



# **Scoping Oyster Fisheries Management Options**



# Background

## **Given the results of the stock assessment:**

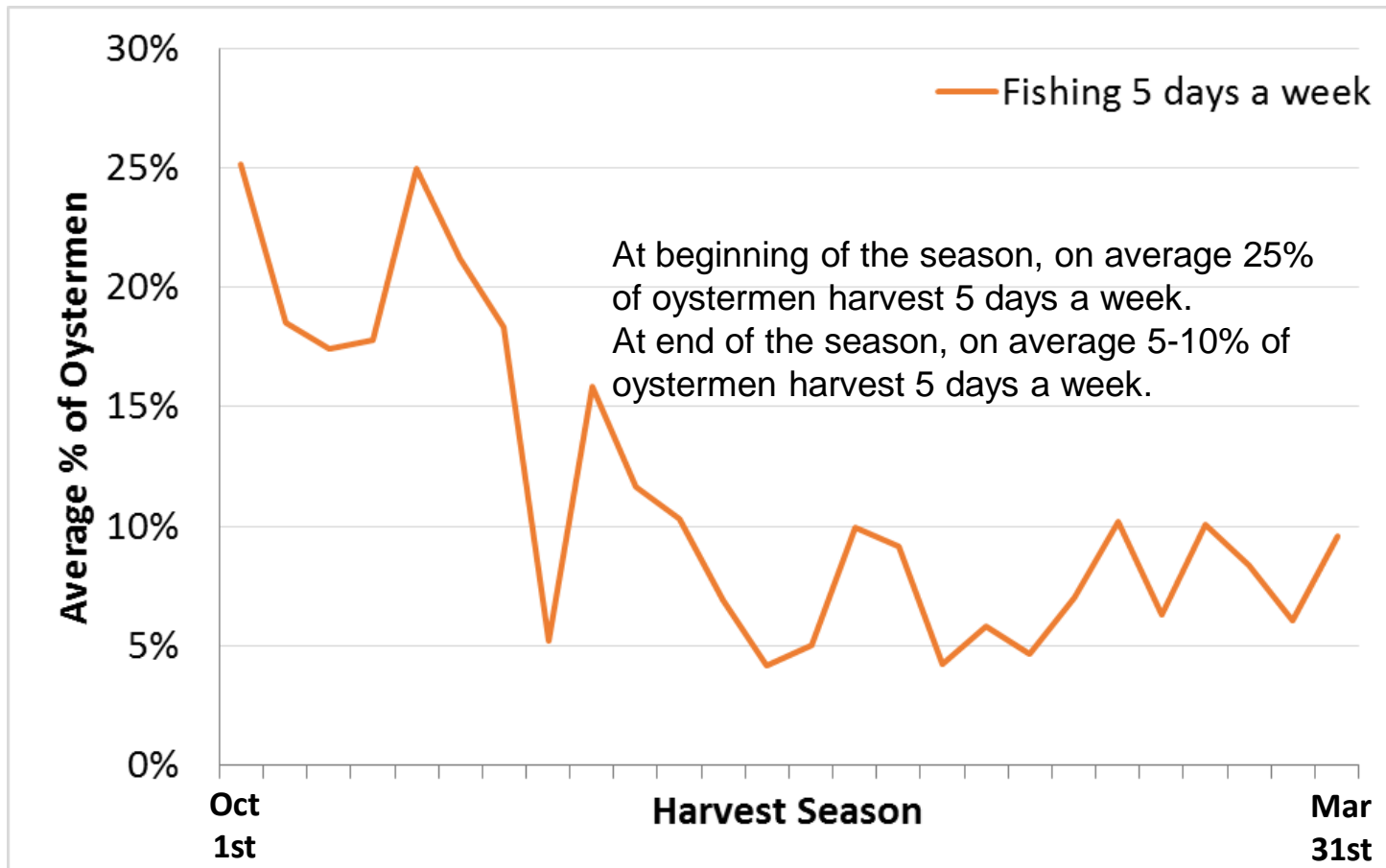
- Scoping different management strategies to manage the public fishery

## **Presentation Outline**

- Current Fishery Characteristics
  - Number of Days Fishing per Week
  - Number of Days Fishing per Season
  - Number of Bushels Harvested per Season
  - Number of Trips Harvesting the Bushel Limit
- Stock Enhancement Activities
- Open/Close Areas
- Time To Target
- Scoping Fisheries Management Strategies

