Technical Committee
Partnership for a Resilient Apalachicola Bay

Members: Chad Hanson (Chair), Sandra Brooke, Ken Jones, Jenna Harper, Andy Kane, Shannon Hartsfield

Technical Committee Tasks and Activities

1. Understand and summarize available data to be used for management decisions.
2. Provide recommendations to the Partnership on data collection and monitoring needs to support management decisions (short and long term).
3. In collaboration with the Communications Committee, provide management recommendations to the Partnership using and interpreting existing data on the available resource.
4. Provide overview of technical components from the ABSI program that could help guide short/long term management decisions.

Conversations in Re-opening AP Oyster Fishery Responsibly

Partnership for a Resilient Apalachicola Bay

ANERR Eastpoint, Florida, December 18, 2024

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Presentation Goals:

- Review current understanding and perspectives of oyster habitat and oyster populations in AP Bay
- Note the historic timeframe and the need for stakeholder input to inform and work with FWC to responsibly manage AP oyster resources
- Examine models for harvestable yields
- Consider what the Partnership can agree upon as viable management scenarios
- Generate discussion to support the Technical Subcommittee in drafting management scenarios to present to FWC for consideration

What we know:

A fishery stock assessment is the scientific process of collecting, analyzing, and reporting on the condition of a fish stock and estimating its sustainable yield. Stock assessments are the backbone of sustainable fisheries management.

Fishery management also means managing people.

What we know

Declining trends in AP Bay oyster populations reflect global oyster population declines. In many areas population declines lead to extirpation.

Past restoration efforts to produce *sustainably productive* oyster habitat in AP Bay have not perform as well as expected.

Things are different now. This is not the same AP Bay with the same productive hard bottom oyster habitat that most folks recall from decades prior to the fishery closure.

System stressors in AP Bay have accumulated over more than a decade without interim periods of relief and population recovery making the system more vulnerable to collapse ***and change in ecological state***.

(Conversi et al. 2015, van de Leemput et al. 2018, Moore et al. 2020)

Alternative ecological states for oyster populations:

(1) a lower-density state characterized by relatively high sedimentation, low oyster density, reef burial, habitat degradation; or

(2) a higher-density state characterized by relatively low sedimentation, high oyster density, and persistence.

(Colden et al. 2017)

Cumulative stressors in AP Bay have contributed to declines in oyster population abundance and reproductive potential, and reduced habitat and biogenic capacity ***past a critical threshold*** where the potential for relatively rapid rebound was likely replaced by a state shift to the lower-density state.

Colden et al. 2017; Scheffer and Carpenter 2003; Johnson et al. 2023.

Cumulative stressors that have impacted the steady state and health of oyster habitat in AP Bay in the past two decades

