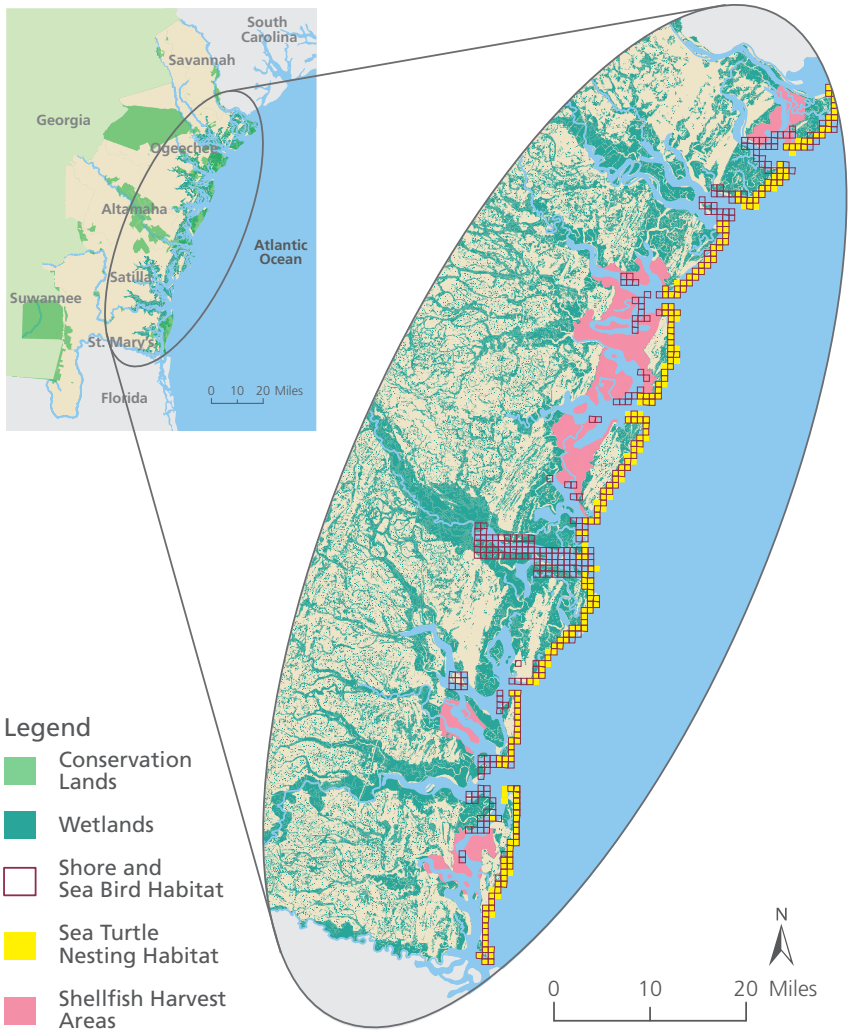
Coastal Georgia Ecosystem Report Card 2015

features

Marshes, beaches, & estuaries



Coastal Georgia is dominated by marshes and wetlands, and provides habitat for birds, shellfish, and sea turtles.

Located in the center of the South Atlantic Bight, coastal Georgia is a region rich in history, beauty, and natural wonders. Georgia's coast is bound on the east by 14 barrier islands which buffer the mainland from the Atlantic Ocean. Most of these islands remain undeveloped and boast pristine beaches perfect for nesting sea turtles and shorebirds.

Five major freshwater rivers feed the Georgia coast, forming an extensive estuarine ecosystem. The 368,000 acres of saltmarsh provide essential nursery grounds for a diverse range of animals including fish, shrimp, oysters, and birds. Saltmarshes protect upland areas from the force of tides and serve as a natural filtration system for pollutants and nutrients that often enter waterways leading to the ocean.

Coastal Georgia's river system is woven together by hundreds of streams, brackish and freshwater marshes, bogs, and swamps that extend far inland. This network delivers vast amounts of freshwater to the coast and creates a range of habitats that support diverse wildlife.

