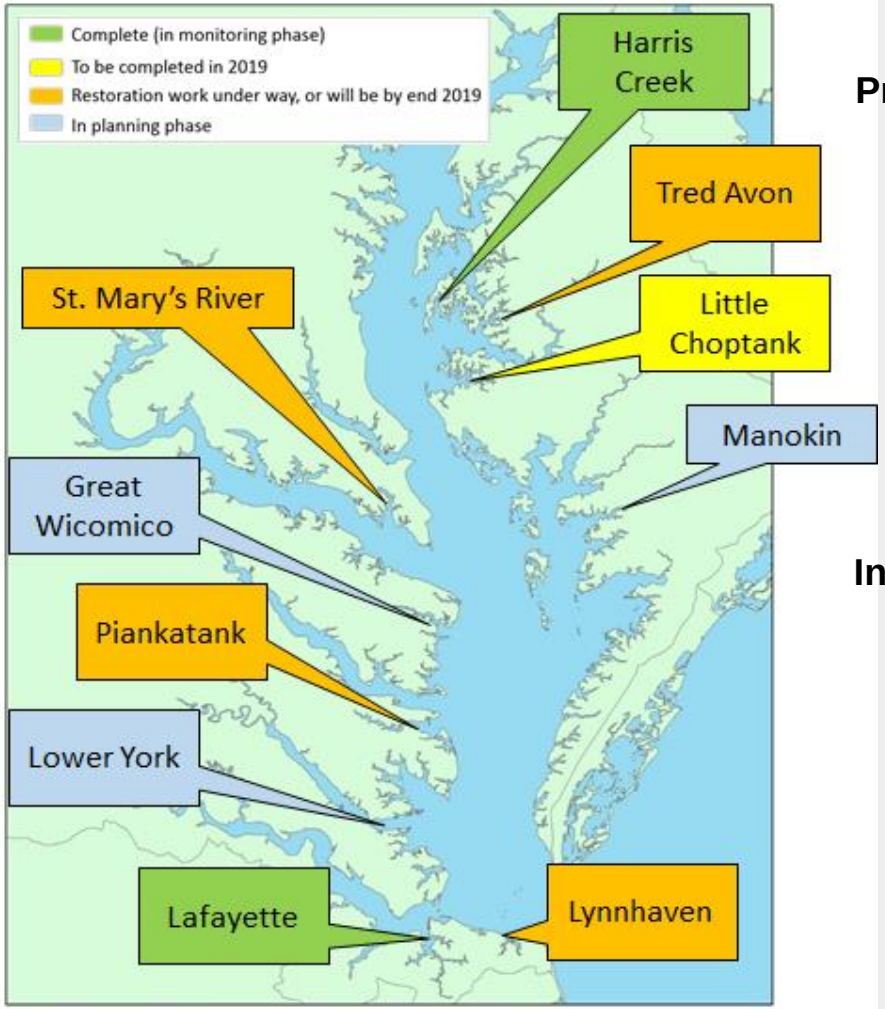
Updates for the Chesapeake Bay Program Management Board

July 11, 2019

2014 Chesapeake Bay Watershed Agreement Oyster Outcome:

Restore native oyster habitat and populations in 10 tributaries by 2025 and ensure their protection



Progress Toward the Goal

- Established metrics, what it means to restore
- Created blueprints (acres vary from ~100-400)
- Selected tributaries (Manokin is the final selection!)
- Conduct restoration
- Follow up with 3 and 6 year monitoring
- Approximately halfway complete 800 of ~1600 acres

Incredible Level of Success

- Harris Creek at 350 acres considered World's largest
- International attention
- 98% of reefs are meeting the minimum threshold
- 75% meeting higher target
- Lafayette recently completed in VA
- Several more on the cusp
- In VA, have years of partner efforts to thank

Looking Forward

Exciting opportunity for nutrient removal crediting

- Aquaculture already established
- Expert panel recommends interim BMP for restoration
  - 54 lbs N/acre for denitrification
  - 24 lbs N/acre for assimilation
- Working with WQGIT, FGIT and modeling team to move forward
  - Tributary specific monitoring needed to finalize and consider credit
- Opportunity to connect TMDL and living marine resources. A good news message to garner public support for TMDL, enhance economic opportunity and expand fish habitat through restoration.

Challenge to meeting the Oyster Restoration Goal

Funding

- Oyster restoration is expensive
- Expenses vary by methodology and therefore by tributary
- Spat on shell costs likely covered in MD, but reef construction will prove expensive
- VA has multiple techniques, but all involve some level of reef construction.
- Bottom Line: We need to raise approximately $50M to complete the work and we’re funding projects at ~$3M-$5M annually.

