New England Fishery Management Council
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John Pappalardo, *Chairman* | Paul J. Howard, *Executive Director*

MEMORANDUM

DATE: June 5, 2007
TO: Council Members
FROM: Paul Howard, Executive Director
SUBJECT: **Request to NMFS for a reduction in the minimum size limit for GB haddock**

1**.** The Multispecies (Groundfish) Committee recommends the Council ask the Regional Administrator to reduce the minimum size for Georges Bank Haddock to seventeen inches. The Committee has received reports of large discards of sub-legal fish. This is likely due to the large size and slow growth of the 2003 year class. The following background information is provided by staff to facilitate the discussion.

Background Information

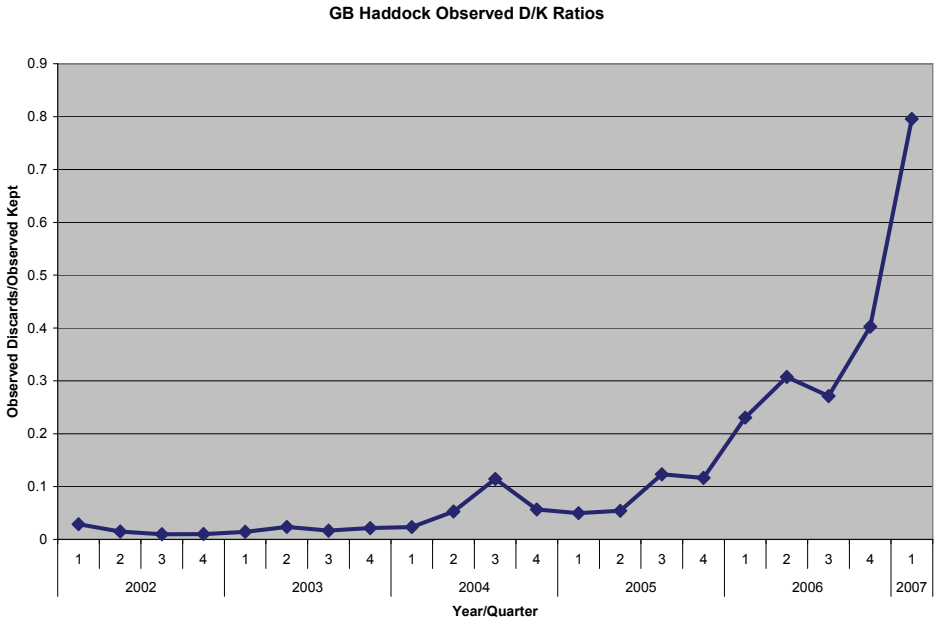
2. The median age at maturity for female haddock in recent years (2000-2004) is 1.8 years with a standard error of 0.2 years Brodziak et al 2005). In 2005, the Groundfish PDT advised that "Many managers and fishermen believe that fish should not be harvested before they are mature. In recent NEFSC spring surveys (1992-2004), nearly all female haddock are mature at 43 cm (17 in.) and males show a similar pattern. There is some year-to-year variation, however, as shown in the 2004 survey. Targeting fish at this size may not be appropriate since there is evidence that larger, older fish are more successful spawners. While the information specific to GB haddock is sparse, there is evidence that the fecundity of female haddock increases with age. One unpublished study (Morse et al.) showed a non-linear increase in fecundity with length. In addition, this study detected differences between periods of high- and low-stock density. At high densities, length at a particular fecundity is roughly two centimeters larger than when the stock was at low density."

3. There is evidence that haddock growth rates may be affected by density dependence. "Growth rates of haddock have fluctuated over the past 50 years. During the 1960s, an age-4 haddock averaged 48-50 cm (19-20 in.). During the 1980s and 1990s when stock sizes were lower, size at age increased and an age-3 fish averaged about 48-50 cm in length. In recent years growth rates have slowed, with haddock reaching 48 to 50 cm at age 4. The 2003 year class appears to be growing at about the rate of the last very large year class (1963). On Georges Bank, haddock growth appears to be density-dependent, with reductions in mean lengths at age across age classes as stock size has increased in recent years" (from http://www.nefsc.noaa.gov/sos/spsyn/pg/haddock/). Recent assessments documented declines of about ten percent in the length at age for GB haddock at nearly all ages (see Figure 10.1 through 10.10). The current regulatory minimum size of 19 inches (48.3 cm. total length) is about the same as the recent (2002-2005) mean length at age-4 observed in the NEFSC fall surveys. Brodziak and Link (2007, in press) examined several factors and concluded density dependence

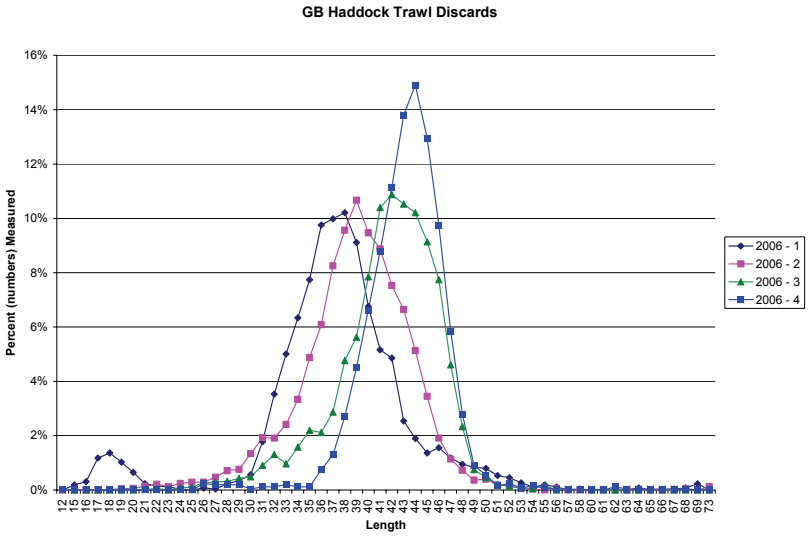
was a likely cause for slower growth rates and could affect year classes following a large year class. In addition, they commented that "The recent slower pattern of growth implies that it will likely take more than 3 years for haddock to recruit to the minimum legal size of 48 cm. This delayed recruitment could lead to an increase in discards of sublegal haddock in coming years, especially from abundant cohorts such as the 2003 year class."

