TC Report on Release Mortality Sensitivity Runs

Kevin Sullivan, TC Chair

Feb. 3, 2021

TC Task

- Conduct additional runs of the striped bass stock assessment model using different assumptions about the mortality rate on fish released alive by the recreational fishery

→ To explore the sensitivity of the model to this assumption

Release Mortality Scenarios

- TC discussed a number of potential scenarios to explore and decided on four that made the best use of the available catch-at-age data

- For each scenario, the total annual catch-at-age for each region was recalculated using the new assumption about the release mortality rate and the model was rerun
  - New values of the SSB and F threshold were also calculated for each scenario

Release Mortality Scenarios

- **Base case:** 9% release mortality rate for all regions and seasons
- **Low release mortality rate:** 3% for all regions and seasons (best case scenario rate)
- **High release mortality rate:** 26% for all regions and seasons (worst case scenario rate)
- **Seasonal release mortality rates:** 5% for January – June, 12% for July – December for both regions
- **Regional release mortality rates:** 16% for the Chesapeake Bay, 9% for the ocean for all seasons

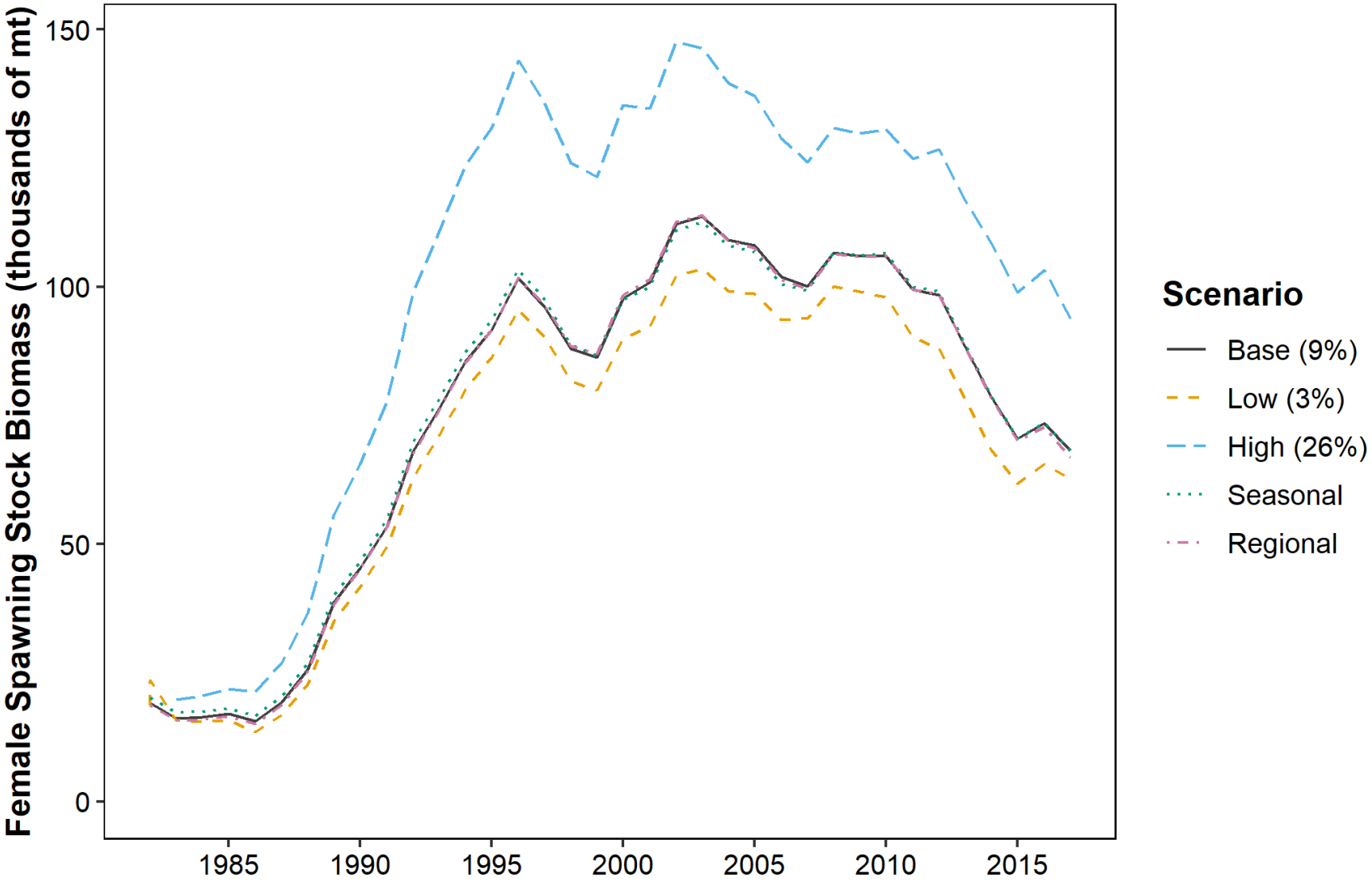
Results

- The low and high release mortality rate assumptions had the biggest effect on the model estimates

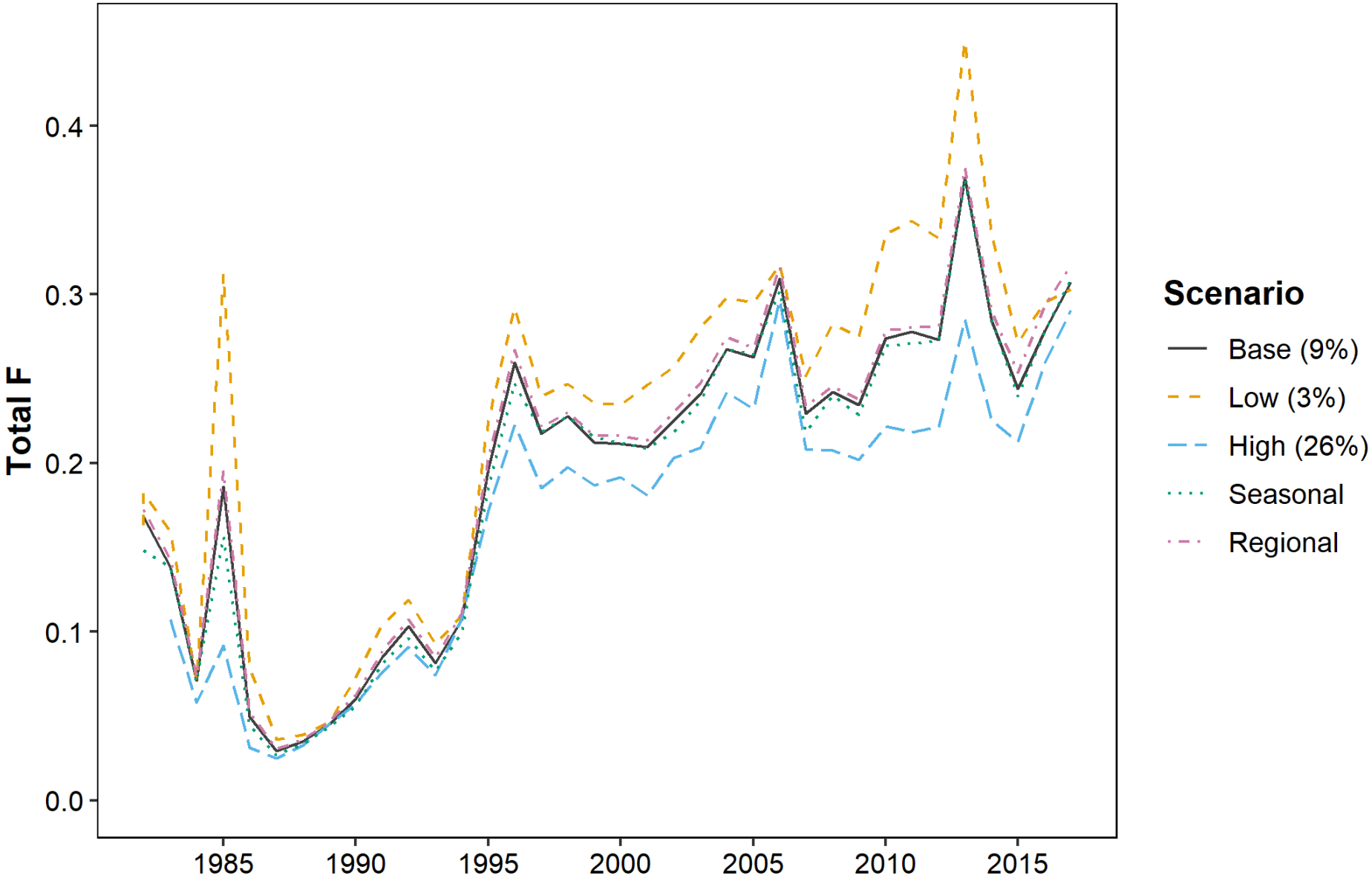
- The seasonal and regional scenarios were very similar to the base model run

