# Coastal Lifestyle for Clean Water

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ACE Basin NERR, SCDNR

SCCIN
Calling the Coast Home

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## Calling the Coast Home

**Course Series:**

Living with Water
The Land Water Connection
Tidelands, Water & Beach: Regulations & Rebuilding
Coastal Lifestyle for Clean Water

**Instructors:**
South Carolina Sea Grant Consortium, Clemson University, ACE Basin National Estuarine Research Reserve, South Carolina Department of Natural Resources, North Inlet-Winyah Bay National Estuarine Research Reserve, University of South Carolina, Coastal Waccamaw Stormwater Education Consortium, Coastal Carolina University, South Carolina Department of Health and Environmental Control

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**South Carolina Coastal Information Network**
https://www.sccoastalinfo.org/

**Instructors:**
Kaitlyn Dirr — *SC DNR & ACE Basin NERR*
April Turner — *SC Sea Grant Consortium*
Amy Scaroni — *Clemson Extension*
Barbara Neale — *SC DHEC*
Maeve Snyder — *North Inlet-Winyah Bay NERR*
Susan Lovelace — *SC Sea Grant Consortium*

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## Agenda
## Coastal Lifestyle for Clean Water

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- Overview: Why This Matters
- Coastal Life Support: The Saltmarsh and Tidal Creek Ecosystem
- Coastal Lifestyle for Clean Water Guide
  - Aquatic Life and Wildlife
    - Tool: SC Watershed Atlas
  - Recreation
    - Tools: SC Beach Guide, Swim Guide
  - Seafood
    - Tools: SC Fish Consumption Advisory App, SCDNR Shellfish Mapper

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## Objectives
## Coastal Lifestyle for Clean Water

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- Understand how clean water and a healthy saltmarsh supports favorite coastal lifestyle activities
- Understand how to use online tools to investigate water quality in communities
- Provide clients with resources and tips to stay safe and healthy while living the coastal lifestyle
- Encourage clients to reduce sources of water pollution, especially bacteria

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## Yes! We will share slides and links to all resources!

Photo: SCDNR

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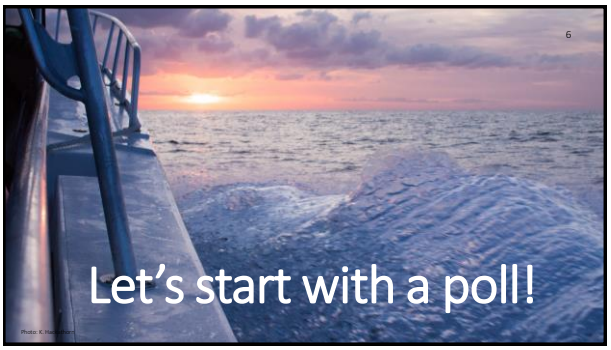
6
Let's start with a poll!

7

7
South Carolina's coast is a great place to live.

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8
Our Coastal Lifestyle…
Boating, fishing, birding and more.

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Clean water & a healthy saltmarsh support our coastal lifestyle.

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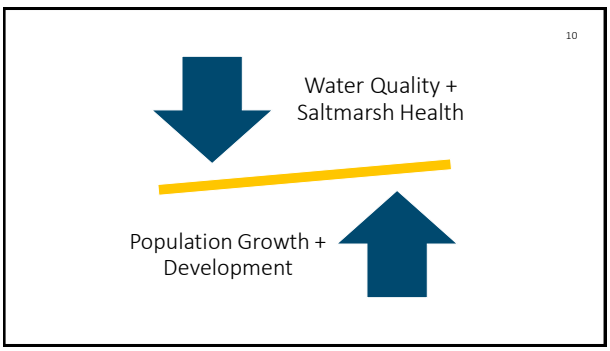
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Water Quality + Saltmarsh Health
Population Growth + Development

