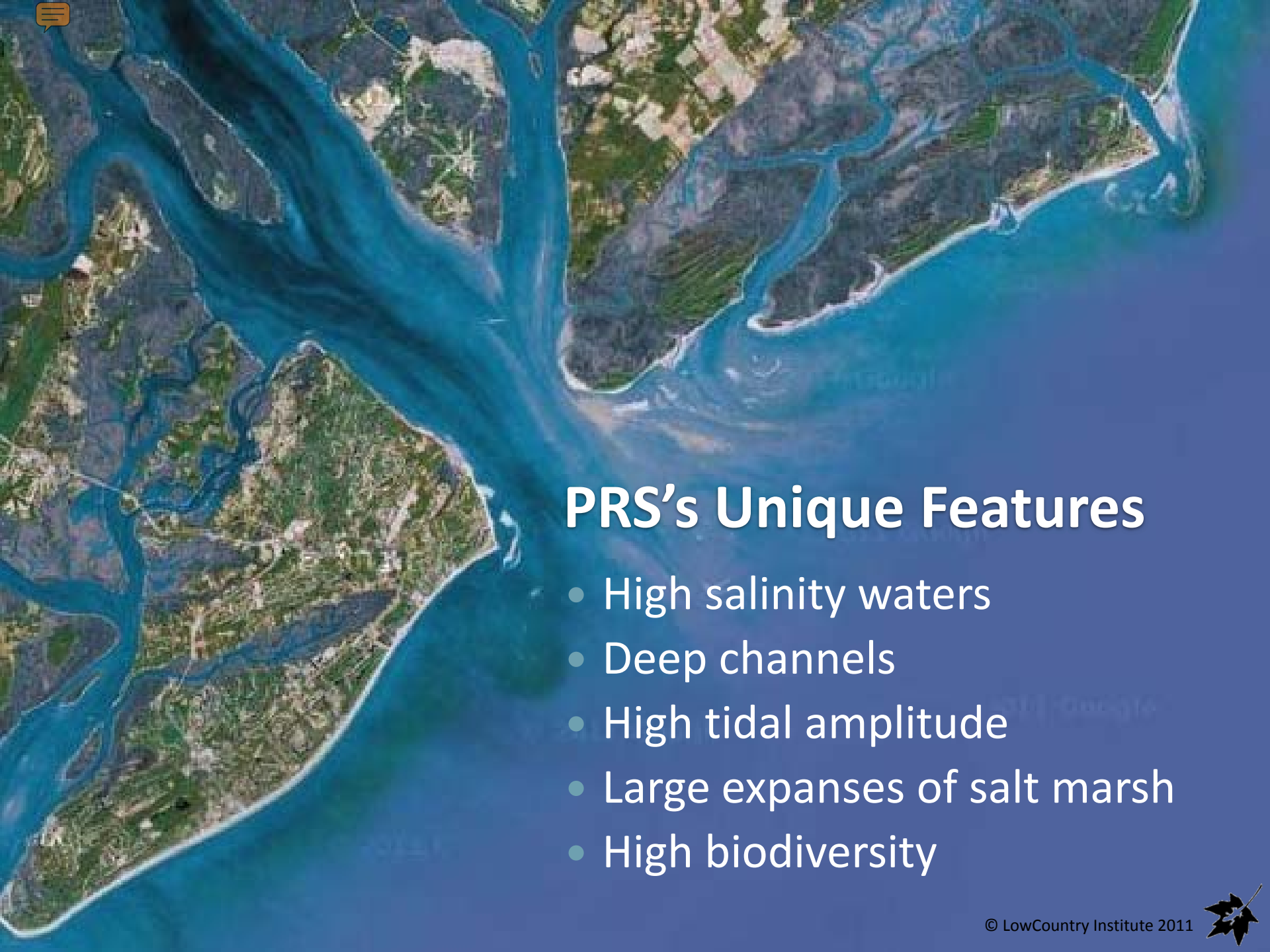




What Makes Port Royal Sound Unique?

