ALABAMA OYSTER REEF RESTORATION PROGRAM

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Outline

- Alabama oyster fishery
- Overview of the program's goals and components
- Current and planned restoration projects
- Research projects & monitoring efforts

Alabama oyster fishery

- hand tongs with a 20 bushel/day limit
- only a small portion of Mobile Bay is intensively fished
- recent changes in the shrimp industry have resulted in increased effort in the oyster fishery

AL Oyster Restoration

- The Good

- Relatively rapid growth (1.5 – 2 yrs)
- High spat set in western bay and Mississippi sound
- Low disease levels

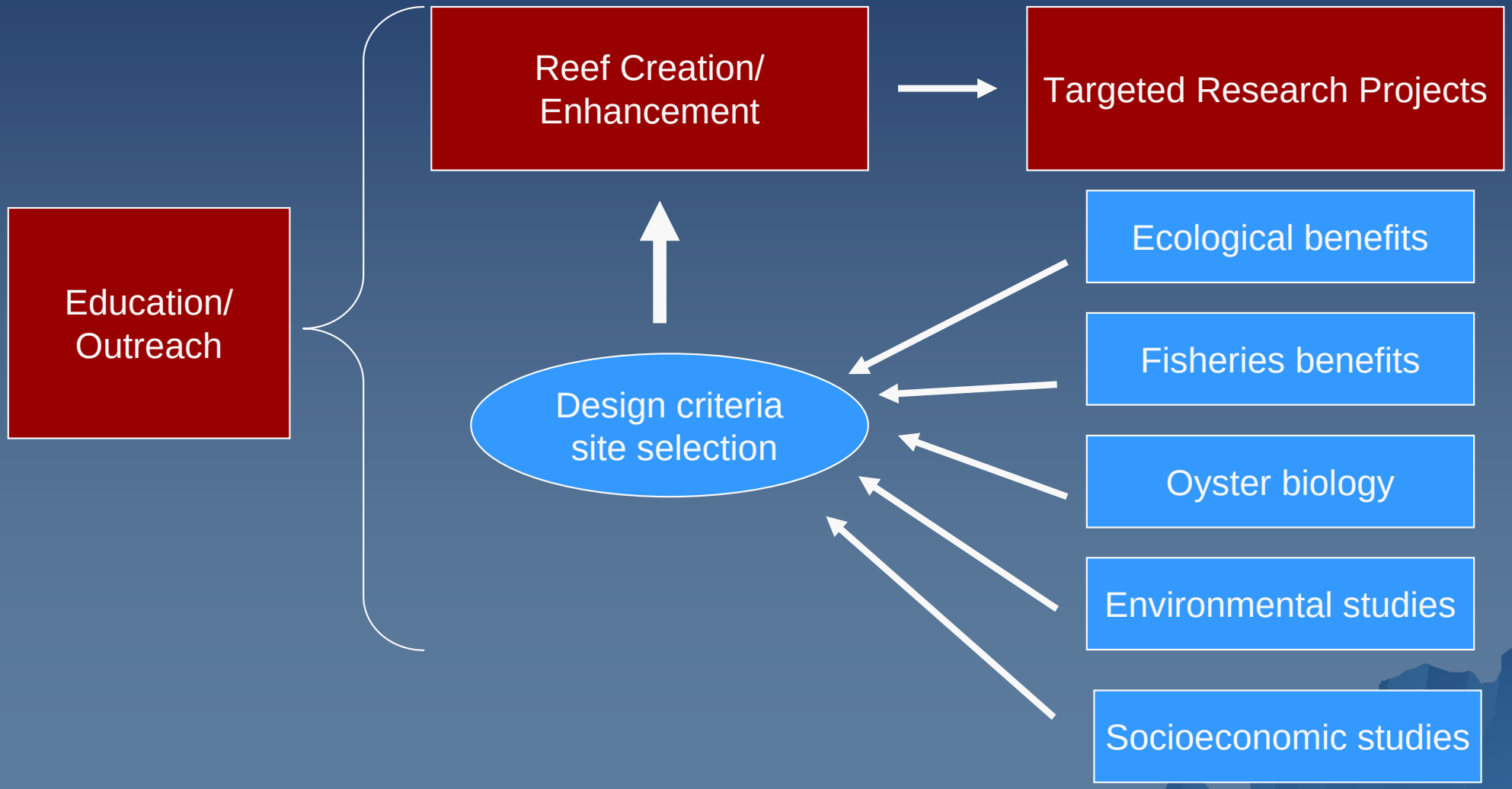
- The Bad

- Low dissolved oxygen
- Low recruitment in upper and eastern bay areas
- Oyster drills

Project Objectives

- to develop the scientific understanding necessary to direct oyster restoration and enhancement in Alabama coastal waters.
- to assist in the development of a long-term strategy for sustained productivity of Alabama's oyster resources and the associated ecological benefits that accrue from healthy oyster-based habitat.
- to provide this information to state and federal management agencies, the fishing industry and the general public through outreach activities.