Stressor #1: Resource exploitation

Stressor #2: Negative shell budget

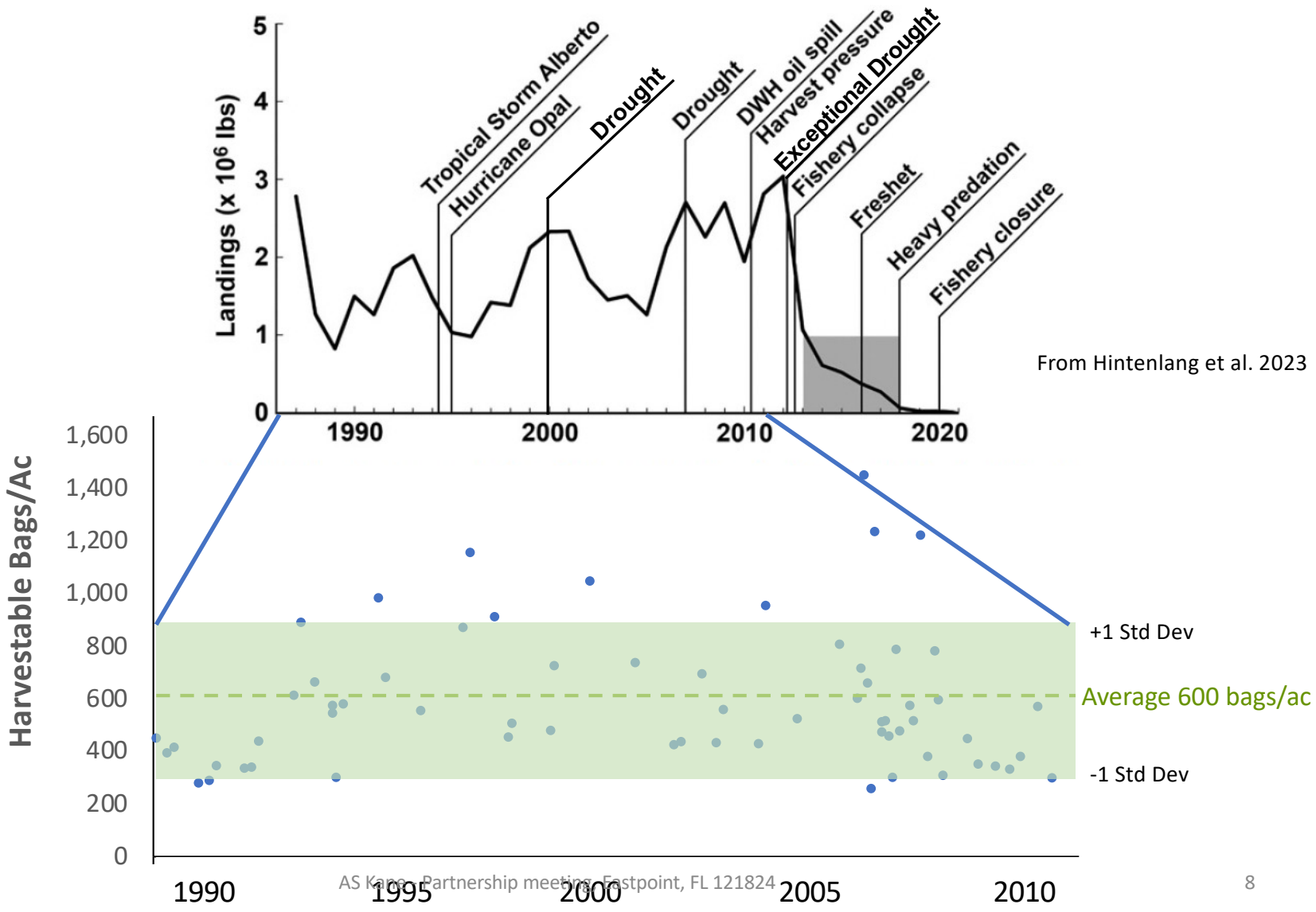
Stressor #3: Salinity extremes

Stressor #4: Parasites and disease