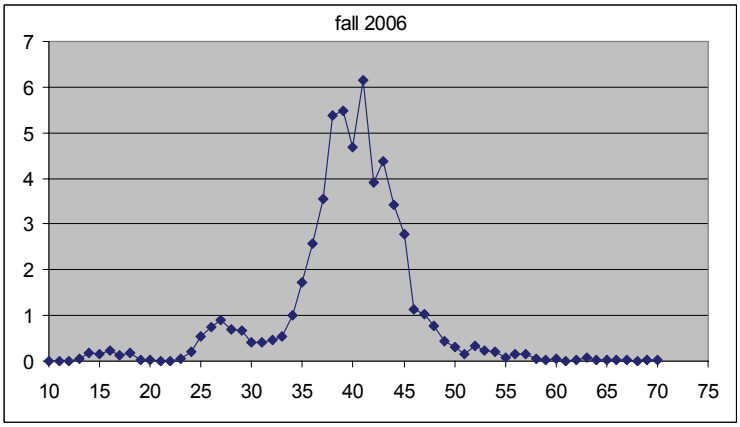
4. The Groundfish PDT provided the Bycatch Committee an extensive analysis of the impacts of catching smaller GB haddock. In brief, the PDT advised that increasing the harvest of two year old fish results in modest increases in yield-per-recruit (when fishing at F_{MSY}) at the expense of declines in spawning stock biomass per recruit. Note that this advice addressed the question of the impacts of increasing the harvest of these fish and not measures to increase the retention of fish already caught.

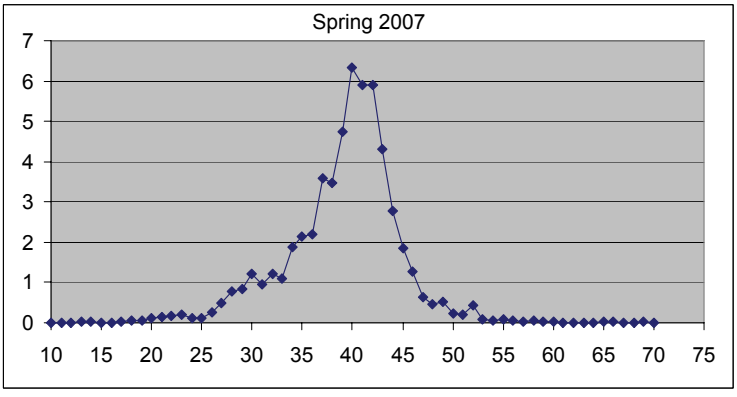
5. Discards of GB haddock by trawl vessels increased in recent years with the arrival of the 2003 year class. The ratio of observed trawl discards to kept catch is shown below. Since the third quarter of 2005, over ninety-eight percent of the discards (by weight) are reported as under legal size. While not shown here, discards by gillnet and longline vessels also show discard to kept ratios increasing in 2006. Council staff estimates the GB haddock discards in 2006 may approach 900 mt, compared to preliminary landings of about 2,700 mt.



6. A plot of measured discarded fish in CY 2006, by quarter, clearly shows a strong mode of discarded lengths, probably due to the 2003 year class. This mode was gradually increasing through 2006 and was at 44 cm. during the fourth quarter. Data for the first quarter of 2007 is incomplete, but suggests the mode may not have increased from the fourth quarter of 2006. A comparison of length/frequency in the fall 2006 and spring 2007 surveys also indicates little growth over the winter, and suggests the fish may not yet reach legal size by the 2007 fall survey.







Prior Management Discussions

7. The Council's Bycatch Committee first considered the impacts of the 2003 year class of haddock on discards (in all fisheries) in early 2005. In January 2005, the Bycatch Committee passed a motion "To consider under the multispecies plan for analysis by the PDT, the elimination of the minimum fish size requirement, to sunset after 2 years." The Committee clarified that they were asking the PDT to determine the optimum size for targeting GB haddock. This led to the PDT report mentioned above. The Committee also suggested using temporary closures in areas where small haddock are caught.

8. In March 2005, the Bycatch Advisors recommended against eliminating the haddock minimum size. The Committee rejected this recommendation, and instead developed a recommendation to require a six inch square mesh codend when using a separator trawl in FY 2006. The Council referred these recommendations to the Groundfish Committee.

9. The Groundfish Committee considered the recommendations at its meeting in May, 2005. This Committee recommended "When fishing in the GB stock area vessels required to or electing to use a haddock separator trawl must use a minimum of 6.0 inch square mesh in the lengthening piece and cod end, then they may land 17 inch haddock (min size reverts to 19 inch in FY2008), VMS would be required to participate in this program." The Council rejected this recommendation at its meeting in June, 2005 and this measure was not included in FW 42. At the Council meeting in February 2006, a motion was defeated that would have allowed vessels fishing with a separator trawl in the US/CA area to use six inch diamond mesh.

10. While Canada does not have a minimum size limit for haddock, they do have a 'small fish protocol." Under the provisions of this regulation, if more than 20 percent of a catch (by number) is less than 17 inches fork length, areas can be closed to reduce the catch of small fish. DFO policy is to discourage catching a high percentage of fish less than 43 cm. (16.9 inches).

