

**Georgia Department of Natural Resources
Coastal Resources Division
Management Plan: Cannonball Jellyfish
June 2017**

General Objective

Evaluate and manage Georgia's cannonball jellyfish fishery to ensure the maximum aggregate social, economic, and ecological benefits to the citizens of Georgia.

Life History and Reproductive Biology:

The cannonball jellyfish (*Stomolophus meleagris*) is a large, round, firm jellyfish commonly found from North Carolina to Florida. In Georgia waters, the species is particularly common in the spring. This true jellyfish and member of the Class Scyphozoa is characterized by its large hemispherical top, or "bell", that is milky bluish or yellowish in color and edged with a brown band. Additional characteristics include a central mouth with 16 slit-like subsidiary mouths, forked lappets around the mouth, and a lack of trailing tentacles. Cannonball jellyfish move and propel through the water by pumping water with their powerful bell, passing it across its oral arms. However, this mobility is limited. As a zooplankton, this species is unable to move against wind-driven currents, frequently resulting in many jellyfish washing up on beaches during an onshore wind. Jellyfish are either male or female and reproduce sexually. During reproduction, sperm is released through the mouth into the water column, where it then swims into the female mouth and fertilization occurs. Cannonball jellyfish may grow to 10 inches (25cm) in diameter. The normal life span for cannonball jellyfish is three to six months.

Description of the Fishery:

Recreational Fishery

Currently, no data exist to indicate that cannonball jellyfish are recreationally targeted or harvested in Georgia.

Commercial Fishery

A commercial fishery has existed since 1998 and occurs in the state and federal waters adjacent to Georgia. Initially, cannonball jellyfish was a permitted experimental fishery. In 2013, the fishery was officially recognized in state code. Letters of Authorization (LOAs) are issued annually by the Department. Currently, less than 10 fishing vessels participate in this fishery, due in part to limited processing facilities (currently one) in this region. Gear restrictions require that trawl nets must have a minimum 4" mesh size and must be equipped with a federally approved leatherback TED in state waters. Tow times are short

(typically less than 30 minutes) and bycatch is minimal. Although a formal season has not been defined, the season is opened by request and has opened as early as November and closes March 31st. Landings vary annually for this fishery and are confidential.

Current Regulations:

Georgia Regulations

O.C.G.A 27-4-133(f)

Minimum-size:	none
Daily creel limit:	none
Season:	Open all year (typically executed in winter/spring)

Federal Regulations

Exclusive Economic Zone (3 - 200 miles offshore)

Minimum-size:	none
Daily creel limit:	none
Season:	none

Chronology of Georgia Regulations:

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| 1998 | First experimental permit is issued to harvest cannonball jellyfish in state waters. |
| 1990-2000 | Effectiveness on the requirement of TEDs in the food shrimp trawl (1990) and whelk trawl (2000) fisheries intended for protection of sea turtles contributes to requirement of TEDs for cannonball jellyfish fishery. |

Prioritized Issues of Concern:

1. Limited information is known on the population status or estimates of abundance for cannonball jellyfish. This information has primarily been gathered through bottom-trawl gear, and perhaps may not be entirely reflective on the status of this frequent mid- and upper-water column inhabitant.
2. There are no estimates of total mortality or natural mortality for cannonball jellyfish.
3. The human population of coastal Georgia continues to increase with concomitant urbanization of areas adjacent to the estuary.
4. Inland land and water use patterns are changing so that the quality and quantity of freshwater entering the estuaries may be altered to the point of comprising ecosystem function.
5. Although no size limit exists for cannonball jellyfish, fishery practices result in the harvest of all cannonball jellyfish captured. However, TEDs potentially

exclude larger cannonball jellyfish from passing through the grid resulting in a reduced harvest of larger individuals. As a result, little to no information can be gathered on abundance of these larger cannonball jellyfish.

6. There are no estimates of total spawning biomass or recruitment of cannonball jellyfish.
7. More information is needed on the life history of cannonball jellyfish in Georgia, including data on spawning, food preferences, ecological importance to zooplankton abundance, and movement patterns.

Goals and Objectives for Management:

1. Define and manage for Optimum Yield (OY).
2. Continue to examine feasibility of fishery on long-term basis.

Prioritized Research and Monitoring Needs

1. Estimate relative abundance with fishery-independent survey.

Field Operations

Monthly fishery-independent trawl survey examining finfish and crustaceans reinstated in March 2003 in the Wassaw, Ossabaw, Sapelo, St. Simons, St. Andrew, and Cumberland Sound Systems.

Analytical Methods

The methods listed above will be used to develop an index of relative abundance based on numbers of captured individuals per unit of effort.

2. Estimate fishing mortality with fishery-dependent survey.

Field Operations

Conduct fishery-dependent sampling with trawl vessels targeting cannonball jellyfish to examine volume of cannonball jellyfish harvested and produce catch-per-unit-effort (CPUE) estimates as observed onboard these vessels. Additional mortality information can further be compared and gained with reported landings information.

Analytical Methods

Estimates of fishing mortality could be generated based on information collected from fishery-dependent observer sampling and landings information reported by fishers.

3. Examine seasonal abundance to determine optimal conditions for presence of cannonball jellyfish.

Field Operations

Combine information collected from fishery-independent trawl monitoring, fishery-dependent observer data, and commercial fishing landings.

Analytical Methods

Utilizing all data available, determine seasons (periods) of greatest abundance and examine environmental conditions occurring during that period. By better understanding the connection between abundance and environmental conditions, better predictions on future estimates of abundance for cannonball jellyfish could be made.

Activities for FYs 2017 – 2022

Collection of relative abundance data to produce fishery-independent indices of abundance.

Purpose

To produce a relative index of abundance for cannonball jellyfish populations in six Georgia sound systems.

Method

Continue trawling activities aboard the *R/V Anna* to examine abundance and CPUE estimates.