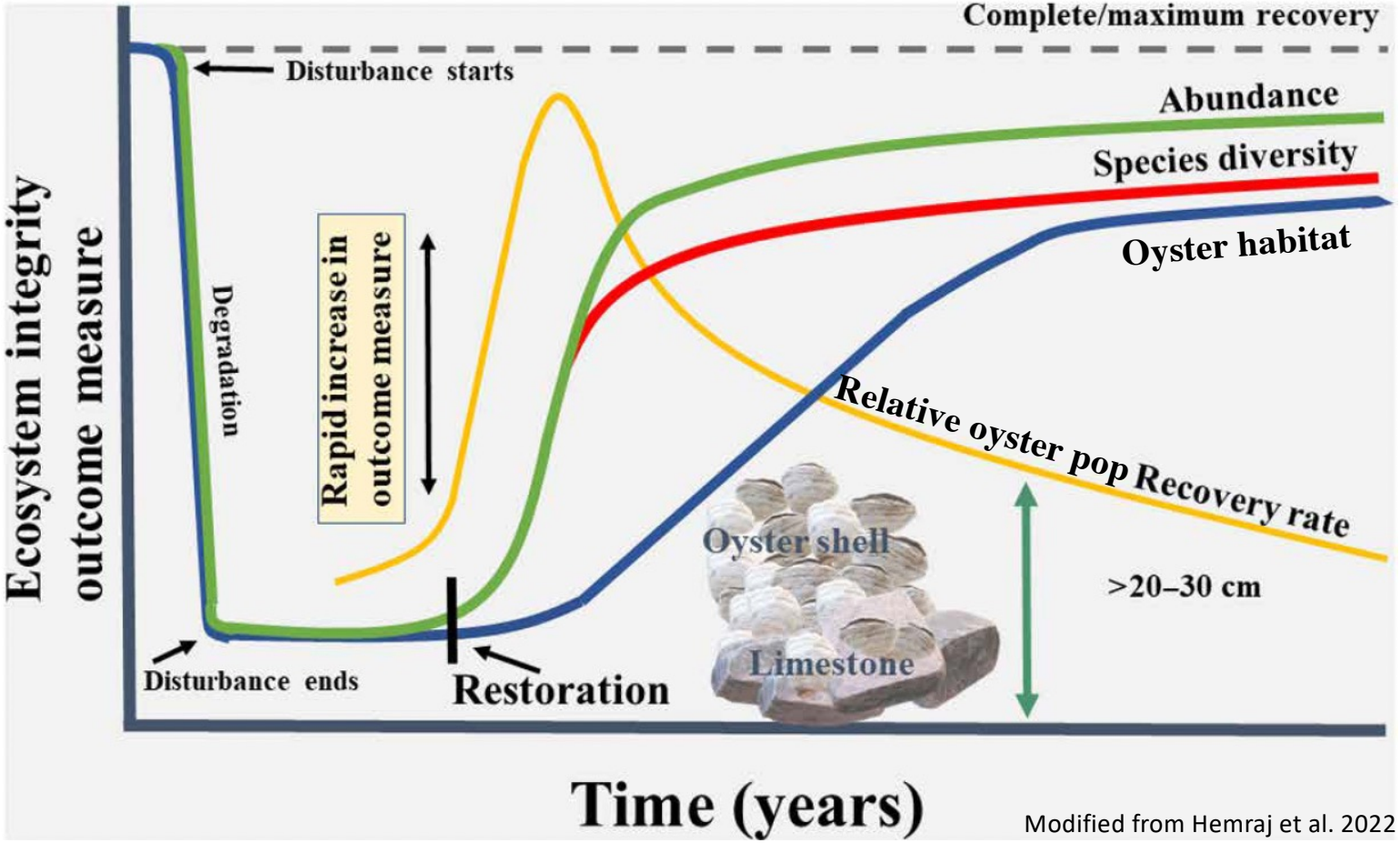
Stressor #5: Predator abundance

Hintenlang LL, Brooks RM, Kane AS. 2023. Journal of Shellfish Research. 42(3): 479-489

