have been variable, due to fluctuations (without apparent trend) in mean weights and different estimates of long-term recruitment. It is important to note that there is no compelling evidence to date that predator-prey relationships or other environmental conditions are lowering the overall levels of average recruitment such that the current biomass target cannot be achieved. Fortunately, recruitment did not decline 10 years ago when the spawning biomass was at its lowest level.

Biological reference points for 19 New England groundfish stocks were revised in 2002 as part of a benchmark review of their status. The results of this re-evaluation are instructive because they highlighted the range of possible outcomes. Biomass reference points increased for 11 of the 19 stocks, and declined for only two stocks. There was no change for four stocks, but for two other stocks the basis for the biological reference point changed owing to changes in assessment models. Biomass targets for Gulf of Maine and Georges Bank cod increased by 6% and 200% respectively. These changes reflected the inclusion of additional data in the assessments, changes in models, and more rigorous analyses of models. For some species, the decreases in fishing mortality and subsequent increases in stock size provided greater insights into the stock dynamics. Sometimes the application of more modern approaches reveals flaws in previous approaches and the rejection of long-standing reference points. While such changes may create difficulties for managers and industry, a failure to accept the best available science can have far reaching implications for fisheries policy.

Seven stocks of Pacific coast groundfish are in rebuilding plans. For all seven, the rebuilding target is a spawning biomass level that is 40% of the estimated level before fishing began in the early 1900's. This level is the best available estimate of the level that would produce MSY. Although this unfished level occurred several decades before the beginning of major data collection programs, we are able to calculate this unfished biomass level from cumulative catch during the 1900's, the relative occurrence of old fish in samples from the early years of data collection, and average levels of stock productivity observed during the recent 20-30 years. Although some of the west coast groundfish stocks were depleted to a degree similar to that observed for New England groundfish, the west coast stocks have much lower annual productivity, so will take much longer than 10 years to rebuild, even in the absence of any fishing. Using the MSA exception to the 10 year rebuilding period for species with very long life spans results in some maximum rebuilding time lines extending to the year 2090 (under a 50% probability of rebuilding). Target times to rebuild for these west coast groundfish were set with probabilities ranging between 60-80%, and thus rebuilding is expected sooner than the maximum timelines allowed under law. In order to achieve these rebuilding targets, the annual levels of fishing were set substantially lower than the overfishing level and the level normally

targeted for healthy stocks. In a 2007 review of these rebuilding plans, six of the seven stocks had total catch levels over the first six years of rebuilding that were lower still; 42-98% of the level needed to rebuild and only one exceeded the rebuilding catch limit (by 14%). For the west coast groundfish, the factor least well known is the average level of productivity, hence rate of rebuilding, that will occur during the rebuilding period. In the 2007 review, three of seven stocks on rebuilding plans had updated estimates that differed substantially from the previous estimates used to establish the plans. For darkblotched rockfish and cowcod, the revised estimates indicated that the rebuilding target could not be achieved with 50% certainty even without fishing, so the target was extended to be consistent with the new data and the rate of fishing was kept at the previously determined level which is below the overfishing level. In the case of canary rockfish, the new data indicated substantially higher productivity and earlier possible rebuilding, but still beyond 10 years. In this case, the previously determined low level of fishing mortality is being maintained in order to rebuild the stock in as short a time as possible, rather than increase short term catch and maintain the previously determined target time to rebuild.

Question 6. What factors are hindering the ability to meet rebuilding plan goals?

The chief factor that has undermined achievement of rebuilding targets to date has been the inability to eliminate overfishing of some of the chronically overfished stocks. Delays in the achievement of the objective of ending overfishing will result in slower rates of stock rebuilding, which have added consequences for stocks that have rebuilding times significantly longer than the 10 year maximum rebuilding provision for most stocks covered by the Act.

NMFS continues to monitor environmental conditions affecting recruitment, growth rates and rates of sexual maturity of fish stocks. Under National Standard 6 of MSA, NMFS is required to take into account variations in fish stocks, fisheries and environmental conditions, and future stock assessments will incorporate these factors into stock assessments. Recommended levels of biomass for rebuilding targets and thresholds will be adjusted as new information about these factors emerges.

A significant limitation in our ability to provide timely and complete information for management is the fact that NMFS is only able to conduct about 70 fishery stock assessments each year. These are enough to maintain 54% of the 230 important FSSI stocks with adequately updated assessments. Many stocks are located in both Federal and State waters and assessments made in partnership with State agencies are an important source of information for the Fishery Management Councils. The remaining 300 stocks in fishery management plans represent only 10% of total catch (metric tons), and a much smaller fraction have assessments. Incorporating a complete set of ecosystem factors into the setting of rebuilding requirements requires more comprehensive and timely data, analyses and peer review processes leading to management recommendations to the Councils.