Regulatory Authority for Changes to Measures

11. Amendment 13 authorized the Regional Administrator to change measures to facilitate harvesting the US/CA TACs. Since the haddock TAC only applies to the eastern area (statistical areas 561 and 562), it could be argued the RA can only change measures in this area. Amendment 13 specifically describes the measures that can be changed: "Periodic adjustments: In consultation with the Council, the RA may adjust gear requirements, modify access to fishing areas within the agreement management units, and trip limits to meet established TACs as specific in the sharing agreement."

12. Framework 42 says: "The Regional Administrator is authorized to modify the management measures (including, but not limited to, possession limits, DAS that can be used, areas that can be fished, etc.) in the US/CA area at any time (including prior to the start of the fishing year) if necessary to facilitate harvesting the TAC or to prevent exceeding the TAC of GB yellowtail flounder, eastern GB cod, or eastern GB haddock. As required by Amendment 13, such adjustments will be made after consultation with the Council."

13. While FW 42 language appears to broaden the RA's authority to make changes to measures to achieve the TAC, the regulations continue to restrict authority to changes in access to the area, trip limits, gear, or number of trips.

Emergency Action

14. Another way to change measures in the area might be through emergency action. The following discussion outlines a rationale to support an emergency action using the criteria described in 62 FR 44421-44422.

Criteria

a. "Results from recent, unforeseen events or recently discovered circumstances": The 2003 year class of GB haddock is enormous and may exceed the size of the 1963 year class. This unusual recruitment event was not anticipated during the development of Amendment 13, as can be seen by the stock size projections in that document. Early reports of the unusual size of this year class noted considerable uncertainty in its size. More importantly, there were only incomplete reports on the growth rates of this year class until the GARM II results were published in September 2005. While GARM II noted that the slow growth "may delay recruitment of the 2003 year-class to the landings and result in a prolonged exposure to discarding," it did not indicate when the year class was expected to enter the fishery or the magnitude of discarding that might occur. Earlier Council discussions on this issue did not have access to specific information on growth rates or discard rates, or the length of time this problem might occur. For example, the Bycatch Committee was told that *if* (emphasis added) the fish grew at the same rate as the 1963 year class they might enter the fishery at age-4 in 2007, but more normal growth rates would result in the fish entering the fishery in 2006 at age-3.

The magnitude of the discards in 2006 only recently became available as observer reports were entered into the databases. While initially it appeared the problem was lessening as 2006 progressed, recent data from January and February 2007, as well as the spring 2007 survey, suggest the problem may continue past fall 2007.

b. "Presents serious conservation or management problems in the fishery": In spite of using mesh that theoretically is unlikely to retain retaining sub-legal haddock, the fish are being retained and are being discarded in large numbers. This is wasteful and conflicts with the guidance of the M-S Act to reduce bycatch as much as possible. The potential yield from the fishery is not being realized by the fishery.

c. "Can be addressed through emergency regulations for which the immediate benefits outweigh the value of advance notice, public comment, and deliberative consideration of the impacts on participants to the same extent as would be expected under normal rulemaking process." Wasteful discards of GB haddock can be reduced by lowering the minimum size to 17 inches. Evidence provided above indicates this will nearly eliminate discards of the 2003 year class if implemented over the next six months. This will increase yields and revenues for the fishery. If the normal rulemaking process is followed, it is unlikely the change could be implemented quickly enough to make a difference.

Justification

d. "Ecological- Prevent overfishing": Not directly applicable, but it is possible that if the minimum size is lowered, more fishermen may target haddock and reduce effort on

stocks such as GB winter flounder and GB yellowtail flounder that are subject to overfishing.

e. “Ecological-prevent other serious damage to the fishery resource or habitat”: Note that GARM II indicated that fishermen may have targeted age 6 and 7 year old haddock in 2004. Discarding large quantities of sub-legal fish may result in fishermen targeting older, weaker year classes of GB haddock. Older haddock produce more eggs and are more successful spawners. Targeting these older fish might have adverse impacts on the reproductive potential of the stock in the short-term until the 2003 year class grows into those ages.

f. “Economic-to prevent significant direct economic loss or to preserve a significant economic opportunity that otherwise might be foregone”: The U.S. fishery has only harvested a fraction of the Eastern U.S./Canada haddock TAC in recent years. This has resulted in a loss of millions of dollars in revenues to a fishery that is struggling to remain viable during a stock rebuilding program. Discarded fish in 2006 alone may have resulted in a loss of over $3 million in revenue. The slow growth of this year class, and the possible effects on the growth of following year classes, make it questionable when the benefits of this large year class will accrue to the fishery. In addition, fish of similar size are being caught by Canadian vessels and reportedly sold into U.S. markets, creating a risk that U.S. fishermen will lose market share.

g. “Social-to prevent significant community impacts of conflict between user groups”: Unexpected delays in haddock revenue are adversely affecting communities that planned for these revenues to support the industry during stock rebuilding. Allowing retention of seventeen inch fish will mitigate these losses.

h. “Public health”: Not applicable.

Literature Cited:

Brodziak, J., M.Traver, L. Col, and S. Sutherland. 2006. Stock assessment of Georges Bank haddock, 1931-2004. Northeast Fisheries Science Center Ref. Doc. 06-11, NEFSC, Woods Hole, MA 02543.

Brodziak, J. K. T. and Link, Jason. 2007 (in press). The Incredible Shrinking Haddock. Wakefield Symposium.

Northeast Fisheries Science Center. 2005. Assessment of Nineteen Northeast Groundfish Stocks through 2004; 2005 Groundfish Assessment Review Meeting (2005 GARM). Northeast Fisheries Science Center Reference Document 05-13.

Northeast Fisheries Science Center. 2007. Status of Fisheries Resources off the Northeastern United States. Available online at http://www.nefsc.noaa.gov/sos/.

