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Johnson's seagrass (*Halophila johnsonii*)

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Status

ESA Threatened - throughout its range

Taxonomy

Kingdom: Plantae

Class: Liliopsida

Order: Hydrocharitales

Family: Hydrocharitaceae

Genus: *Halophila*

Species: *johnsonii*

Species Description

Johnson's seagrass can be identified by its smooth margins, spatulate leaves in pairs 0.25 to 1 inch (0.5-2.5 cm) long, a creeping rhizome (a horizontal subterranean plant stem, like the runners on a strawberry plant) with petioles, sessile (attached to their bases) female flowers, and longnecked fruits. The male flowers are unknown.

Outstanding differences between Johnson's seagrass and other similar species are its distinct asexual reproduction and leaf shape and form. The species is known to reproduce only asexually and may be limited in distribution because of this characteristic.

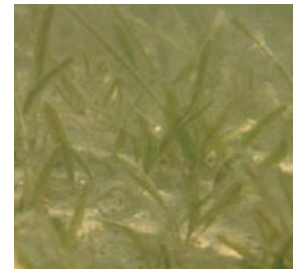
Johnson's seagrass plays a major role in the health of "[benthic](#)" resources as a shelter and nursery habitat. It has been documented as a food source for endangered West Indian manatees and threatened [green sea turtles](#). NOAA's National Marine Fisheries Service (NMFS) continues to conduct ecological research on Johnson's seagrass to better understand its life history and inform conservation decisions affecting the seagrass ecosystems.

Habitat

Johnson's seagrass prefers to grow in coastal lagoons in the intertidal zone, or deeper than many other seagrasses. It does worse in the intermediate areas where other seagrasses thrive.

The species has been found in coarse sand and muddy substrates and in areas of turbid waters and high tidal currents. Johnson's seagrass is more tolerant of salinity, temperature, and desiccation variation than other seagrasses in the area.

[Critical habitat](#) was designated on April 5, 2000 in areas of Florida.



Johnson's seagrass
(*Halophila johnsonii*)
Photo: Lori Morris

Did You Know?

- Johnson's seagrass is tolerant to wider temperature and salinity conditions than other seagrasses.



Johnson's Seagrass Critical Habitat
(click for larger view PDF)

Distribution

Johnson's seagrass has a very limited distribution; it is the least abundant seagrass within its range. It has a disjunct and patchy distribution along the east coast of Florida from central Biscayne Bay to Sebastian Inlet. The largest patches have been documented inside Lake Worth Inlet. The southernmost distribution is reported to be in the vicinity of Virginia Key in Biscayne Bay.

Population Trends

Johnson's seagrass is the rarest species of its genus. It has a limited distribution, limited ability to disperse and colonize habitats because of its asexual reproduction, and is dependent on substrate stability. Quantitative data on the species are rare, though one study found that abundance of all seagrass species is 16% less than in 1986 for the entire Indian River Lagoon complex (Ponce to Jupiter Inlet). Longer-term losses are thought to be approximately 50% for all seagrasses since the 1970s (Woodward-Clyde 1994).



Johnson's Seagrass Range Map
(click for larger view PDF)

Threats

Continued existence and recovery of Johnson's seagrass may be limited due to habitat alteration by a number of human and natural perturbations. Such perturbations include:

- **Propeller Scarring** - Alteration and subsequent destruction of the benthic community from boating activities, propeller scarring of the substrate, anchoring, and mooring has been observed in Johnson's seagrass sites. Such activities result in broken root systems, severed rhizomes, and significant reductions of the physical stability of the substrate.
- **Dredging** - Dredging waterways for boat access redistributes sediments, buries plants and destroys bottom topography.
- **Storm Action & Sedimentation** - Erosional forces and sedimentation associated with severe storms are likely to affect some abundant populations located near inlets. During hurricanes, storm surge may scour and redistribute sediments, thereby eroding or burying existing populations. Siltation due to human disturbance and land-use practices can also threaten viability of the species.
- **Degraded Water Quality** - Nutrient enrichment, caused by inorganic and organic nitrogen and phosphorus loading via urban and agricultural land run-off, can stimulate increased algal growth and smother Johnson's seagrass by shading rooted vegetation and diminishing the oxygen content of the water.



Johnson's Seagrass Bed
(*Halophila johnsonii*)
Photo: Lynn Lefebvre

Conservation Efforts

Research is ongoing on ways to successfully grow the species in captivity and transplant it to suitable locations. The [Recovery Plan](#) [pdf] also calls for research on basic reproductive biology and life history of the species as well as general management and coordination among responsible local, state, and Federal agencies.

Regulatory Overview

On September 15, 1993, NMFS published a proposed rule to list Johnson's seagrass as a Threatened species under the Endangered Species Act (ESA). Designation of critical habitat was subsequently proposed on August 4, 1994. A public hearing on both the proposed listing and critical habitat designation was held in Vero Beach, Florida on September 20, 1994. The public comment period was reopened until October 13, 1994, to include comments on both of the proposed actions.

Johnson's seagrass was listed as Threatened on September 14, 1998. Critical habitat was designated on April 5, 2000.


A recovery plan was published on October 4, 2002.

Key Documents

(All documents are in PDF format.)

Title	Federal Register	Date
5-Year Review	72 FR 68129	12/04/2007
Recovery Plan	67 FR 62230	10/04/2002
Critical Habitat Designation	65 FR 17786	04/05/2000
ESA Listing Rule	63 FR 49035	09/14/1998
Status Review	n/a	10/15/1997

More Information

- NMFS Southeast Regional Office Johnson's Seagrass Fact Sheet [pdf]
- [NOAA's Coastal Services Center Benthic Habitat of Johnson's Seagrass](#)
- [U.S. Fish & Wildlife Service Johnson's Seagrass Species Profile](#)
- [Florida Department of Environmental Protection Seagrass Facts](#) 

References

- Woodward-Clyde. 1994. Historical imagery inventory and seagrass assessment: Indian River Lagoon. [Indian River Lagoon National Estuary Program](#), Melbourne, FL.