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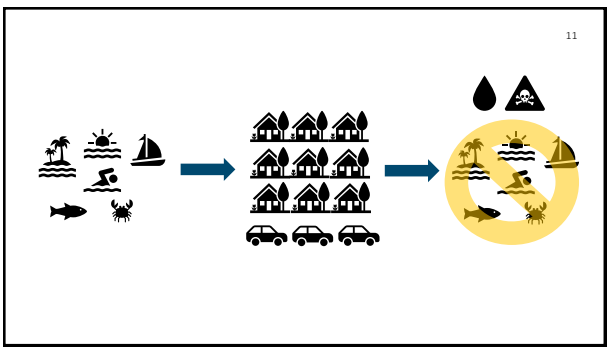
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Coastal Life Support: The Saltmarsh and Tidal Creek Ecosystem

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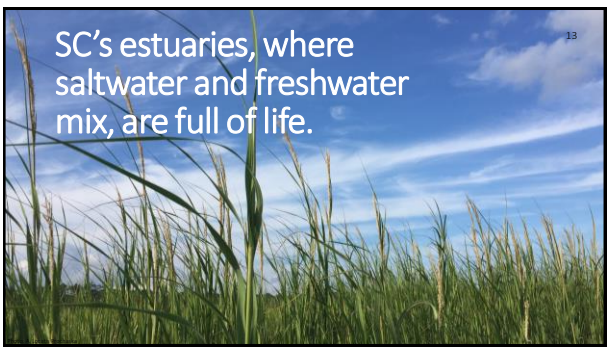
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SC's estuaries, where saltwater and freshwater mix, are full of life.

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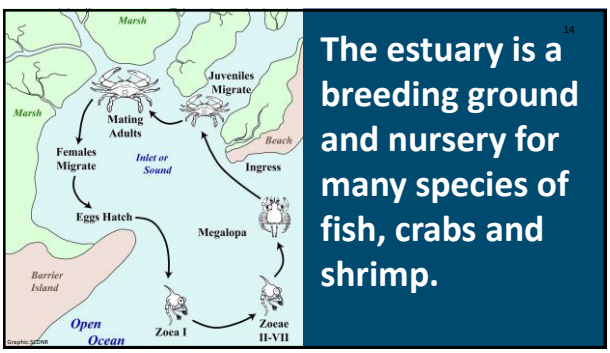
14
Marsh
Juveniles Migrate
Marsh
Mating Adults
Females Migrate
Inlet or Sound
Beach
Ingress
Eggs Hatch
Megalopa
Barrier Island
Open Ocean
Zoea I
Zoeae II-VII
The estuary is a breeding ground and nursery for many species of fish, crabs and shrimp.

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# How does a marsh get dirty?

https://coast.noaa.gov/elearning/estuaries/

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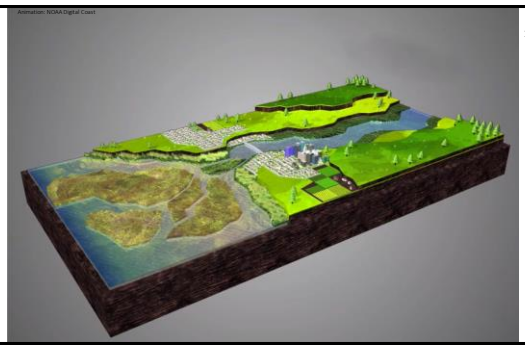

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## How does a marsh get clean?

Oysters + Marsh Grass + Pluff Mud = Filter and trap pollutants

Tides = Flush excess nutrients

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# How much pollution can the marsh handle?

SCDHEC has a water quality monitoring program for that.

There are practical steps residents can take to reduce pollution and protect creeks and salt marshes.

There are practical steps residents can take to reduce personal risks from pollution.

Residents can also help protect wildlife that live in creeks and saltmarshes.

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# Aquatic Life Water Quality Indicators

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- Dissolved Oxygen
- pH
- Turbidity
- Nutrients
- Heavy Metals
- Temperature
- Salinity

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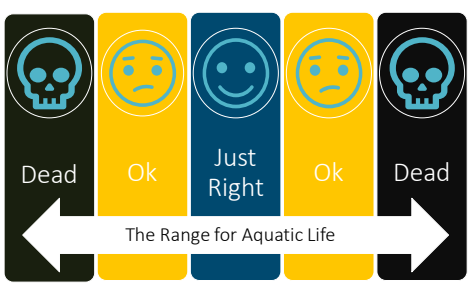


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# Threat: development activities can result in water pollution.