Although relatively undeveloped, the coastal Georgia landscape is changing nonetheless. New residents are drawn by the region's natural beauty and abundance of recreational opportunities. Through a combination of wise management, stewardship, and collaboration, everything we love about coastal Georgia can be conserved for generations to come.

The importance of creating a report card

The Georgia Department of Natural Resources (DNR) is the state agency entrusted to manage Georgia's diverse coastal natural resources. DNR collects data through numerous inventory and monitoring activities conducted along the coast. This report card contains grades for various categories produced by comparing and contrasting data from monitoring activities with known standards and reference points. While this report card does not address every indicator or environmental issue facing the coast, it does provide the public with broad fact-based knowledge about the condition of Georgia's coastal resources.

DNR/CRD

Monitoring a marsh in coastal Georgia.

DNR/CRD

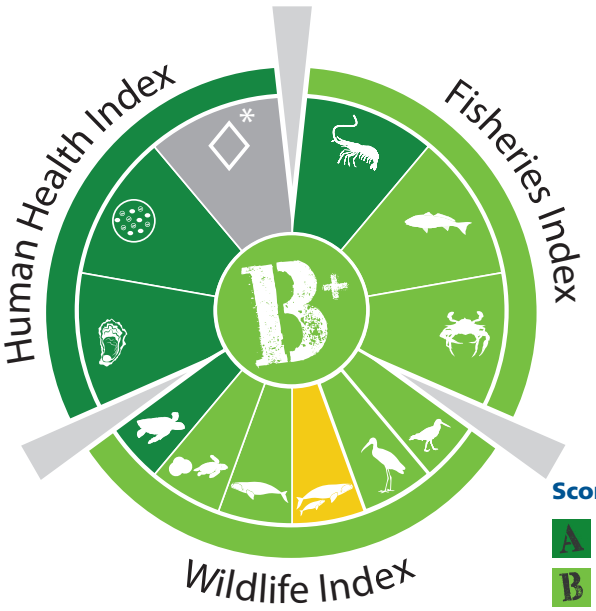
T. Keyes

A. Mackinnon

Coastal Georgia monitoring programs assess oyster reefs (top), wood stork productivity (middle), and sea turtle hatching (bottom).

health

Moderately good health in 2015



Scoring Legend

- A ≥80–100% good
- B ≥60–<80% moderately good
- C ≥40–<60% moderate
- D ≥20–<40% poor
- F 0–<20% very poor

Coastal Georgia received a B+, 79%, a moderately good score. Three indices covering 12 indicators including human health, fisheries, and wildlife data make up the grade for coastal Georgia. Scores ranged from100% for sea turtle nesting trends to 57% for right whale calving.

**Data for fish consumption advisories were not included this year.*

The human health index scored a 91%, or A, in 2015. Overall, human health indicators are good, meaning that it is generally safe to swim and eat local shellfish. Data on fish consumption advisories was insufficient for use in the report this year.

The fisheries index scored a 77%, or B+, in 2015. Overall, fisheries indicators are moderately good, which means that sustainable fishing practices are used and that the coastal environment is able to support most commercial and recreational species. The blue crab indicator which fared poorly in 2014 did better in 2015 with a score of 62%.

The wildlife index scored a 70%, or B, in 2015. Overall, wildlife indicators are moderately good, suggesting that key species of birds, sea turtles, and whales are being maintained. Populations of these high priority species are being conserved and improved due to attentive and robust management strategies.

fecal coliform 92% | enterococcus 91% | * fish consumption advisories | shrimp 100%

methods

Analyzing data & calculating scores

Environmental report cards are used by resource managers to assess and report on the ecosystem health of a region. Developing rigorous, quantitative assessments provides an accountability that is increasingly beneficial to support environmental protection efforts. A five-step process of developing report cards is used to assess progress: 1) conceptualize, 2) choose indicators, 3) define thresholds, 4) calculate scores, and 5) communicate results.