Figure 10.1. Georges Bank haddock mean length at age-0 NEFSC fall surveys, 1963-2004

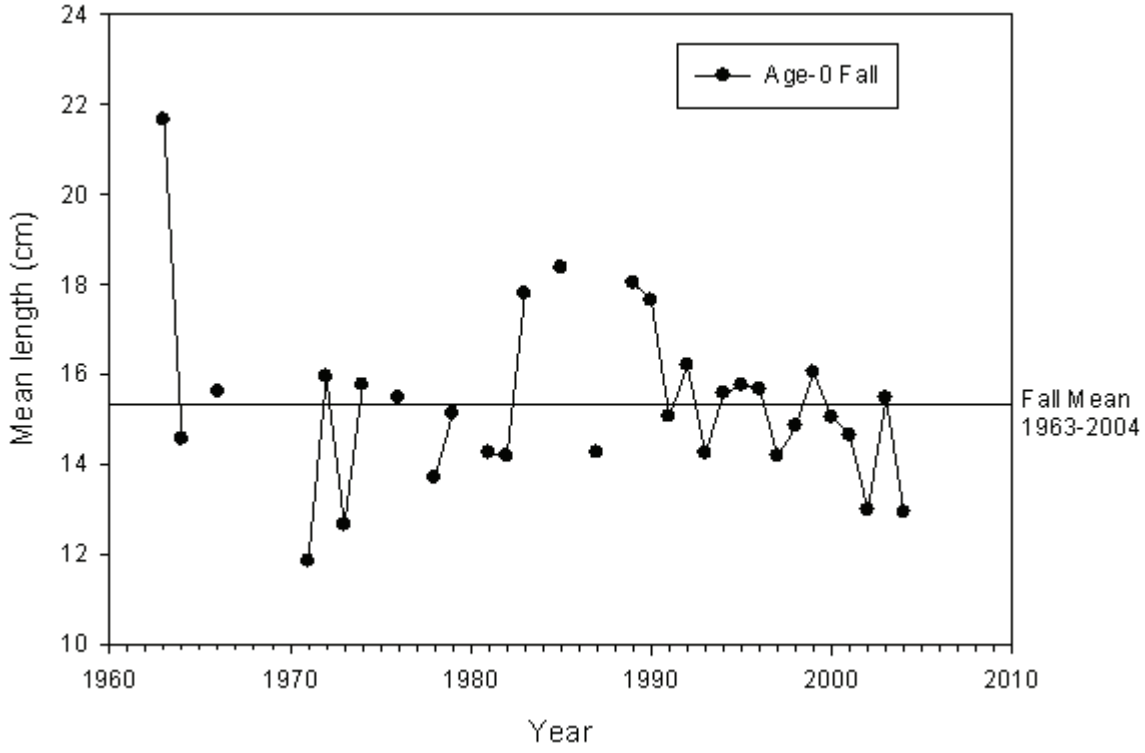


Figure 10.2. Georges Bank haddock mean length at age-1 NEFSC spring and fall surveys, 1963-2005

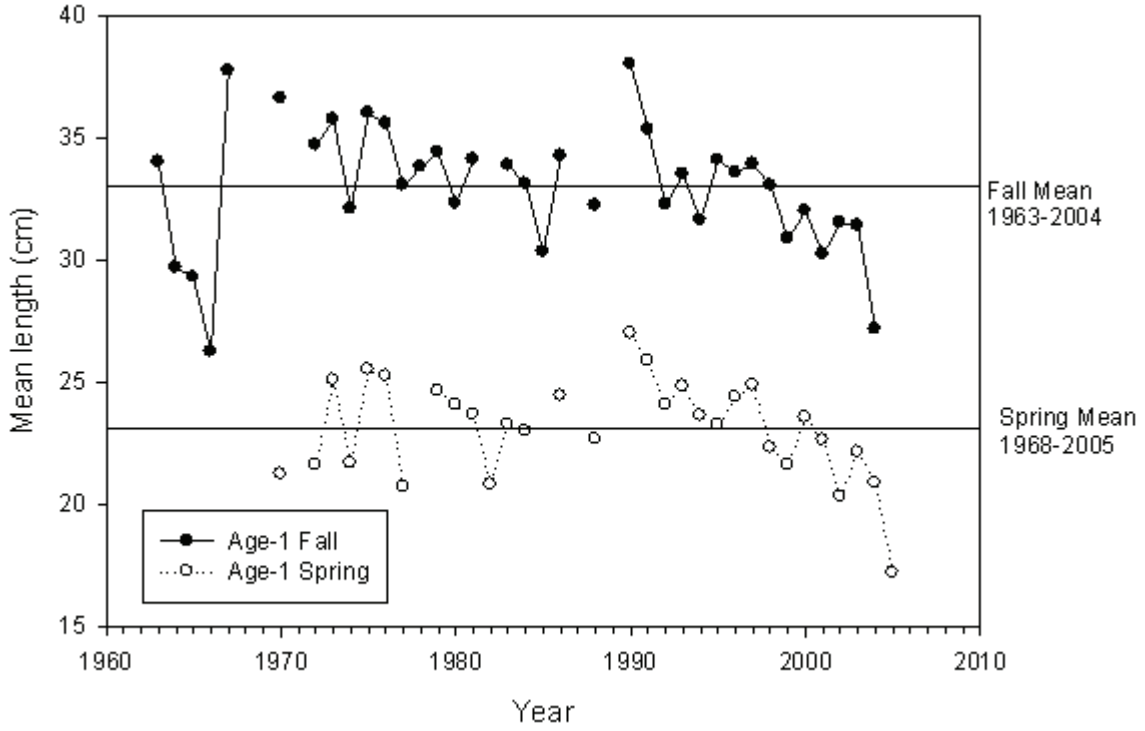


Figure 10.3. Georges Bank haddock mean length at age-2 NEFSC spring and fall surveys, 1963-2005

