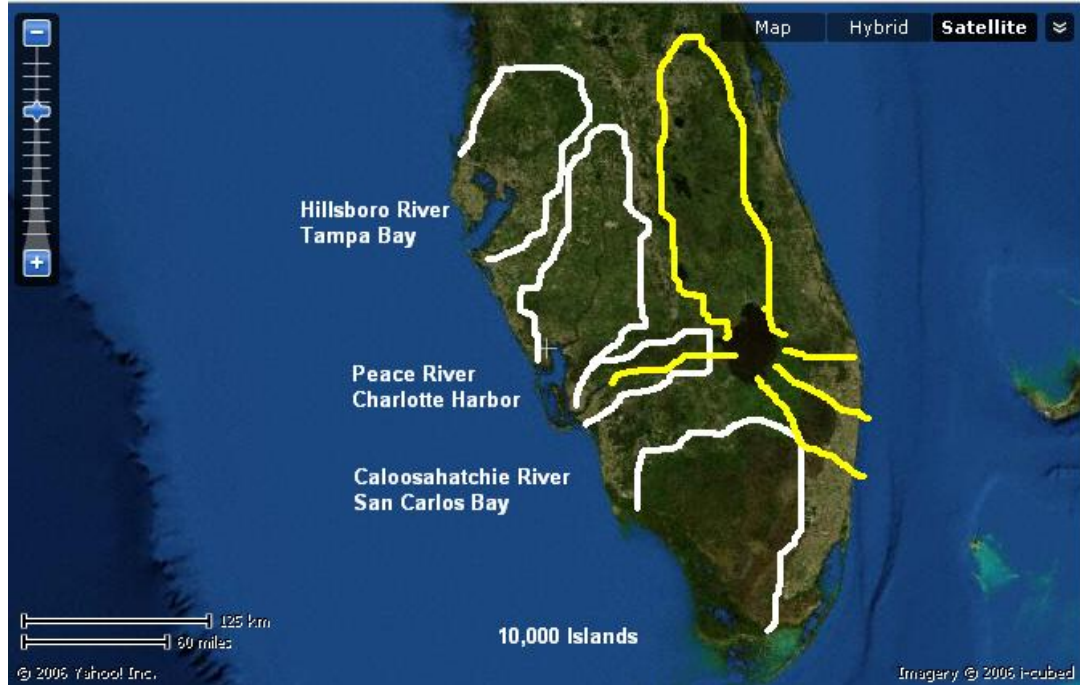


Peace River/Charlotte Harbor Estuary



Major estuaries of SW Florida and their drainage basins are shown above.

The historic basin of the Caloosahatchie River has been expanded through the construction of a ditch connecting the River to Lake Okachobee and the Kissimmee River by the South Florida Water Management District to address:

- Hurricane Flooding
- Water Supply
- Urban
- Agriculture

The Peace River has not had major alterations to its historic drainage basin. Within the basin the big modifications have been:

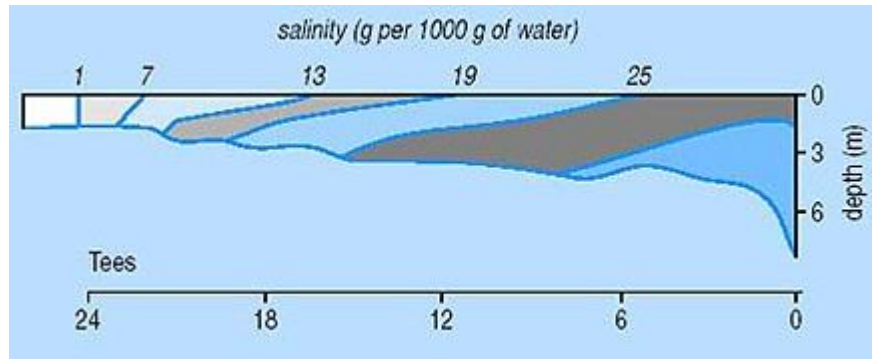
- phosphate mining
- agriculture
 - non intensive
 - intensive
- urban development

