Oyster Research Updates

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Oyster Tetraploid Induction

Great Thanks to
The Gulf States Marine Fisheries Commission
The Florida Shellfish Industry

Year I: Jan 1, 2017 – June 30. 2018

Goal: produce chemically induce triploids

Year II: March 1, 2018 – Feb. 28, 2019

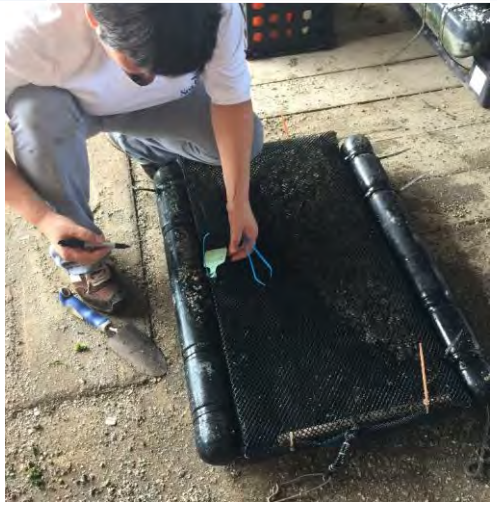
Goal: Produce tetraploid founders by using (3n x 2n)

Now: One proposal is pending.

Goal: Establish an extension program - tetraploid production

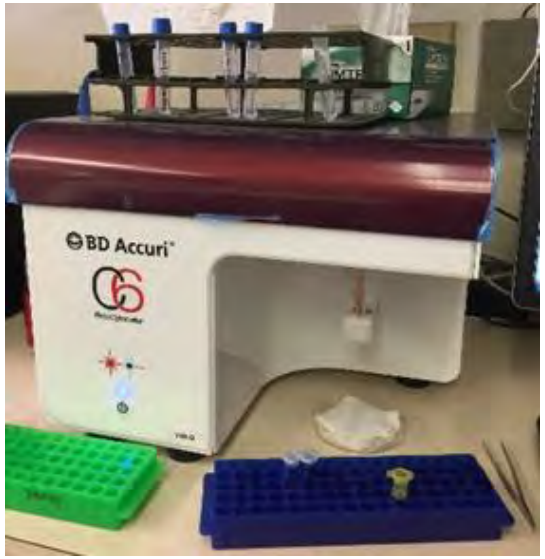
Year I: Summary

Broodstock	Labelling	Number	Triploid (%) (Date)	Location
Cedar Key	2017CK1	5,000	54% (11/08/2017)	Southern Cross Sea Farm
Wakulla	2017WA1	~20,000	76% (11/07/2017)	Bay Shellfish Inc.
			64% (10/31/2017)	Oyster Mom Inc.
			54% (10/04/2017)	Cedar Key Seafarms
Cedar Key	2017CK2	17,766	62% (10/23/2017)	Southern Cross Sea Farms
				Cedar Key Seafarms
				Pensacola Oyster Company
				Northwest Gulf Seafood Farms



Protocol for Ploidy Determination

- Using propidium iodide (PI) staining with flow cytometry.
- Larvae: pooling sample
- Spat: whole soft tissue
- Adult: Gill (kill the oysters) or Hemocyte (Biopsy oysters)

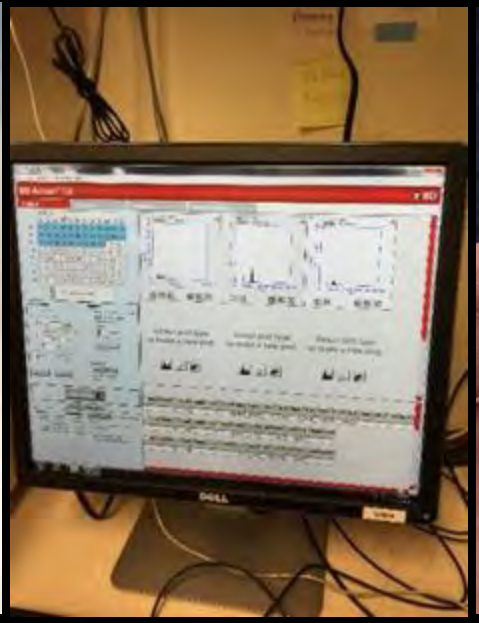


PHASE II: Summary (2018/2019 spawning season)










Germplasm Cryopreservation Research

1) Streamline and improve the existing protocols, and establish sperm quality control criteria
2) Establish a sperm bank of the Gulf Wild Oyster Resources
3) Achieve the males in each generation for breeding purpose
4) Preserve the strains/lines to be created in this project

Previous Research Updates

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Aquaculture

Volumes 344–349, 21 May 2012, Pages 223-230

High-throughput sperm cryopreservation of eastern oyster *Crassostrea virginica*

Huiping Yang [a], E Hu [a], Rafael Cuevas-Uribe [a], John Supan [b], Ximing Guo [c], Terrence R. Tiersch [a]

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https://doi.org/10.1016/j.aquaculture.2012.03.018

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Aquaculture Research

Original Article

Production of inbred larvae through self-fertilization using oocytes and cryopreserved sperm from the same individuals after sex reversal in eastern oyster *Crassostrea virginica*

Huiping Yang, Yan Wang, Ximing Guo, Terrence R Tiersch

First published:02 January 2014 | https://doi.org/10.1111/are.12371 | Citations: 2

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Establish a sperm bank for the Gulf oyster resources

Targets: Wild oysters, n = 50 from each location.

1) **Oyster resources and Genetic Information**
   Number, collection location, water quality parameters
2) **Biological data**
   Body sizes, body weight, and tissues for genetic background.
3) **Fresh sperm quality**
   Sperm amount, concentration, motility, other quality parameters
4) **Cryopreserved sperm**
   Straw number, labelling, date, and storage locations
5) **Post-thaw sample quality**
   Motility, fertility, and FCM assay parameters.
6) **Inventory record**.