

# BLUE CRAB UPDATE



Pat Geer (VMRC)  
Chair, Chesapeake Bay Stock Assessment Committee  
Chesapeake Bay Commission Winter Meeting  
January 4, 2024

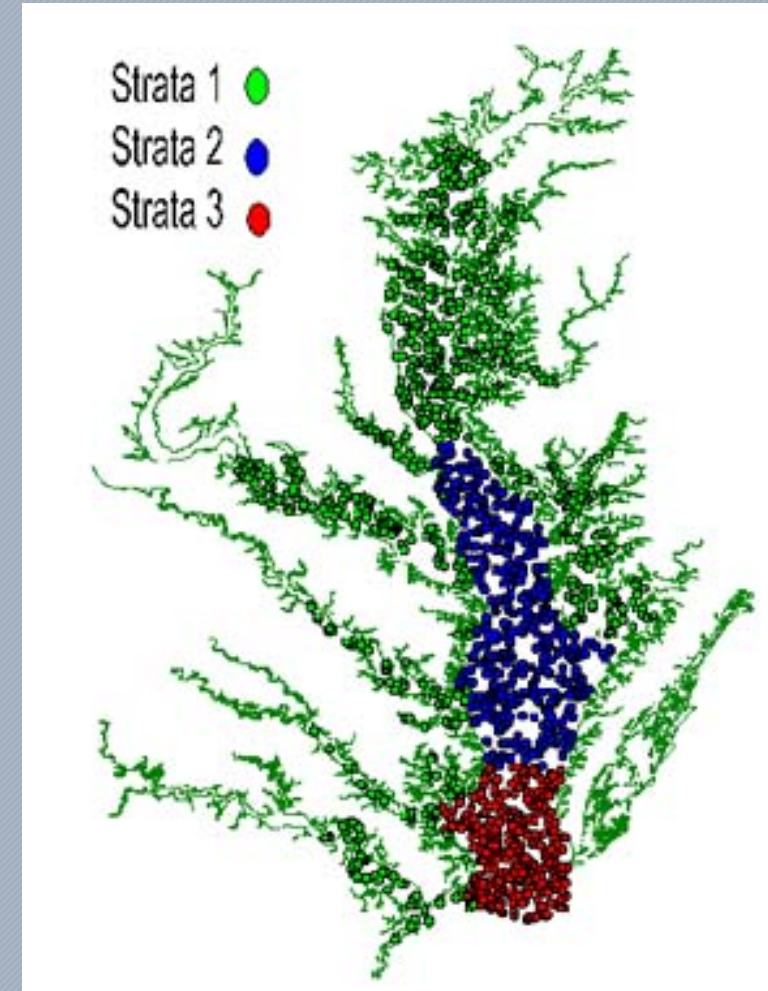
# CBSAC MEMBERS

Pat Geer (Chair)  
Coordinator – Vacant  
Bruce Vogt (Staffer)  
Ingrid Braun  
Glenn Davis  
Alexa Galvan  
Daniel Hennen  
Tom Ihde  
Eric Johnson  
Rom Lipcius  
Genine Lipkey  
Tom Miller  
Amy Schueller  
Mike Seebo  
Alexei Sharov  
Mike Wilberg

Virginia Marine Resources Commission  
ERT/NOAA Chesapeake Bay Office  
NOAA Chesapeake Bay Office  
Potomac River Fisheries Commission  
Maryland Department of Natural Resources  
Virginia Marine Resources Commission  
NMFS, Northeast Fisheries Science Center  
Morgan State University - PEARL  
University of North Florida  
Virginia Institute of Marine Science  
Maryland Department of Natural Resources  
UMCES, Chesapeake Biological Laboratory  
NMFS, Southeast Fisheries Science Center  
Virginia Institute of Marine Science  
Maryland Department of Natural Resources  
UMCES, Chesapeake Biological Laboratory