Blue Crab

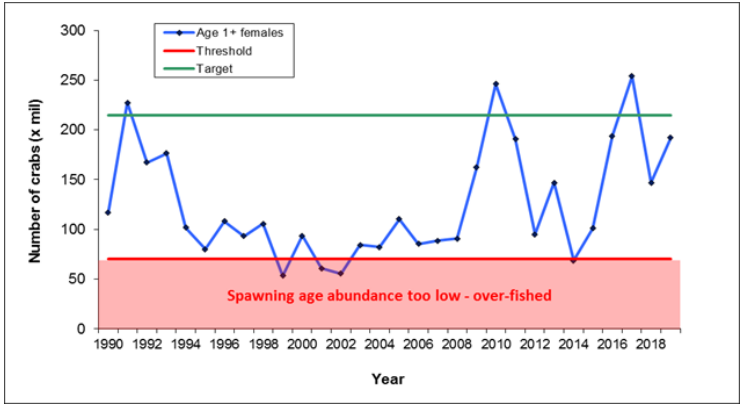
2019 Stock Status

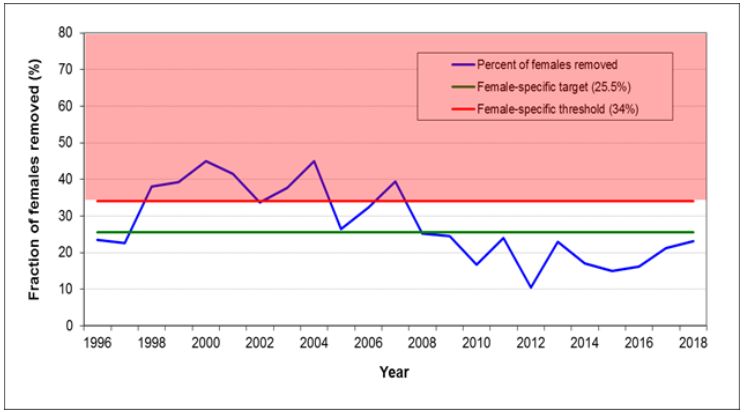
Stock Assessment Update

2019 Blue Crab Stock Status

- Female abundance = 191 million
  - Target = 215 million
  - Threshold = 70 million
  - All ages, male and female are up 60%
- Exploitation rate = 23%
  - Target = 25.5%
  - Threshold = 34%
- **Not depleted and overfishing not occurring**
- Overwintering mortality was also low

CBSAC recommendation: Management restrictions are not warranted, but jurisdictions should maintain a cautious, risk-averse approach.





Stock Assessment Update

Purpose: To examine the suitability of the model and reference points generated in the 2011 benchmark stock assessment for data through 2017.

Methods:

- Included WDS data through 2017 and harvest data through 2016
- Conducted sensitivity analyses using same model and parameters as 2011 assessment

Results:

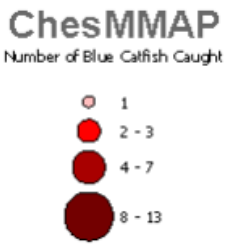
- Underestimation of F abundance and overestimation of M abundance
- Minor differences in reference points BUT does not change stock status

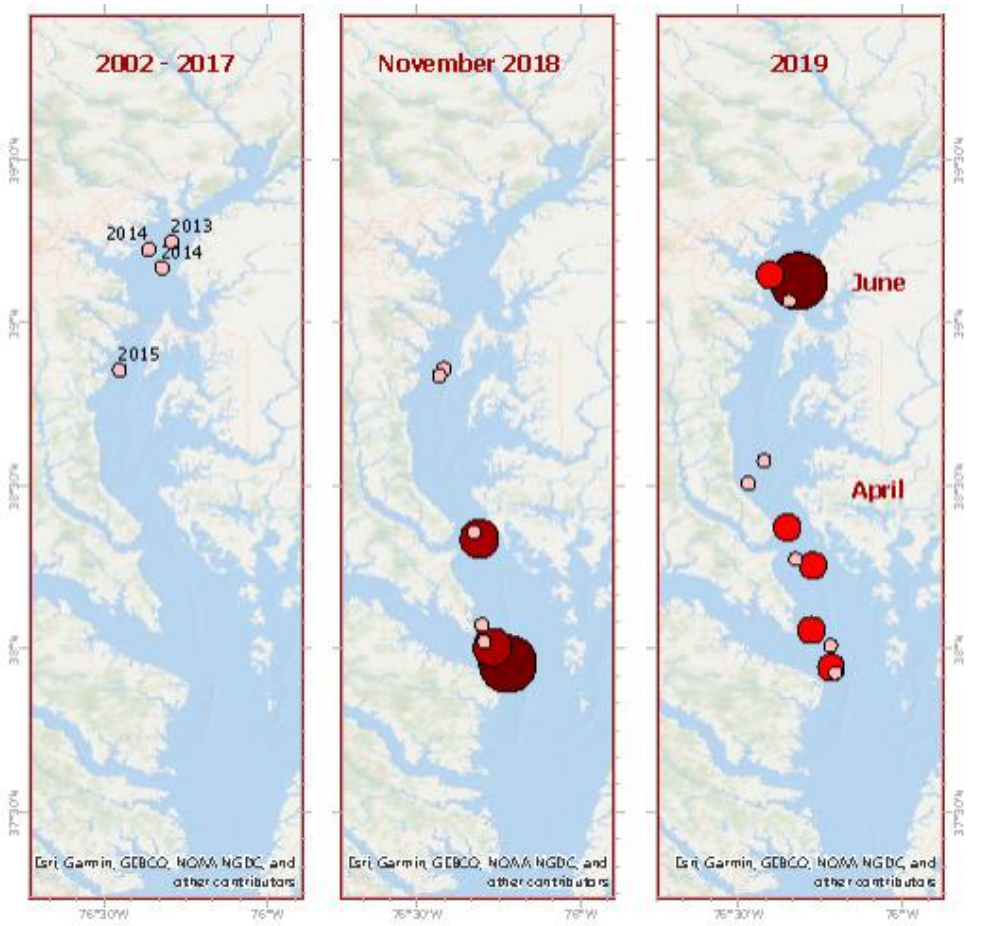
Conclusion: Continue to use the current model and management framework established in 2011.