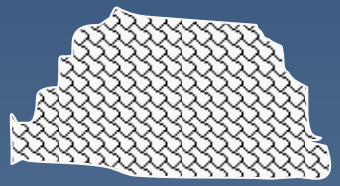
Project Components



2003-2004 Reef Creation

- Elevation of oyster reefs appears critical to successful reef restoration in areas with poor water quality or low oyster recruitment.
- Unfortunately elevated reefs cost more to build.
- Given the need for oyster reef restoration in multiple areas of the bay, the program has designed a large-scale planting effort to examine the efficacy of elevated reefs under varying environmental conditions.

1 m



VS.

0.1 m

Reef Creation

2003-2004

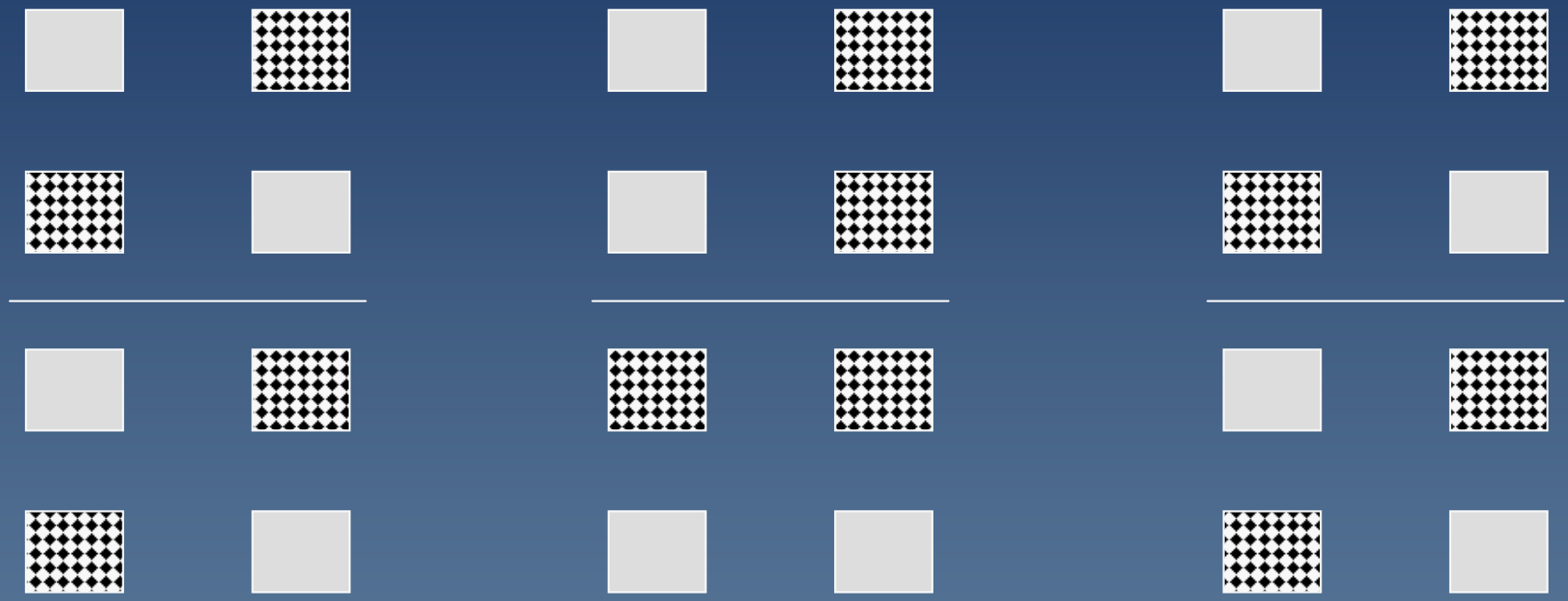
- Cedar Point Reef Area H
- Sand Bar Reef Area A
- Shell Bank Reef Area
- Heck et al.

