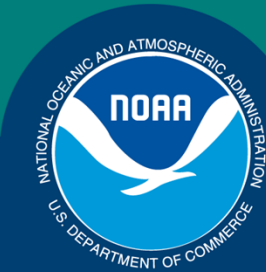


*Science, Service, Stewardship*



*Fishing Year 2012 Gulf of Maine Atlantic Cod  
Recreational Management Measures  
Information*

*Gulf of Maine Cod Working Group Meeting  
Portsmouth Harbor Events & Conference Center  
Portsmouth, NH*

*Presented by Mike Ruccio, Northeast Regional Office  
and  
Chad Demarest, Northeast Fisheries Science Center*

*February 10, 2012*

**NOAA  
FISHERIES  
SERVICE**



## *Background*

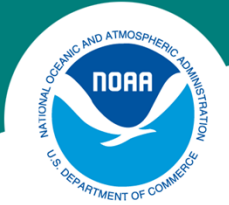
- Benchmark Gulf of Maine (GOM) cod assessment completed January 2012
- Assessment indicates stock cannot be rebuilt by 2014, even in the absence of all fishing
- Stock is overfished and subject to overfishing



## *Background*

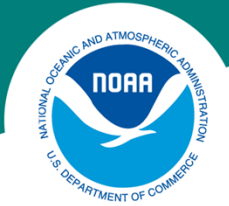
- FY 2012 catch level to end overfishing is approximately 1,500 mt, as calculated by the Groundfish PDT
- Recreational ACL under this approach would be approximately 500 mt
  - FY2011 Recreational sub-ACL is 2,824 mt
- Agency is working closely with New England Council and stakeholders on alternatives for reducing the negative economic impact

Prior working group meeting materials at Northeast Regional Office web site:  
<http://www.nero.noaa.gov/nero/hotnews/gomcod/>



## *Section 304(e)(6) of the Magnuson-Stevens Act*

- Agency may take interim action to reduce but not end overfishing under very limited, specific circumstances
  - Secretary of Commerce determines that the rebuilding plan has not resulted in adequate progress towards rebuilding
  - New England Council must revise its rebuilding program
  - Interim action--limited to one year in duration (FY2012)--must reduce overfishing and maintain or build stock biomass



*New England Council  
Recommendations  
for FY 2012 Interim Action*

- Reduce overfishing while the Council responds to the new assessment
- Consider an ACL range of 6,700 to 7,500 mt
- Include recreational measures to limit catches to the recreational sub-ACL--reduce the GOM cod minimum size limit and/or bag limits to reduce recreational discards
- Consider opening several existing closed areas



## *Fishery ACL range of 6,700-7,500 mt*

- An ACL  $>6,700$  mt increases fishing mortality
- An ACL  $\leq 6,700$  mt reduce fishing mortality and maintain/increase biomass
- Substantial reductions will be necessary to end overfishing in FY2013.
  - For example, fishing at 6,700 mt in FY2012 would require a FY2013 catch level around 2,000 mt

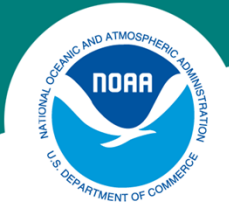


## *Fishery ACL of 6,700 mt*

Table 1. Comparison of FY 2011 ACLs and the FY 2012 ACLs for the Council-recommended 6,700 mt Catch Option

Fishing Year	Total ACL	Total Commercial ACL	Recreational ACL	State Waters	Other
<i>All values are in mt</i>					
2011	8,545	4,825	2,824	597	299
2012	6,700	3,783	2,215	468	234

Under this option, the recreational fishery would need a 609 MT reduction



## *Marine Recreational Fisheries Statistics Survey (MRFSS) and Marine Recreational Information Program (MRIP)*

- MRFSS data were used in the most recent stock assessment
- Both survey methods to be run in tandem for calendar year 2012
- Beginning January 1, 2013, only MRIP will be available
- ACL monitoring and management measures to use MRIP for FY 2012





## *FY2011 Recreational Catch Projection*

- PDT estimated catch (landings + discards) at 3,000 mt
- NMFS has utilized MRIP data to revise FY2008-2010 catch estimates:
  - Assumption that catch in FY2011 will be similar to these recent years
  - Landings:
    - Used weights directly estimated by MRIP
    - Converted numbers estimated by MRIP to weight using average weight information from stock assessment
  - Converted number of discarded fish estimated by MRIP to weight using discarded fish weight information from assessment



## *FY2011 Recreational Catch Projection*

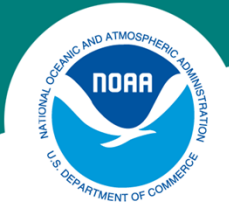
- Discard mortality assumed at 100%, consistent with assessment
- Evaluated years independently, as averages, and with alternative average fish weights for both landings and discard number-to-weight conversions
- Multiple methods and examination of data yield very similar catch estimates in 2,600 mt range