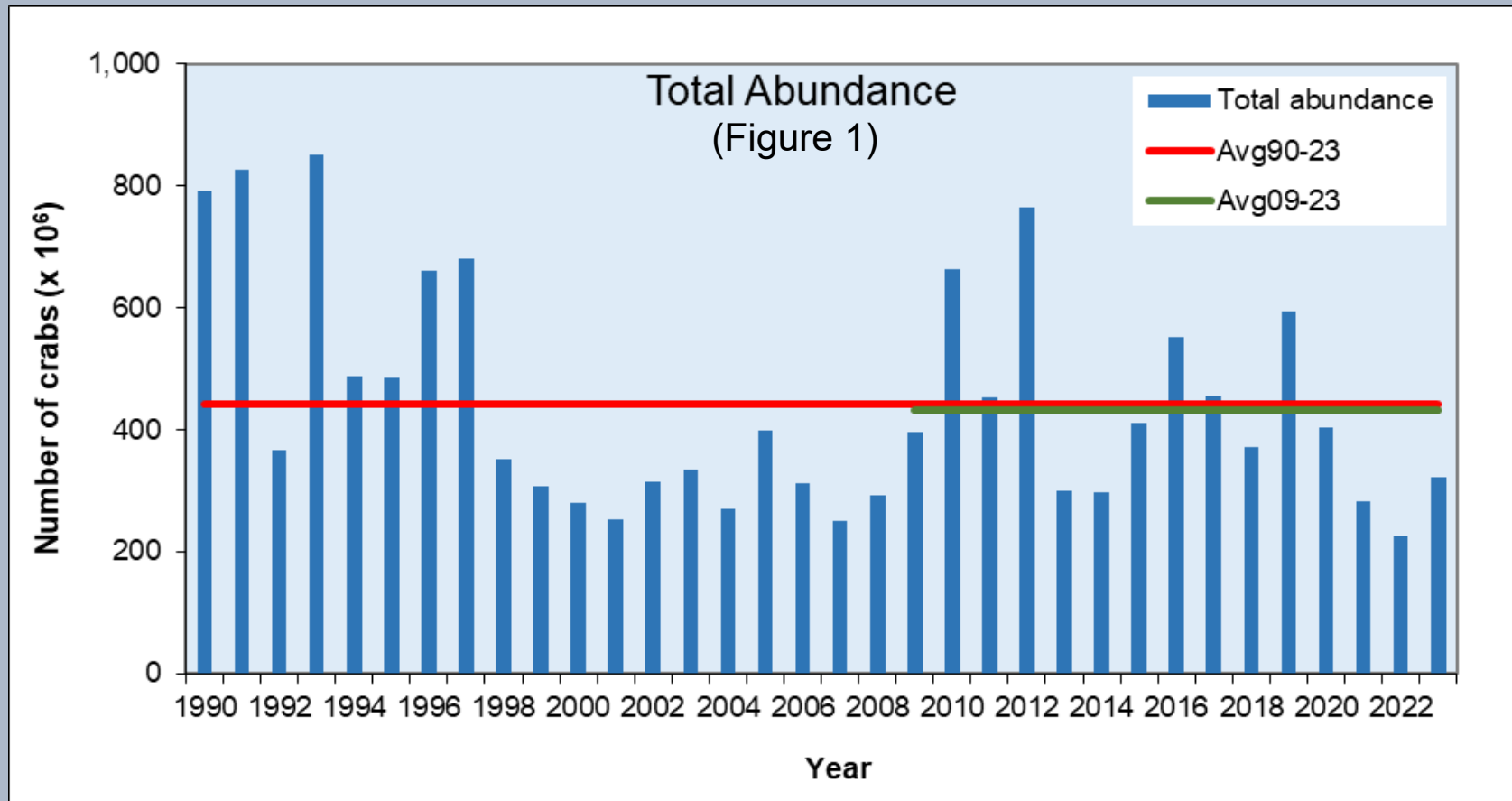
# WINTER DREDGE SURVEY

- Conducted jointly by VIMS and MD DNR since 1989-90
- Samples 1500 random sites annually from December to March
- Chesapeake Bay Stock Assessment Committee (CBSAC)
  - Reviewed results at May 18<sup>th</sup> meeting
  - 2023 Blue Crab Advisory Report - June 27<sup>th</sup>
    - <https://www.chesapeakebay.net/what/publications/2023-blue-crab-advisory-report>
  - VA 2023 Annual Report to the Governor – Dec 1
    - <https://rga.lis.virginia.gov/Published/2023/RD656>
  - 2023-24 Survey: MD DNR: 12/15, VIMS: 12/13



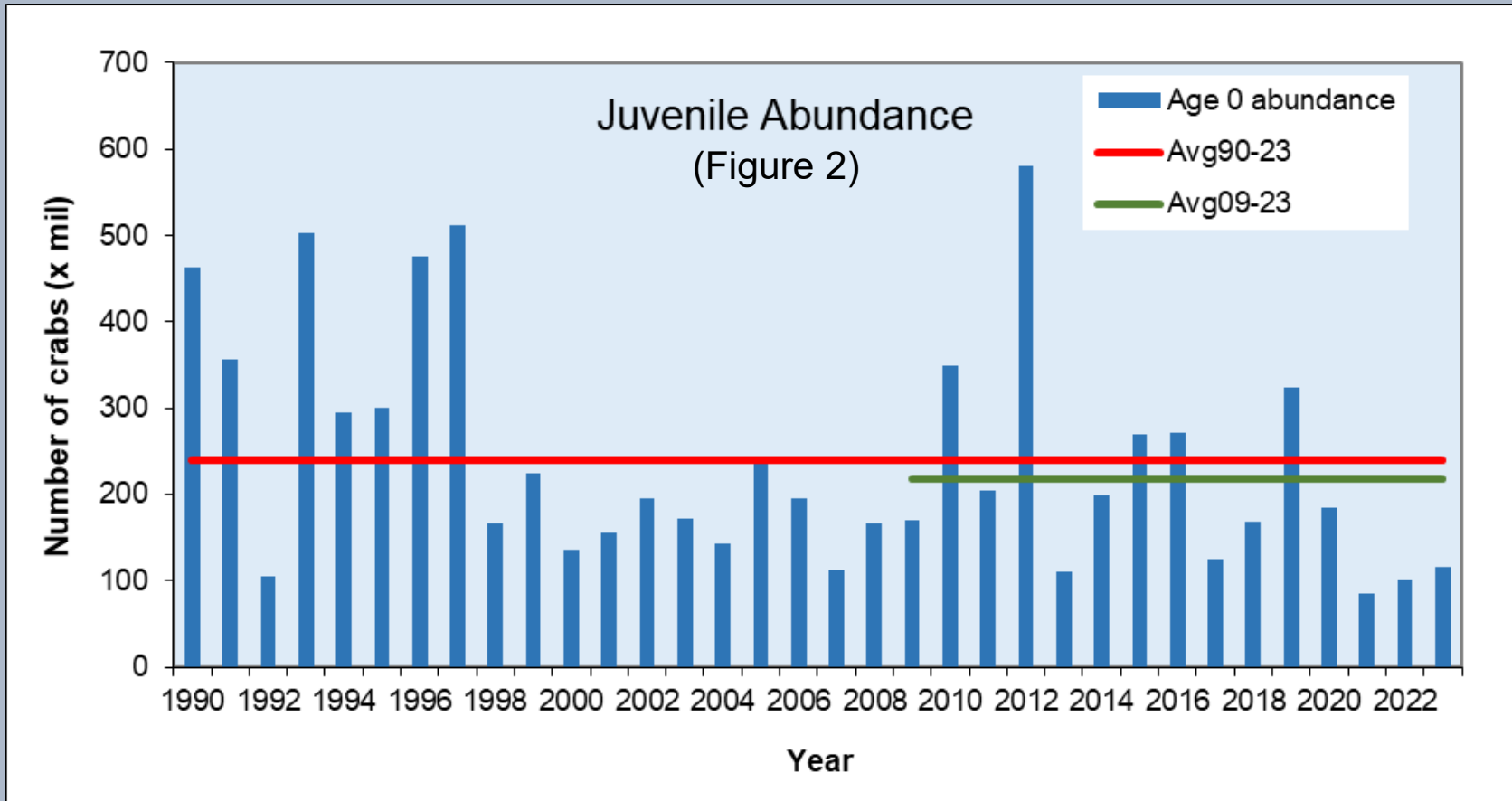
# RESULTS OF 2022/23 WINTER DREDGE SURVEY

Winter Dredge Survey 2022-23					
	Total	Juveniles	Adults	Adult Males	Adult Females
Abundance (millions of crabs)	323	116	206	55	152
Rank (1990-2023) N=34 years	22 <sup>nd</sup>	29 <sup>th</sup>	12 <sup>th</sup>	20 <sup>th</sup>	11 <sup>th</sup>
Pct Difference from 2022	42.48%	15.35%	64.40%	93.87%	55.81%
Pct Difference from Avg <sub>90-23</sub>	-26.92%	-51.54%	4.60%	-25.48%	19.20%