# Fishery Characteristics

## Analysis: Number of Days Oystering per Week

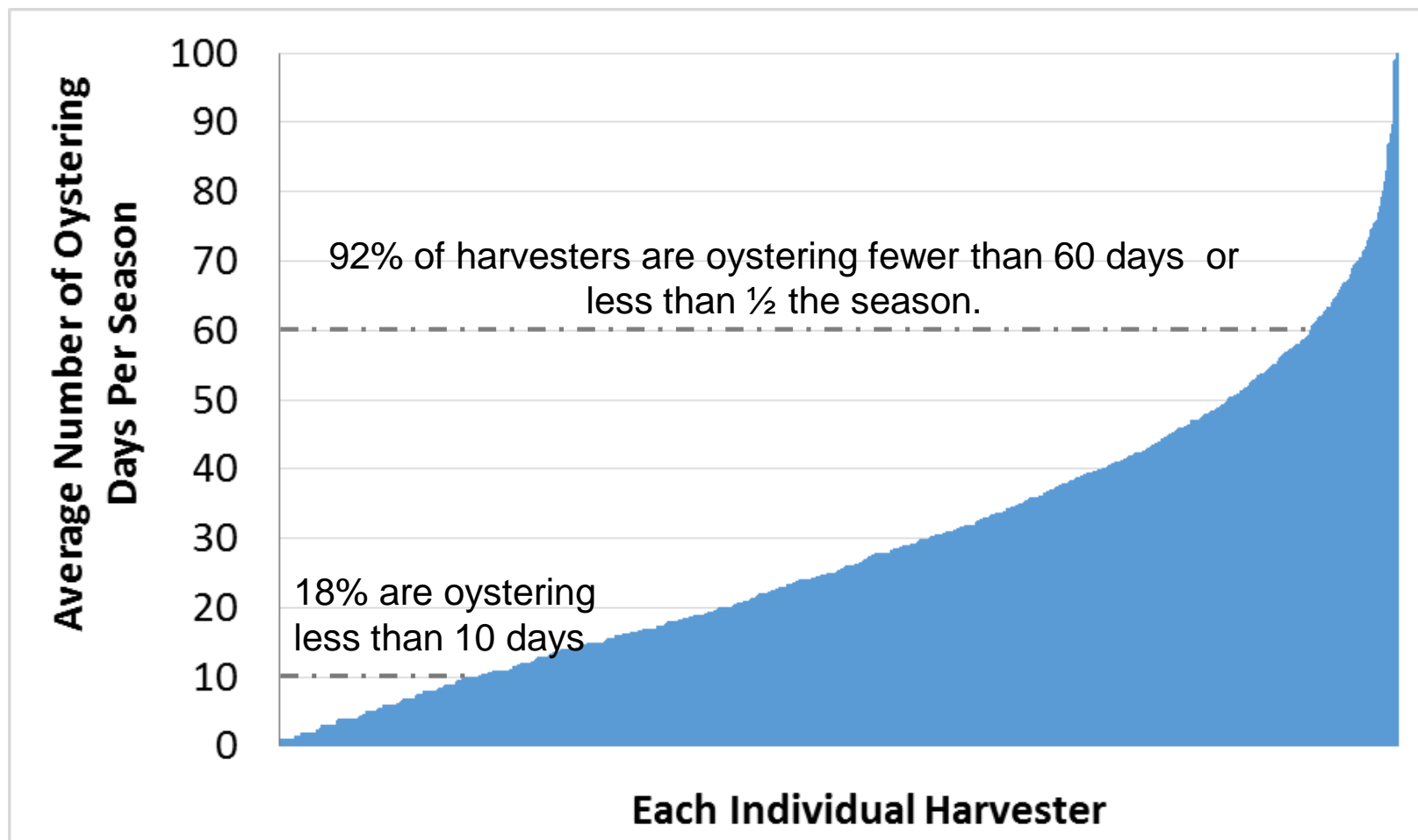


Using monthly harvester reports from 2010 to 2018

Current commercial season: Monday through Friday from Oct 1st to March 31st

# Fishery Characteristics

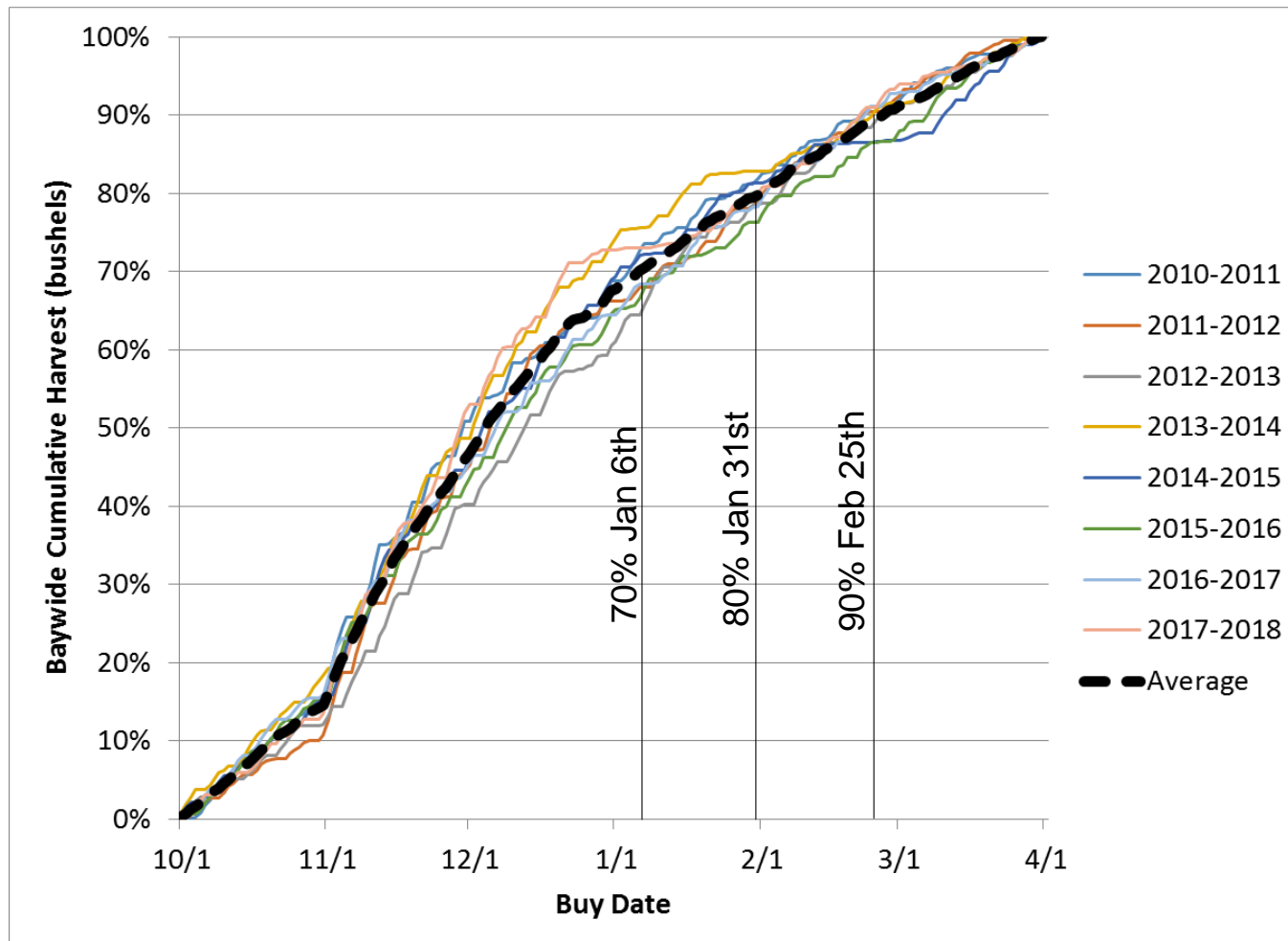
## Analysis: Number of Days Oystering per Season



