Massachusetts Division of Marine Fisheries

Marine Fisheries Resource Recommendations: Time-of-Year Restrictions

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322 CMR and MGL Chapter 130:

Manage the living marine resources (fish, shellfish and habitat) of the Commonwealth

- Regulate recreational and commercial harvest in state waters
- Conduct scientific work on fisheries and habitats in Massachusetts (monitoring, research, restoration).
- Develop fisheries related policy (artifical reefs policy, MPA policy, seagrass policy)
- Review coastal alteration projects providing technical assistance to avoid, minimize and mitigate impacts to marine fisheries and habitats

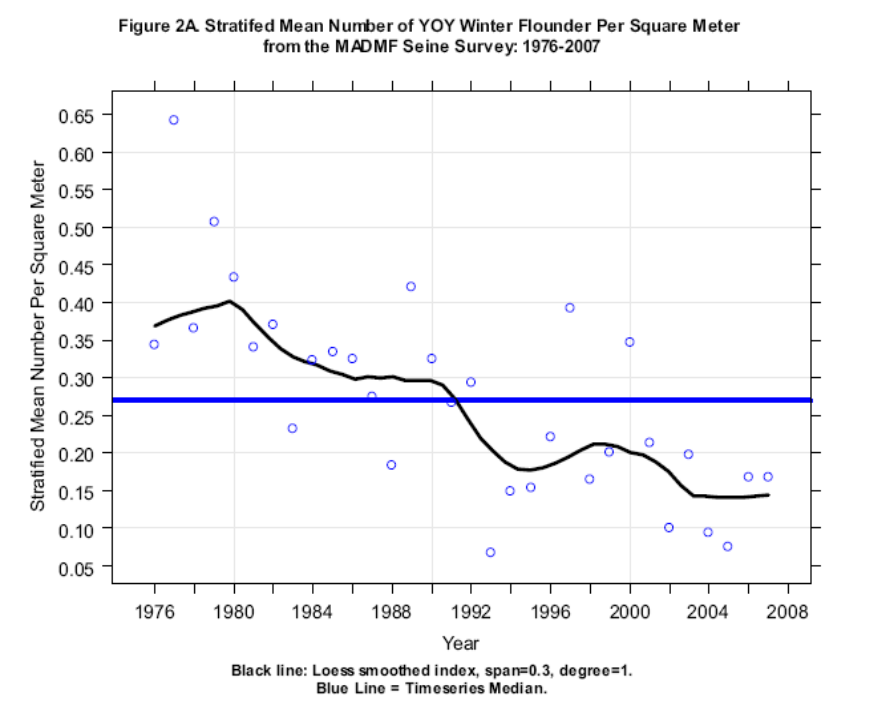
Fisheries Resource Concerns

- **Endangered Species**
  - Salmon
  - Sturgeon
- **Managed Species**
  - River Herring, Shad, Eels & Rainbow Smelt
  - Atlantic Cod
  - Winter flounder
  - Lobster
  - Horseshoe crabs
  - Shellfish
- **Habitat**
  - Seagrass
  - Saltmarsh
  - Mudflat
  - Rocky intertidal
  - Cobble bottom

Winter Flounder (*Pseudopleuronectes americanus*)

- **Habitat:** Estuaries, embayments and coastal waters. Eggs and juveniles are found on sand, silty-sand, mud, and gravel
- **Spawning period:** January to June

- Populations on the south side of the Cape among the lowest levels seen in 30 years (DMF seine survey)
- 3 of the last 6 years were the lowest on record in Massachusetts (DMF seine survey).



Physical and Biological Impacts of Dredging

Project action

- Physical removal of habitat via dredging
- Sedimentation/ turbidity
- Change in bathymetry, water flow and sediment transport
- Introduction of pollutants

Physical and Biological impact

- Physical harm or death
- loss of shelter and forage food
- Loss of spawning habitat
- Hypoxia
- Burial
- Entrainment of larvae
- Toxic effects of pollutants
- Impediment to passage

Time-of-Year Restrictions

- TOY restriction / environmental windows: date ranges when in-water, silt producing work should be avoided to minimize impacts to marine fishes.