Cat Point Monitoring Data

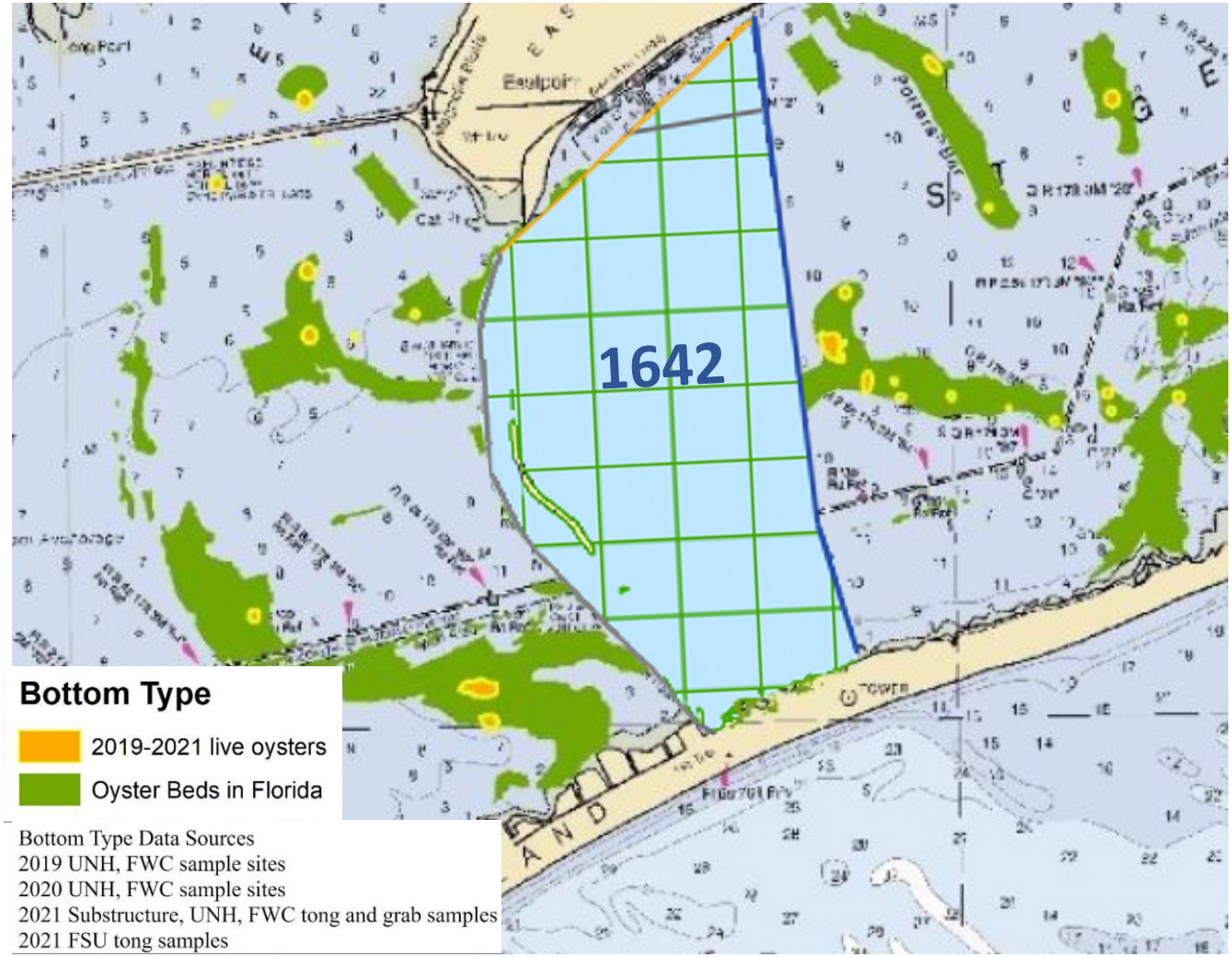


From Hintenlang et al. 2023



Modified from Hemraj et al. 2022

With low oyster population density throughout the bay, recovery toward sustainable habitat should be expected to take *much longer* than the period represented by unrelieved stressors and low population abundance, i.e., decades.