Using monthly harvester reports from 2010 to 2018. On average there is 120 days per season.

# Fishery Characteristics

## Cumulative Baywide Harvest





# Season and Day Limits

## Considerations with Reducing Season or Day Limits

### Shorten Season:

- Enforceable
- Effort may concentrate into shorter time period, minimizing impact
- If implemented alone, substantial change needed (>1 month) to be effective
- Reduced flexibility
- Market impacts of shortened season

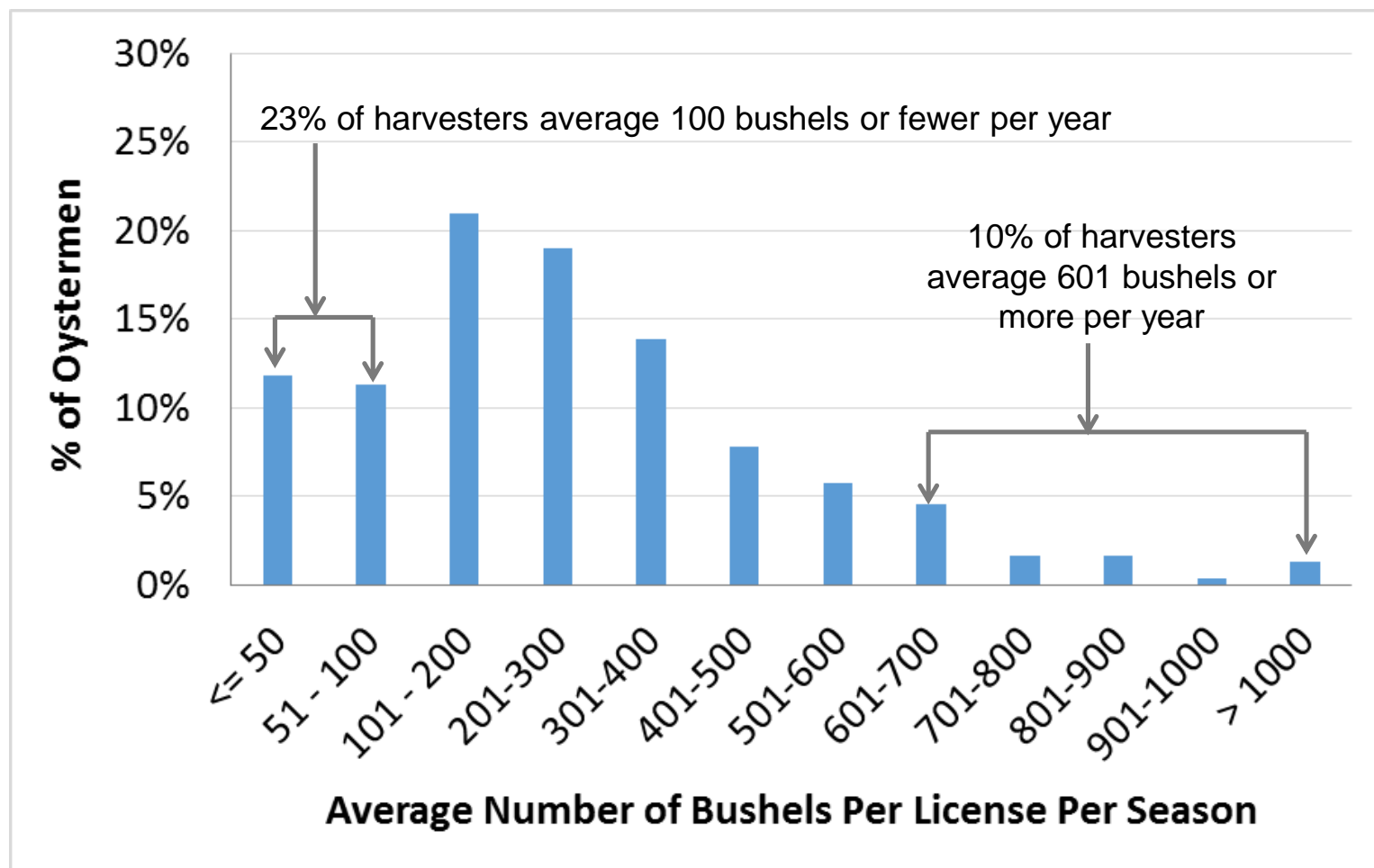
### Reduce number of days per week:

