2011 Gulf of Maine Cod Baseline Assessment

- The Northeast fisheries stock assessment process is one of the nation's most comprehensive, transparent, and robust with fully external peer-review undertaken before any results are used to manage fisheries
- Currently, the Gulf of Maine cod stock appears to be at a very low biomass, which will likely affect harvests of other groundfish stocks from the nearshore Gulf of Maine.
- Management measures have not yet been formulated, but could include reductions in other fishing opportunities, including recreational catches.
- NOAA is taking immediate and responsible steps now to work with fishery leaders, scientists, and managers in the Northeast to make sure the assessment results are understood and responded to as quickly and effectively as possible

Preliminary Results

- Stock is overfished and overfishing is occurring
- Rebuilding by 2014 is not possible; under the best conditions it could get there by around 2018 but under worst, it will be later than 2020.
- From 2007 onward, recruitment (the number of fish born each year) has been below the long- term (1982-2010) average.
- There are few fish older than age 9, in a stock with potential lifespan of roughly 20 years
- Fish weights-at-age in recent years are generally lower for older fish (ages>5) than those in the early 2000-period.
- Recreational catches (both landings and discards) have increased substantially over the last 15 years. Over the past ten years recreational catches have exceeded 30% of the total catch of Gulf of Maine cod.
- As stock abundance has decreased over time, the distribution of the stock has contracted to a much smaller area compared to its distribution in the 1970s.
- Similarly, the fishery has also undergone a general contraction over the past twenty years and is now operating primarily in the western Gulf of Maine in the same area now occupied by the contracted stock. Because of this contraction, catch per unit effort in the fishery has remained high, despite a large decline in overall stock abundance.
- Assessment is under peer review now. A final assessment report, incorporating the recommendations of the reviewers, will be available in January.

- Reviewers may accept - or reject - all, or parts of, the assessment. They have indicated that they will accept the assessment, but will have comments that will need to be addressed in the final report.

Implications of assessment

- Gulf of Maine cod will have a very low annual allowable catch that will significantly reduce the catches of other groundfish species in areas where Gulf of Maine cod are found.

- Additional measures may be required to protect Gulf of Maine cod, and some measures slated for elimination may need to stay—particularly access to areas currently closed to groundfishing

- The vessels most likely affected will be those smaller vessels that fish nearshore in the Western Gulf of Maine with little capacity to fish further offshore (mainly gillnetters and trawlers, but also some hook and hook-and-line fishermen).

Controversy

A Very Different Result than Projected in 2008

- Gulf of Maine cod was last assessed in 2008. The results indicated that the stock was rebuilding and prospects were good for full recovery by 2014. Annual catch targets and allowable catch limits were set accordingly.

- The 2011 draft assessment indicates that the stock was much smaller in 2007 than the 2008 assessment indicated, that it was not rebuilding on schedule at that time, and that in 2010 the stock was about 20% of its fully-rebuilt size and fishing rates were nearly five times the overfishing level.

Explaining Why Results Are So Different from Expectations Is Not a Sound Bite

- **Better characterization of uncertainty:** The 2011 assessment is more robust than that of 2008 because it does a better job of dealing with uncertainty in data—for example, adjusting for anomalously high survey tows. Past estimates of recruitment (incoming young fish) have been highly uncertain in past assessments, in part because of this kind of uncertainty.

- **The 2008 assessment suggested that the 2005 year class was much larger than it actually was:** In the 2008 assessment, the 2005 year class (those fish born in 2005) was estimated to be very abundant (about three times higher than the average), sufficient to promote rapid stock rebuilding as those fish grew large enough to spawn and enter the fishery. At that time, almost all the information available on this year class was from survey data. A single, anomalously large tow, in two consecutive years, contributed to the perception that the 2005 year class was substantial. Subsequent survey and fishery observations during 2008-2010 indicated that the 2005 year class was far less abundant than estimated, and is only of average size.

- **More and more detailed data on catch through 2011:** The new assessment also has the advantage of more data on both commercial and recreational discards that were not available in

2008. This allows for a better accounting of the total fish removals due to harvesting (that is, both the fish landed and the fish caught but discarded).

- **Better biological information about growth:** There is more detailed information on the age and weight of fish that were caught by commercial, recreational, and scientific survey vessels. The revised weights at age showed fish in recent year classes are lighter-than-average at younger ages. This contributed to the lower spawning stock biomass relative to the 2008 assessment (since reproduction potential in these fish is primarily a function of size, not age.)

- The combination of an improved model used with improved data allows a better accounting for and better documents:

    - The aspects of survey and catch data that signal the number of very young (smaller than age 2) fish in the population so they can be dealt with when making projections about likely stock growth

    - The effects on the estimates when there are very few older fish

    - The catch itself—what's landed and thrown back by both commercial and recreational fishermen, as well as the age and weight of those fish, important for tracking how fast fish are growing and when they will be large enough to spawn.