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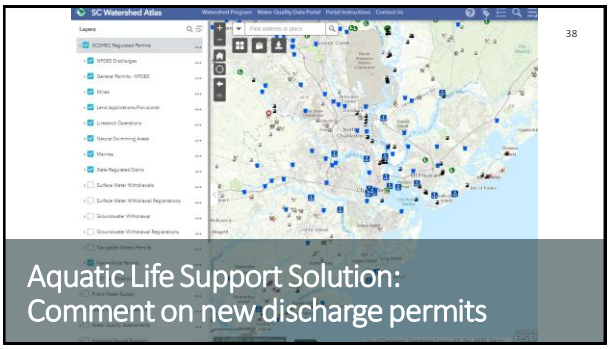


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Aquatic Life Support Solution
Reduce polluted runoff from lawns and neighborhoods
Take the Land Water Connection course!
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Aquatic Life Support Solution: Recycle oyster shells.
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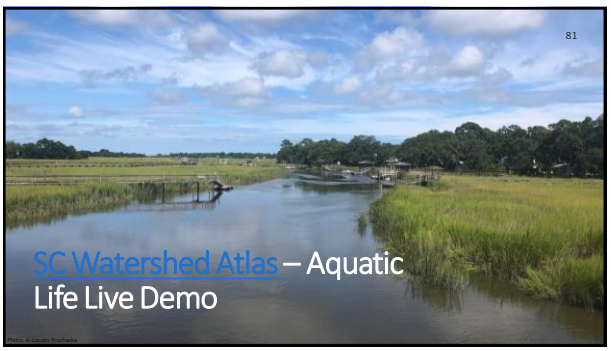
81
SC Watershed Atlas – Aquatic Life Live Demo

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## Practice Time!
## SC Watershed Atlas

https://gis.dhec.sc.gov/watersheds/
Google "SC Watershed Atlas"

**Suggested layers to check out:**

**SCDHEC Regulated Permits –** any sublayer
**Water Quality Assessments** - 2018 Use Support and Trends sublayer, Impaired Waters – 303(d)2018
**Nat'l Watershed Boundaries** – any sublayer

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## SCDHEC chemical spill, oil spill and fish kill hotline: 1-888-481-0125

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## File a pollution complaint with local SCDHEC Environmental Affairs Office

https://www.scdhec.gov/ea-regional-offices

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## Threat: Litter and Microplastics

Photo: E. Weeks/SCDNR Staff

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## Solution: Report littering 1-800-922-5431

SCDNR Tips App

Photo: E. Weeks/SCDNR Staff

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64
Threats: Human Disturbance & Human Wildlife Conflict

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We must live responsibly to ensure good homes for animals and people.
FRONT BEACH
LIGHTS OUT
FOR SEA TURTLES
PER ORD 31-08
ENF CODE 151-48
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ALLIGATORS
MAY LIVE HERE
BE GATOR SAFE:
Do Not Approach, Feed or Harass Alligators
Warning: It is UNLAWFUL to feed alligators!
REMEMBER
A FED GATOR IS A DEAD GATOR!
Don't feed gators, geese or other wildlife.

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Alligators will be your neighbors.

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Birds need space to nest, rest and eat.

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Coastal SC is a birding hotspot.

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## Coastal Lifestyle: Wildlife Checklist for New Residents

- Attend a public program with SCDNR
- Visit the South Carolina Aquarium
- Volunteer with a turtle patrol
- Go birding with SC Audubon
- Never feed wildlife
- Give wildlife plenty of space
- Participate in the annual Beach Sweep/River Sweep cleanup

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## 10 Minute Break

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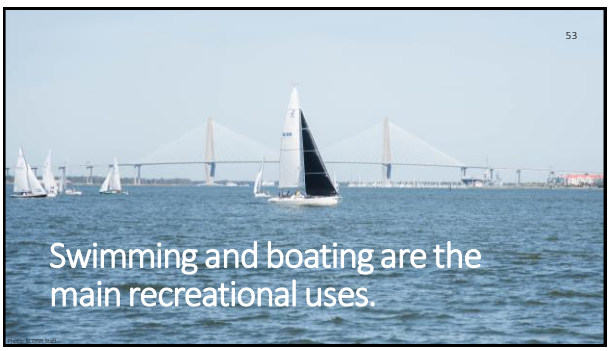


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Threat: bacteria in water where you swim can make you sick.