 Presentation by
The LowCountry Institute



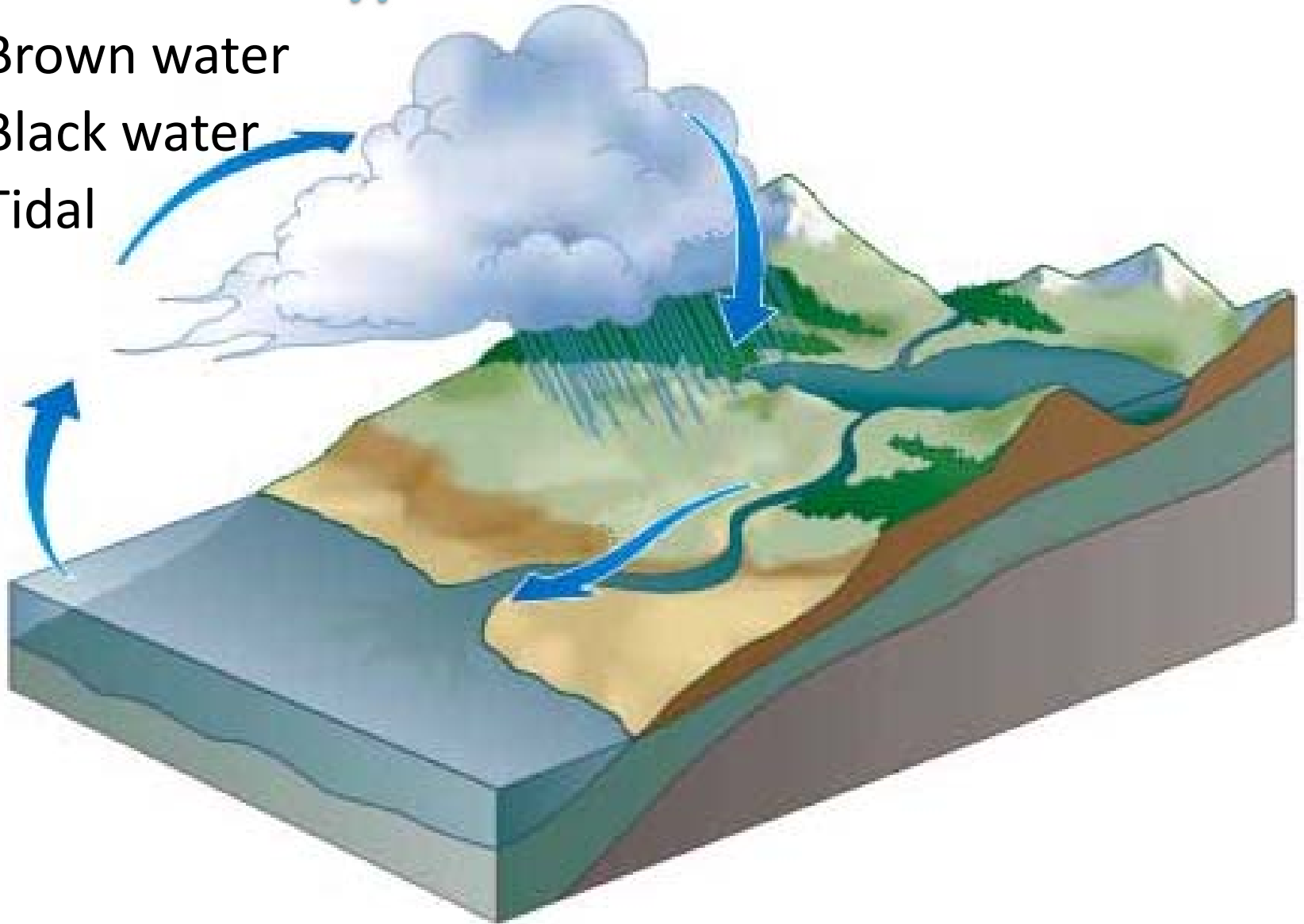
PRS's Unique Features

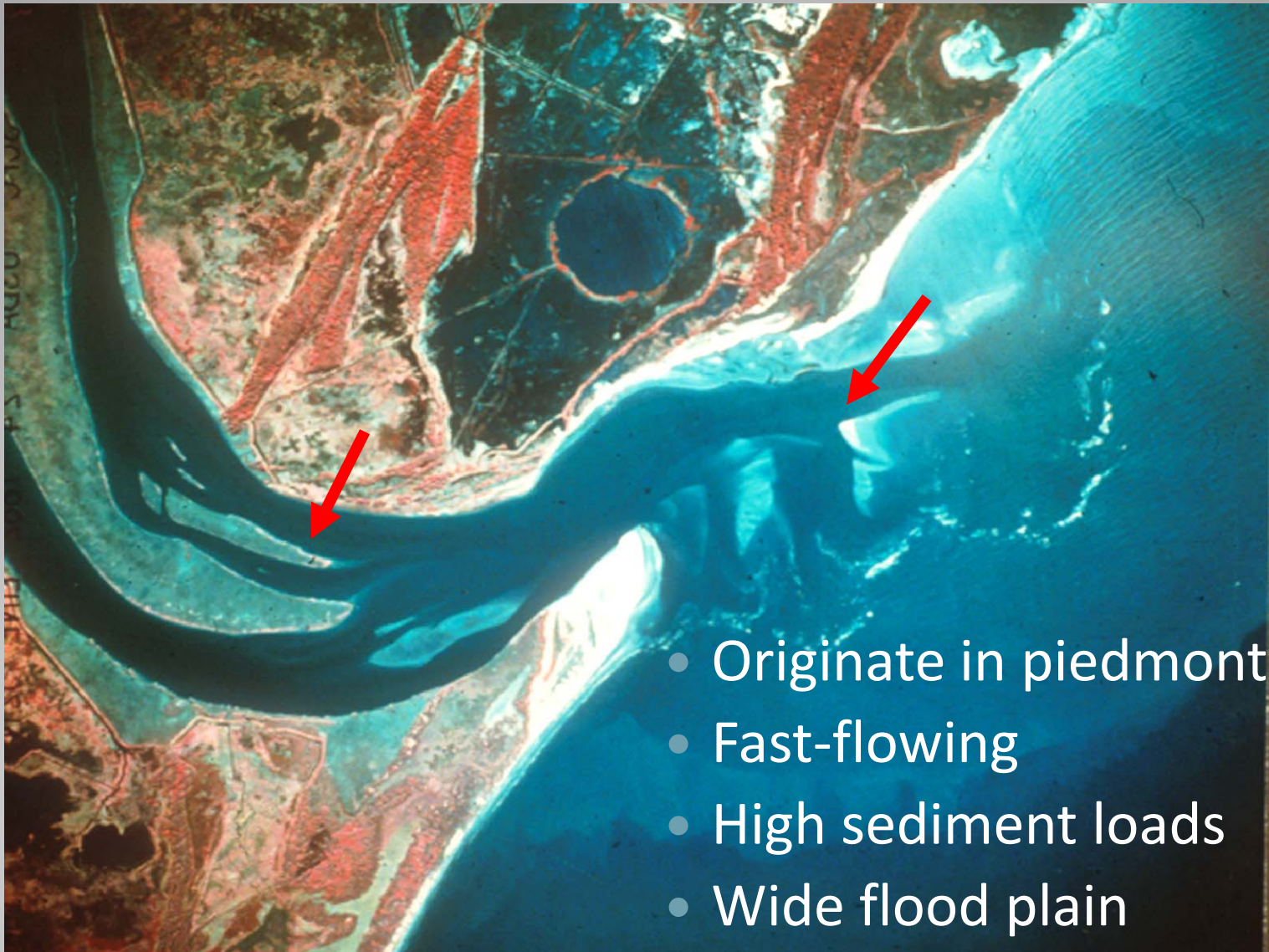
- High salinity waters
- Deep channels
- High tidal amplitude
- Large expanses of salt marsh
- High biodiversity



What are the types of rivers?