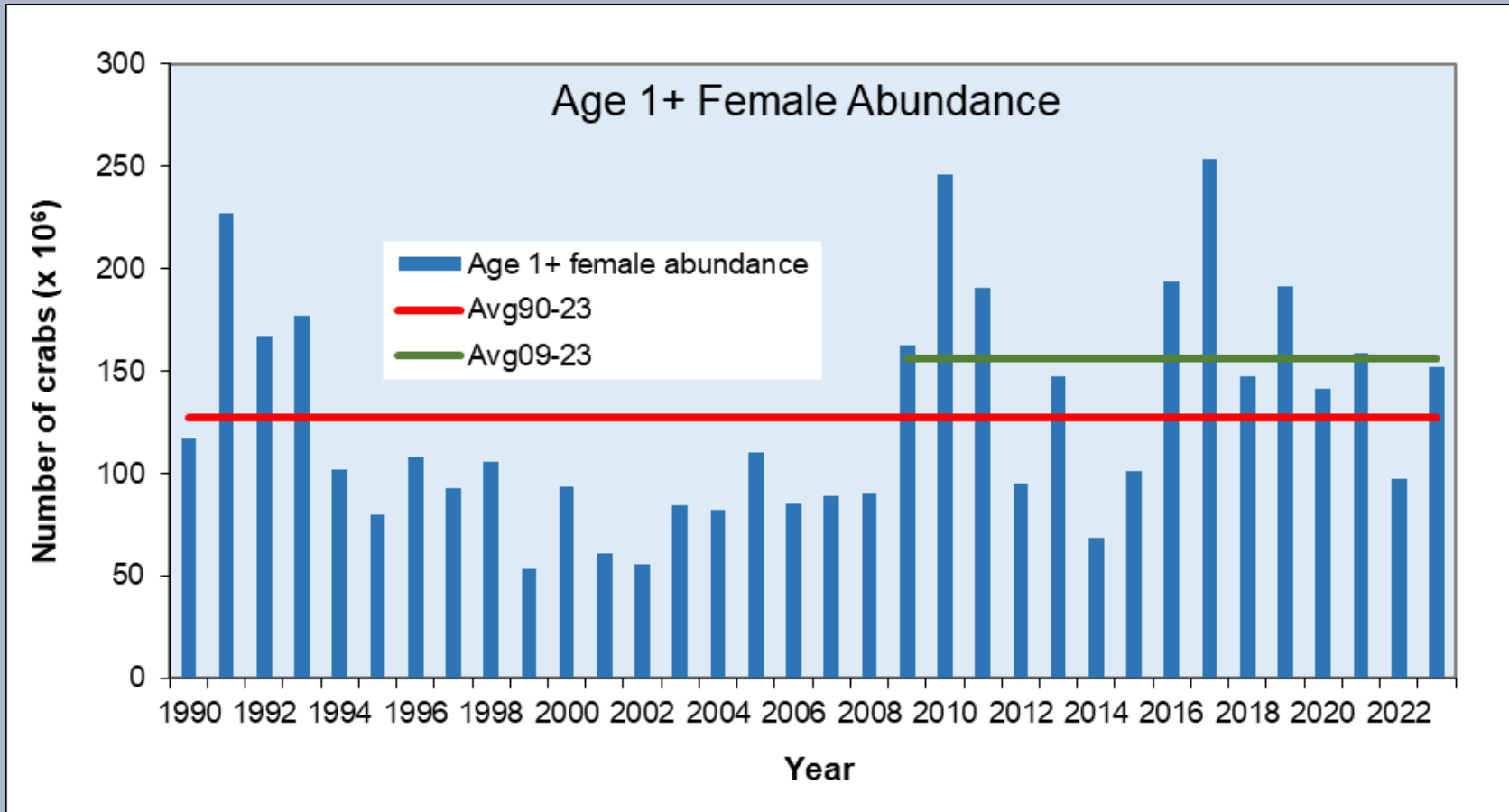
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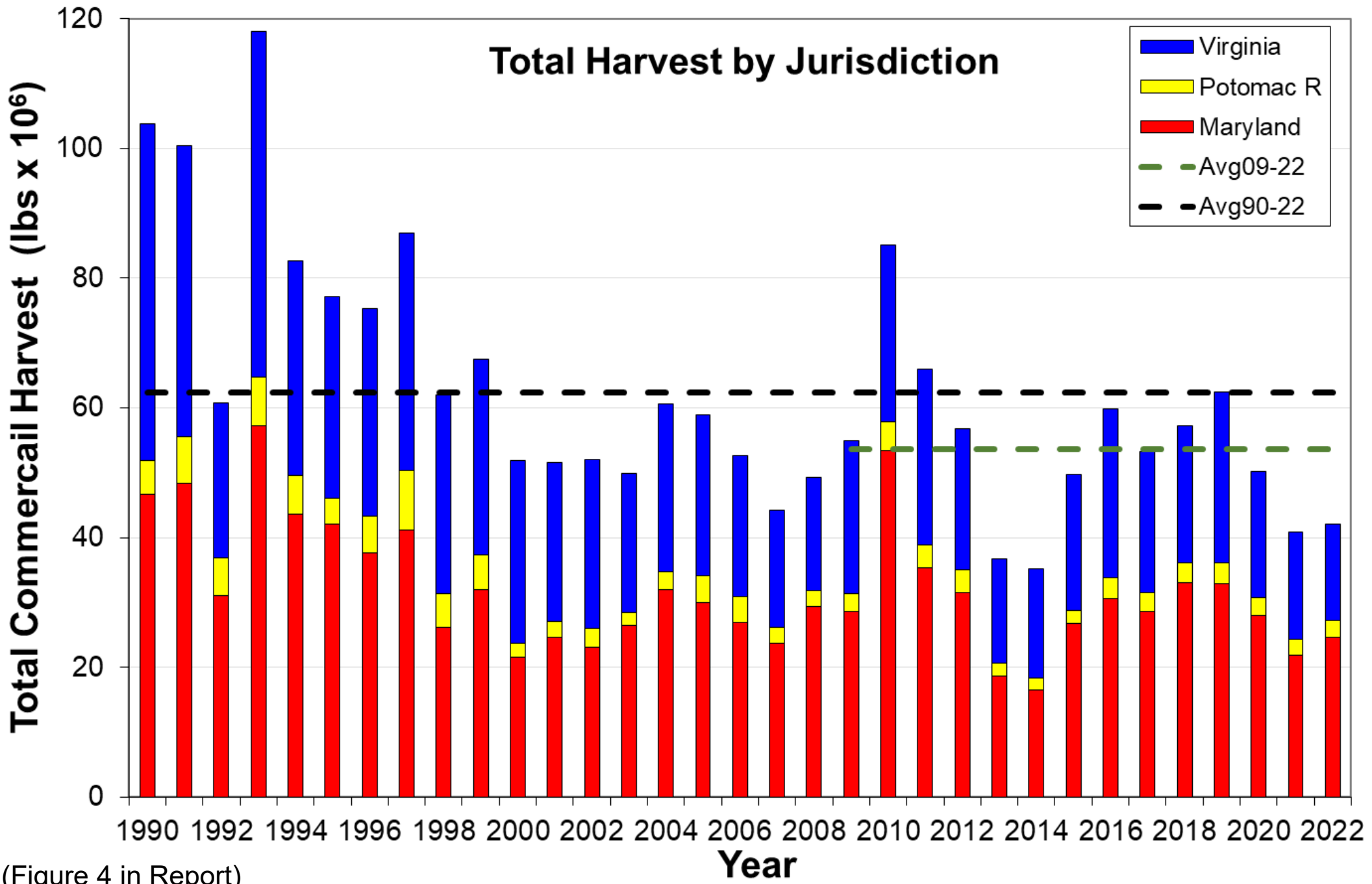