- Stock status was the same across all scenarios

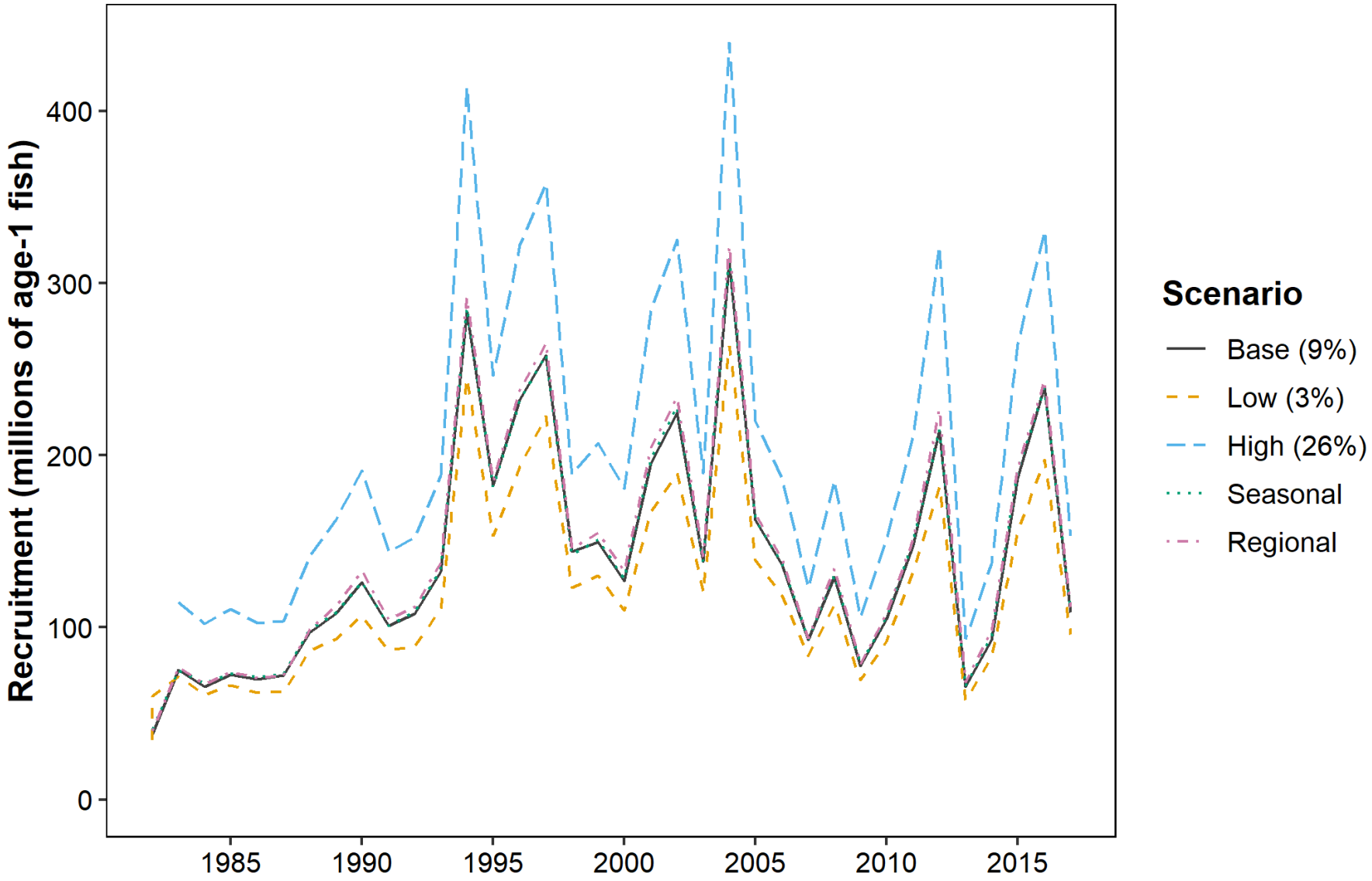
Female SSB


Female Spawning Stock Biomass (thousands of mt)
150
100
50
0
1985
1990
1995
2000
2005
2010
2015
Scenario
Base (9%)
Low (3%)
High (26%)
Seasonal
Regional

