



Dauphin Island Sea Lab

2010 Outlook for Coastal Moon Jellyfish, *Aurelia*, in the Northern Gulf of Mexico

Released April 26, 2010

Purpose of the Outlook: Large coastal jellyfish exert a great deal of ecological and economic pressure on our coastal living resources. In addition to the physical disruption of fishing, jellyfish are also voracious consumers of fish eggs, fish larvae and larval stages of shrimp and crab. This outlook is intended to provide information to fishers and fishery managers of the northern Gulf of Mexico (eastern Louisiana to the Alabama-Florida state line) on expected densities of large jellyfish *Aurelia* (regionally known as moon jellies, four-eyes, and figure-eights) for the coming season.

This Outlook only concerns this species given its relative importance to net-based fisheries such as the economically important commercial shrimp industry of the northern Gulf. While future outlooks may be given for species of concern to the tourism industry, scientists simply do not have the tools needed to accurately forecast beach-side distributions of jellyfish since their numbers are largely influenced by highly variable local currents, tides and winds.

How the Outlook is derived: Using a decades-long record of *Aurelia* densities and distribution across the northern Gulf of Mexico provided by Federal and State agencies, scientists at the Dauphin Island Sea Lab derived a relationship between sea surface temperature and *Aurelia* numbers. Lower than average spring-time (April) and higher than average summer (July-September) temperatures tend to yield above average numbers of *Aurelia* in the northern Gulf.

Outlook for 2010: Given early indications of physical conditions, we expect numbers of *Aurelia* sp. jellyfish to be above average during the period of late summer through fall (August – November). Sea surface temperature, one of the key predictors for number of young jellyfish released from the polyp stage, has been well-below average across the northern Gulf of Mexico during April of this year. In fact, April 2010 documented the lowest average sea surface temperature in the northern Gulf since records began in 1949.

Warming water temperatures during summer (July-September) is also a key variable in the prediction of *Aurelia* sp. An updated Outlook will be given July 2010. This will be followed by monthly aerial surveys of *Aurelia* swarms from July through November with specific locations, densities and general drift tendencies of jellyfish provided each month. Distributed maps will be available at that time.

Potential impacts: The greatest economic impact of widespread, dense swarms of *Aurelia* sp. is with net-based fisheries such as inshore shrimp trawling. These impacts include damage to nets, increased handling time of catch and reduced overall catch due to shortened trawl times. Occasionally, dense jellyfish may foul fishing line, but this is a minor nuisance. *There is little impact expected to tourism* given both timing and the fact that *Aurelia* does not exhibit a painful sting.

For more information on coastal jellyfish of the northern Gulf of Mexico, please visit <http://dockwatch.disl.org> or call 251-861-2141 x2289.

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Fact Sheet

Scientific name: *Aurelia* sp.
Common names: moon jelly, figure-eight jellyfish, four-eyes jellyfish

Distribution: The genus *Aurelia* is distributed world-wide, the Gulf of Mexico may be home to as many as three species (species not fully described yet). In the Gulf, there are several pockets of higher abundances of *Aurelia* and these are usually associated with large river discharge areas (from Mobile Bay, Alabama to northeast Texas). Another area of seasonally high *Aurelia* numbers is Florida Bay.

Timing: *Aurelia* typically begin showing up along northern Gulf coasts in mid Summer (July) and typically persist through October. Occasionally, as in the warm and storm-free fall of 2009, *Aurelia* can persist well into December. Very dense swarms of *Aurelia* can occur along the northern Gulf coast as they are pushed inshore by summer-time currents driven by southerly winds. However, variations in currents and winds from year to year may keep these swarms away from shore in deeper waters.

Ecology of the species: Like most coastal jellyfish, *Aurelia* has a two-stage life-cycle: the adult 'medusa' that we associate with seasonal *blooms*, or rapid increases in numbers, and a bottom-dwelling polyp stage. Each year, blooms of adult jellyfish originate from the microscopic polyp stage. A single polyp has the capacity to release dozens of jellyfish in a single year. While scientists are certain that polyps occur across the northern Gulf, the exact location of these polyps remains unknown and the subject of intense research.

Aurelia preys largely on plankton (microscopic plants and animals), and individuals can grow rapidly on this diet which includes fish eggs and larvae as well as the larvae of commercially important shrimp and crab.

Below are an aerial photograph and a water's level view of swarms of jellyfish (*Aurelia* sp.) in the northern Gulf of Mexico off Dauphin Island, AL (source Dauphin Island Sea Lab)