Estuarine Ecosystem Features

<p>Abiotic features</p> <ul style="list-style-type: none"> salinity flux seasonal rainfall temperature wind stratification color dissolved oxygen 	<p>Biotic features</p> <ul style="list-style-type: none"> grazing food web detritus food web benthic organisms sea grass beds
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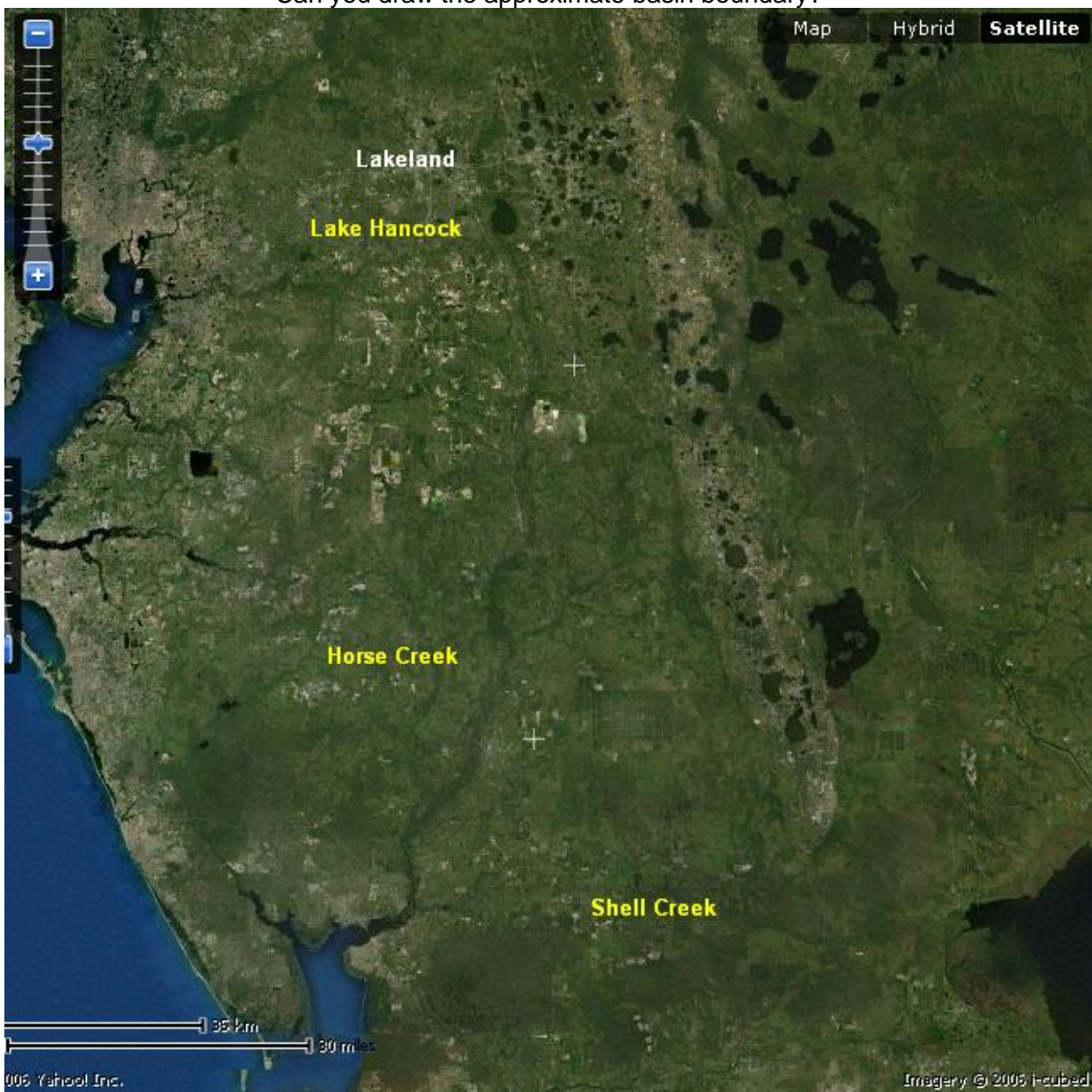
Estuarine Stratification

Upper Charlotte Harbor/Peace River. The dry season estuarine mixing zone.