Invasive Catfish

- Ranges and populations expanding
- Recent Research
  - Diet studies
  - Movement studies
  - Population and
- Invasive Catfish Symposium
  - User conflicts
  - Management plans
  - Marketing concerns
  - Gear conflicts

Invasive Catfish





Current Status

- Lowered salinity levels in 2018-2019 mean blue catfish have been able to move throughout the Chesapeake Bay
- Greater sense of urgency by state fishery managers
- New USDA inspection requirements limit growth of the commercial fishery and market

Next Steps: Plans to convene Invasive Catfish Workgroup with expanded membership

VIMS | William & Mary
Virginia Institute of Marine Science

Striped Bass

Status of Stock

- Striped bass are *overfished* and *overfishing* is occurring
- Debate among sectors
- States initial reaction
- Fall allocation and management plan amt.

Ecological Importance

- Chesapeake Bay is the largest nursery for striped bass Atlantic stock

Economic Importance

- Significant commercial and recreational value

Chesapeake Bay Striped Bass Nursery Habitat Assessment

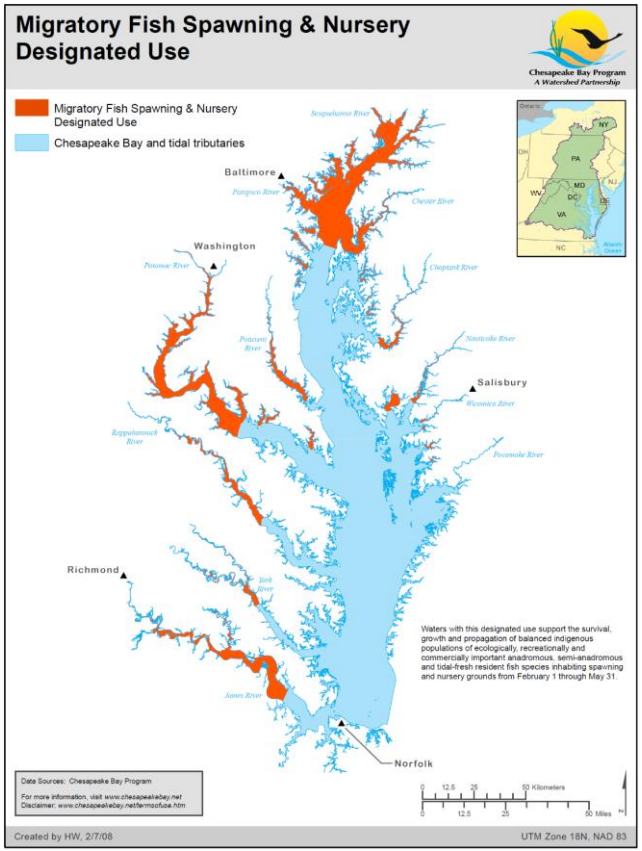
Goal: Understand how well the juvenile nursery habitats are functioning to maintain the Chesapeakes contribution to the overall Atlantic stock.

Outcomes:

- Improve the understanding of nursery habitat for juvenile striped bass that support survival and recruitment to the adult population
  - Location(s)
  - Condition
  - Area
- Identify “high quality” nursery habitat to help target tributaries most important to supporting juvenile development

Outputs:

- Evaluation of juvenile striped bass nursery habitat area, condition, and historical trends Bay wide
- Indicators/metrics of nursery habitat suitability and resilience
- Estimates of juvenile striped bass carrying capacity in the Chesapeake Bay



Fish Habitat and Water Quality

Moving forward, Fisheries GIT aims to better understand the condition of habitat areas most important for fish production, for alignment of efforts to provide co-benefits in high priority target areas.

- Ongoing USGS / NOAA efforts toward a Regional Fish Habitat Assessment
- Multi-disciplinary session linking water quality, water column habitat, and fisheries during the June 2019 Biannual GIT Meeting
- Habitat volume (hypoxia work)