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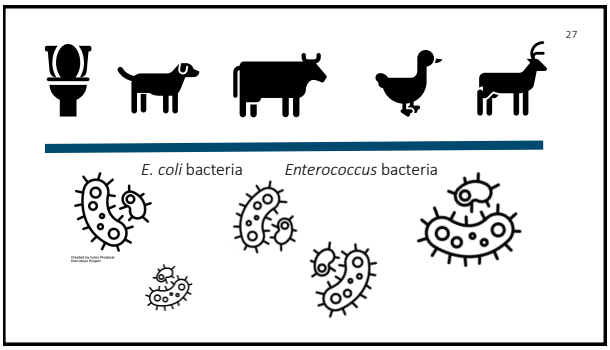
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*E. coli* bacteria
*Enterococcus* bacteria

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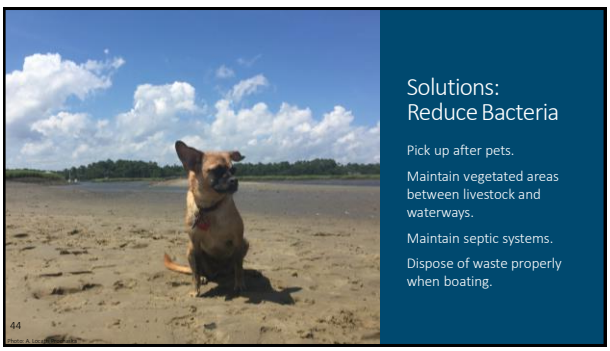
Solutions:
Reduce Bacteria
Pick up after pets.
Maintain vegetated areas between livestock and waterways.
Maintain septic systems.
Dispose of waste properly when boating.
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What does a swim advisory mean?
55
ADVISORY LOCATION for sampling
SAFER Swimming
Just be aware of things like these STORMWATER DRAINS.
(especially after heavy rains)
Wading, walking, and shell collecting are OK.
The entire beach is OPEN!

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## Practice Time!
## Swimming/Recreational Use

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Swim Guide:
https://www.theswimguide.org/find/
Google "Swim Guide"

SC Beach Guide:
https://gis.dhec.sc.gov/beachaccess/
Google "SC Beach Guide"

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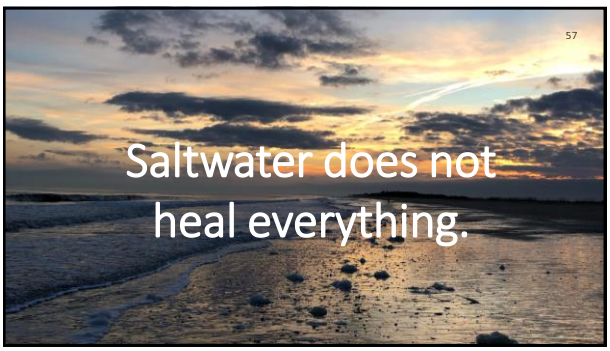


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VS

130 shark attacks worldwide in 2018

80,000 cases of vibriosis annually in the US

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# Threat: irresponsible boaters pollute and destroy marsh habitat.

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## Boater Solutions: Clean Vessels

Larger boats – use pumpouts

Smaller boats – clean waste bags

South Carolina CLEAN MARINA

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## Boater Solutions: Slow Down

- Obey no wake zones
- Don't wake oyster reefs
- Watch out for manatees and sea turtles

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# Report boating, fishing or hunting violations. Operation Game Thief hotline:1-800-922-5431

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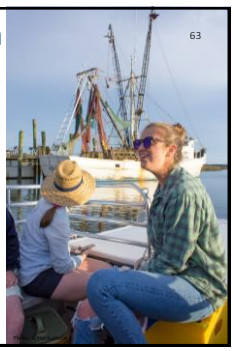
## Coastal Lifestyle: Recreation Checklist for New Residents

- Register your boat with SCDNR
- Review the Handbook! Of SC Boating Laws and Responsibilities
- Take a boater education course
- Study the tides in your area
- Watch your wake – slow down to protect oysters, people, property and wildlife
- Find your local nautical chart
- Check for swim advisories at your favorite beach
- Decide on a boat waste disposal strategy



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## Threat: bacteria in shellfish can make you sick.