# 2022 BLUE CRAB HARVEST

# 2022 MANAGEMENT

- The WDS produced abundance estimates in 2022 that were at all-time lows for juveniles and adult males, with a 39% decline in spawning stock abundance.
- 
- The Bay Jurisdictions agreed to take a 5-10% harvest reduction to conserve the future spawning stock and prevent overfishing.
- VA: Lower Bushel Limits over 121 days instead of 15 days
- MD: Lower Bushel Limits by Sex and Time of Year  
Recreational Harvest Limited to 1 bushel/day
- PRFC: Created Male Bushel Limits, Lower Female Bushel Limits





(Figure 4 in Report)

# STATUS OF THE STOCK

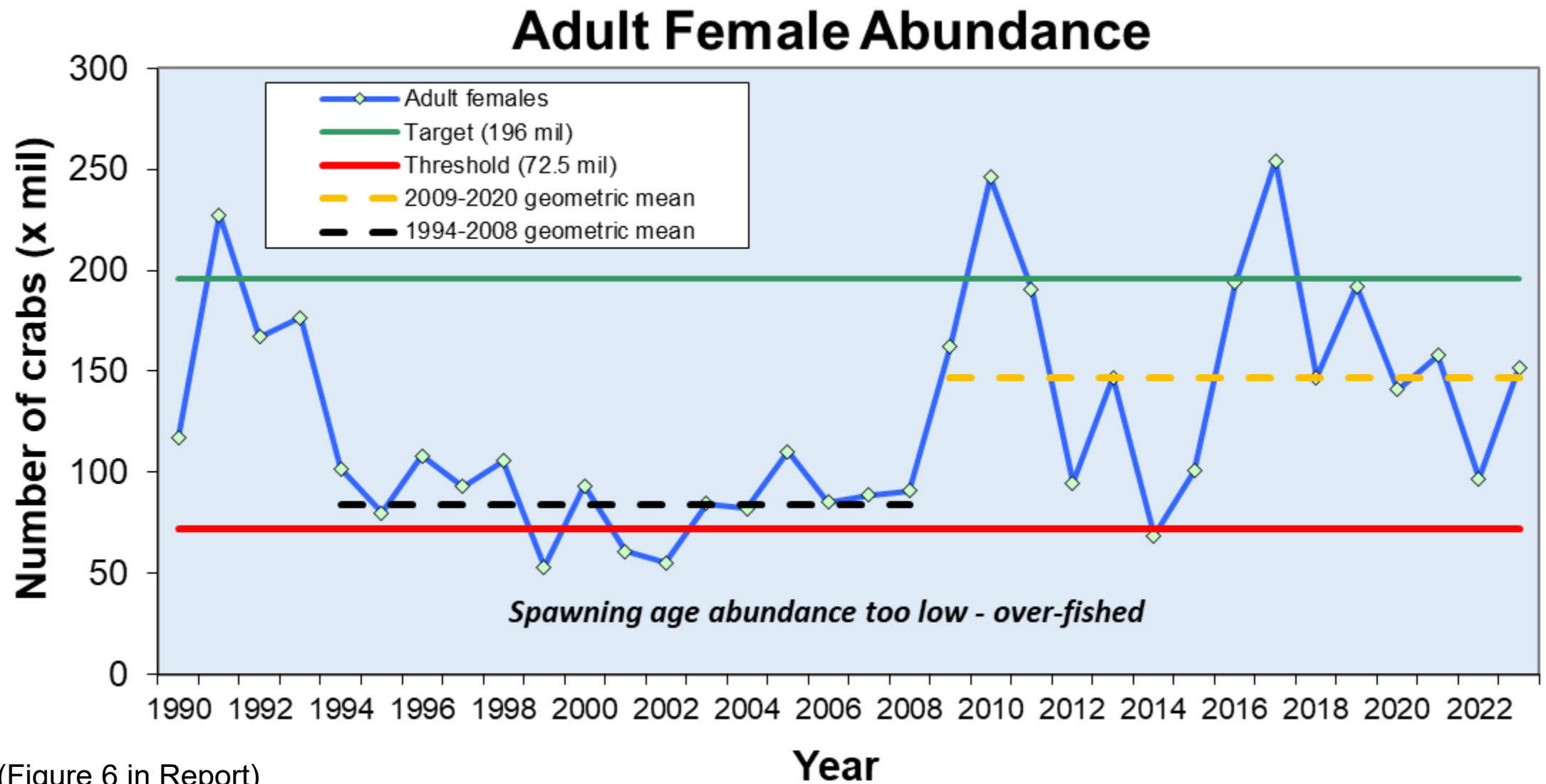
# Control Rules — Table 3 in Report

Control Rule	Reference Points *		Stock Status				
	Target	Threshold	2019	2020	2021	2022	2023
<b>Exploitation Rate</b> (percent of age 0+ female crabs removed)	28%	37% (max)	17%	23%	29%	31%	TBD
<b>Abundance</b> (millions of age 1+ female crabs)	196	72.5 (min)	191	141	158	97	152