- Enforceable
- Could force fishing in bad weather
- Reduced flexibility
- More boats trying to fish at the same time
- If implemented alone, given current behavior, 1 day reduction would have little conservation impact

Estimation of conservation effects assumes consistent fishing behavior or it is difficult to predict how fleet will react to changes.

# Fishery Characteristics

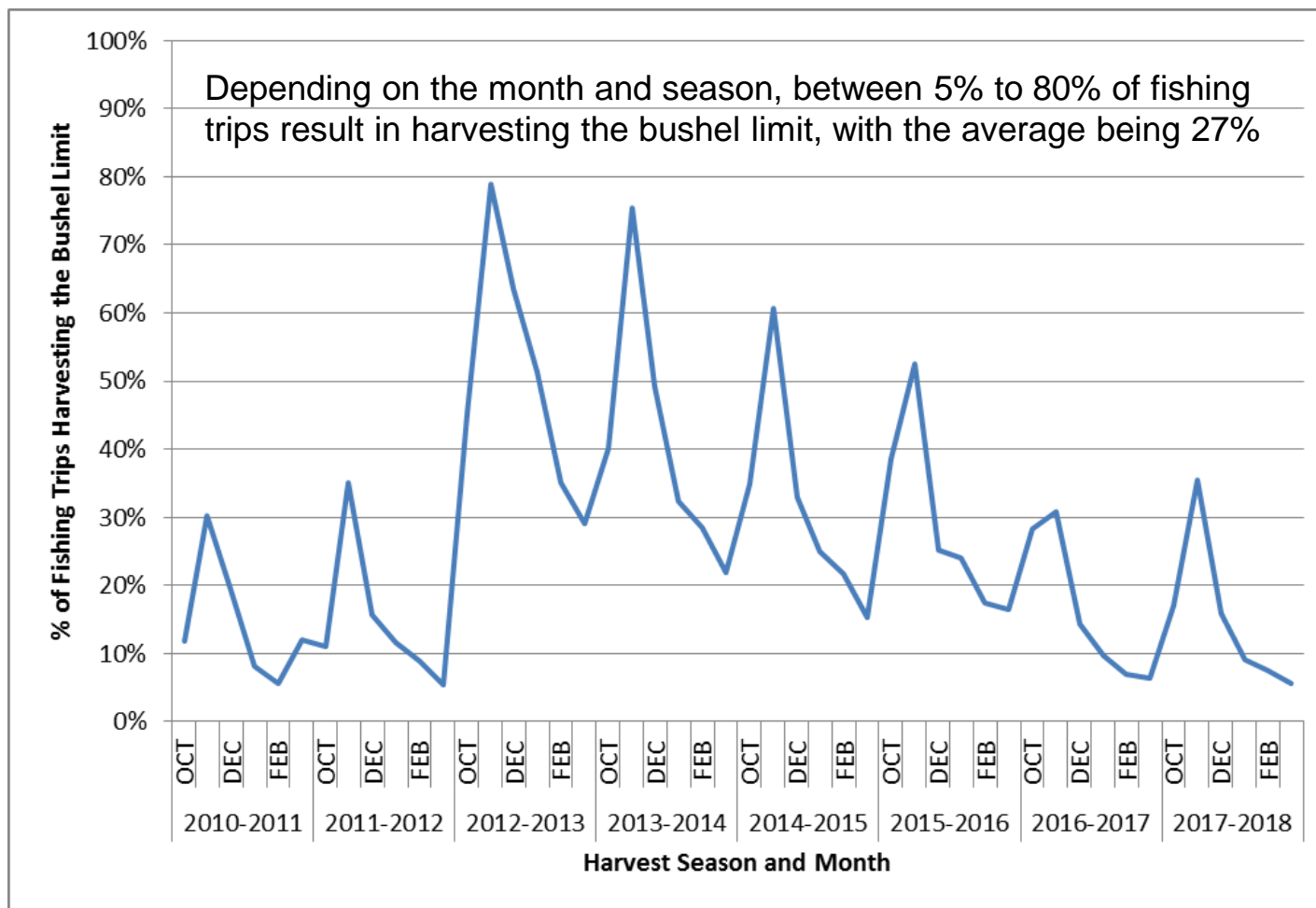
## Analysis: Bushels per Harvester



Using monthly harvester reports from 2010 to 2018. Average bushel price since 2010 is \$40.