Summary

Substantial progress has been made by the Fishery Management Councils in complying with rebuilding plan requirements under the 1996 amendments to the MSA. Rebuilding has been achieved for nine important fish stocks, and an additional seven are close to defined rebuilding

targets. Provisions of the Magnuson Stevens Fishery Conservation and Management Reauthorization Act (MSRA) of 2006 provide important new authorities that should better allow Councils to achieve rebuilding within the specified time limits. Importantly, the requirement to end overfishing immediately will end the practice of "back-loading" rebuilding plans with unrealistic sharp reductions in fishing rates during the last few years of plans, and will allow for adjustments in biomass targets and thresholds as new data on stock productivity and recruitment levels are developed. NMFS and the Fishery Management Councils are on track to meet the obligations of MSRA to end overfishing of stocks currently determined to be in that status, by 2010, and to end overfishing for all stocks by 2011. NMFS is currently in the process of developing guidelines for the implementation of the new provisions of MSRA to address stock rebuilding and other requirements, and we appreciate input from the Subcommittee as we move forward developing these guidelines.

In a number of cases, rebuilding targets for stock have been set higher than the largest values of stock size observed in available time series. These cases typically occur when stocks have been subject to significant levels of overfishing for long periods of time. Atlantic sea scallop is one such example. The rebuilding biomass target was selected under the requirement that overfishing be eliminated. The biomass proxy was several times the largest observed stock size in scientific surveys. The rapid rebuilding of the scallop stock to meet and, in some years exceed, the new rebuilding target shows that eliminating overfishing can change our perceptions regarding long-term stock yield potentials. NMFS will continue to monitor rebuilding progress for stocks under rebuilding plans, and will adjust rebuilding targets as information, generated through required peer review processes, is forthcoming.

Thank you for the opportunity to provide this overview of stock rebuilding progress under the Magnuson-Stevens Act. I would be pleased to answer any questions from you and Sub-committee members.

Appendix 1.

Stock Rebuilding Status in U.S. Federal Fisheries

Stocks that have been rebuilt since 2000

(year in parenthesis indicates year rebuilt status was declared):

1. Atlantic Sea Scallop (2001)
2. Silver Hake – Gulf of Maine/Northern Georges Bank (2002)
3. Winter Flounder – Georges Bank (2003)
4. [1]Atlantic Blacktip Shark (2003)
5. Yellowtail Snapper – South Atlantic/Gulf of Mexico (2003)
6. Pacific Whiting (2004)
7. Lingcod (2005)
8. Silver Hake - Southern Georges Bank / Middle Atlantic (Q2 2007)
9. Red Grouper- Gulf of Mexico (Q2 2007)

Stocks that are contained in Rebuilding Plans:

1. Cod - Gulf of Maine
2. Cod - Georges Bank
3. Haddock - Gulf of Maine
4. Haddock - Georges Bank
5. American Plaice
6. Redfish
7. Yellowtail Flounder - Georges Bank
8. Yellowtail Flounder - Southern New England/Middle Atlantic
9. Yellowtail Flounder - Cape Cod / Gulf of Maine
10. White Hake
11. Pollock
12. Windowpane Flounder - Southern New England /Middle Atlantic
13. Winter Flounder - Southern New England / Middle Atlantic
14. Ocean Pout
15. *Atlantic Halibut
16. Barndoor Skate
17. Thorny Skate
18. Monkfish - North
19. Monkfish - South
20. *Spiny Dogfish
21. Summer Flounder
22. [2]Scup

[1] This stock has been assessed as 2 stocks since being declared rebuilt in 2003. The Gulf of Mexico stock is currently listed as not being subject to overfishing and not overfished, while the status of the Atlantic stock is unknown.

23. *Black Sea Bass
24. Bluefish (except Gulf of Mexico)
25. Golden Tilefish (except South Atlantic and Gulf of Mexico)
26. Snowy Grouper – South Atlantic
27. Black Sea Bass – South Atlantic
28. Red Porgy – South Atlantic
29. King Mackerel - Gulf group
30. Red Snapper – Gulf of Mexico
31. Greater Amberjack – Gulf of Mexico
32. Grouper Unit 1 - Caribbean
33. Grouper Unit 2 – Caribbean
34. Grouper Unit 4 – Caribbean
35. Queen Conch - Caribbean
36. Pacific Ocean Perch
37. Bocaccio
38. Canary Rockfish
39. Darkblotched Rockfish
40. Cowcod
41. Yelloweye Rockfish
42. Widow Rockfish
43. *[3]Seamount Groundfish Complex - Hancock Seamount
44. Blue King Crab - Pribilof Islands
45. Blue King Crab - Saint Matthews Island
46. Snow Crab - Bering Sea
47. Tanner Crab - Eastern Bering Sea
48. [4]Blue Marlin - Atlantic
49. [4]White Marlin - Atlantic
50. [4]Sailfish - West Atlantic
51. [4]Bigeye Tuna - Atlantic
52. [4]Albacore - North Atlantic
53. Bluefin Tuna - West Atlantic
54. Swordfish - North Atlantic
55. Sandbar Shark
56. [5]Large Coastal Shark Complex