\*: Updated in 2020

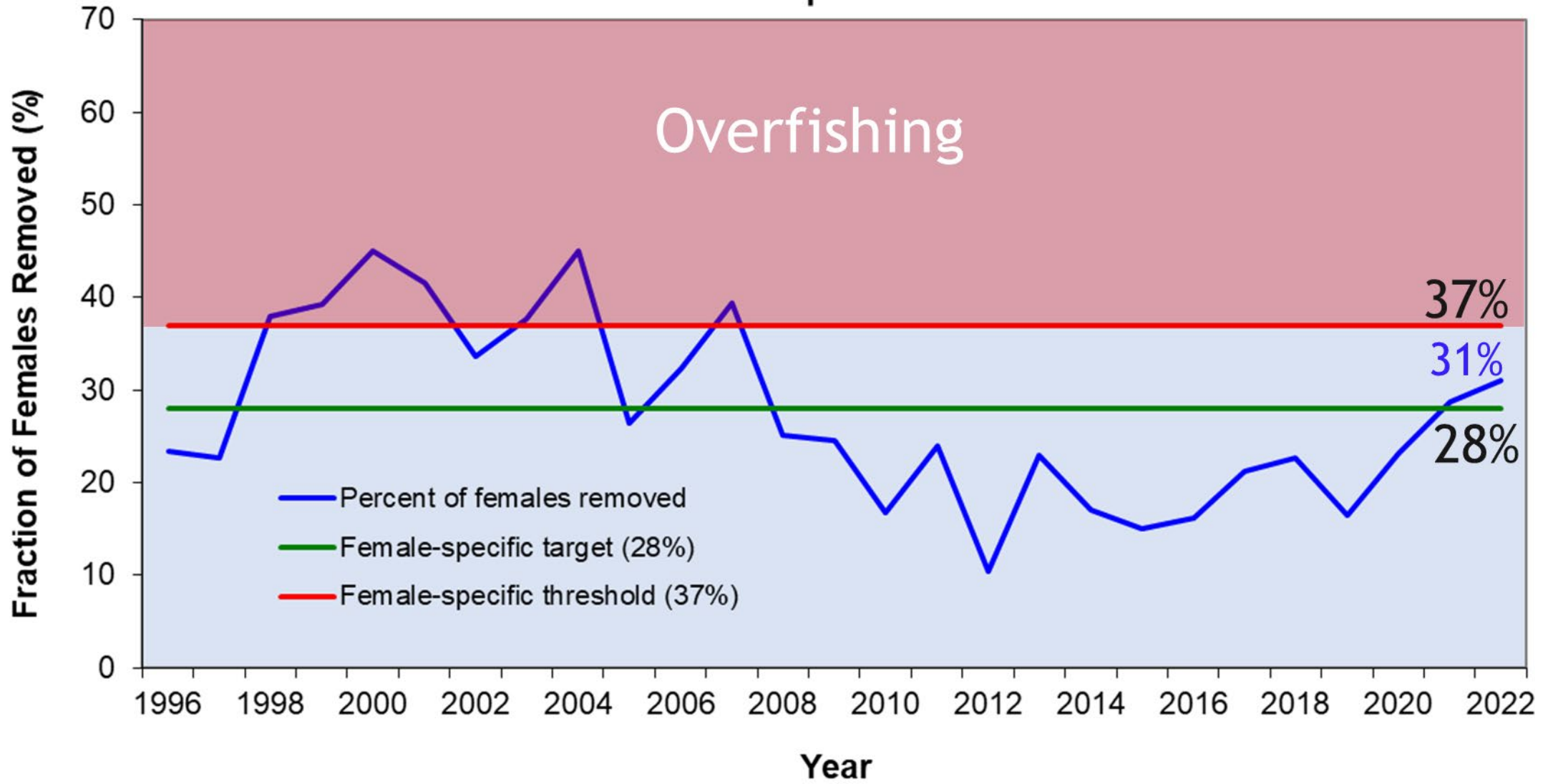
Stock Status: The Chesapeake Bay blue crab stock is **not depleted (overfished) and overfishing is not occurring.**

# Control Rule - Adult Female Abundance



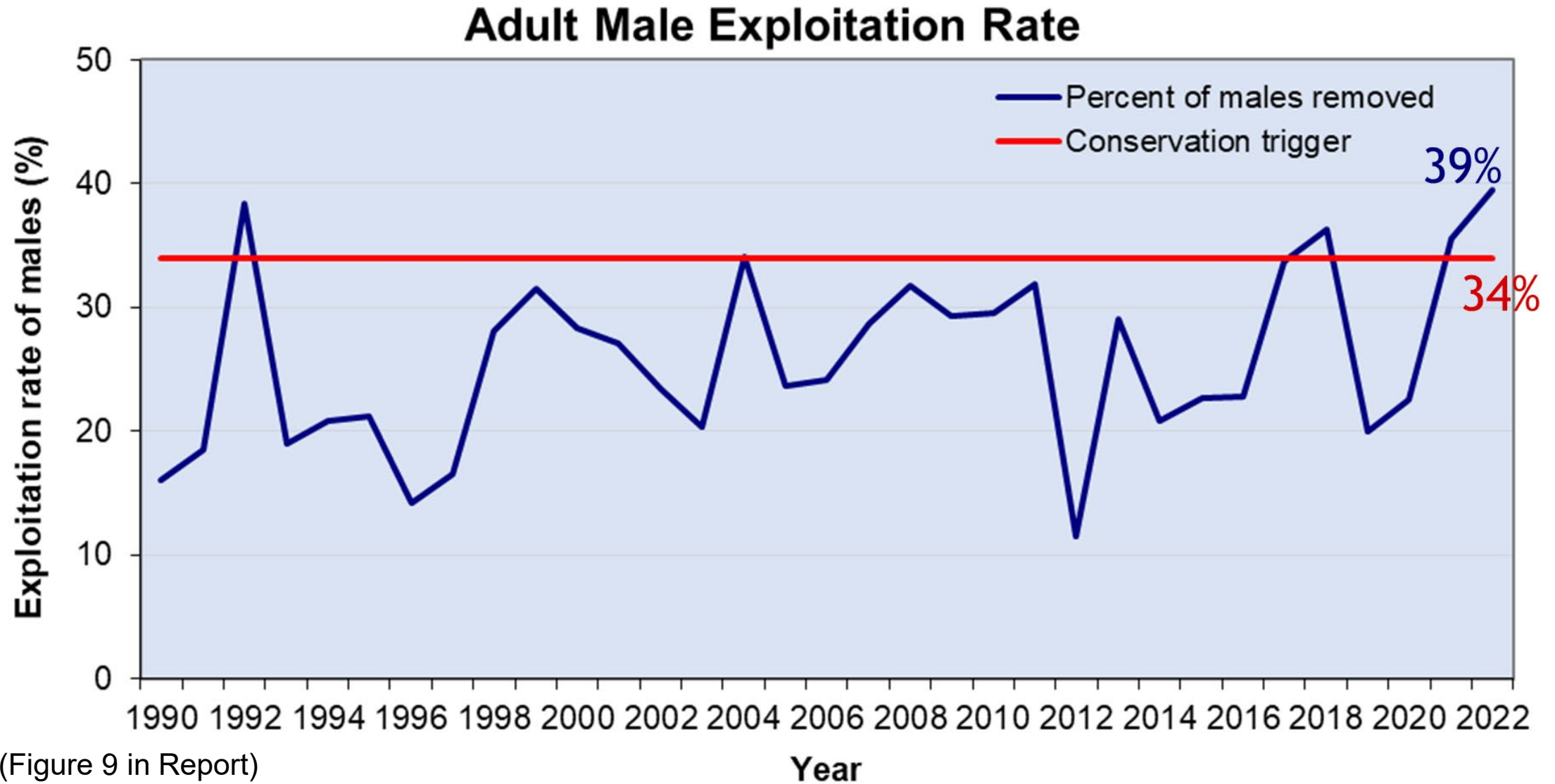
(Figure 6 in Report)