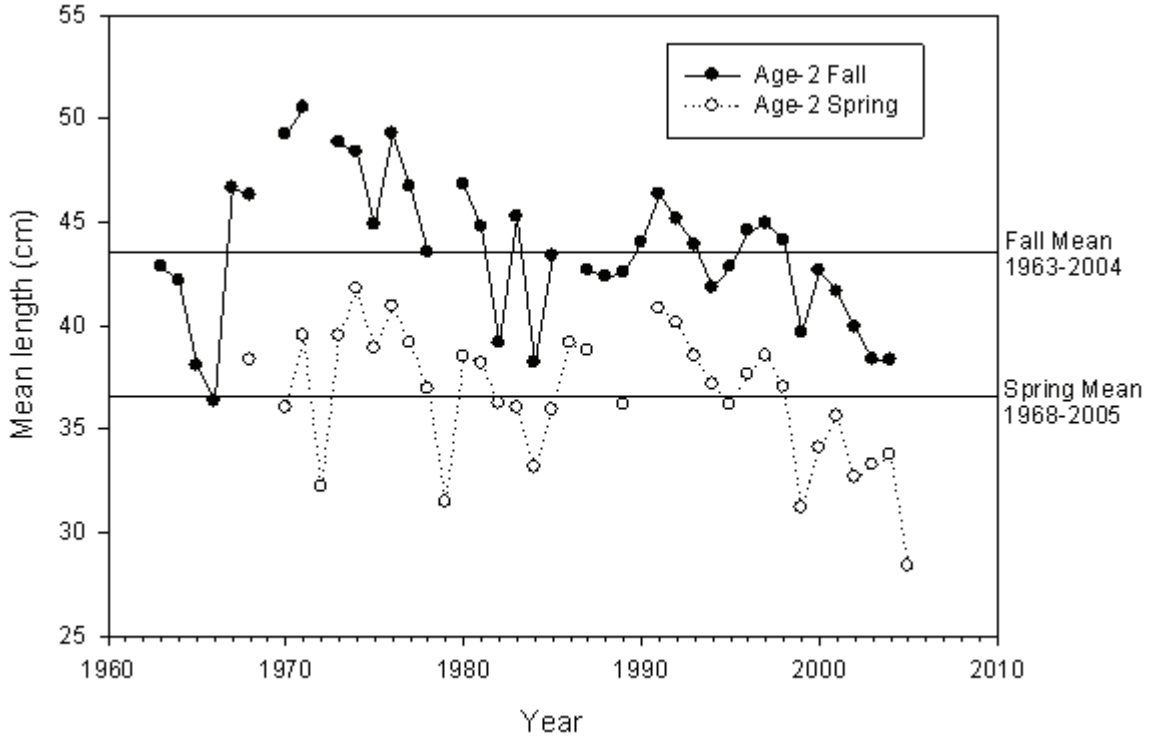


Figure 10.4. Georges Bank haddock mean length at age-3 NEFSC spring and fall surveys, 1963-2005

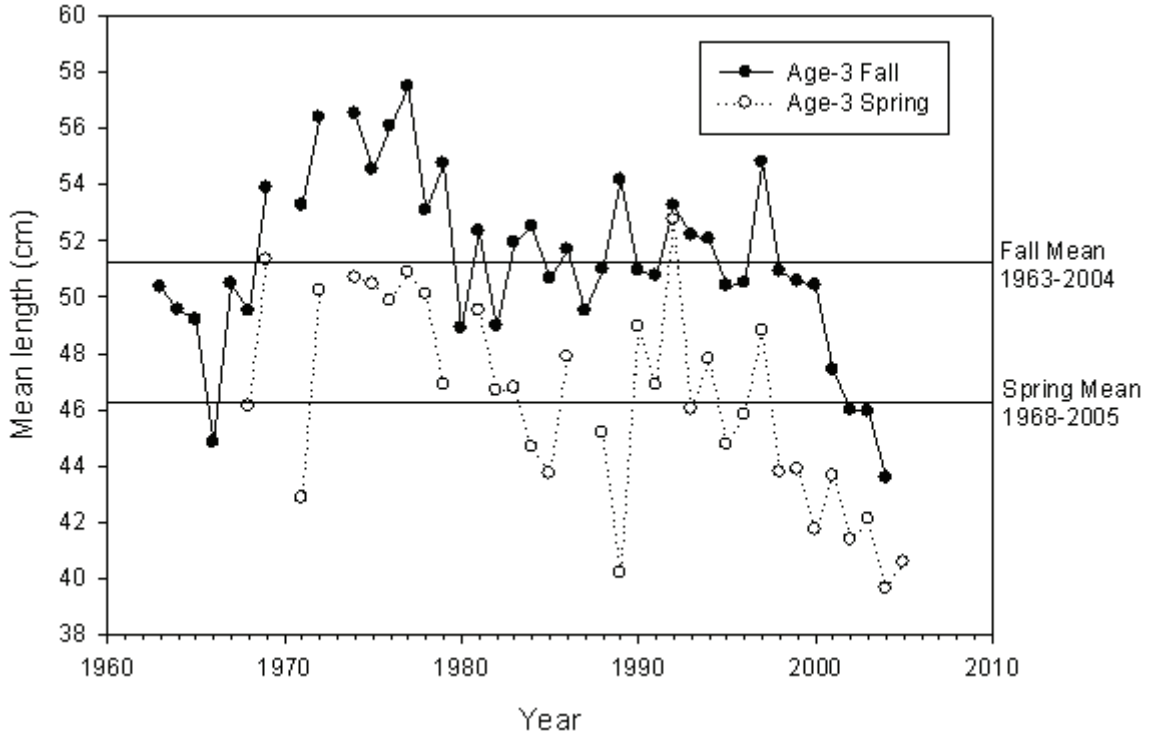


Figure 10.5. Georges Bank haddock mean length at age-4 NEFSC spring and fall surveys, 1963-2005