# Fishery Characteristics

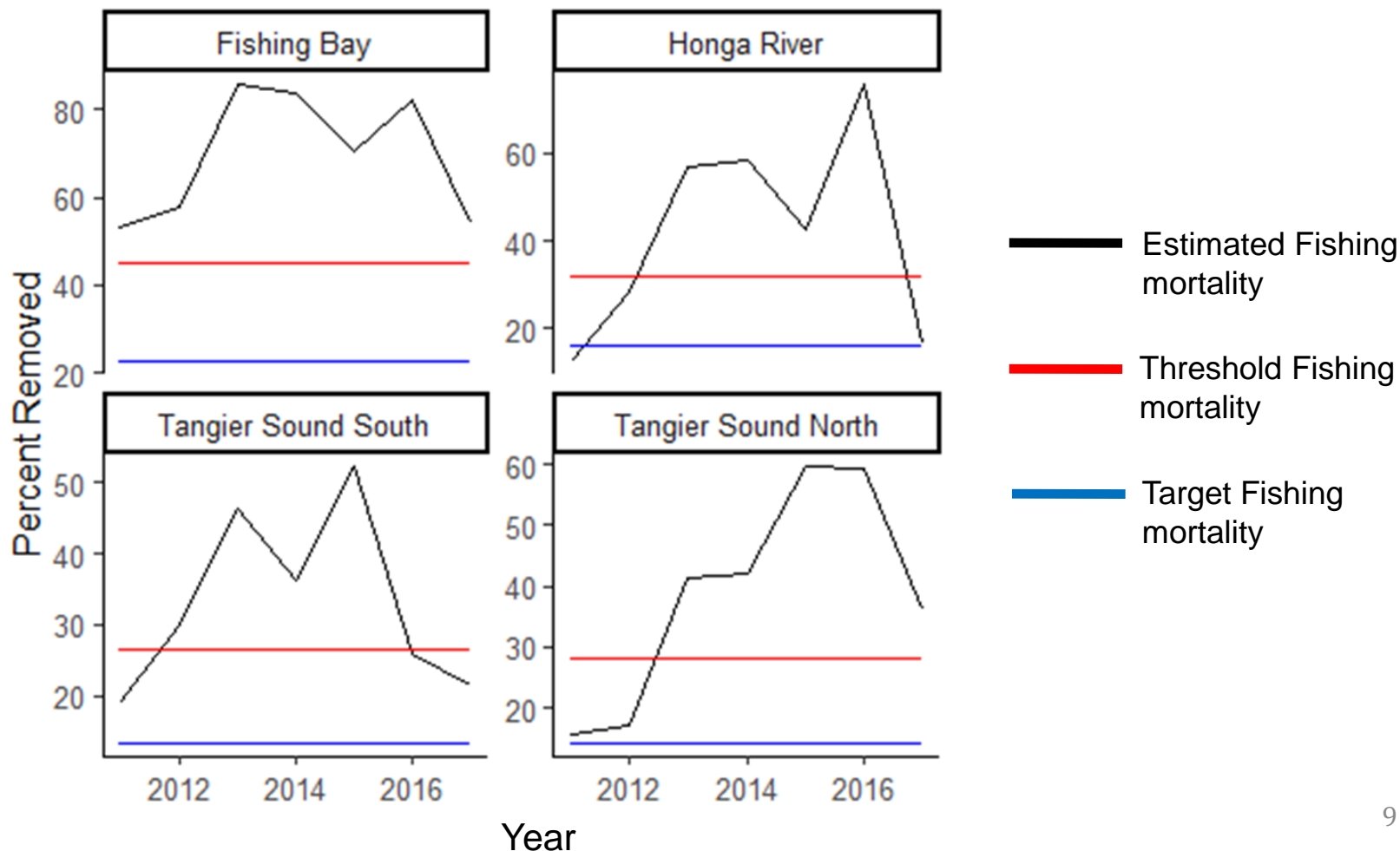
## Analysis: Fishing Trips Harvesting the Bushel Limit



Using monthly harvester reports from 2010 to 2018.