This report card provides a transparent, timely, and geographically detailed assessment of health in coastal Georgia. Coastal Georgia health in 2015 is defined as the progress of **two human health indicators** (enterococcus and fecal coliform), **three fisheries indicators** (red drum, blue crabs, and shrimp), and **six wildlife indicators** (wood storks, American oystercatchers, sea turtle hatching, sea turtle nesting, right whale calves, and right whale population growth rate) toward scientifically-derived thresholds or goals. Each of these groups of indicators are averaged into indices; the human health, fisheries, and wildlife indices. The three indices are combined into the Coastal Georgia Ecological Health Score.

Preliminary analysis of water quality indicators was conducted during development of this report card. Although there are thresholds for water quality indicators through EPA's National Coastal Condition Assessment, they do not adequately apply to the unique conditions in coastal Georgia (see page at right).

For detailed information on indicators, thresholds, and methodology visit **CoastalGaDNR.org/ReportCard.**

1 What is the big picture?

CONCEPTUALIZE

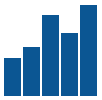
Create a framework defining key goals, values, and threats.

2 What do we measure?

CHOOSE INDICATORS

Select indicators that convey meaningful information.

3 What is healthy?



DEFINE THRESHOLDS

Define reporting regions and method of threshold attainment.

4 How does it add up?

CALCULATE SCORES

Calculate indicator scores and combine into index grades.

5 What is the story?

COMMUNICATE RESULTS

Communicate results using visual elements, such as photos, maps, and conceptual diagrams.

Grading scale for the indicators

The report card grading scale is a little different from the grading scale you saw in school. We use a 20-point scale to score the indicators, instead of the 10-point scale. Using a 20-point scale for environmental report cards is widely accepted as the best way to communicate health of an ecosystem. By using a scale that is equally divided, small changes in indicators can be more easily seen over time.

A ≥80–100%
All human health, fisheries, and wildlife indicators meet desired levels. Indicators in these locations tend to be very good, most often leading to preferred habitat conditions.

B ≥60–<80%
Most human health, fisheries, and wildlife indicators meet desired levels. Indicators in these locations tend to be good, often leading to acceptable habitat conditions.

C ≥40–<60%
There is a mix of good and poor levels of human health, fisheries, and wildlife indicators. Indicators in these locations tend to be fair, leading to sufficient habitat conditions.

D ≥20–<40%
Some or few human health, fisheries, and wildlife indicators meet desired levels. Indicators in these locations tend to be poor, often leading to degraded habitat conditions.

F 0–<20%
Very few or no human health, fisheries, and wildlife indicators meet desired levels. Indicators in these locations tend to be very poor, most often leading to unacceptable habitat conditions.

 red drum 69%

 blue crabs 62%

 American oystercatchers 61%

 wood storks 70%

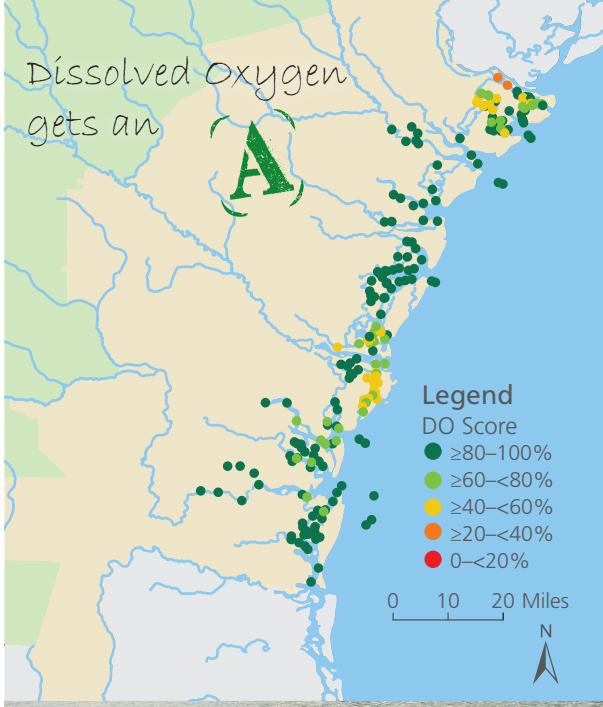
highlights

Water quality & dissolved oxygen

DNR monitors water quality throughout the coastal region. Dissolved oxygen (DO) is one important indicator used to quantify the health of a water body. Low DO is often a sign of degraded water quality. However, some areas in coastal Georgia, especially upriver blackwater creeks and coastal estuaries not fed by freshwater rivers, naturally experience low DO in warmer months without the expected negative effects of algal blooms, fish die-offs, and reduced species diversity observed elsewhere.