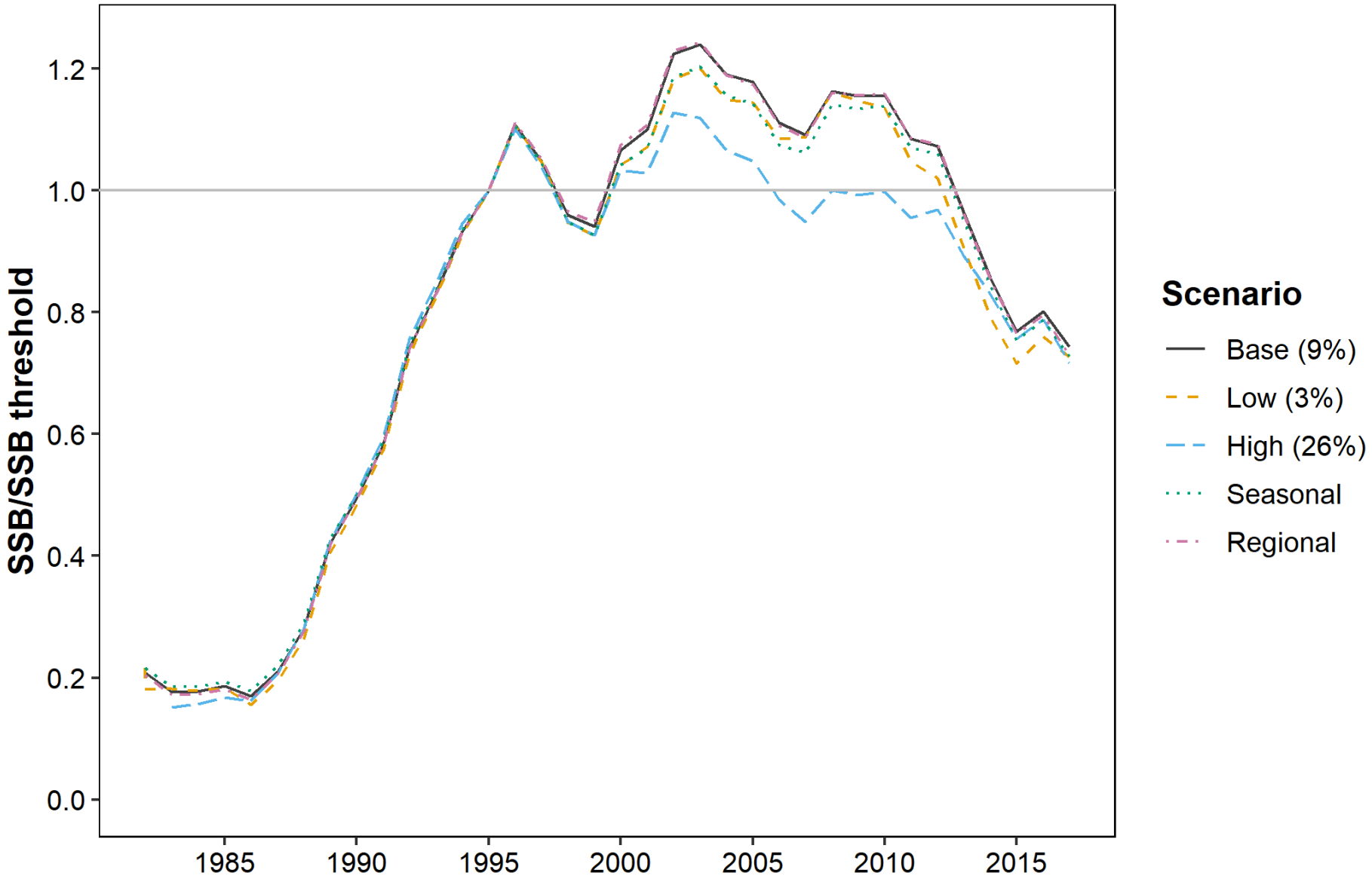
Total F


Total F
0.0
0.1
0.2
0.3
0.4
1985
1990
1995
2000
2005
2010
2015
Scenario
Base (9%)
Low (3%)
High (26%)
Seasonal
Regional