2004-2005

- Perdido Bay

Experimental Design - 2003

Twenty-four 25 m x 25 m reefs



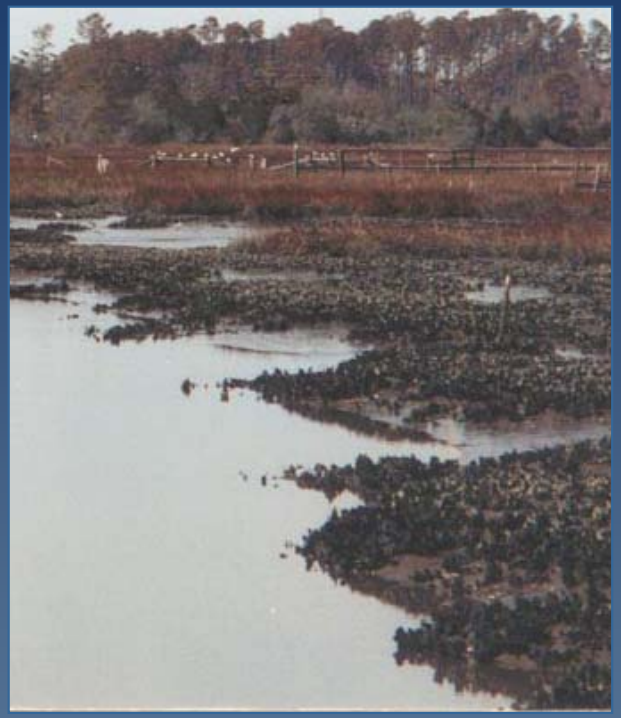
Cedar Point | Sand Reef | Shell Bank

High relief (1m) oyster reefs

Low relief (0.1 m) oyster reefs

Response variables: (1) Oyster survivorship, (2) Oyster growth, (3) oyster recruitment and (4) finfish and crab utilization.