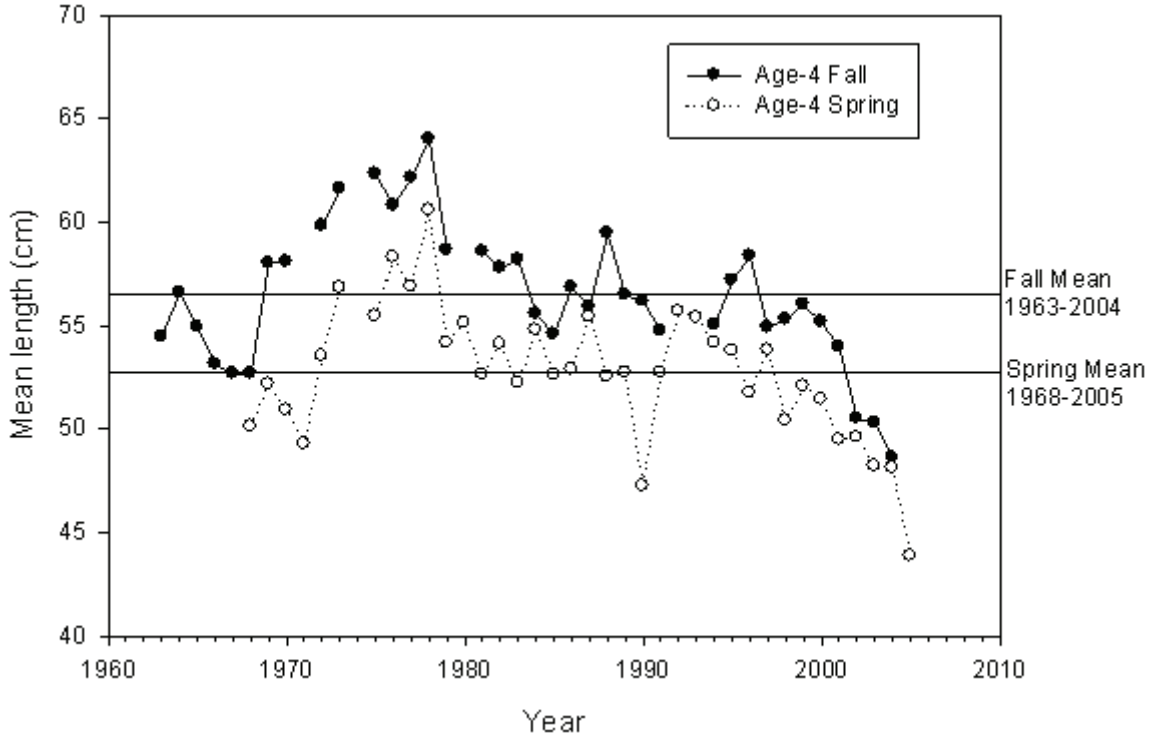


Figure 10.6. Georges Bank haddock mean length at age-5 NEFSC spring and fall surveys, 1963-2005

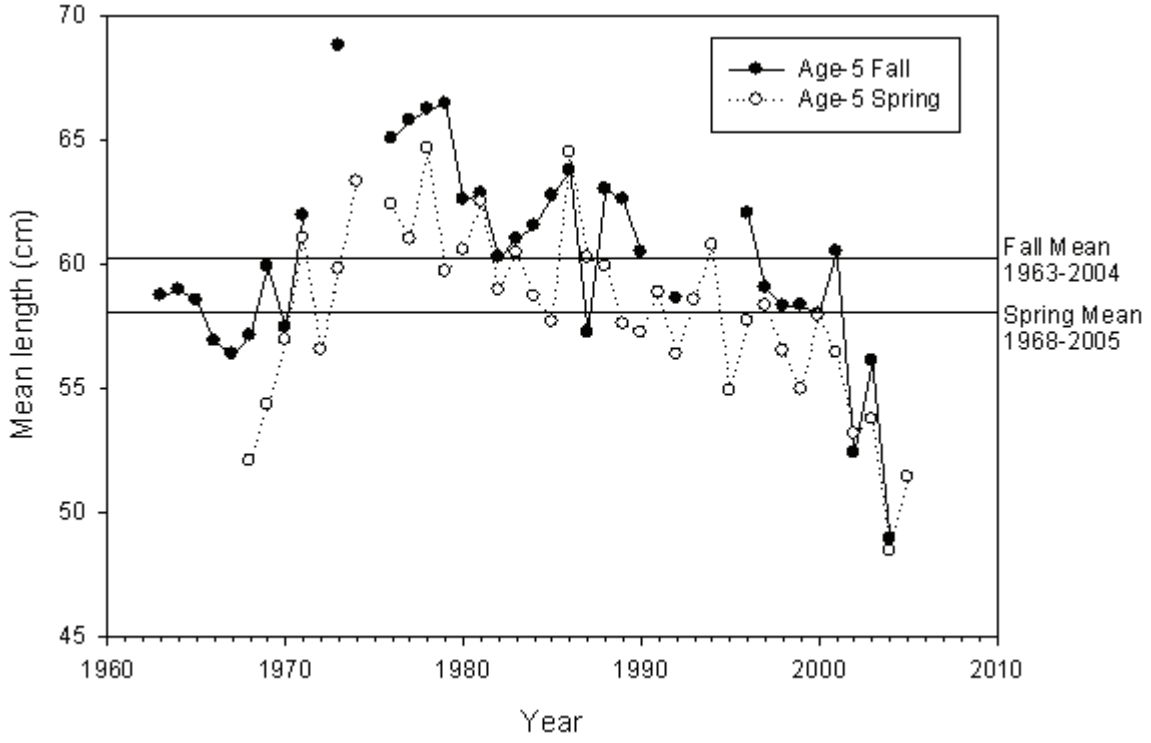


Figure 10.7. Georges Bank haddock mean length at age-6 NEFSC spring and fall surveys, 1963-2005