- TOYs based on life history data, average temperatures, resource surveys, harvest data, scientific literature, local knowledge, historical record

- TOYs protect the critical life history stage most vulnerable to the project impact

Potential Restricted Times for Dredging

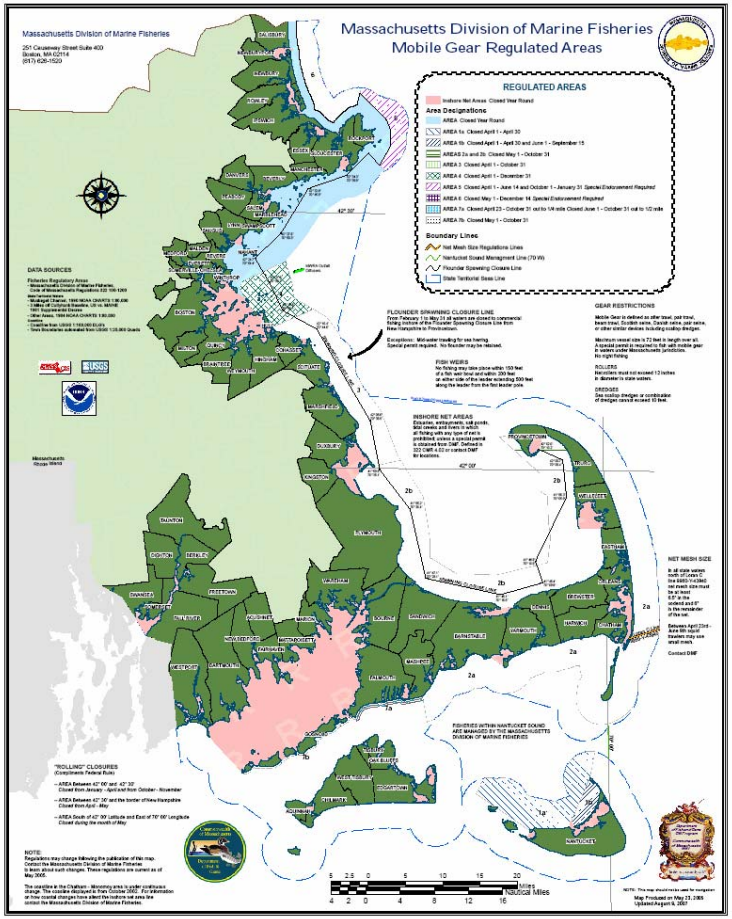
	J	F	M	A	M	J	J	A	S	O	N	D
Winter flounder		Feb 15 to June 30 Feb 1 to June 30 Jan 15 to May 31										
Horseshoe Crabs					May 1 to June 30							
Diadromous			May1 to July 15 Shad April1 to June 30 River Herring Feb 15 to May 31 Smelt									
Shellfish							June 15 to Sept 15					

History of Time-of-Year Restrictions

Fishing regulations to protect "ripe and spawning" winter flounder

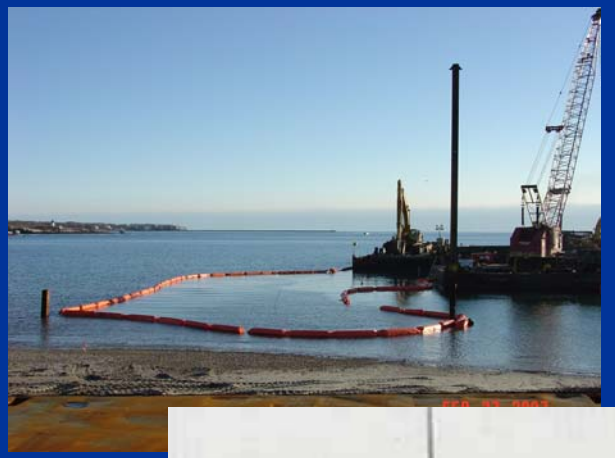
- 1960's Mobile gear prohibited in embayments (including Buzzards Bay)
- 1985 - Mobile gear (including scallop dredges) prohibited inshore of the spawning closure line to protect spawning aggregations from February 1 to May 31
- Recreational fishery closures for south and east of Cape Cod.