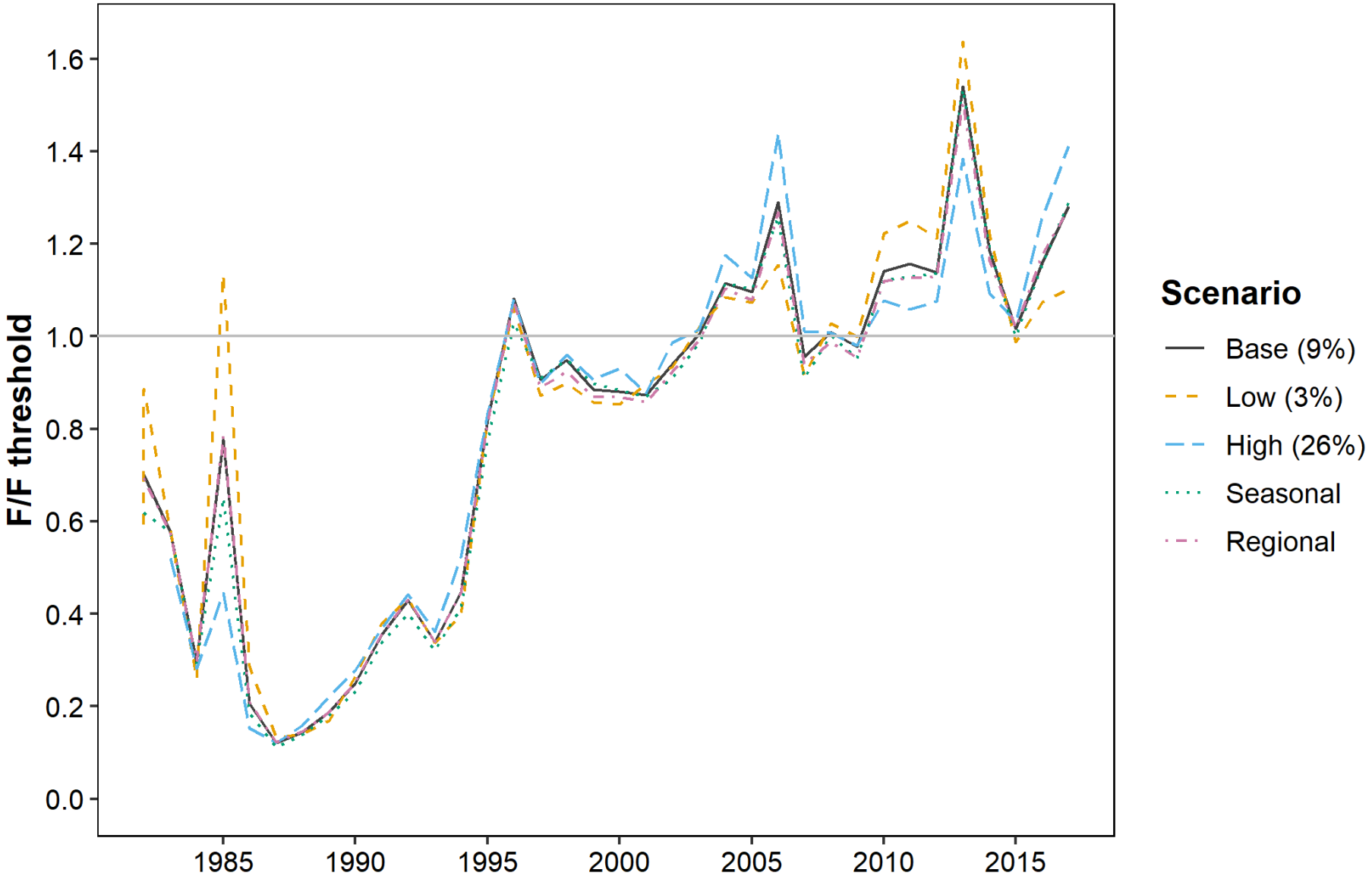
Recruitment



Stock Status: SSB



Stock Status: F



Conclusions

- Significant changes to the release mortality rate resulted in significant changes to the scale of the population, but did not affect the final stock status determination.