- Brown water
- Black water
- Tidal





- Originate in piedmont
- Fast-flowing
- High sediment loads
- Wide flood plain

Brown Water Rivers





- Adapted to periodic flooding
- Experience dramatic changes in water level



Brown Water Rivers





- Originate in coastal plain
- Water stained by tannins

Black Water Rivers





- Narrow flood plain
- Meandering channel

Ashepoo River

Black Water Rivers

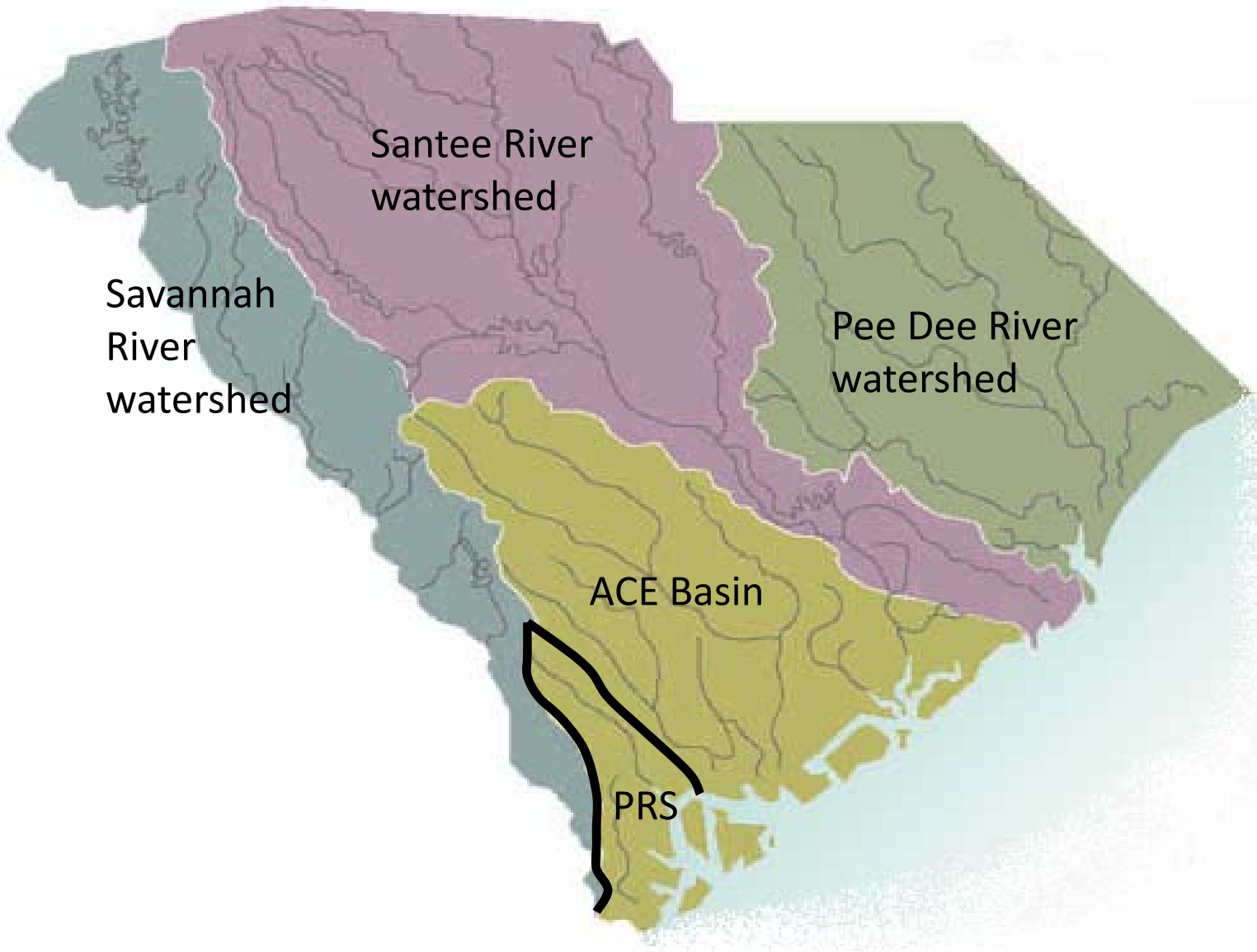




Tidal Rivers

- Fingers of the ocean reaching inland





Watersheds of South Carolina

Modified from scaquarium.org

© LowCountry Institute 2011





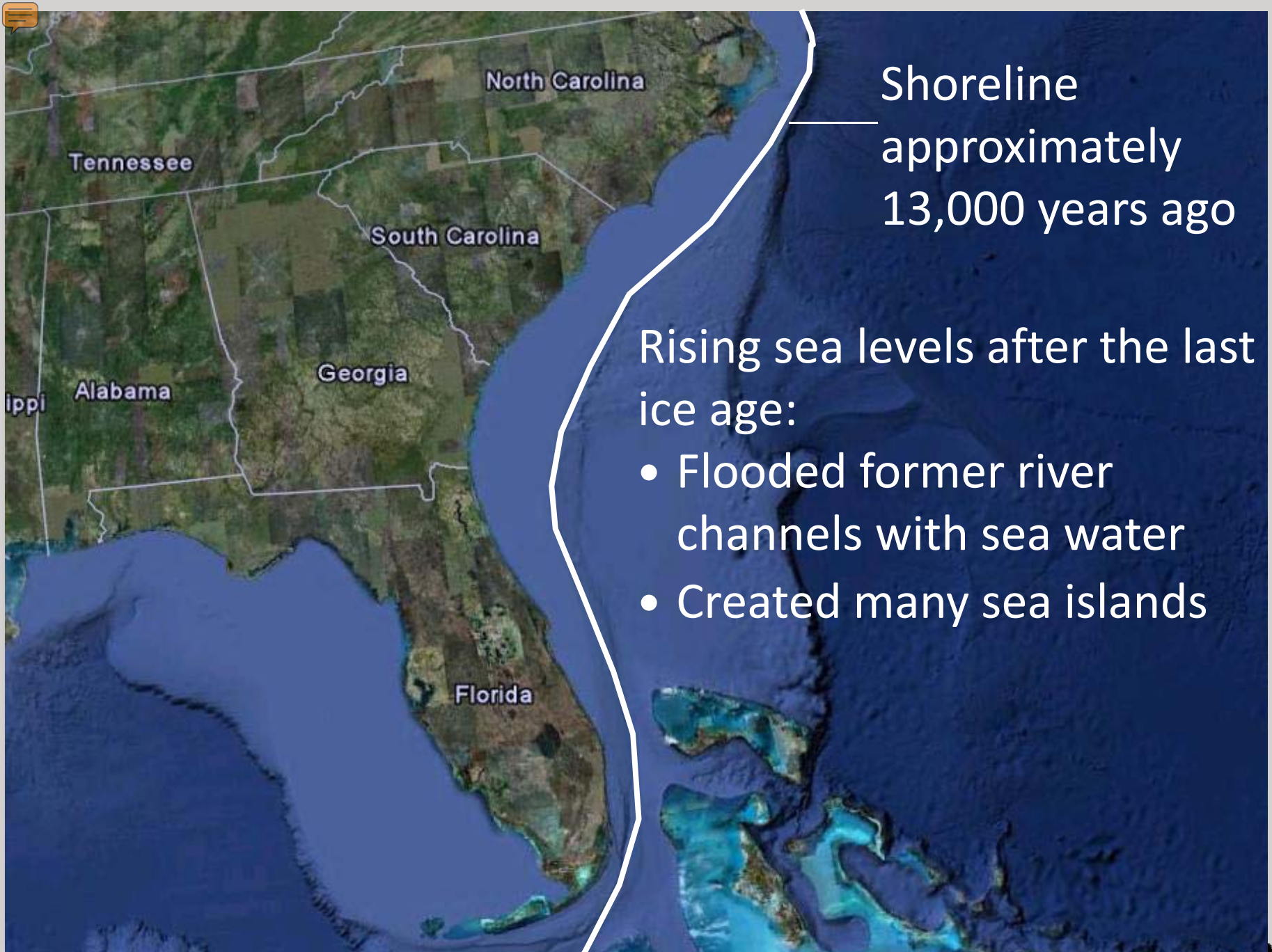
Port Royal Sound has:

- Very little freshwater input
- Mostly tidal rivers and creeks

This results in:

High salinity waters





Shoreline
approximately
13,000 years ago

Rising sea levels after the last
ice age:

- Flooded former river channels with sea water
- Created many sea islands



Result from dune formation along the coast

Flooded infrequently



High Marsh Edge of a Barrier Island





An interior island created when rising sea level surrounds higher ground

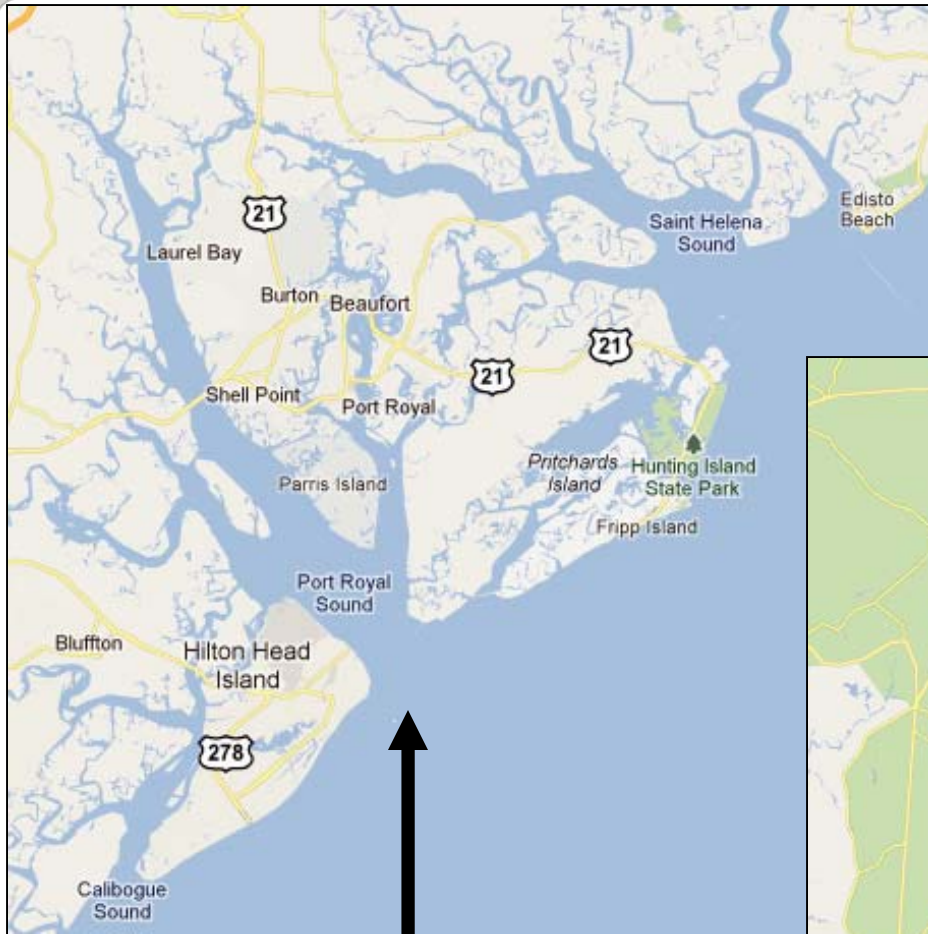
Narrow high marsh strip



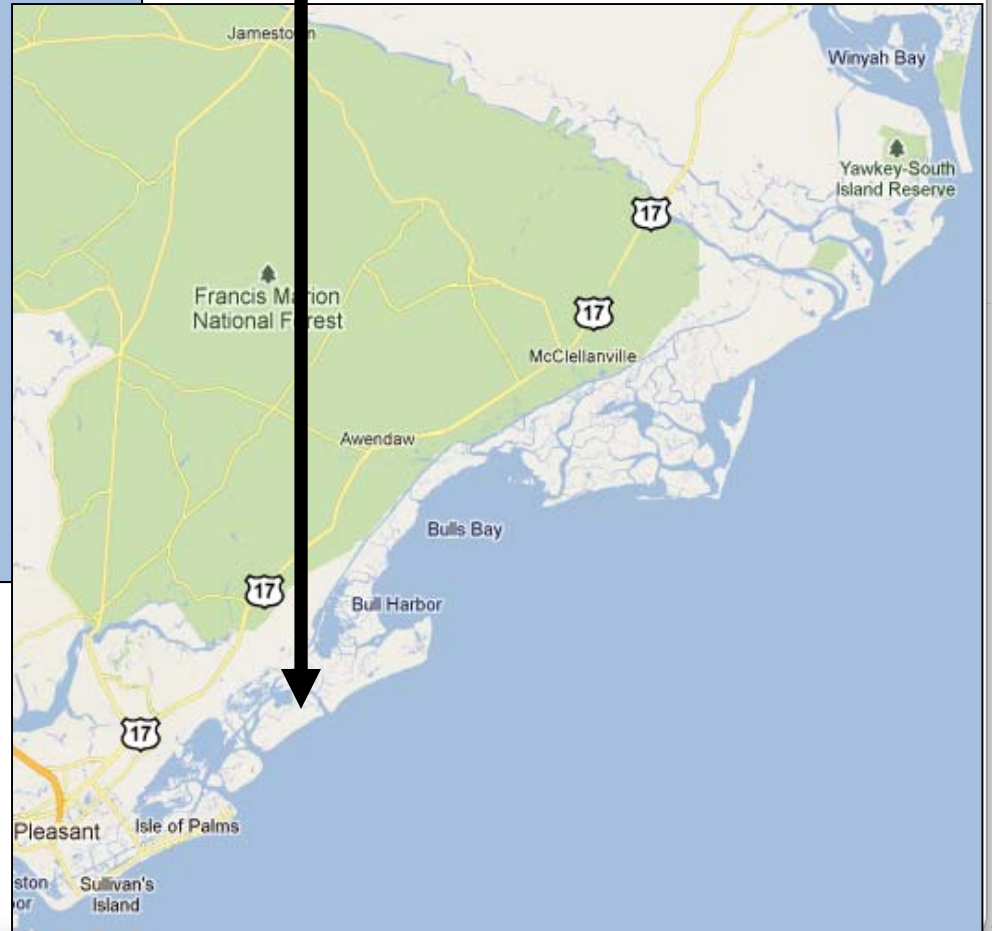
Bare patches created by wrack

High Marsh Edge of a Sea Island





Relatively straight
coastline with barrier
islands



Flooded coast with sea
islands and small black
water rivers





- Sea level continues to rise at a rate of approximately 3mm per year
- Evidence of rising sea level is apparent throughout PRS