Mobile Gear Regulated areas



History of Time-of-Year Restrictions

TOY restrictions to protect winter flounder from impacts of coastal alteration projects - Dredging



- 1970's and 1980's - Fishery biologist's BPJ, case by case review, based on survey results, historical record, and published literature

- 1996 - Formalized TOY recommendations in a memo from DMF's Assistant Director to DEP "Leigh Bridges memo"

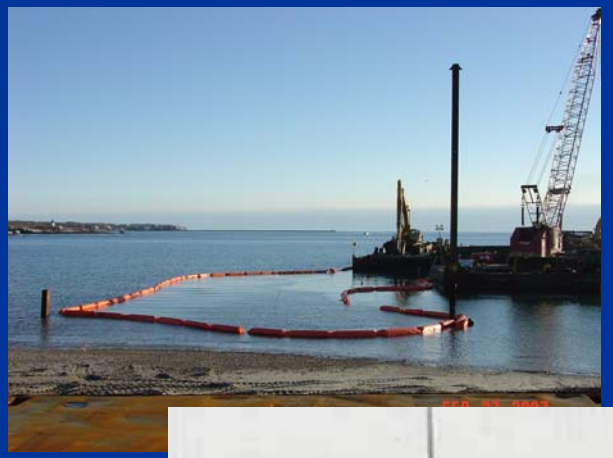
<u>Winter Flounder</u>
New England
spawning and larval development Jan - June

Boston Harbor*	Feb 15 - June 15
North of Cape Cod	Feb 1 - May 30
South of Cape Cod	Jan 15 - May 30

* Inner Harbor/Mystic/Chelsea Crk Feb 15 – June 30
(juvenile development)

History of Time-of-Year Restrictions

- 2005 internal review/ update of TOY recommendations



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Consistent with NMFS
Based on best available information

