Atlantic Herring Spawning Closures

Technical Committee
Review and Recommendations
Presented by Renee Zobel

Presented to ASMFC Atlantic Herring Section
August 4, 2015

Spawning Closure History				
	EM	CM	WM	NH/MA
FMP (1993)				
Closure	4 weeks	4 weeks	4 weeks	3 weeks
Tolerance	25%	25%	25%	25%
Default Date	Aug. 1	Sept. 1	Sept. 1	Oct. 1
Am. 1 (1999)				
Closure	~13 week closure for state waters in Area 1A			
Tolerance	20% for Area 1A			
Default Date	August 1 – October 31			

Spawning Closure History				
	EM	CM	WM	NH/MA
Tech. Ad (2000)				
Closure	4 weeks		4 weeks	4 weeks
Tolerance	20%		20%	20%
Default Date	Aug. 15		Sept. 1	Sept. 21
Amendment 2				
Closure	4 weeks		4 weeks	4 weeks
Tolerance	0%		0%	0%
Default Date	Aug. 15		Sept. 1	Sept. 21

Sampling Based Closure History

- **Addendum I to Am. 1 (2000):** Two, 50 fish samples within 7 days. Defaults if inadequate sampling.
  - Based on % in gonadal stages III-V spawn herring that are greater than 24 cm

- **Addendum V to Am.2 (2012):** Two, 100 fish samples within 7 days. Defaults if inadequate sampling.
  - Based on % in gonadal stages III-V that have reached:
    - ≥ 23 and < 28 cm with mean GSI of 15
    - > 28 cm in length with mean GSI of 20

Goals and Objectives

- **FMP (1993), Amendment 1 (1999)**:
  "To provide adequate protection for spawning herring and prevent damage to herring egg beds"

- **Addendum I of Amendment 1 (2000)**:
  "Specific measures which are designed to reduce the exploitation and disruption of herring spawning aggregations, while providing a limited opportunity to harvest herring during that time of the year"

- **Amendment 2 (2006)**: Same goal specified as in Am.1

Goals and Objectives Cont.

- All previous spawning closures were based on expert opinion, literature and public input
- Clarity is needed with respect to the following questions, is the goal to:
  1. Prevent spawning fish from being taken?
  2. Prevent fishing operations that will disrupt spawning activity?
  3. Or both?

Goals and Objectives Cont.

1. **Prevent spawning fish from being taken?**
   - Amendment 2 considerations:
     - Concerns about the 20% spawning tolerance provision (via public comments and the Law Enforcement Committee)
     - To reduce confusion, a timeframe where there would be no fishing in specific areas was preferred (i.e. zero tolerance provision in spawning closures)

Goals and Objectives Cont.