Former uplands

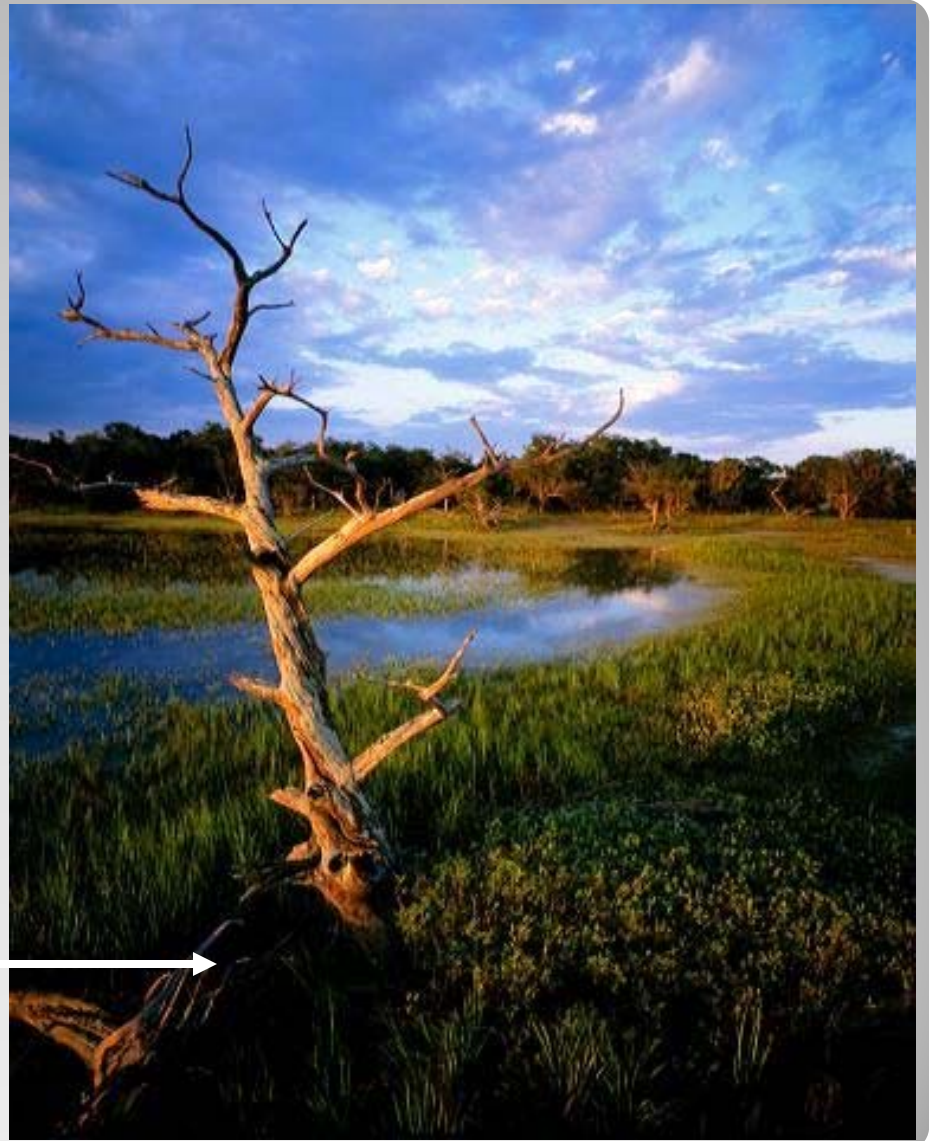
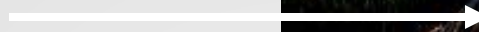
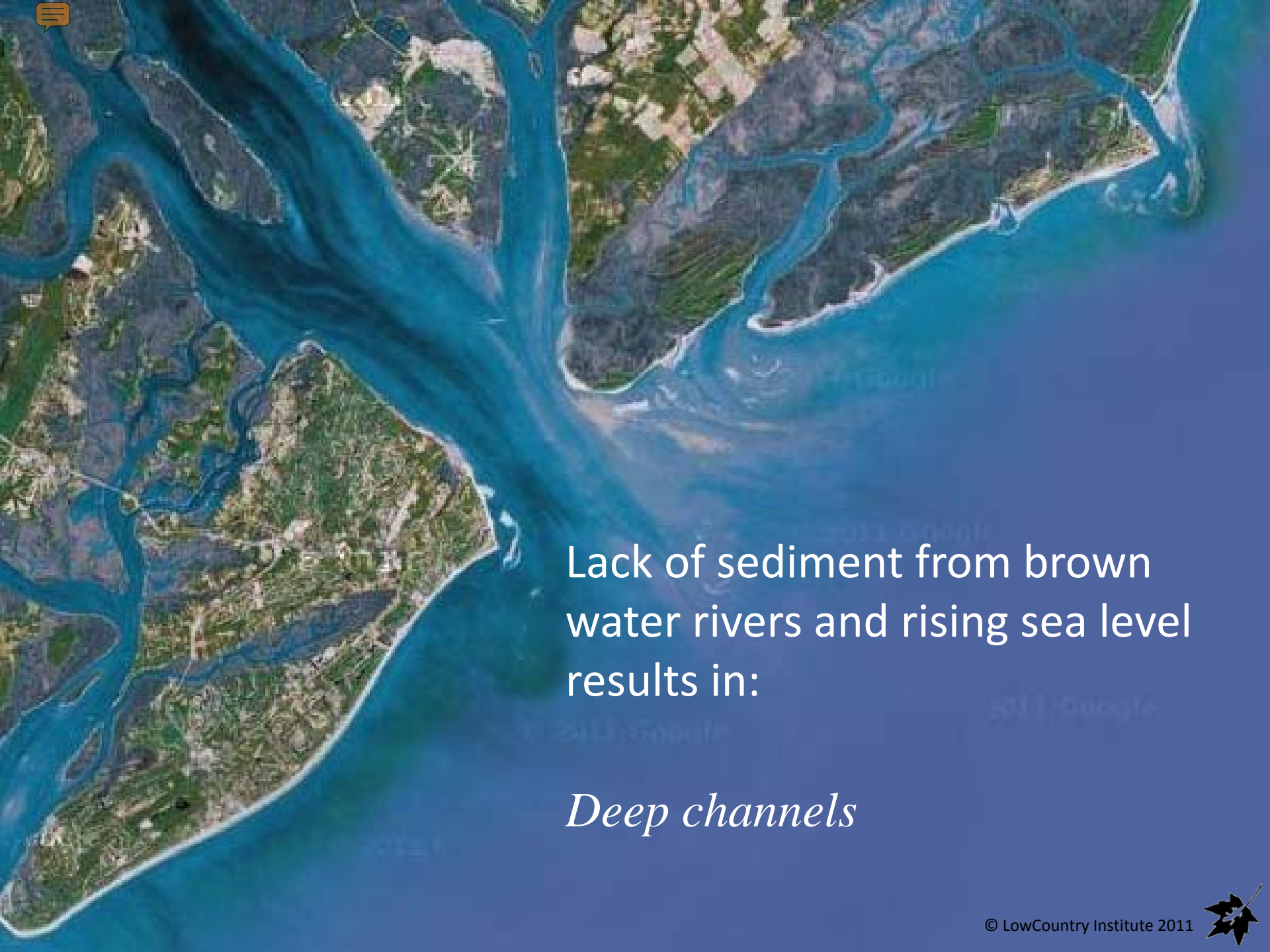