## *FY 2012 Potential Reductions in Catch*

		Percent reduction in 2012 catch required
Potential FY2012 Rec sub-ACL	2,215mt	
Projected FY2011 Catch		
PDT MRFSS analysis	3,000mt	-26%
NMFS MRIP analysis	2,600mt	-15%

- A FY2012 recreational sub-ACL of 2,215 mt represents a 22-percent reduction from FY2011
- Required reduction in catch would fall between 22 (ACL-based) and 15 percent if a total ACL of 6,700 mt is implemented by NMFS



## *FY 2012 Recreational Accountability Measures*

- If the FY2012 recreational sub-ACL is exceeded, repayment of overage is scheduled to occur in spring of 2014 (late FY2013)
- Determination of this accountability measure is determined after consultation with the Council, and in accordance with the regulations



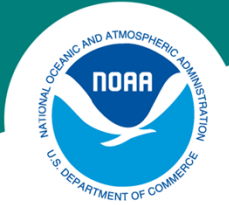
## *Bio-economic model of recreational fishing in the GOM*

Recreational fishing model jointly developed by NEFSC and NOAA Fisheries S&T combines

- Economic model of angler behavior based on choice experiment survey conducted in 2009-10
- Age-structured population model for haddock and cod

Can predict changes in catch and mortality based on size and possession limits

Seasonal closures treated independently



## *Bio-economic model of recreational fishing in the GOM*

From existing trip-level data, model selects

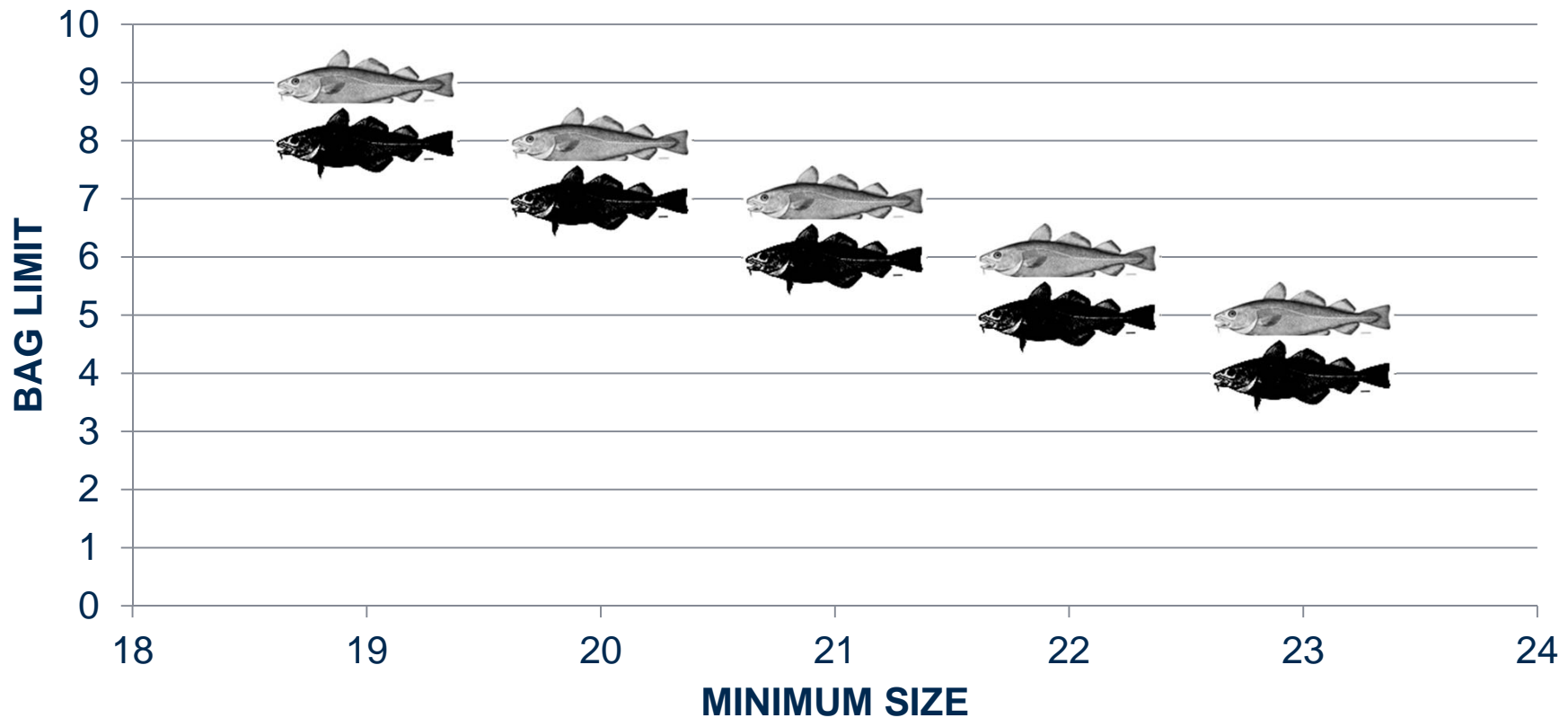
- If a trip will occur, based on expected utility
- Catch streams for cod and haddock
- Sizes for each fish caught
- Kept/discard estimates, based on size and bag limits being analyzed