# Adult Female Exploitation Rate



(Figure 5 in Report)

# MALE CONSERVATION TRIGGER



(Figure 9 in Report)

# 2023 WDS ASSESSMENT SUMMARY

- Spawning stock abundance is comfortably above the threshold (72.5 m) at 152 m crabs but not near the target of 196 m crabs. **Not Overfished.**
- Adult Female Exploitation Rate is not above the threshold of 37% (ie. **Overfishing is not occurring**). However, the fishing mortality rate is trending upwards and has been above the target the past two years.
- The Adult Male exploitation rate has exceeded the target the past two years. This is not a biological reference point but as a “conservation trigger” it can alert managers that something is happening and should be watched carefully.

# 2023 Management Advise

- Juvenile abundance is still a concern. These crabs began entering the fishery in August. Poor recruitment can impact the adult population.
  - Warming water temperatures may be influencing juvenile catchability and availability on the survey.
- The Control Rules for Management (Age +1 Female Abundance and Female Exploitation Rate) are still within acceptable ranges but management actions taken in 2022 (up to 10% harvest reduction) may still be necessary to further protect male and juvenile abundance.



# 2023 Management Advise pg2

- CBSAC recommends a new benchmark stock assessment be conducted.
  - The last benchmark was in 2011.
  - The population may be behaving differently now.
  - Additional datasets may be available.
  - Explore new modelling methods.
- Jurisdictions have agreed to continue conservation measures for the 2023 fishing season.

# Benchmark Stock Assessment

- Workshop on Potential Drivers – Sept 20-21, 2022 (VMRC)
  - Identify and discuss potential mechanisms, data needs, and analytical methods to better understand drivers of blue crab recruitment and abundance in the Chesapeake Bay.
  - Discuss the current model assumptions for blue crab stock assessment and evaluate other options
- UMCES was awarded the contract with ASMFC administering the funds provided by NCBO, VMRC, and MD DNR

# Benchmark Stock Assessment pg 2

- Data Workshop Dec 5-7, 2023 (UMCES).
  - 25 participants from 10 different agencies
  - All potential datasets (surveys, commercial harvest, environmental, biological, predation, habitat, etc) were presented and discussed
  - The Committee will examine these data and decide on the relevance to the assessment.
  - The members left the meeting with assignments regarding the various datasets.

# Benchmark Stock Assessment Timeline

Time	Task
Fall 2023	Funding Secured Contracts Approved
December 2023	Data Workshop – present and discuss available data sets that may be useful to the assessment
March 2024	Modeling Workshop – Test potential models
January 2025	Assessment Workshop – Finalize stock assessment models Document data gaps and prepare list of research recommendations
Jan-April 2025	Write draft assessment report for peer review.
June 2025	External peer review of the blue crab assessment.
July-Sept 2025	Finalize stock assessment report after the peer review and complete final report to ASMFC, NCBO, and jurisdictions.

# Stock Assessment Committee

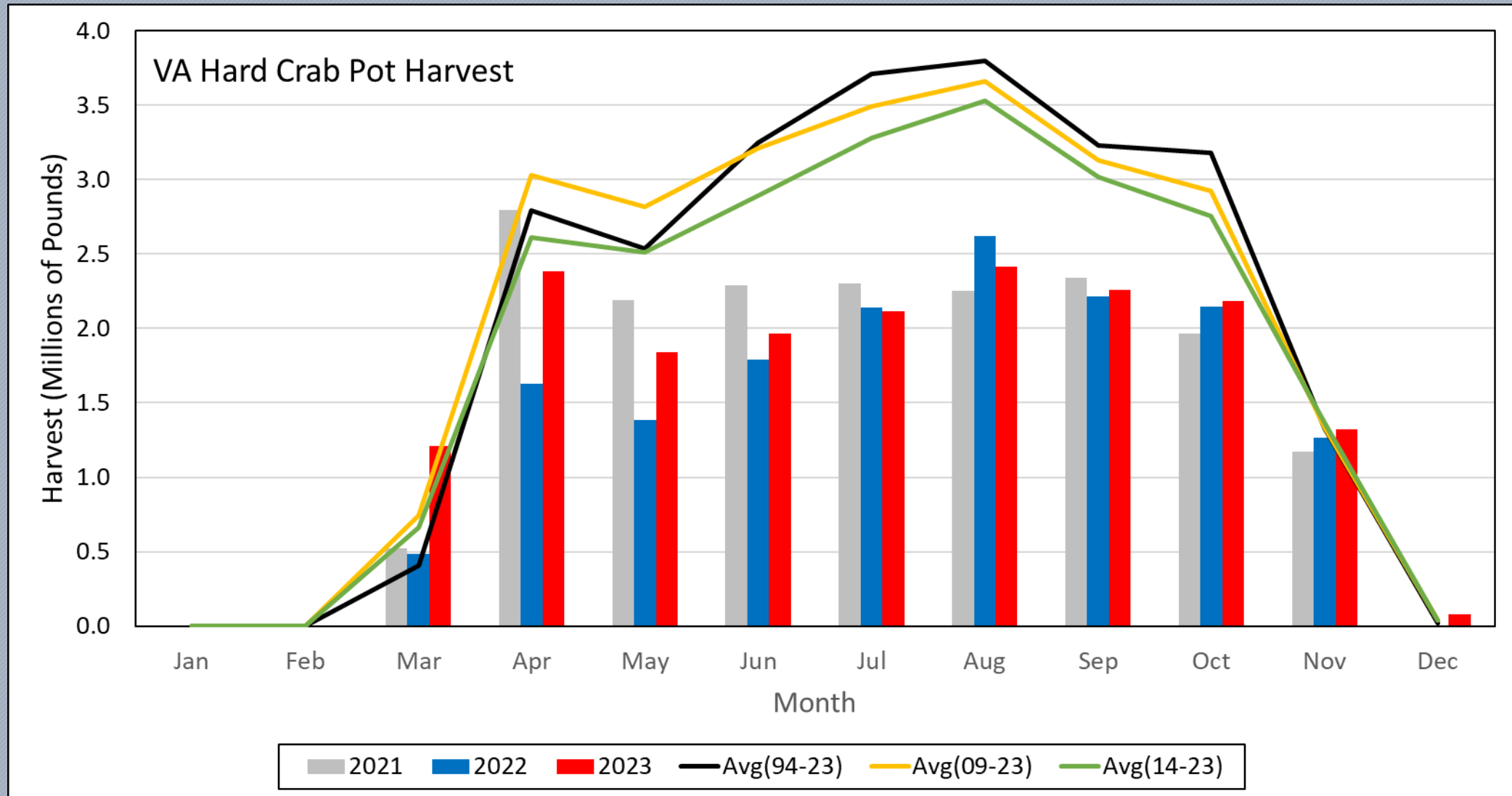
UMCES – CBL	Mike Wilberg* Tom Miller* Dong Liang Post Doc	NCBO	Vacant
VIMS	Rom Lipcius Rob Latour Troy Tuckey	MD DNR	Glenn Davis Alexei Sharov Genine Lipkey
SERC	Matt Ogburn	PRFC	Ingrid Braun
Morgan State	Tom Ihde	VMRC	Brooke Lowman Alexa Galvan