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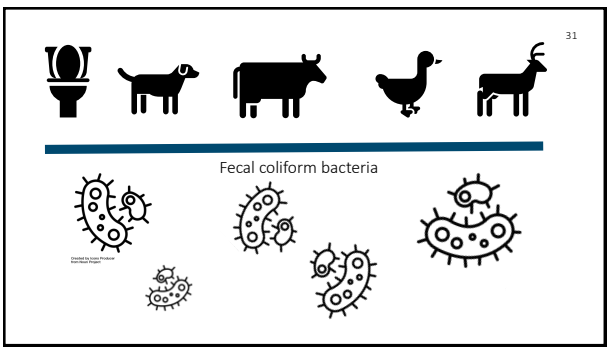


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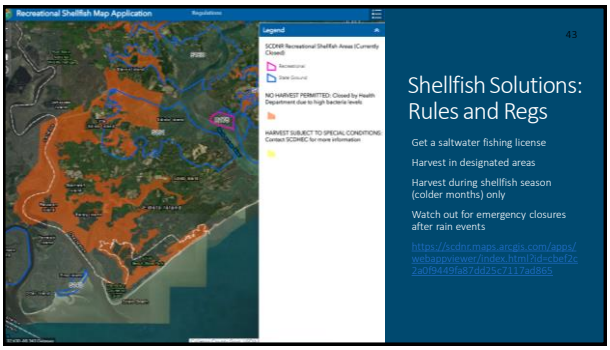
Recreational Shellfish Map Application
Legend
SCDNR Recreational Shellfish Areas (Currently Closed)
Recreational
State Ground
NO HARVEST PERMITTED: Closed by Health Department due to high bacteria levels
HARVEST SUBJECT TO SPECIAL CONDITIONS: Contact SCDHEC for more information
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Shellfish Solutions: Rules and Regs
Get a saltwater fishing license
Harvest in designated areas
Harvest during shellfish season (colder months) only
Watch out for emergency closures after rain events
https://scdnr.maps.arcgis.com/apps/webappviewer/index.html?id=cbef2c2a0f9449fa87dd25c7117ad865

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Shellfish Solutions: Reduce Bacteria
Pick up after pets.
Maintain vegetated areas between livestock and waterways.
Maintain septic systems.
Dispose of waste properly when boating.

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Water needs to be clean to support fish consumption.

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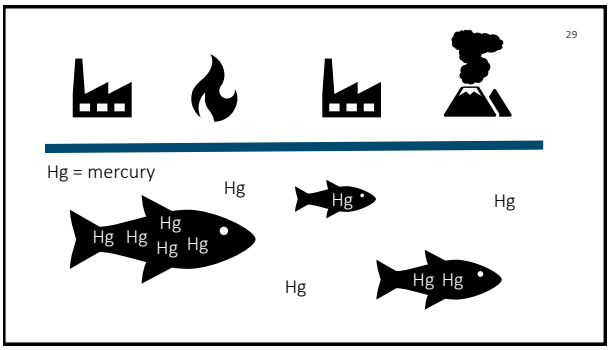
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Hg = mercury
Hg
Hg
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Hg Hg
Hg Hg
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Hg Hg

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Threat: pollutants in fish can be harmful if eaten.

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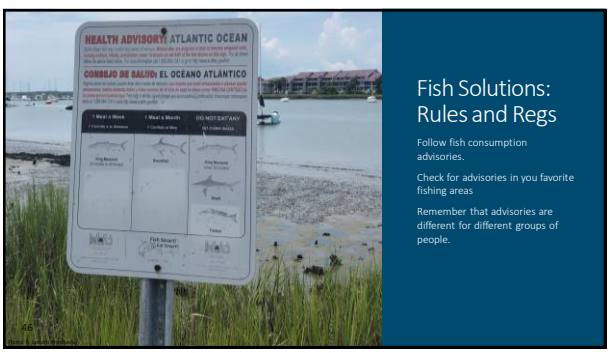
HEALTH ADVISORY: ATLANTIC OCEAN
CONSEJO DE SALUD: EL OCÉANO ATLANTICO
DO NOT EAT ANY
Fish Solutions: Rules and Regs
Follow fish consumption advisories.
Check for advisories in you favorite fishing areas
Remember that advisories are different for different groups of people.