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*There is currently no Btarget adopted for this stock, but measures are in place to rebuild the stock.

[2] The rebuilding plan has been approved and will be effective on 1/1/08

[3] Although this stock complex does not have a formal rebuilding plan or time period for rebuilding, the fishery in the U.S. EEZ has been closed under sequential 6-year moratoria since the inception of the FMP in 1986. These moratoria have been treated by NMFS as a de facto rebuilding plan. The WPFMC is currently considering more permanent conservation and management measures for this stock complex (this stock complex is impacted outside the U.S. jurisdiction).

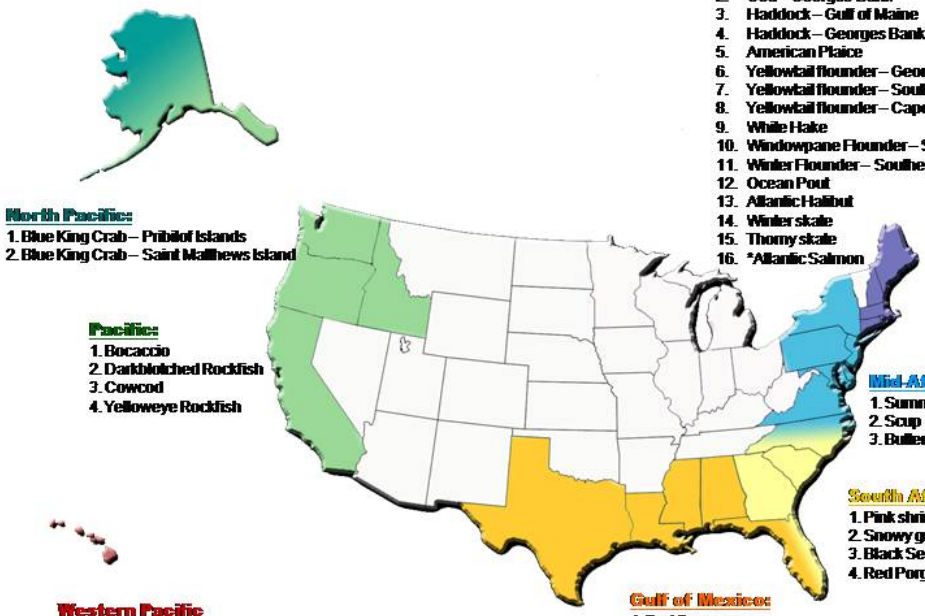
[4] Although there are varying levels of international participation, rebuilding measures have been implemented domestically.

Overfished Stocks without Rebuilding Plans:

1. Winter Skate – this stock was declared overfished on February 20, 2007 and the NEFMC has one year from this date to develop a rebuilding plan.
2. Butterfish (Atlantic) – The MAFMC is developing a rebuilding plan and will hold public hearings in early 2008, prior to selecting final alternatives for the rebuilding plan.
3. Porbeagle Shark – Porbeagle is primarily an international stock – U.S. harvest is estimated at < 1% of the total. According to the 2005 recovery assessment report conducted by Canada, the North Atlantic porbeagle stock has a 70 percent probability of recovery in approximately 100 years if F is less than or equal to 0.04. There is no U.S. domestic rebuilding plan in place for this species, as the U.S. harvest is too small for a domestic rebuilding plan to have any effect. Measures consistent with the international rebuilding plan will be implemented in an upcoming Amendment estimated to be finalized in 2008.
4. Dusky Shark – The most recent stock assessment indicated that the rebuilding timeframe for dusky sharks could last anywhere from 100 to 400 years. A rebuilding plan for the Large Coastal Shark complex, of which dusky sharks were a part, was implemented in 2003. A separate rebuilding plan for dusky sharks will be implemented in an upcoming Amendment estimated to be finalized in 2008. Until the new Amendment is in place, dusky sharks will be managed according to the 2003 Amendment and under the current LCS rebuilding plan.

[5] The most recent stock assessment could not determine the overfishing and overfished status. However, this stock remains under a rebuilding plan.