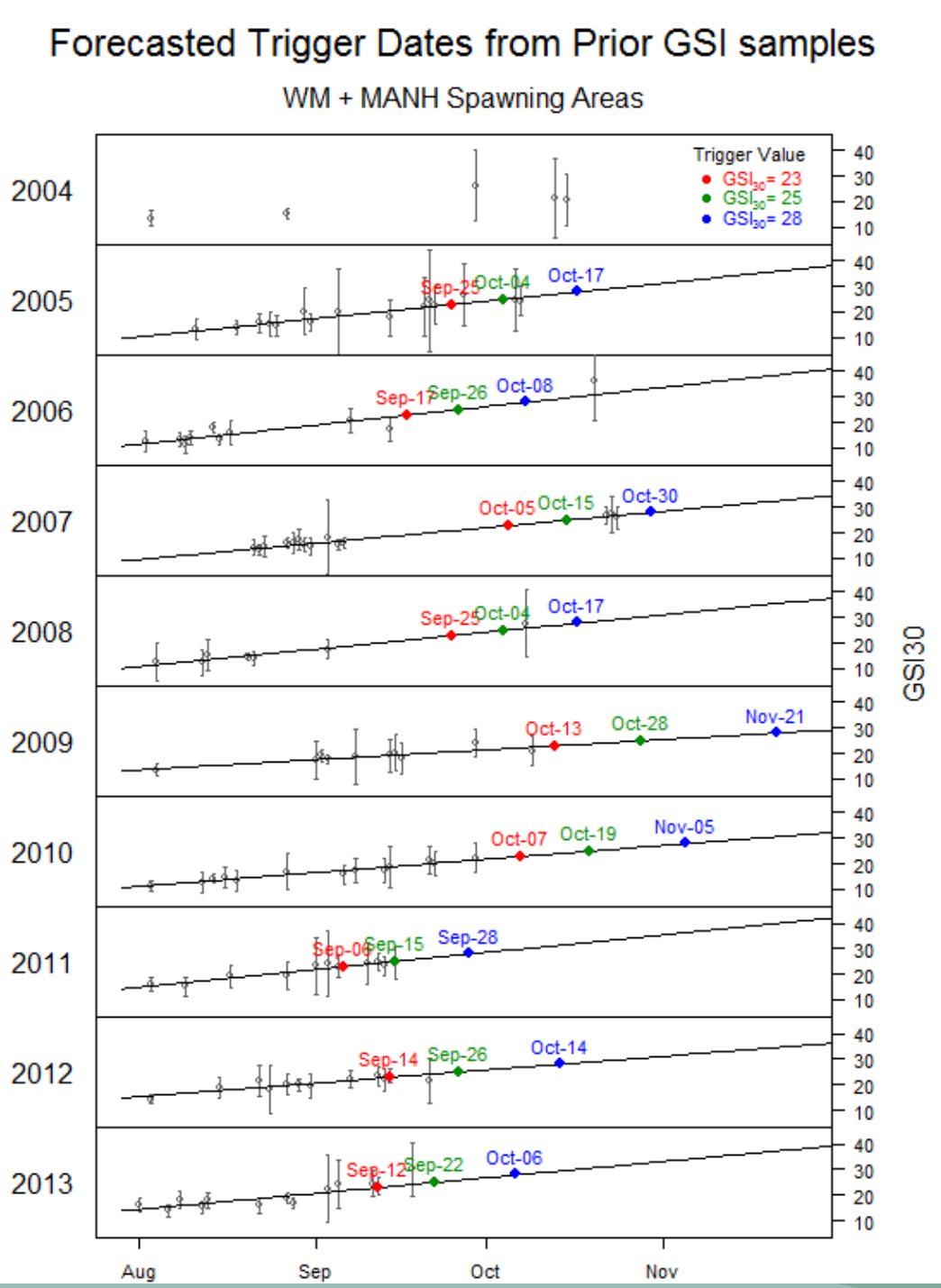
2. **Prevent fishing operations that will disrupt spawning activity?**
    - Anecdotal evidence suggests fishing may interfere with the spawning behavior of the herring not caught.