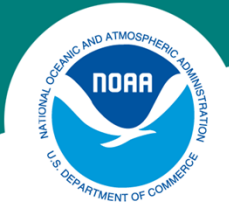
Cod and haddock treated independently—both caught on same trip, but cod not caught while catching haddock (and vice versa)



## *FY 2012 Recreational Measures— Examples*

Reductions of 15% (light) and 20% (dark), no closed season:

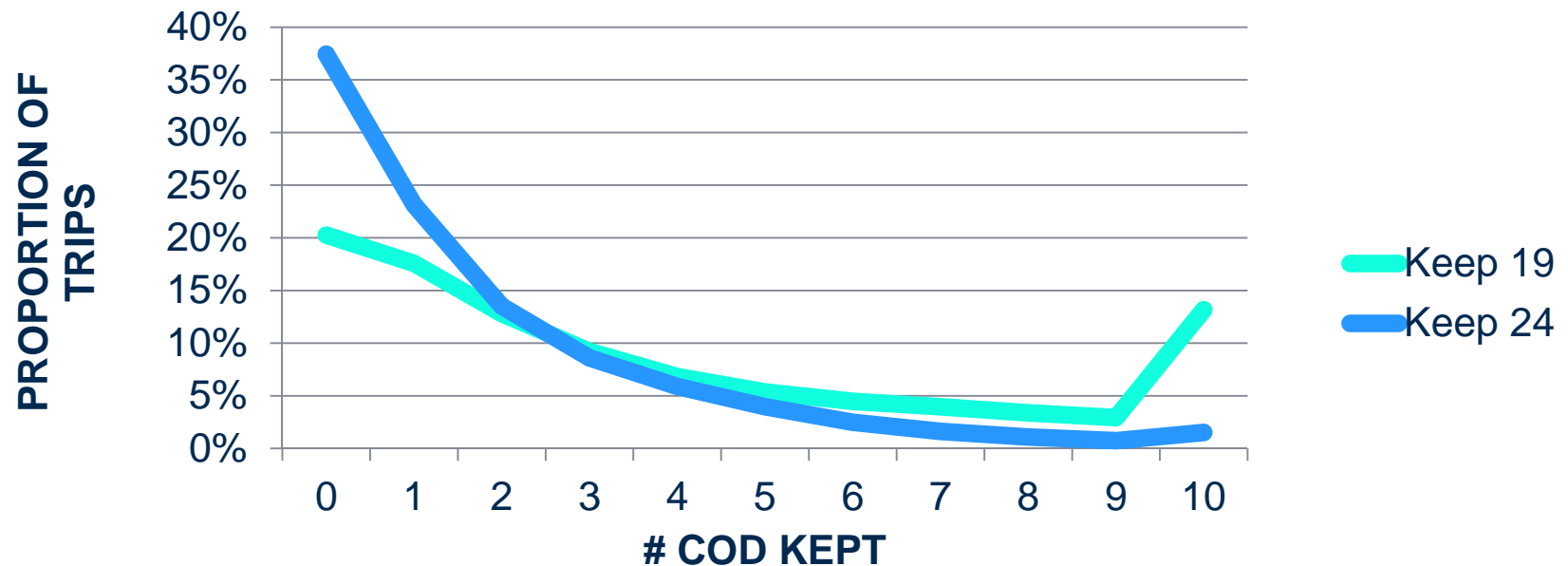




## Model results - 19 vs 24 inch cod

### Under 19 inch cod

- 5% more trips predicted to occur
- 13% of trips predicted to reach bag limit (*1.5% under 24 inch cod*)
- 10% reduction in catch by weight







## *Feedback for Interim Development*

- To achieve the same level of reduction, are changes in bag limits or seasonal closures preferable?
  - If possession limit is decreased, what is minimum acceptable number?
  - Changes to fish size?
    - Would high-grading be an issue at 19-inch fish
    - Are modifications to haddock size of 18-inches acceptable
- Other issues for our consideration?