Photo by Eric Horan

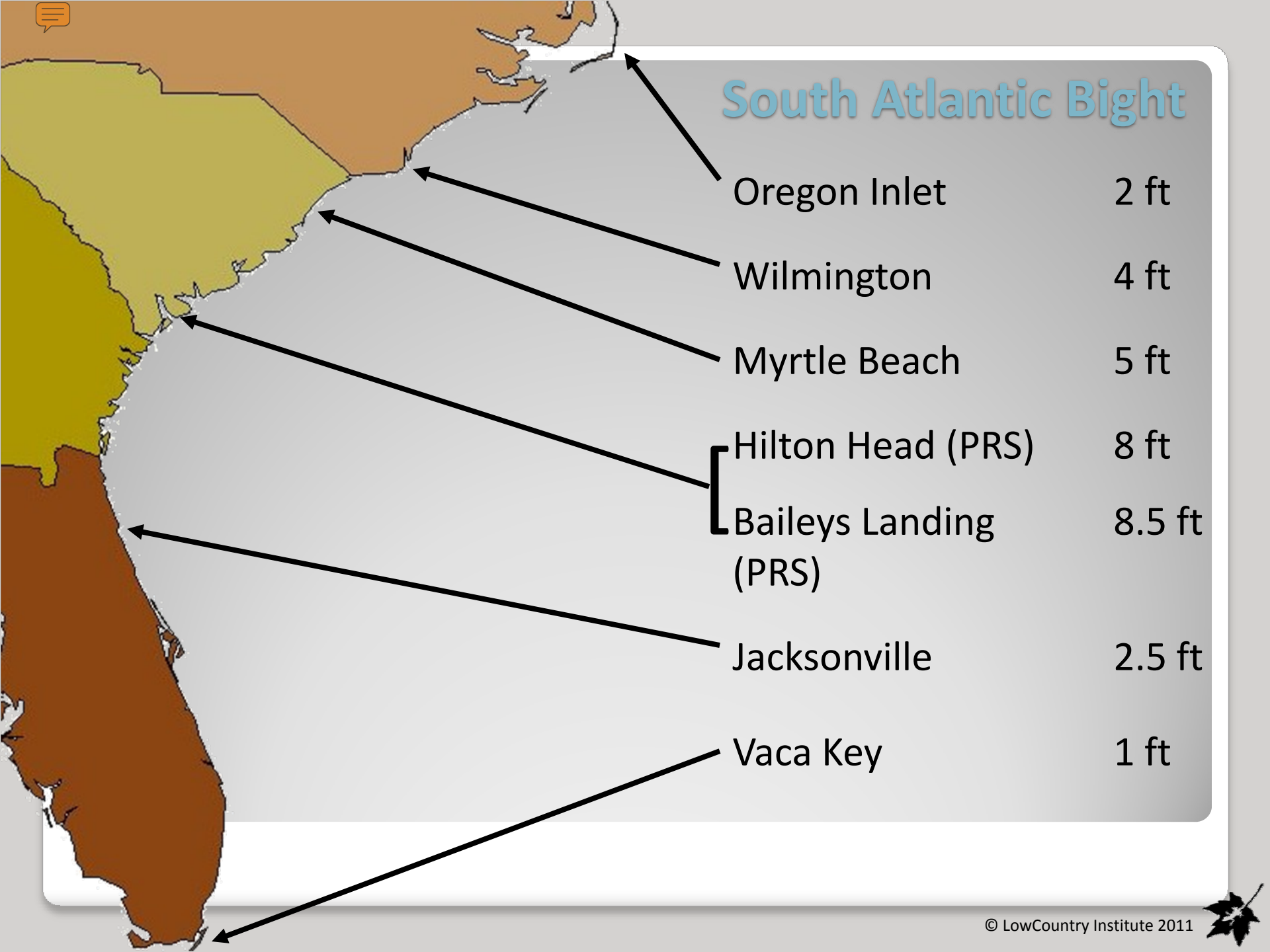




Lack of sediment from brown water rivers and rising sea level results in:

Deep channels

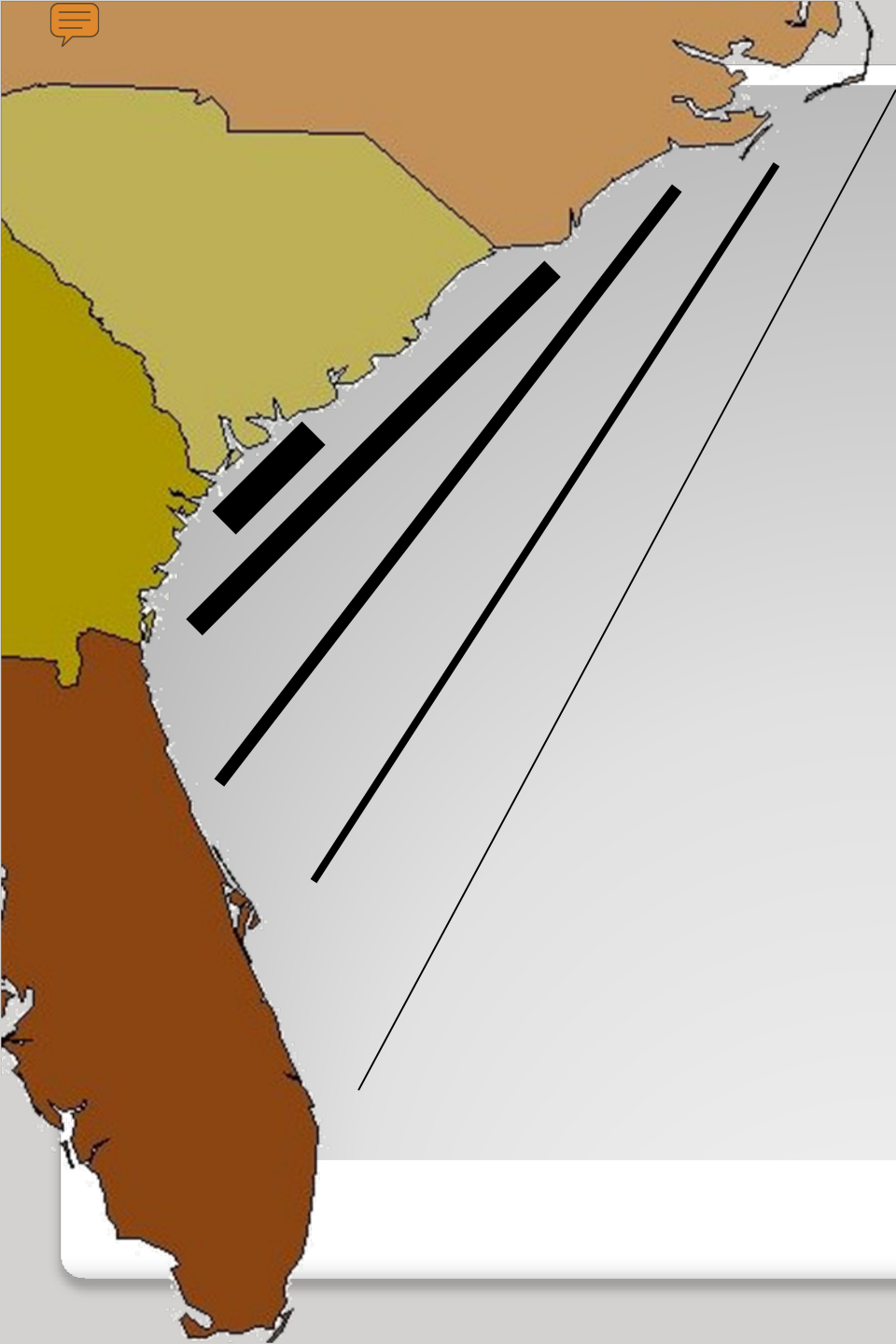




South Atlantic Bight

- Oregon Inlet 2 ft
- Wilmington 4 ft
- Myrtle Beach 5 ft
- Hilton Head (PRS) 8 ft
- Baileys Landing (PRS) 8.5 ft
- Jacksonville 2.5 ft
- Vaca Key 1 ft





PRS has highest tides in the SE

- The same amount of water is pushed into a smaller and smaller area
- Despite very high tides, there is limited flushing occurring





High tide



Low tide

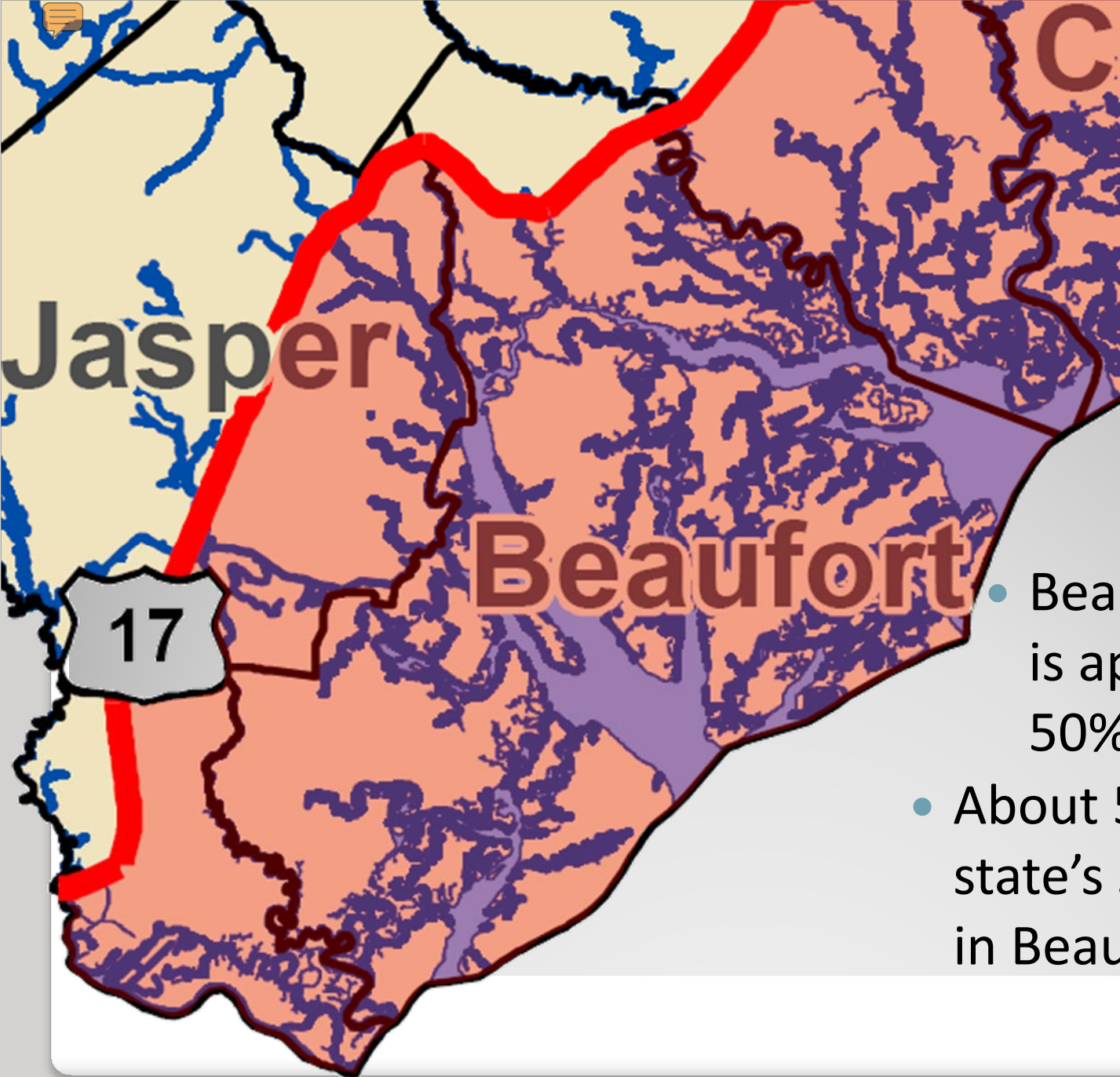





The shape of the coast line
results in:

High tidal amplitude





 SCDNR designated marine waters

- Beaufort County is approximately 50% salt marsh
- About 50% of the state's salt marsh is in Beaufort County