- 2009 Technical Report

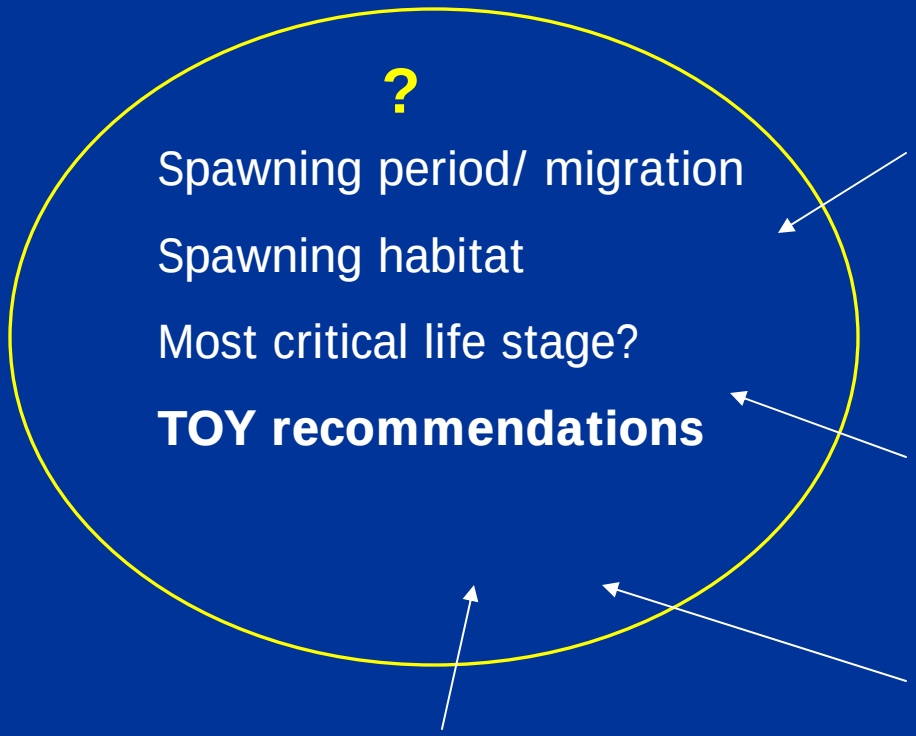
TOYs in Other States

- **RI** – "dredge rule" **October 1 to January 31** (considers WF, diadromous and shellfish)
- **NH** – "dredge rule" – **November 15 to March 15** (considers WF, diadromous and shellfish)
- **ASMFC** Winter Flounder Interstate Fishery Management Plan **January 15 to May 15** – Winter flounder TOY

- **Massachusetts** does not have a "dredge rule" and conducts case by case assessments of projects and resources to determine when, where and why a TOY is needed.

Winter Flounder
North Shore WF TOY - Feb 1 to June 30
South Shore WF TOY - Jan 15 to May 31

Marine Fisheries data/ lit. review



Peer reviewed Primary literature:
Manfredi and Oliveira 2008;
Witherell and Burnett 1993;
Howe et al. 1976

Reference docs:
Collette, B. B. , G. Klein-MacPhee. 2002. Bigelow and Schroeder's Fishes of the Gulf of Maine

Mass DMF trawl survey, smelt monitoring program, biologists BPJ

Technical reports:
NOAA Technical Reports (Seasonal distributions of larval flatfishes; NOAA EFH source document 1999)

ASMFC Fishery management reports

DMF Technical reports (tagging studies, DMF resource assessment trawl survey; smelt spawning habitat report; power plant entrainment reports)

R/V Gloria Michelle

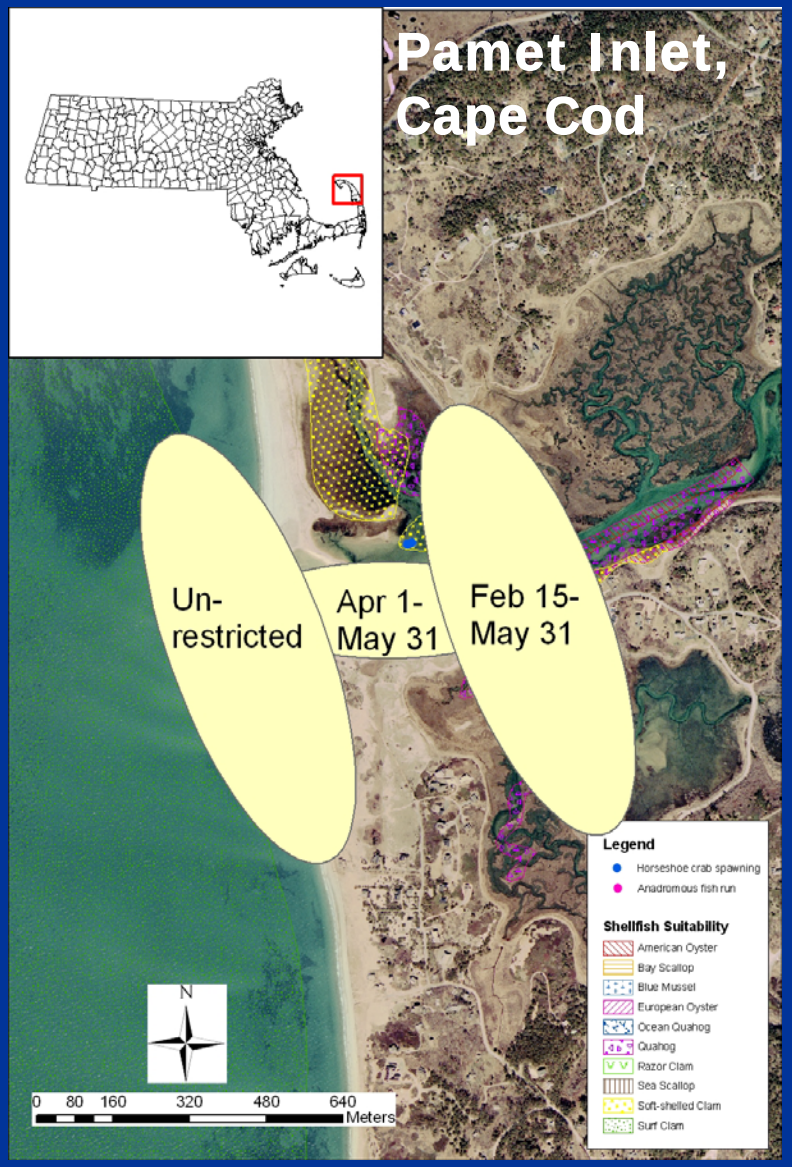
? Information gaps ?