- The seasonal and regional release mortality rates had minimal impacts on population scale and stock status

Conclusions

- The TC did not explore time-varying release mortality rates, or different release rates for different sizes/ages of striped bass

- If the release mortality rate has been increasing or decreasing over time (due to warming water temperatures, changes in angler behavior, etc.), or if release mortality rates depend on the size of the fish, the results might be different

Conclusions

- Refining the estimate of the release mortality rate is not expected to have a significant effect on stock status from the assessment model, but the TC will work on it for the next benchmark

- **Reducing release mortality through management measures and angler education and outreach is still important for the recovery of the stock**

QUESTIONS

Striped Bass Assessment Update Timeline

Assessment Update Change

- Striped bass was scheduled to have an assessment update in 2021 (terminal year 2020)

- Given the uncertainty in the 2020 data, the TC recommends postponing the assessment update until 2022 (terminal year of 2021)
  - Better data collection
  - More years under the new management measures (Add. VI implemented in 2020)

Draft Amendment 7
Public Information Document

Striped Bass Management Board
February 2021

Amendment Process

1. Public Information Document (PID)
   - broad scoping document
   - provides public opportunity to identify major issues and mgmt. alternatives
   - asks public how they would like to see the fishery managed
2. Draft Amendment
   - a more focused document which details the suite of management options for each issue
   - provides public opportunity to comment on specific management options

Timeline

February 2021	Board reviews Draft PID and considers approving for public comment ***Current Step***
February - April 2021	Public comment on PID
May 2021	Board reviews public comment; directs Plan Development Team to develop Draft Amendment
May - September 2021	Preparation of Draft Amendment with input from Technical Committee and Advisory Panel
October 2021	Board reviews Draft Amendment and considers approving for public comment
November 2021-January 2022	Public comment on Draft Amendment
February 2022	Board reviews public comment and selects final measures for the Amendment; Policy Board and Commission approve the Amendment

Issues Currently in PID

- Fishery Goals and Objectives
- Biological Reference Points
- Management Triggers
- Stock Rebuilding Target/Schedule
- Regional Management
- Conservation Equivalency
- Recreational Release Mortality
- Recreational Accountability
- Coastal Commercial Allocation

Issue 2: Biological Reference Points

This fits our understanding of striped bass population dynamics, as the population was considered to be at a historically high level during that time period..

Given the 2018 benchmark assessment found overfishing was occurring and the SSB was below the target even during those years that the striped bass population was at a historically high level, the current reference points may be unattainable given current objectives for fishery performance.

Issue 5: Regional Management

Public Comment Questions:

-Should the Board consider any other areas (e.g. Delaware River or Hudson River) for separate regional management programs? If so, what level of data should support additional regional separation?

Issue 6: Conservation Equivalency

Statement of the Problem:

Both CE programs and coastwide measures have variable levels of effectiveness. A CE program may provide a higher level of conservation than the coastwide measure in a state. However, it is difficult to determine if a coastwide measure or a CE program has performed better or worse due to the challenge of separating the performance of the measure and outside variables, particularly on a state level when more than one state implements a CE program.

Issue 6: Conservation Equivalency

Public Comment Questions

- Should CE be limited to time and areas with unique ecological characteristics (e.g., presence of smaller striped bass)?
- Given state-level MRIP estimates are often less precise than regional or coastwide estimates, are these data used appropriately to develop CE proposals?
- Given the variability in recreational catch and harvest from year-to-year, how do you evaluate effectiveness of CE programs following implementation?

Issue 7: Recreational Release Mortality

Background:

If management action is taken to influence where mortality (harvest vs discard) is coming from, managers will have to consider the impacts those actions will have on the fishery. For example, management measures focusing on reducing discards could discourage participation from anglers that value food fish and negatively impacts the industry which caters to those anglers.

Public Comment Questions:

- Should management consider seasonal closures when environmental conditions are unfavorable to striped bass survival when released?

Issue 9: Coastal Commercial Allocation

Public Comment Questions:

- Should this Amendment address commercial allocation or be considered in a future management action
- Should regions with the necessary data be able to use a harvest control rule where commercial quotas are set annually based on exploitable biomass?

Issue 10: Other Issues

Other issues that have not been covered?

Examples of other issues include:

- Impacts due to climate change, including possible loss of prey due to changing environmental conditions

Other Changes

ERPs: pg 26

- A description of ERPs including the model, species included, management tradeoff the tool can inform, definition of the reference points and why striped bass is the focal species.

PDT Membership

- Derek Orner is no longer serving as the NOAA Rep on the Board or the PDT
- NOAA Fisheries has nominated Max Appelman to replace Derek on the PDT

Questions