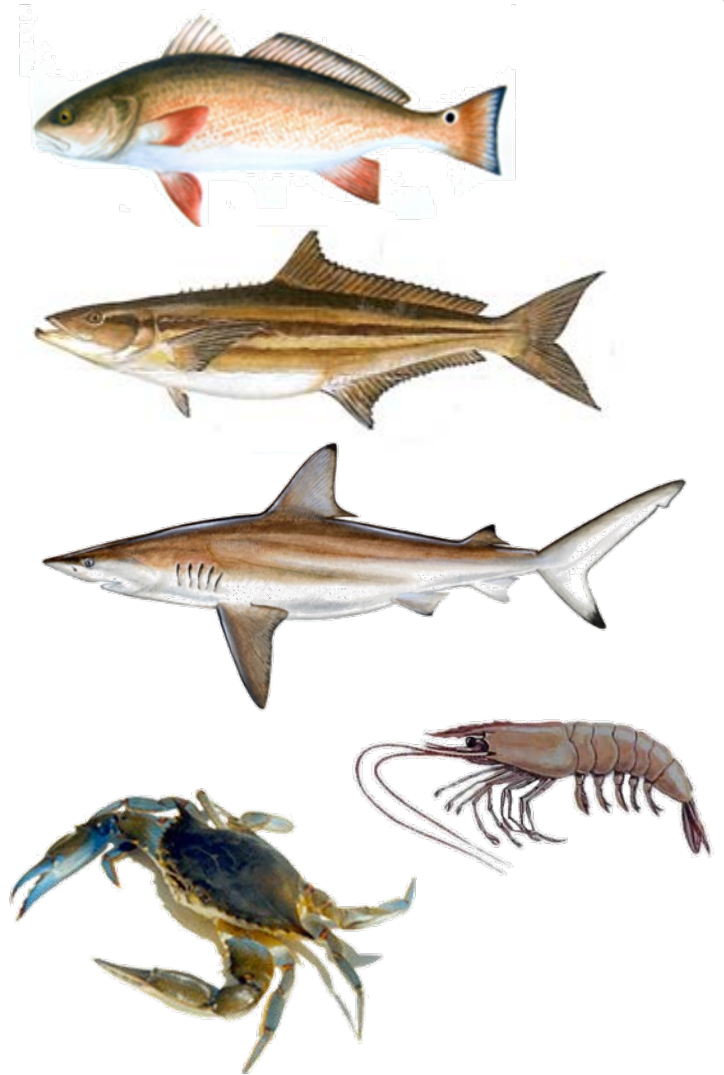




Large areas of the landscape
exposed to daily tidal
inundation results in:

expansive salt marsh





- Salt marsh is 1 of the most **productive** ecosystems in the world
- It supports an extensive marine food web



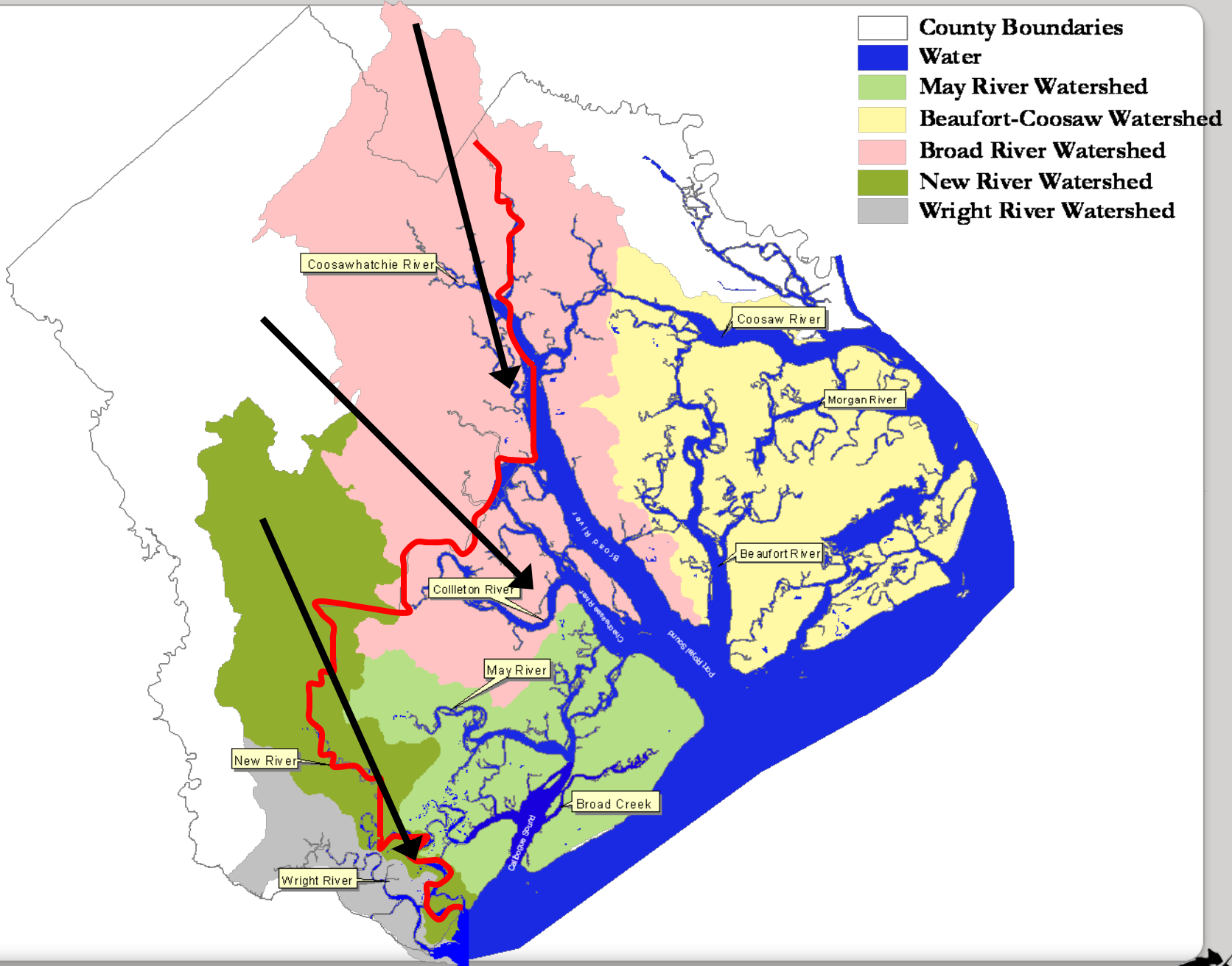


The features of the PRS system

– **high salinity waters, deep channels, high tidal amplitude, and extensive salt marsh** –

support a *high biodiversity* of marine creatures









- Maintain marsh edge buffers
- Minimize impervious surfaces
- Runoff through swales, not pipes
- Detention not retention ponds
- Minimize nutrient use, chemical runoff & irrigation



Photo by Eric Horan

Ways to protect water quality of PRS





Photo by Eric Horan