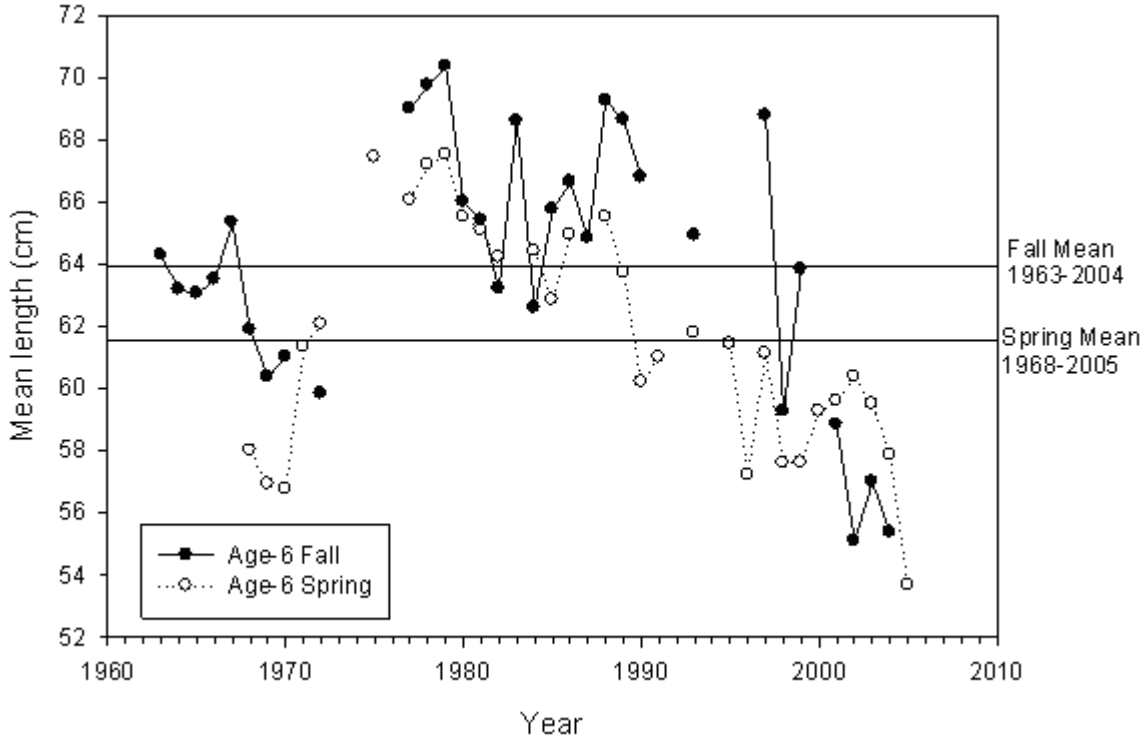


Figure 10.8. Georges Bank haddock mean length at age-7 NEFSC spring and fall surveys, 1963-2005

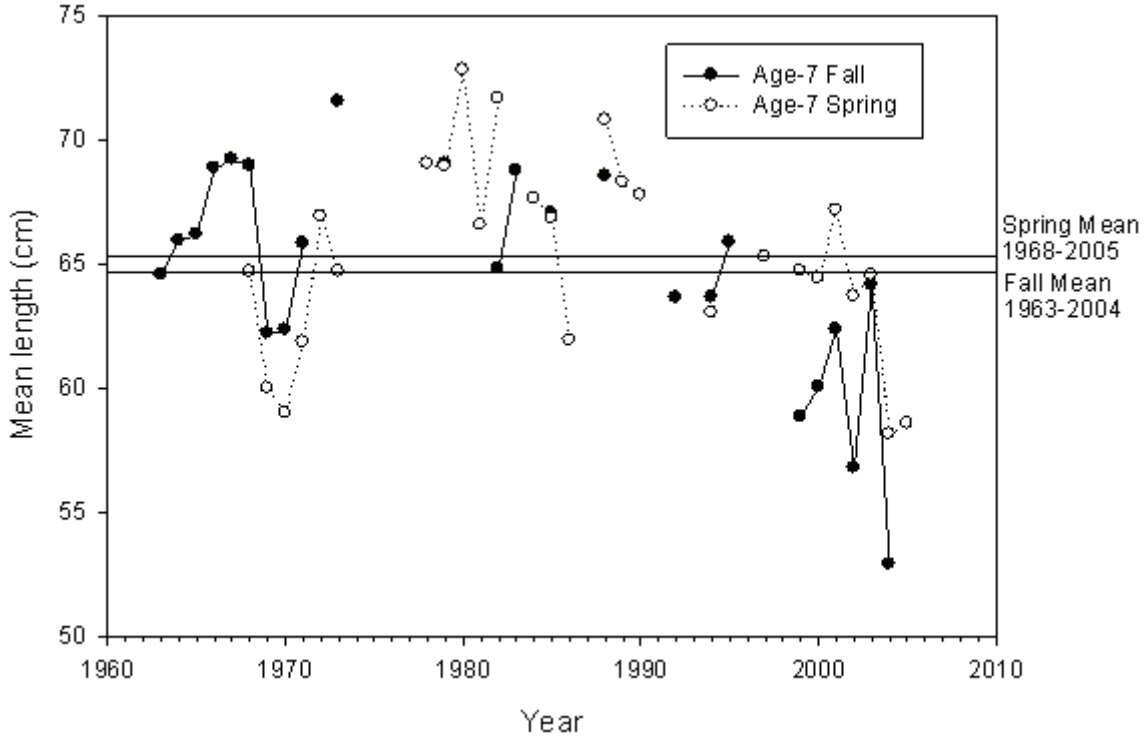


Figure 10.9. Georges Bank haddock mean length at age-8 NEFSC spring and fall surveys, 1963-2005