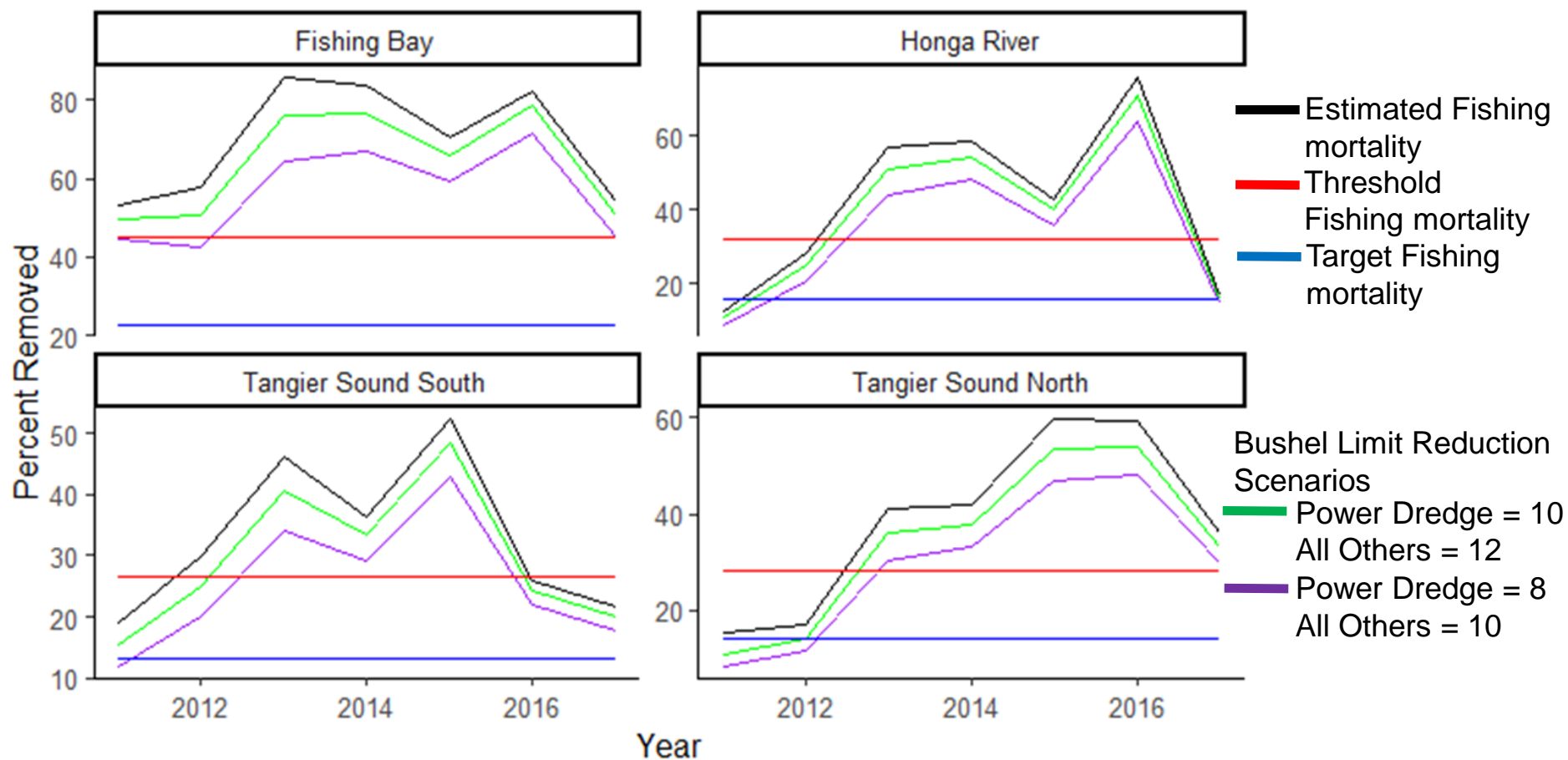
# Stock Assessment

## Harvest Rates since 2010: Tangier Sound Region



# Bushel Analysis

## Analysis: Impact of different limit scenarios on harvest rate



Current limits: Power Dredge = 12/bu/lic/day; Hand Tong, Patent Tong, Diver = 15/bu/lic/day

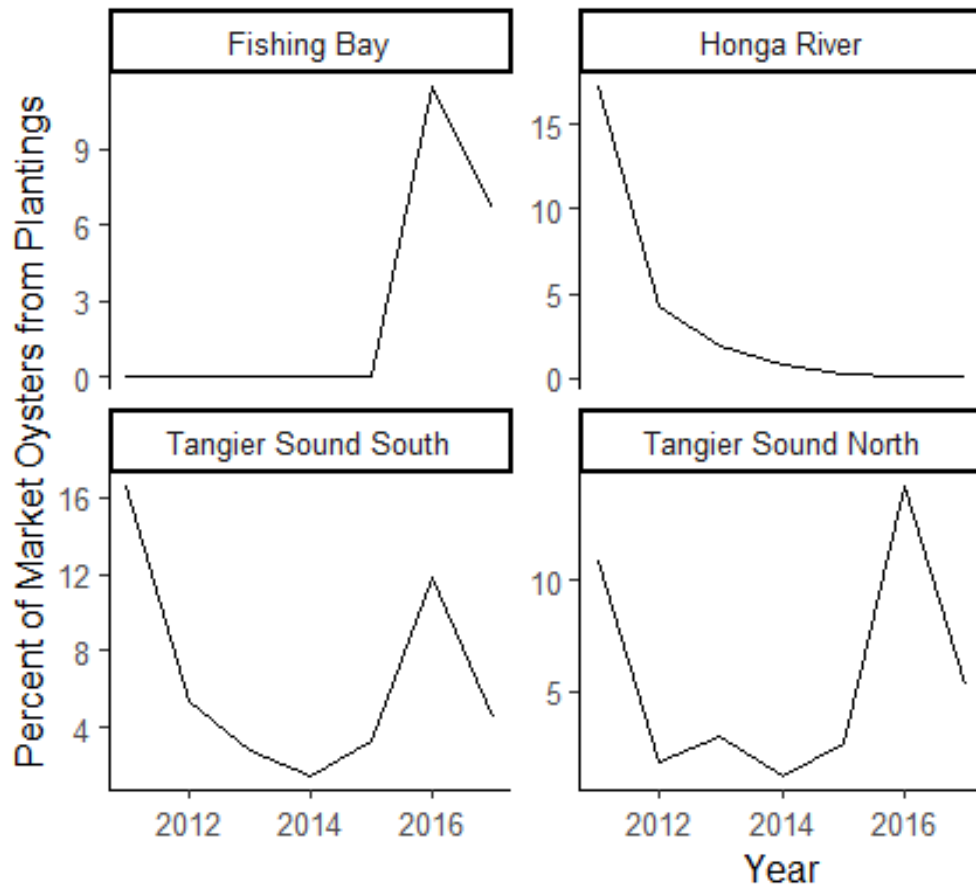


# Bushel Limits

## **Considerations with Reducing Bushel Limits**

- Bushel limits have largest impact on small number of highliner oystermen
- If implemented alone, unpredicted influx of latent effort can reverse conservation effects
- Market impacts from external product
- Stable internal market
- Not as easy to enforce as season/day limits