A preliminary analysis of DO data from 2015 was conducted for this report card using thresholds established by EPA's National Coastal Condition Assessment. Coastal Georgia's overall DO score is an 85%, or an A.

Additional monitoring and research is underway by DNR to understand how changes in water quality affect these complex systems and to determine other appropriate indicators of coastal health. For more information on water quality in coastal Georgia, please visit: CoastalGaDNR.org/cm/wq.



DNR/CRD

Dissolved Oxygen station scores in 2015 (top). Water quality monitoring occurs throughout coastal Georgia (bottom).

Fisheries & blue crabs

Fisheries indicators in Georgia are important to analyze as they constitute a huge resource along the coast. While shrimp remained above the long-term average in 2015 (scoring 100%), red drum declined slightly when compared to 2014 (2014: 86%, 2015: 69%). However, favorable environmental conditions resulted in a significantly better score for blue crabs in 2015 with a 62% (2014 = 22%).

The decline in the red drum score is no reason for concern at this time. Annual fluctuation in juvenile abundance are expected due to numerous factors that influence survival the first year. Shrimp numbers were bolstered by strong catches of overwintering and spawning white shrimp (Jan-Apr and May-Jul) and brown shrimp (Jun – Aug), which are all above the long-term average (1976 - 2015). Even though fall white shrimp were 63% below the long term average. The average results of shrimp, red drum, and blue crabs gives a Fisheries Index in 2015 a score of 77% compared to 70% in 2014.

W. Hughes

Favorable environmental conditions resulted in an increase in the 2015 blue crab score.

right whale calves	right whale population	sea turtle hatching	sea turtle nesting
57%	66%	68%	100%

involvement

You can help protect Georgia's coastal resources

	How you can help	Benefits
	Install a rain barrel for your home to collect water for irrigation	Conserves water which is essential for healthy productive estuaries.
	Inspect and pump out your septic system every 3-5 years	Functioning septic systems keep bacteria from entering waterways, which in turn can help reduce beach advisories and shellfish harvest closures.
	Abide by all beach lighting rules and ordinances during sea turtle nesting and hatching season	Hatchling sea turtles can become easily disoriented and fail to crawl to the water if our homes and flashlights illuminate the beach.
	Know your recreational fishing catch and size limits	These limits help sustain a healthy population of fish species.
	Buy a Georgia hunting or fishing license	License fees support research and conservation of coastal species and habitats.
	Pick up after your pets	Fecal bacteria from pet waste can wash into creeks and rivers, resulting in beach swimming advisories or shellfish harvest closures.
	Participate in monitoring and clean-up activities in local waterways	Citizen data can alert resource managers to potential issues. Visit GeorgiaAdoptaStream.com and Riversalive.com/index.htm.

activities

Georgia DNR sustains, protects, & conserves the coast

The mission of the Department of Natural Resources is to sustain, enhance, protect, and conserve Georgia's natural, historic, and cultural resources for present and future generations, while recognizing the importance of promoting the development of commerce and industry that utilize sound environmental practices. Along Georgia's coast, several Divisions of DNR work collaboratively, including the Coastal Resources Division (CoastalGaDNR.org), Wildlife Resources Division (georgiawildlife.org), and Environmental Protection Division (epd.georgia.gov). Together they manage the region's unique natural resources for wildlife habitat, as well as recreational and commercial uses by the citizens of Georgia.

Acknowledgements

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Workshop participants in December 2014 who helped produce this report card.

GEORGIA DEPARTMENT OF NATURAL RESOURCES
COASTAL RESOURCES DIVISION

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

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