Grizzle et al. 2022

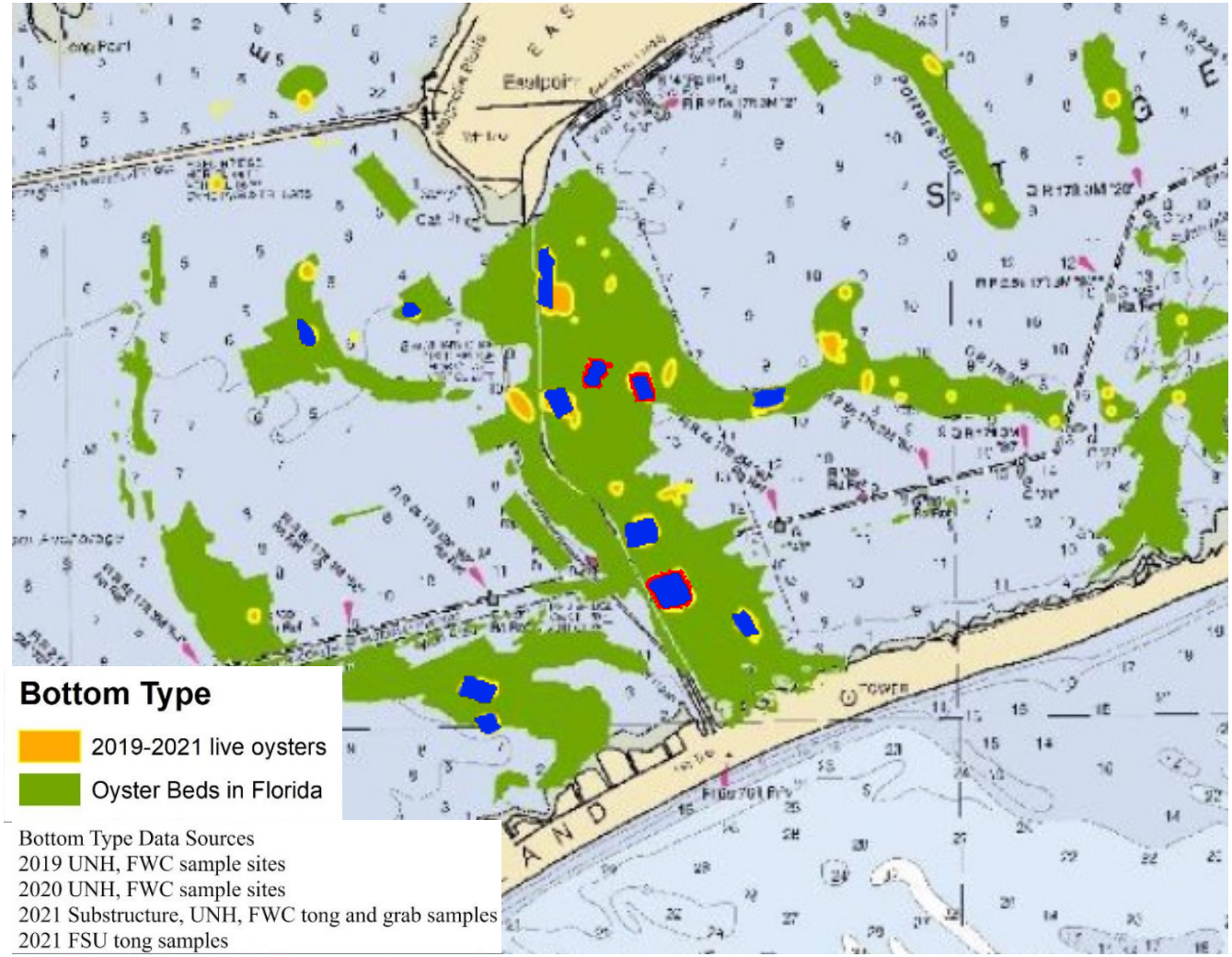
Distribution of live oysters and habitat

Harvest area 1642: 2,460 ac

Green areas: 1170 ac
Historical natural oyster beds (Twitchell et al. 2007)

Orange areas: 152 ac
Live oysters based on side-scan sonar imagery with ground truthing
(Grizzle et al. 2021)

Blue areas: 55 ac
>300 bags/ac
(FSU monitoring 2024)



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Blue areas: 79 ac
55 ac >300 bags/ac on 1642
(FSU monitoring 2024)

Based on Harvest Area 1642

Monitoring data provided by Dr. Brooke at 7/31/24 Partnership Meeting

Harvest Projection Estimator

Monitoring sites	Ave Bags/Acre	# Acres	
CP	130	38	Winter Bars
ME	161	20	
CPN	**472**	18	
PR	209	25	
SB	237	18	
EH1	**502**	25	
EH2	24	11	
CPS	**400**	12	
Sum of bags/ac:	**1374**		
Ave bags/ac:	**458**	**55**	**Total ac**
Poaching Mortality:	10%		
Disease/Predation/Natural Mortality:	5%		
Recruitment (w uncertainty):	25%		
# bags/ac:	**489**		
Target fishing mortality limit (%):	**0.25**		
Harvestable ave # bags/ac:	**122**		
# Harvestable bags/ac/yr * total ac	**6,730**		

How many people can harvest how much?