# Stock Enhancement



Currently limited by:

- Funding (current revenue from bushel tax, surcharge, and grant from MDOT)
- Funding allocation to each county
- Larvae production by hatcheries
- Shell needed for spat-on-shell production
- Wild seed purchased from Virginia
- Natural spat set in Maryland to create functioning seed areas

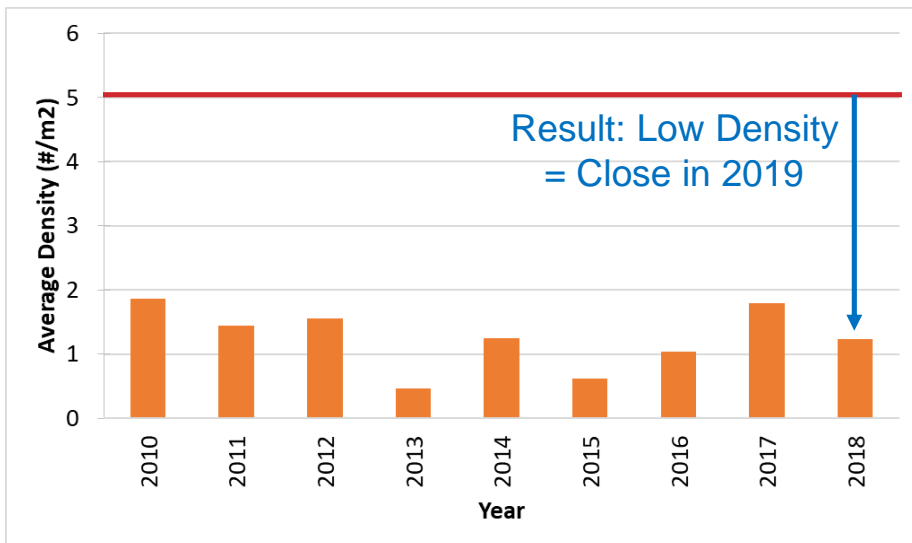


# Open/Close Areas

- Examine areas that are fishing over the threshold rates to temporarily close to harvest. Would re-open when the area meets pre-determined trigger criteria.
- Develop triggers to use when determining when to temporarily close and then re-open an area.
- Triggers could be NOAA Code specific and account for:
  - small oysters that may become market-size in future
  - average mortality rates
  - population size
- Could use Fall Oyster Dredge Survey to assess annually

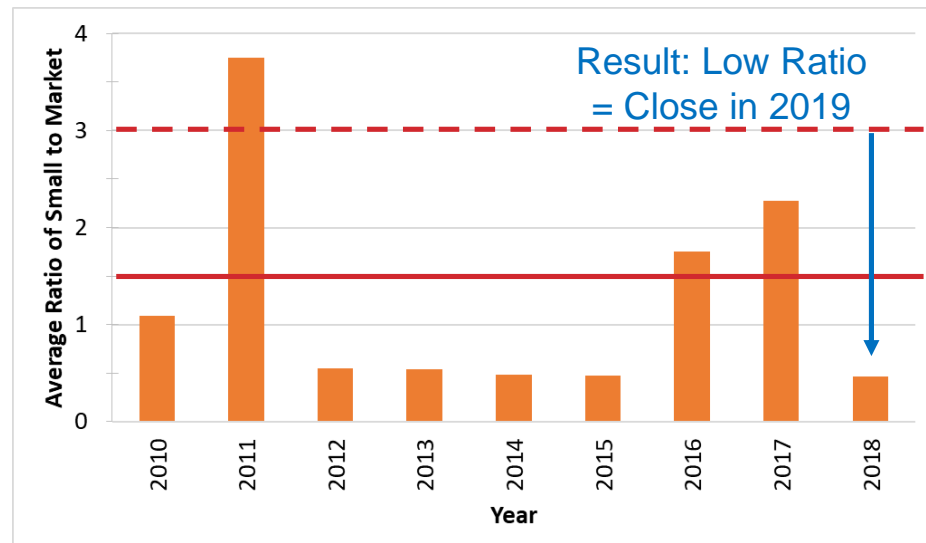
# Open/Close Areas

**Example:** Smith Creek (NOAA Code 086)



Trigger: Small and Market Density

- Based on 1906-1912 Yates Survey, an oyster bar has a minimum of 5 oysters per m<sup>2</sup>
- Trigger: If density is less than 5, close area