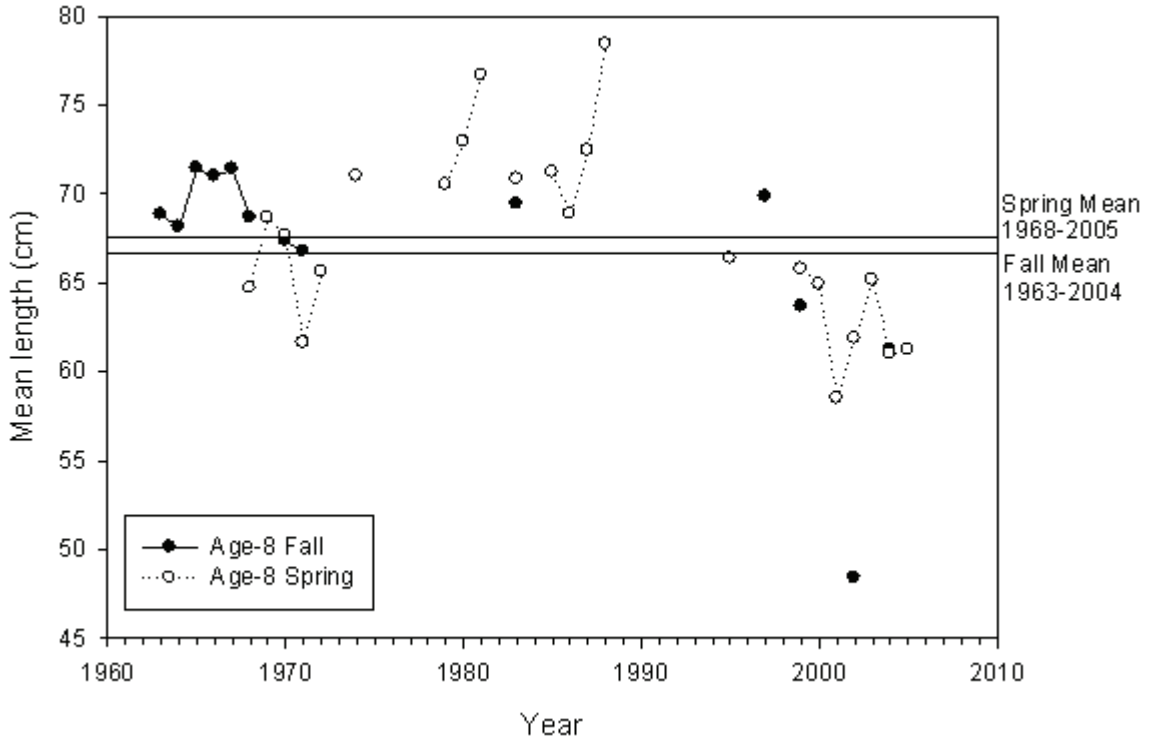
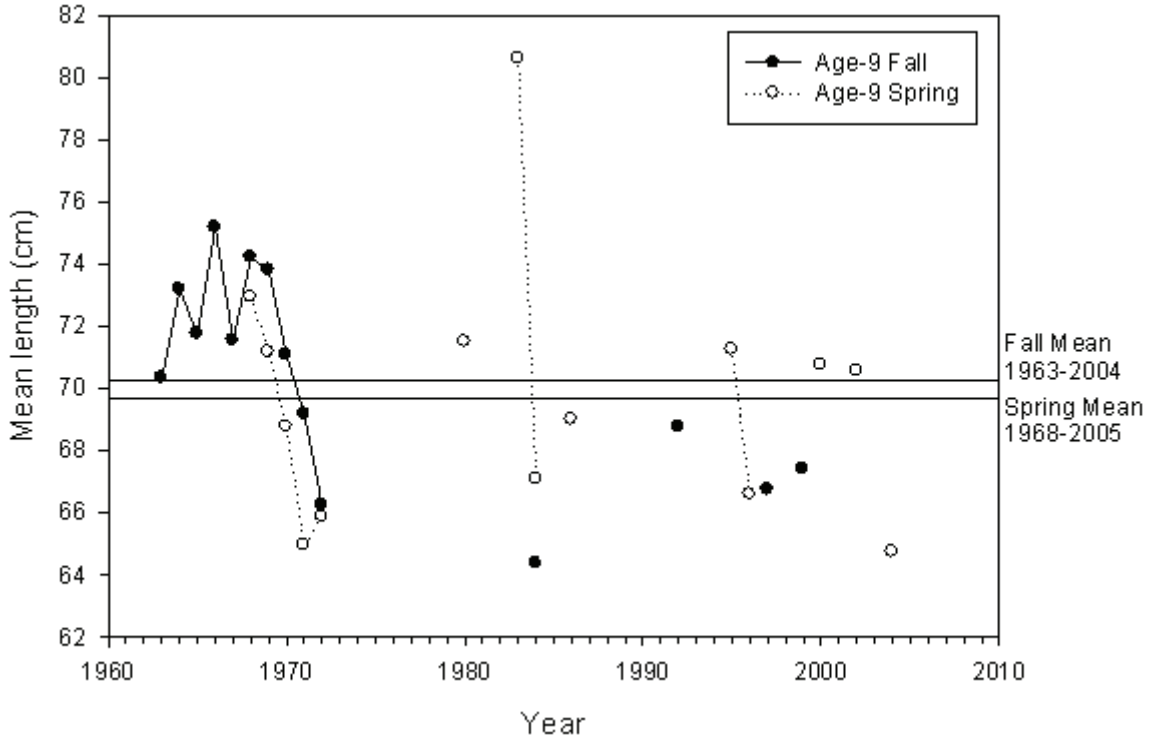


Figure 10.10. Georges Bank haddock mean length at age-9 NEFSC spring and fall surveys, 1963-2005



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