Based on Harvest Area 1642

Harvestable ave # bags/ac:		**122**
# Harvestable bags/ac/yr * total ac		**6,730**
Price per bag dockside:	$	120
Total harvestable value:	$	807,654

				Open 12 mo/yr, 5 days/wk		***Open 6 mo/yr, 5 days/wk***	
	Ann income		# bags/yr	# bags/mo	# bags/day	# bags/mo	# bags/day
10 harvesters:	$	80,765	673	56	3	112	6
20 harvesters:	$	40,383	337	28	1	56	3
30 harvesters:	$	26,922	224	19	1	37	2
40 harvesters:	$	20,191	168	14	1	28	1
50 harvesters:	$	16,153	135	11	1	22	1

68B-27.017 - Apalachicola Bay Oyster Harvesting Restrictions

- Beginning January 1, 2026 oysters may be harvested from AP Bay seven days a week, (provided the Bay is not closed for public health reasons). **# Persons? Bag limit?**
- If monitoring at Cat Point and East Hole **establishes** that the resource **cannot sustain a harvest of 300 bags per acre** commercial oyster harvest will be closed on Saturdays and Sundays. **300 bags/ac sustainable harvest vs harvestable bags/ac**
- **The Standard Resource Management Protocol** will be used to establish if 300 bags per acre harvest can be maintained. A scale, based on scientific sampling, provides a predictive index of the number of oysters available for harvest.

Propose rewording for clarity and accuracy

The Standard Oyster Resource Management Protocol

This scale forms the basis for the Standard Oyster Resource Management Protocol provided in Subsection 68B-27.017, Florida Administrative Code, which has been used as the criteria for setting the number of harvesting days in the Winter Harvesting Season in Apalachicola Bay.

The Standard Oyster Resource Management Protocol (SORMP) provides that estimated production > 400 bags of oysters per acre is applied as an indicator of healthy oyster reefs capable of sustaining commercial harvesting.

When harvestable stocks >200 bags/acre oyster populations are capable of supporting limited commercial harvest.

When harvestable stocks <200 bags/acre oyster populations are not capable of supporting commercial harvest.

When harvestable stocks <100 bags/acre oyster populations are considered depleted.

Recommend >400 bags per acre as the *minimum threshold* for habitat that can sustain harvest. Pending monitoring data to ensure no over-harvest. Perhaps for the first 5 years and then can be adjusted.

What can we agree on?

Following extensive restoration efforts and a 5-year fishery closure there is evidence that oyster populations in at least some areas of AP Bay have the potential to “rebound.” Any rebound amidst the backdrop of global coastal and AP bay-wide declines is remarkable.

What does it mean to re-open the bay responsibly? Can harvests be managed using data-driven tools to inform sustainable harvest of so many bags over time.

What are the shared expectations for the bay to ‘come back’? What does responsible fishery re-opening mean to people after repeated restoration efforts without sustainable outcomes and a fishery closure?

What can we agree on?

Historically there were thousands of acres of productive hard bottom oyster habitat. Today the number of acres of productive hard bottom oyster habitat is substantially less (ca <5% of historical population estimates)

Oyster populations change in association with environmental stressors, e.g., extreme drought, freshets, predators can decimate oyster populations. When oyster populations are low, vulnerability to environmental stressors can be high.

Points for Discussion:

Oyster habitat needs monitoring data to inform fishery management, i.e., data-driven management

Management decisions should be informed by dynamic monitoring to ensure no over-harvest or damage to existing habitat restoration efforts.

In lieu of sufficient, current monitoring data to inform management, the most conservative management approaches should be utilized to protect the habitat.

Management should focus on sustainable oyster habitat with sufficient productivity to support an oyster fishery.

Support tong sampling to increase monitoring efforts over time and space? Less costly, more time efficient, produced equivalent data to diving with quadrat.

Points for Discussion:

Management should expand oyster habitat to increase habitat acreage, stability and productivity.

Winter harvest with Summer Bar closures?

1642 versus conditionally open whole Bay?

Selected harvest days/seasons?

Sanctuary reef areas?

Need for check stations?

Number of harvesters?