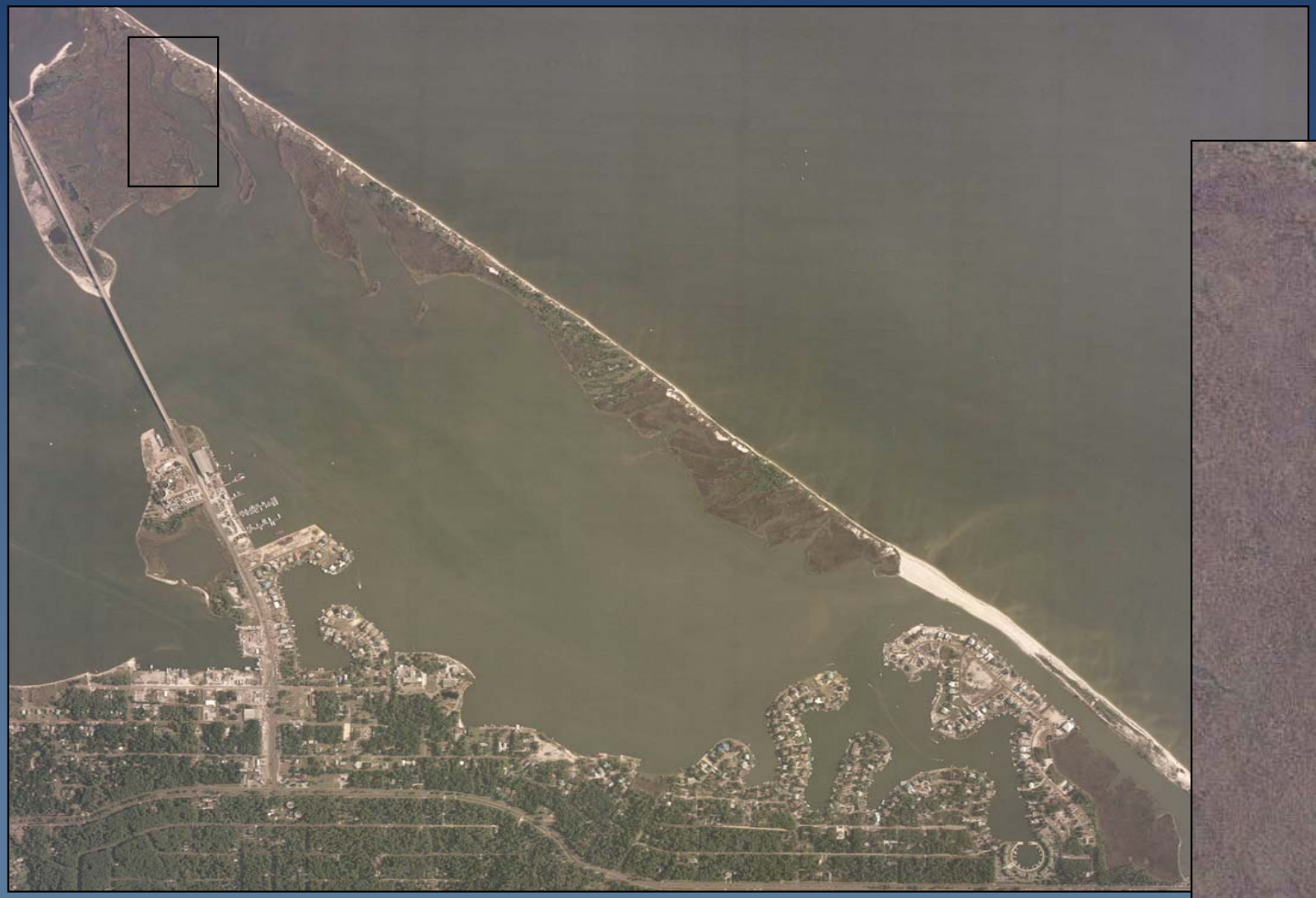
Targeted Projects: Ecological Benefits



- Heck, Cebrian, Powers - *Ecosystem services provided by oyster reefs: An experimental assessment.*

- Kelly Major - *Indicators of oyster reef functioning: Benthic algal community composition and productivity.*

Tidal creek – oyster reef creation (Heck et. al)



6 tidal creeks – 3 with oyster & 3 without

Tidal creek – oyster reef creation (Heck et. al)

- Response variables (primarily off-reef)
- Water column – turbidity, chl a and primary production
- Benthos – microphyto production, macralgae biomass, benthic and epibenthic invertebrate density and biomass
- Oyster – density live and dead, biomass
- Demersal/pelagic – fish & mobile inverts (block netting)

Targeted Projects: Fisheries Benefits

- Powers & Heck - *Quantifying fisheries benefits of oyster reef restoration in Mobile Bay.*

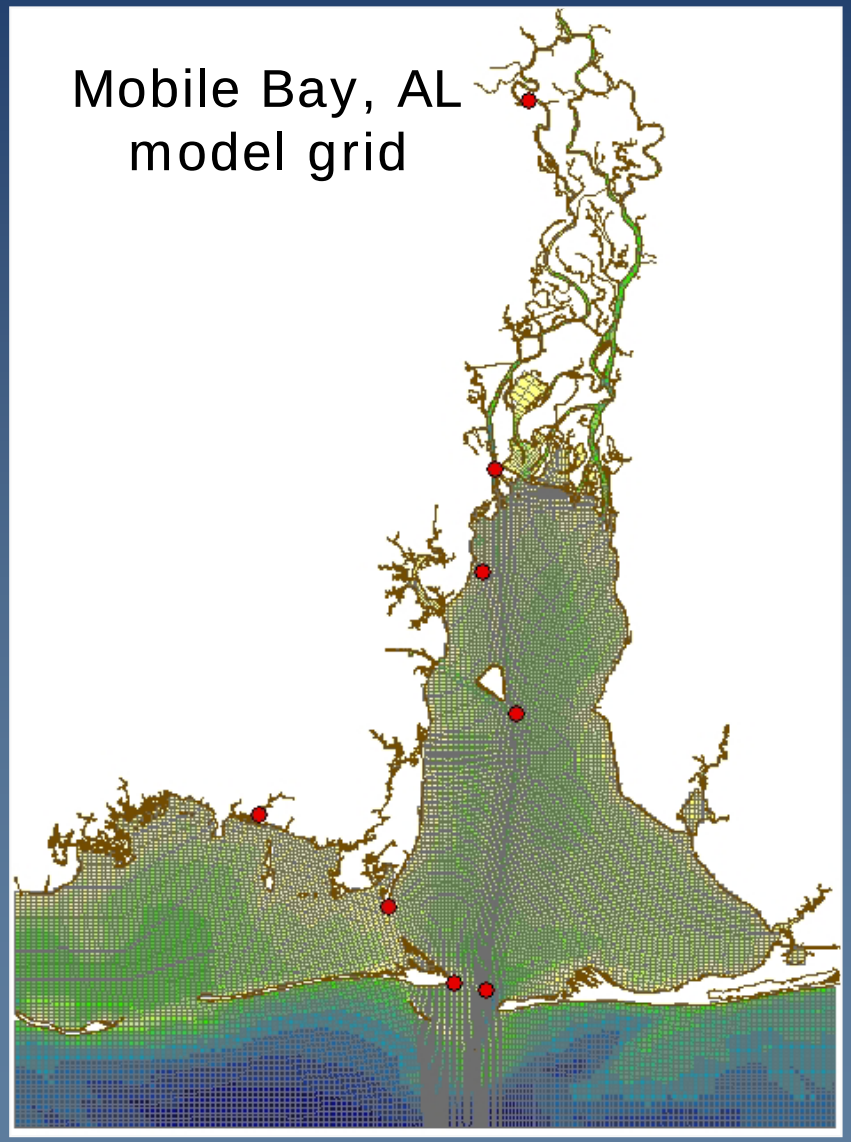
- Aronson - *Influences of reef surface characteristics on recruitment, survival and production of the eastern oyster Crassostrea virginica.*