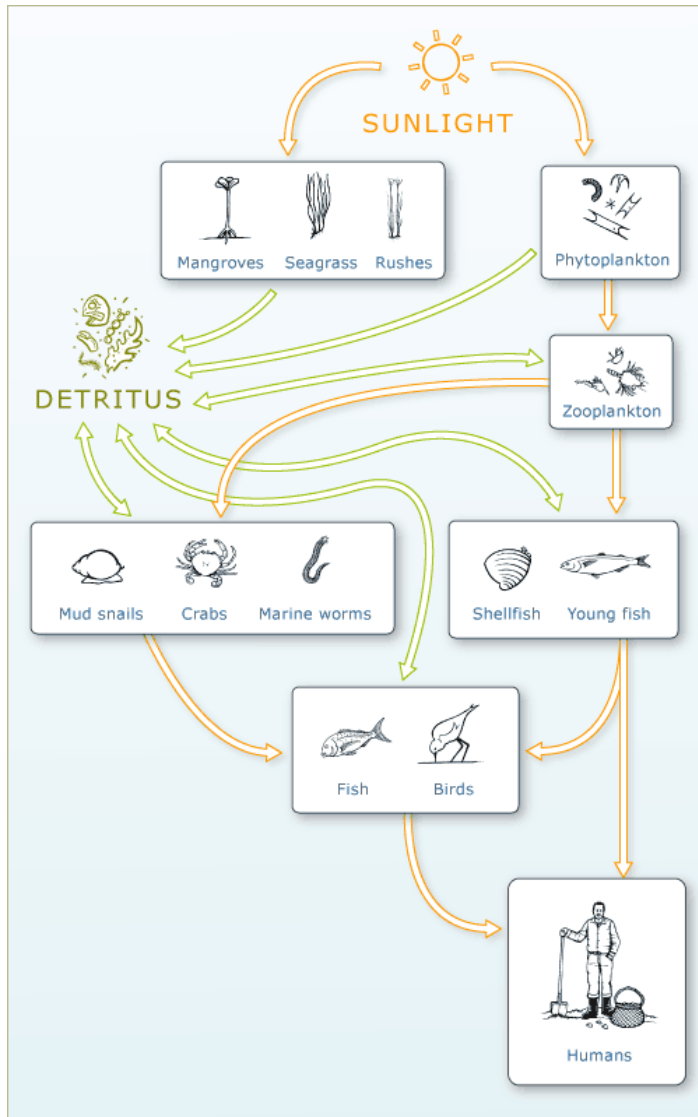


Peace Basin

Can you draw the approximate basin boundary?



Estuarine Food Webs



During the summer (rain season), most of the energy flow is through the detritus food web because:

- high color limits photic zone
- salinity stratification/anoxia
- higher tidal/storm flushing

Sources of detritus:

- mangrove detritus exports
- seagrass detritus
- phytoplankton detritus
- bacteria and fungal enrichment

filter feeders

- sponges
- oysters/clams
- planktonic filter feeders

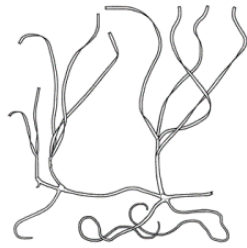
infauna:

- clams
- polychaetes worms
- oligochaetes worms
- amphipods

During winter (dry season), most energy flows through the grazing food web.

It is difficult to accurately separate the detritus and grazing energy flows because filter feeders filter both out of the water column.

Sea grasses. Common sea grasses in Charlotte Harbor:



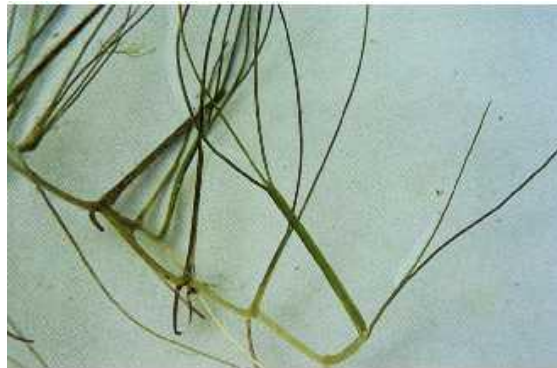
Shoal-grass (*Halodule wrightii*) is an early colonizer of disturbed areas and usually grows in water too shallow for other species.



Ruppia maritima, commonly called widgeon-grass, grows in both fresh and saltwater and is widely distributed throughout Florida's estuaries.