- Physical impact of dredging on the ecosystem and the resulting effects on life stages of marine fish
- Differing sensitivities of life stages to varying conditions of temp., salinity, oxygen, turbidity etc.
- Assessment of the effectiveness of minimization techniques (silt curtains, project sequencing, Different dredging methods, blasting BMPs)

Adaptive Management

The TOY should match the project impact: the case for case-by-case

- Scale and methods
- Site hydrodynamics and sediment characteristics
- Working with towns and other state agencies to develop embayment-specific zones for TOYs (e.g. sequencing) on the Cape.
- An embayment specific TOY zoning plan could be done where sufficient information is available

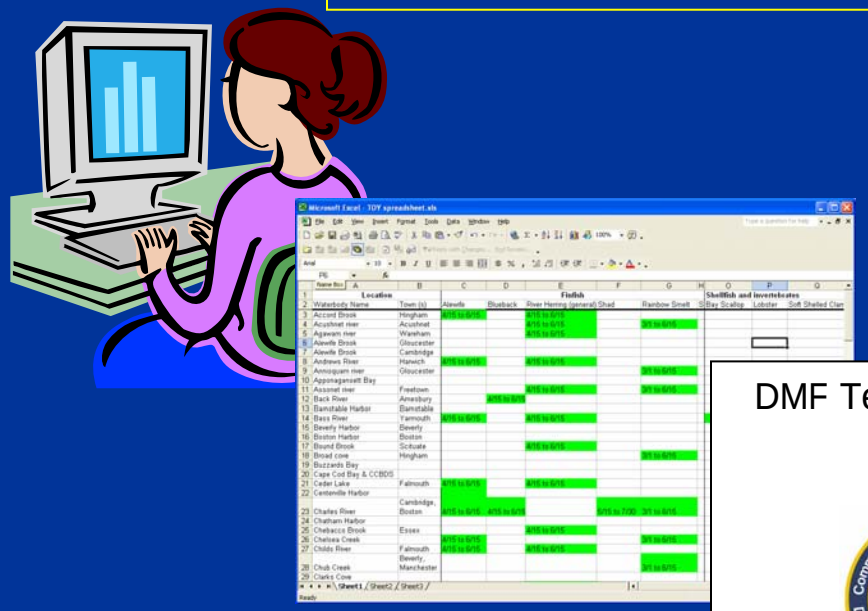


Time of Year Review and Technical Report

- Initially based on fishery closure regulations ---- surveys, harvest data, local knowledge, historical record
- Case by base and biologists BPJ
- Last updates informal 1996, 2005

Technical Report: Life history tables, references and TOY recommendations

Policy document: What, When Where, How and Why?



DMF Technical Report

2009

Time-of-year Restrictions


Questions?