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## Practice Time! Seafood Consumption

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South Carolina Fish Consumption Advisory App
https://gis.dhec.sc.gov/gisportal/apps/webappviewer/index.html?id=c71943bc743b4ca196e0ef0406b1d7ab

- SCDNR Recreational Shellfish Map Application
https://scdnr.maps.arcgis.com/apps/webappviewer/index.html?id=cbef2c2a0f9449fa87dd25c7117ad865

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# Threat: overharvesting

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## Avoid overharvesting

- Get a saltwater fishing license
- Obey size and catch limits
- Learn proper catch and release techniques
- Recycle your oyster shells
- Check out the SC Aquarium's Good Catch program

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Photo: A. Locatis Prochaska

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## Get involved!

- Report any tagged fish you catch to the Marine Game Fish Tagging Program
- Attend a Family Fishing Clinic
- Become a certified DNR Fishing Instructor

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# Threat: loss of the marsh itself

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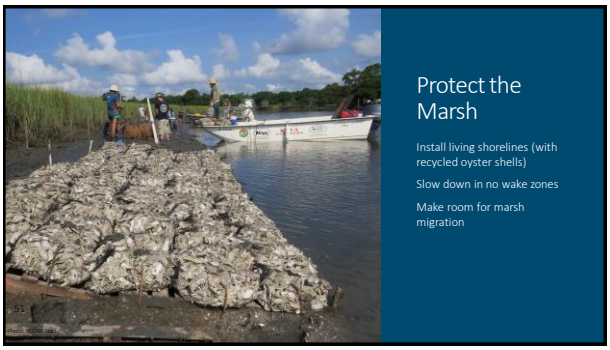
Protect the Marsh
Install living shorelines (with recycled oyster shells)
Slow down in no wake zones
Make room for marsh migration
51

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Coastal Lifestyle: Seafood Checklist for New Residents
Buy a saltwater fishing license
Get a copy of official fishing regulations
Grab a fish ruler from your local tackle shop
Check for fish consumption advisories
Report any tagged fish you catch
Locate shellfish harvest grounds
Recycle your oyster shells
52

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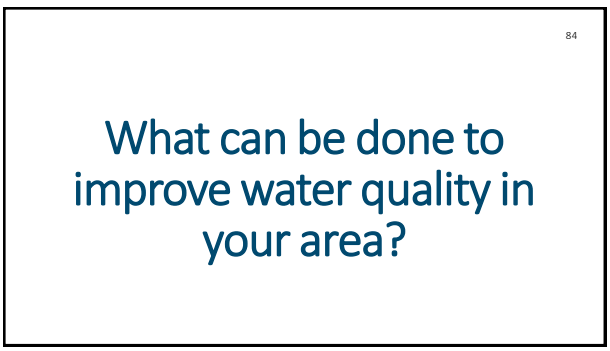
84
What can be done to improve water quality in your area?

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## Summary
## Coastal Lifestyle for Clean Water

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- Our coastal lifestyle is supported by clean water and a healthy saltmarsh
- Rapid development, population growth and careless people can threaten our coastal lifestyle
- SCDHEC monitors water quality to catch problems as they arise
- All coastal residents can follow rules, regs and advisories to stay safe and healthy
- All coastal residents can help keep water clean, especially by reducing bacteria and litter
- Use the SC Watershed Atlas and other online tools to explore water quality in your community

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For more information and course materials

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Information Network
https://www.sccoastalinfo.org/

Instructor

Kaitlyn Dirr
DirrK@dnr.sc.gov

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*Please let us know how we can improve this course and the series.*

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## Calling the Coast Home

**Course Series:**
Living with Water
The Land Water Connection
Tidelands, Water & Beach: Regulations & Rebuilding.
Coastal Lifestyle for Clean Water

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