Overfished Stocks (47)
as of 3rd Quarter 2007



New England:
1. Cod – Gulf of Maine
2. Cod – Georges Bank
3. Haddock – Gulf of Maine
4. Haddock – Georges Bank
5. American Plaice
6. Yellowtail flounder – Georges Bank
7. Yellowtail flounder – Southern New England/Middle Atlantic
8. Yellowtail flounder – Cape Cod/Gulf of Maine
9. White Hake
10. Windowpane Flounder – Southern New England/Middle Atlantic
11. Winter Flounder – Southern New England/Middle Atlantic
12. Ocean Pout
13. Atlantic Halibut
14. Winter skate
15. Thorny skate
16. *Atlantic Salmon

North Pacific:
1. Blue King Crab – Pribilof Islands
2. Blue King Crab – Saint Matthews Island

New England/ Mid Atlantic:
1. Monkfish – North
2. Monkfish – South

Pacific:
1. Bocaccio
2. Darkblotched Rockfish
3. Cowcod
4. Yelloweye Rockfish

Highly Migratory Species:
1. Blue Marlin – Atlantic
2. White Marlin – Atlantic
3. Sailfish – West Atlantic
4. Bigeye Tuna – Atlantic
5. Albacore – North Atlantic
6. Bluefin Tuna – West Atlantic
7. Sandbar Shark
8. Porbeagle Shark
9. Dusky Shark

Mid-Atlantic:
1. Summer Flounder
2. Scup
3. Bullerfish (Atlantic)

South Atlantic:
1. Pink shrimp
2. Snowy grouper
3. Black Sea Bass
4. Red Porgy

Western Pacific
1. Seamount Groundfish Complex – Hancock Seamount

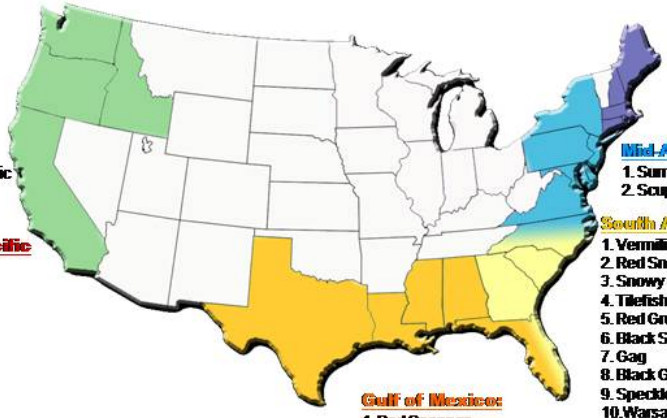
Gulf of Mexico:
1. Red Snapper
2. Greater Amberjack

Caribbean:
1. Grouper Unit 1
2. Grouper Unit 2
3. Grouper Unit 4
4. Queen Conch

Note: * indicates non-FSSI stock

Stocks "Subject to Overfishing" (43)
as of 3rd Quarter 2007

New England:
1. Cod – Gulf of Maine
2. Cod – Georges Bank
3. Yellowtail flounder – Georges Bank
4. Yellowtail flounder – Southern New England/Middle Atlantic
5. Yellowtail flounder – Cape Cod/Gulf of Maine
6. White Hake
7. Winter Flounder – Georges Bank
8. Winter Flounder – Southern New England/Middle Atlantic



Pacific:
1. Petrale sole
2. Yellowfin Tuna – Eastern Pacific

Pacific and Western Pacific
1. Bigeye Tuna – Pacific

Western Pacific
1. Bottomfish Multi-Species Complex – Hawaiian Archipelago

Mid-Atlantic:
1. Summer flounder
2. Scup

Highly Migratory Species:
1. Blue Marlin – Atlantic
2. White Marlin – Atlantic
3. Sailfish – West Atlantic
4. Bigeye Tuna – Atlantic
5. Albacore – North Atlantic
6. Bluefin Tuna – West Atlantic
7. Sandbar Shark
8. Finetooth Shark
9. Dusky Shark

South Atlantic:
1. Vermilion Snapper
2. Red Snapper
3. Snowy Grouper
4. Tilefish
5. Red Grouper
6. Black Sea Bass
7. Gag
8. Black Grouper
9. Speckled Hind
10. Warsaw Grouper
11. *Red Drum

Gulf of Mexico:
1. Red Snapper
2. Greater Amberjack
3. Gag
4. Gray Triggerfish

Caribbean:
1. Snapper Unit 1
2. Grouper Unit 1
3. Grouper Unit 4
4. Queen Conch
5. *Parrotfishes

Note: * indicates non-FSSI stock