Spawning Closure Parameters

- Closure rules first established in the early 1990s
  - Based on limited data

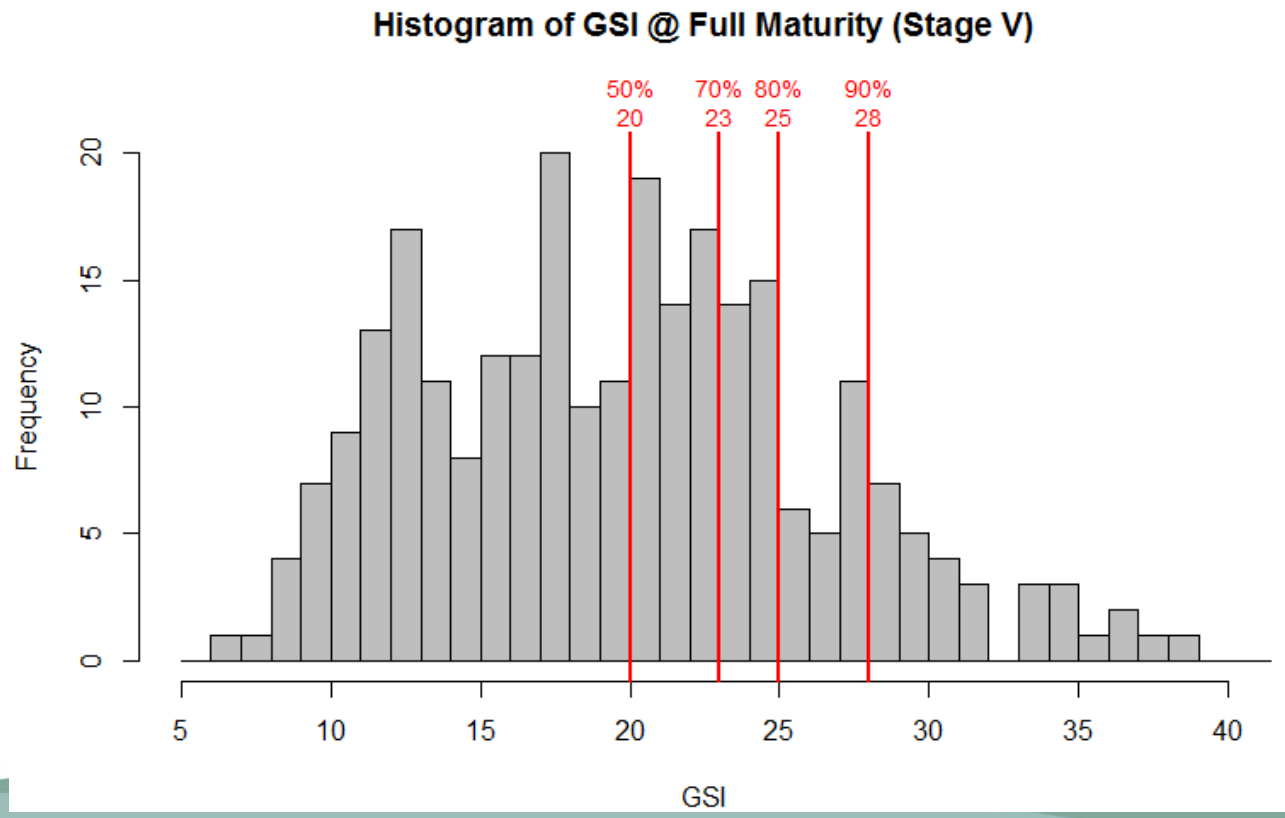
- The Herring PDT initiated a review of the parameters
  - TC analyzed over 10 years of GSI sampling data to examine effectiveness of the current closures and recommend more appropriate options