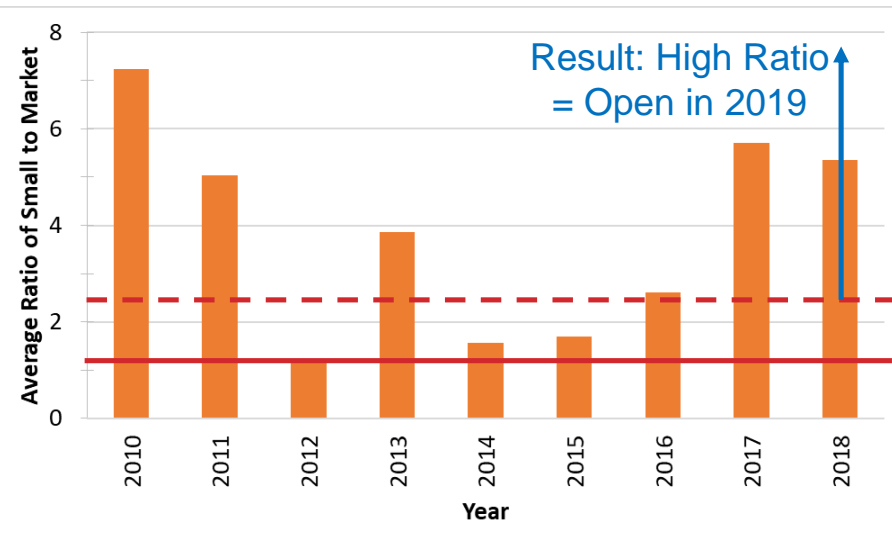
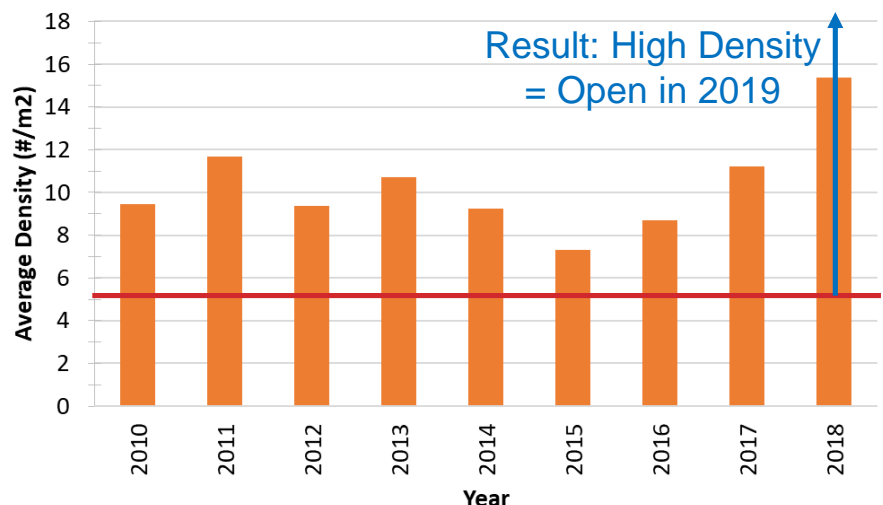
Trigger: Ratio of Smalls to Markets

- Ratio of 1.5 assumes replacement of each market by smalls using the average mortality (19%) of Smith Creek
- Ratio of 3 assumes replacement plus some increase in markets

Trigger for temporarily open/close: Need to meet density AND ratio trigger  
Smith Creek Trigger Result: Close area in 2019 and re-assess after 2019 survey

# Open/Close Areas

**Example:** Broad Creek (NOAA Code 537)



Trigger: Small and Market Density

- Based on 1906-1912 Yates Survey, an oyster bar has a minimum of 5 oysters per m<sup>2</sup>
- Trigger: If density is less than 5, close area

Trigger: Ratio of Smalls to Markets

- Ratio of 1.2 assumes replacement of each market by smalls using the average mortality (10%) of Broad Creek
- Ratio of 2.5 assumes replacement plus some increase in markets

Trigger for temporarily open/close: Need to meet density AND ratio trigger  
**Broad Creek Trigger Result: Open area in 2019 and re-assess after 2019 survey**



# Open/Close Areas

## Considerations with Open/Close Areas

- Enforceable
- Fishing fleet will move into another area not closed → increases harvest pressure in other areas
- May not decrease overall harvest pressure and effort baywide
- Could be used to direct stock enhancement activities



# What's next

- Tonight scoping options for management action based on fishing rates from stock assessment
- New measures this for 2019-2020 season
- Re-run the stock assessment every 2-3 years to assess impacts of management action
- Adjust as needed
- Goal to be fishing consistently around the target level within 8 – 10 years



# Scoping

DNR is considering fishery management actions related to the Oyster Management Plan and results of the Stock Assessment. These management strategies can be used in combination and with stock enhancement.

Scoping combinations of changes to regulations are:

- Public notice ability to change season/day limits, bushel limits, close/open areas within the public fishery
- Bushel Limits
  - Range of 50 bu/lic/day to 150 bu/lic/day for skipjacks
  - Range of 8 bu/lic/day to 12 bu/lic/day for power dredge
  - Range of 8 bu/lic/day to 15 bu/lic/day for all other gears
- Season Limits: range of 3 month season to 6 month season
- Day Limits: range of 3 days to 5 days a week

Scoping now so that regulations can be in place by Oct 1<sup>st</sup> 2019

# Timeline

## April 2019

- Review and scope draft management regulations
- Apr 15: OAC
- Apr 15: SFAC
- Apr 18: TFAC



## May 2019

- Prior to May 15: Scoping period ends
- May 17: Proposed regulations submitted to AELR



## June 2019

- June 3: Regulations sent to DSD
- June 21: Regulations appear in Maryland Register (Public Comment Period begins)



## October 2019

- Oct 1: beginning of oyster season
- Oct 4: Scheduled effective date



## August 2019

- Aug 6: DNR adopt proposed management regulations
- Aug 7: Final action due to DSD
- Aug 16: Final action appears in the Maryland Register



## July 2019

- Jul 22: Public comment period ends

# Questions?