Targeted Projects: Oyster Biology

- Boettcher - *Environmental impacts on oyster larvae and spat: Use of heat shock proteins.*

- Brockhouse - *The genetic identity of oysters in the Alabama Oyster Reef Restoration Program.*

Targeted Projects: Environmental Studies



- Park, Schroeder, Chen *Development of a three-dimensional Hydrodynamic model for Mobile Bay. Once developed the model can be used to examine water quality and oyster recruitment.*

Oyster Biology: Bay-wide oyster recruitment survey

- AORR reef sites
- Additional survey sites

-Monthly settlement plates

-water quality

Targeted Projects: Environmental Studies


circa 1885

- Coastal water quality/ meteorological mooring at Middle Bay Light (in cooperation with the Mobile Bay National Estuary Program and the Dauphin Island Sea Lab).
- Data gathered by this station and other NEP/DISL stations will be critical in validating the Mobile Bay circulation model as well as serving the needs of the fishing community through real-time web access.

Socioeconomic

- Picou - *Maintaining a balance between sustainability and harvesting practices: a socioeconomic characterization.*

Education/Outreach

- Dindo – Alabama Oyster Reef Restoration Program: Public outreach and K-12 education.
- Bayou LaBatre High School Aquaculture Program: Seed oyster production for restored oyster reefs.

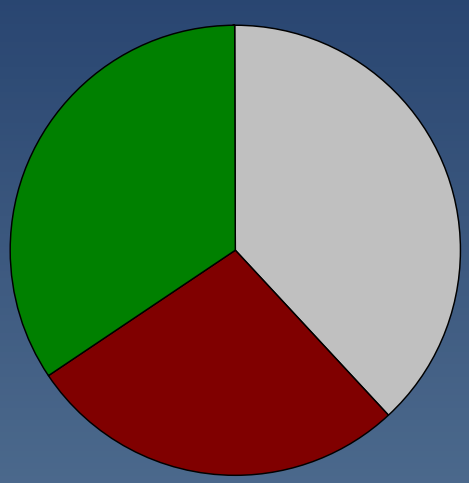
Cooperating/participating agencies

- National Marine Fisheries Service
- Alabama Marine Resources Division
- Dauphin Island Sea Lab
- Mobile Bay National Estuary Program
- Bon Secour Seafood, Inc.
- Auburn University Extension Service
- Alma Bryant High School Aquaculture Program (Bayou LaBatre)

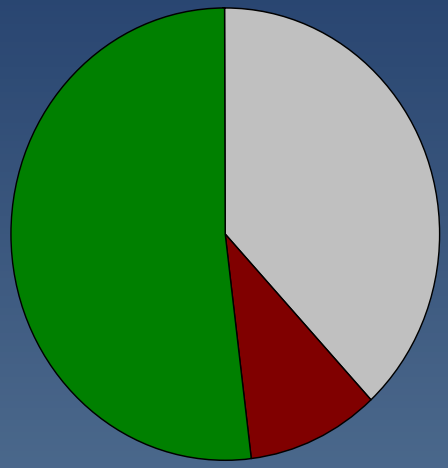
Future Program Activities

- Development and implementation of a fishermen directed oyster enhancement program.
- Second request for proposals to University researchers.
- Expansion of outreach/education activities.

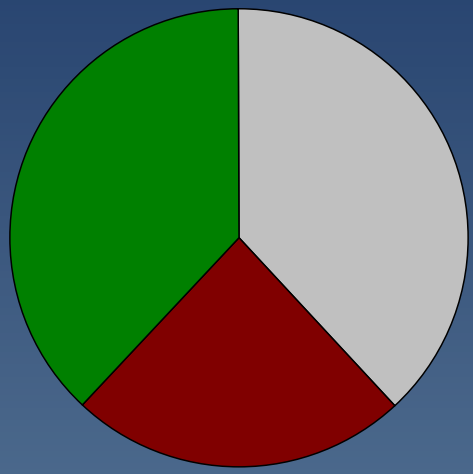
Distribution of effort



FY 02 Appropriation



FY 03 Appropriation



FY 04 Appropriation (?)

Reef creation/enhancement

Targeted Research Projects

F & A costs