Methodology

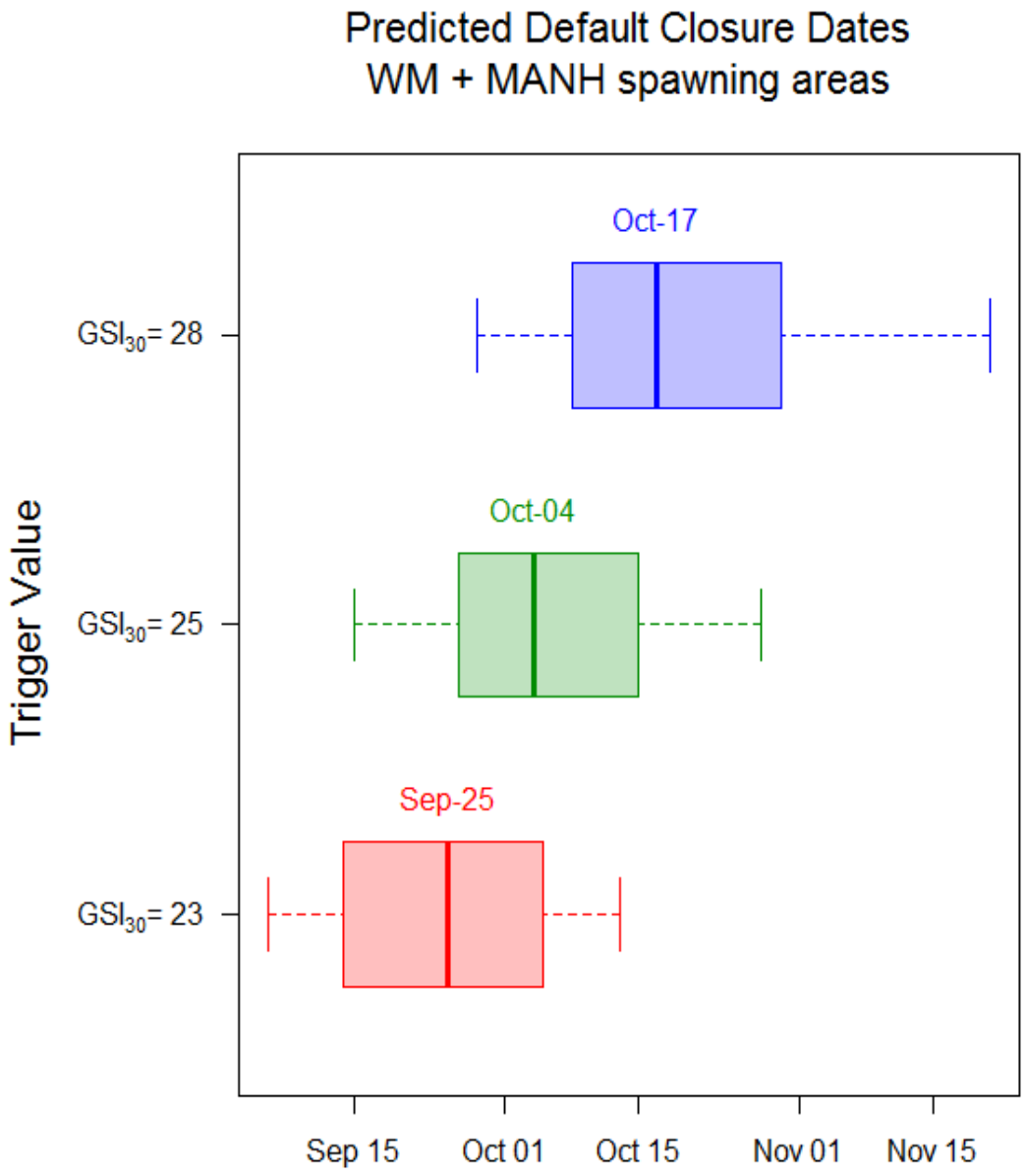


GSI - Risk Tolerance

- Lower GSI_{30}, more precautionary, earlier start
- Suggested GSI_{30} values
  - GSI_{30} 23 - 70% of mature fish spawning
  - GSI_{30} 25 - 80%
  - GSI_{30} 28 - 90%



Default Dates



Length of Closure

Study	Years	Methods	Area	Average First Spawning	Average Last Spawning	Average Season Length (days)
Boyar et al., 1973	1972	Maturity	MA-NH	Sep 10	Oct 20	40
Cooper et al., 1975	1974	Eggs (scuba)	MA-NH	Sep 29	Oct 25	26
McCarthy et al., 1979	1972-1978	Eggs (scuba, sub, grab)	MA-NH	Sep 20	Oct 30	40
Stevenson 1989	1983-1988	Eggs (lobster traps)	EM	Aug 28	Sep 20	40

Spawning Closures: TC Recommendations

1. **Process**
    - **Sampling data:** Analysis of GSI >10 year sampling data
        - GSI_{30} of 23, 25, or 28? Lower number = less risk
        - *TC recommends proposed forecasting protocol for spawning closures*

Spawning Closures: TC Recommendations

2. **Area**
   - **Western ME/MA-NH:** TC found no significant difference in timing of spawning
     - *TC recommends combining spawning closure areas*
   - **Eastern Maine:** Minimal literature and data.
     - *TC recommends status quo on area and default start date*

Spawning Closures: TC Recommendations

3. Default dates for Western ME/ MA-NH

- Under proposed methodology reliance on default dates from a lack of samples should diminish
- *TC recommends median values based on the Sections choice of GSI/risk tolerance*

Spawning Closures: TC Recommendations

4. Length of Closure

- Literature and sampling supports a 40 day closure
- *TC recommends 6 week closure*

Potential Benefits

- Sampling
- Cohesive and transparent closure method
- Advanced Public Notice
- Less reliance on default dates
- Accounting for documented inter-annual variability

Amendment 2 Considerations

- Public comments suggested spawning closures should be based on real-time data, fishermen specifically noted spawning closures occurred too early in some instances and were therefore not very effective

Additional Consideration

- Forecasted spawning closures may be earlier or later which has potential implications for gear conflicts and gear specific access to various spawning areas

Questions?