# Blue Crab Data Needs

- Environmental factors affecting blue crab population dynamics
  - Climate change affecting coastal conditions (e.g., currents, wind, freshwater flow)
  - Habitat availability (e.g., seagrass, marsh, hardened shorelines)
- Ecological factors affecting blue crab population dynamics
  - Predator and prey abundance (blue catfish, red drum)
- Biological and Catch Data
  - Expand MD DNR Sentinel Program to VA and PRFC

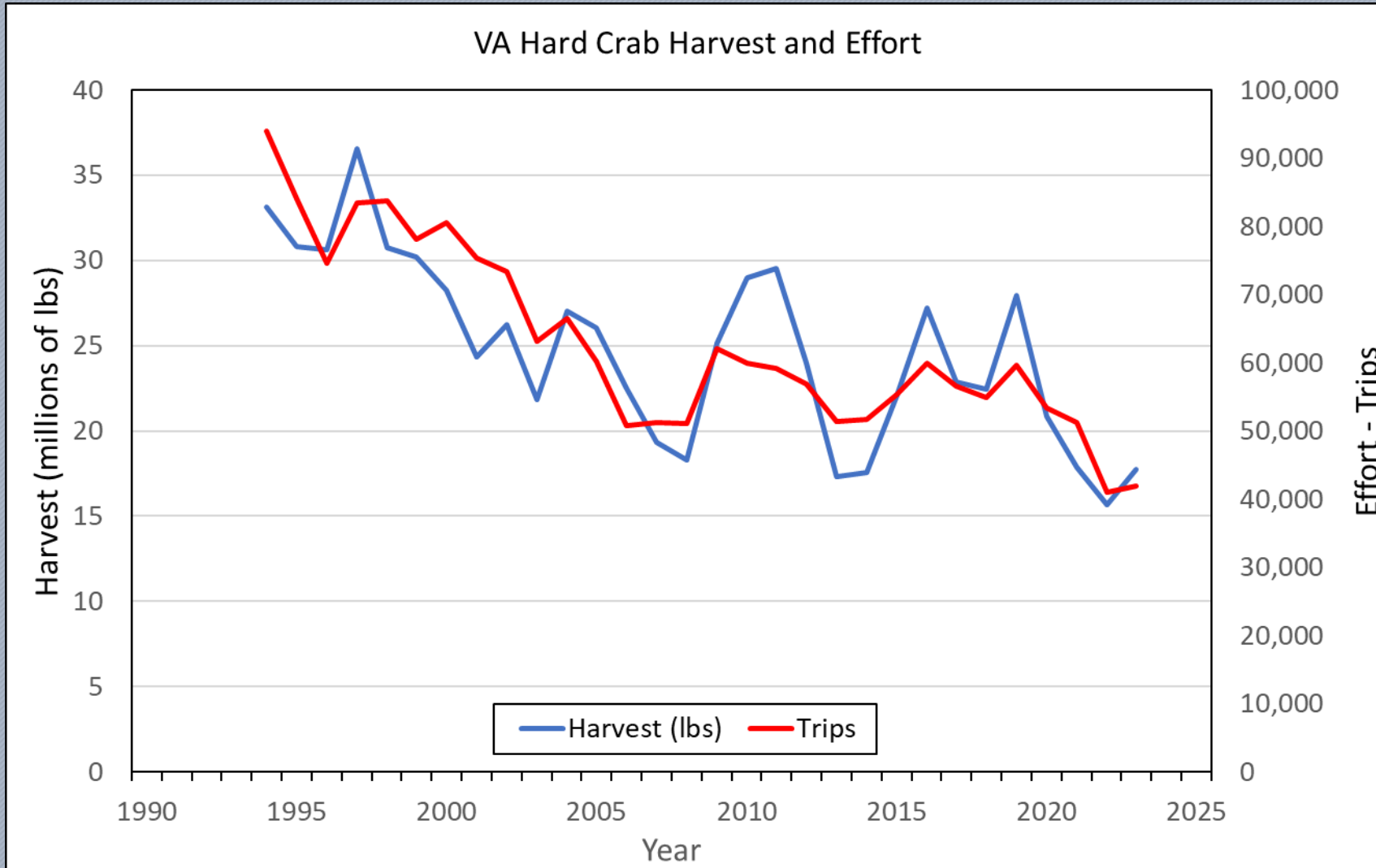
# VA 2023 Harvest Updates

Data through January 2, 2024



# VA 2023 Updates

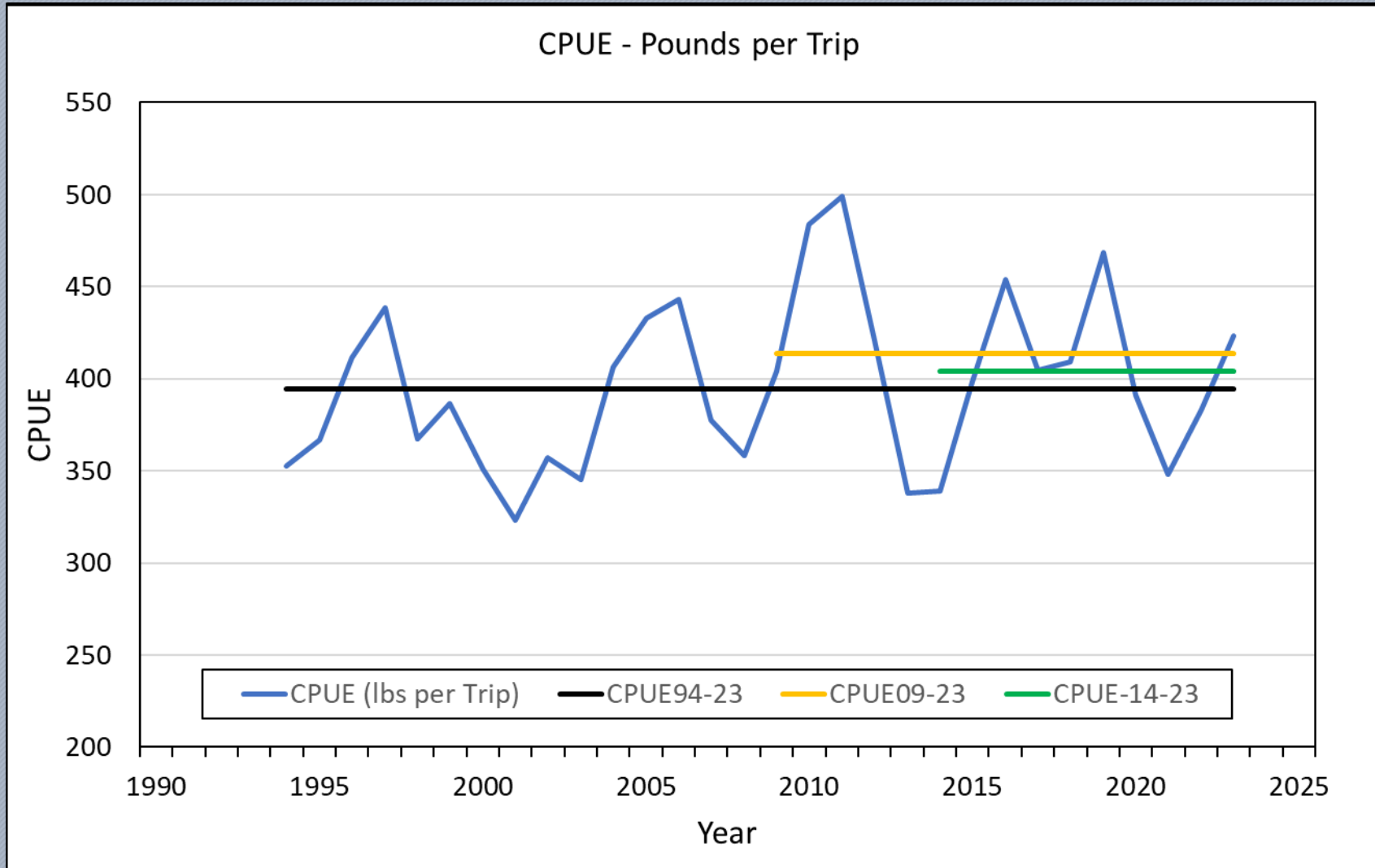
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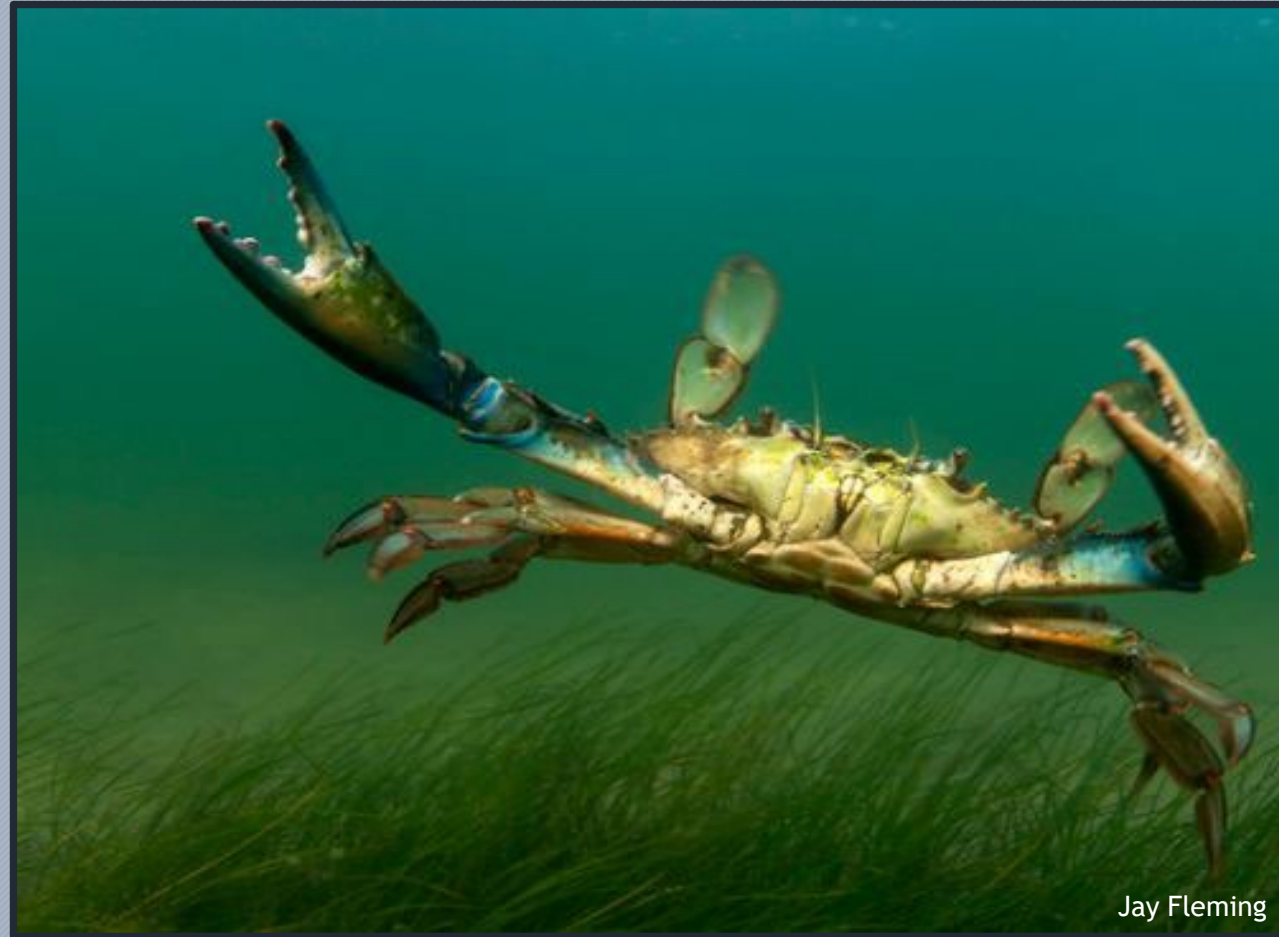


# VA 2023 Harvest Updates

Data through January 2, 2024



# Questions



Jay Fleming