Florida to North Carolina



Florida to New Jersey



Turtle-grass (*Thalassia testudinum*) the most common of the Florida seagrasses, characteristically has deeper root structures than any of the other seagrasses.



Manatee-grass (*Syringodium filiforme*) is easily recognizable because its leaves are cylindrical.



Tropical



Gulf and Caribbean

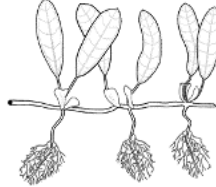
Uncommon in Charlotte Harbor: *Halophila* species



Johnson's seagrass
(*Halophila johnsonii*)



star-grass (*Halophila engelmannii*)



paddle-grass (*Halophila decipiens*)

No photo

No photo

No photo

Common brown algae.



Gracillaria sp. a gelatinous algae and a favorite food of Manatee.

Source of drawings above: <http://www.dep.state.fl.us/coastal/habitats/seagrass/>

Sea grass production is likely exceeded by the phytoplankton production of diatoms and other algae (see page 6) growing attached to the surfaces of sea grasses. The micro-habitat on the surfaces of sea grasses supports an abundance of creatures.

Mangroves: Red, Black and White. No photo.

Salt Marsh Plants: Leather Fern

Black Rush



Giant leather fern
Acrostichum dense-folium
Photo by Vic Ramsey
Copyright 2003 Univ. Florida



Black rush
Juncus roemerianus
Cedar Key, Florida
Photo by Ann Murray
Copyright 1999 University of Florida

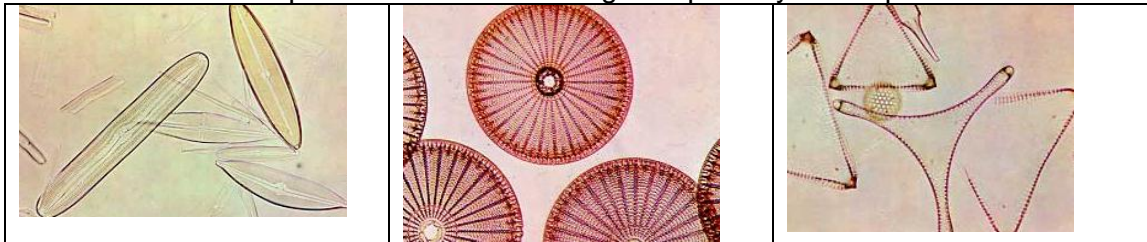
Aerial showing mangroves, black rush and leather fern “signatures.”



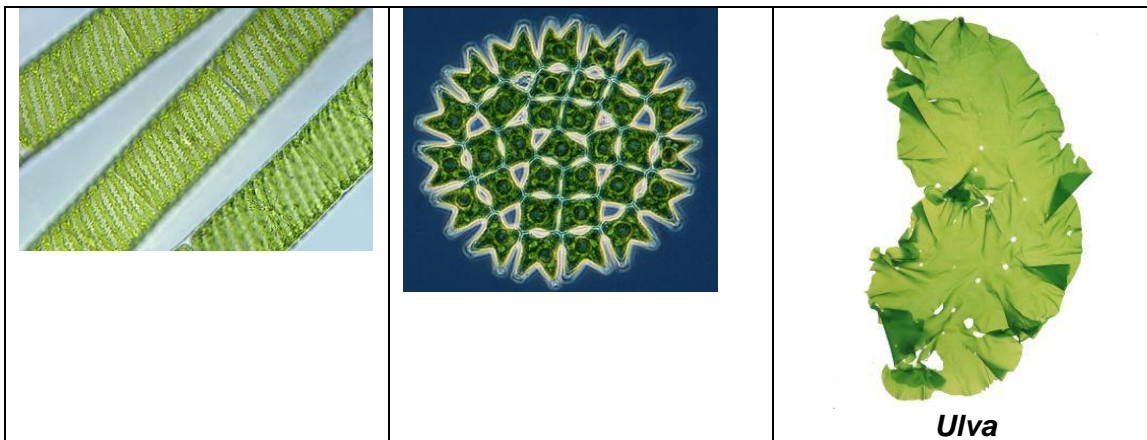
Phytoplankton:

Phytoplankton:

Diatoms: responsible for most of the global photosynthetic production



Green algae: as estuaries become polluted with nitrogen and phosphorous, green algae begin to dominate.

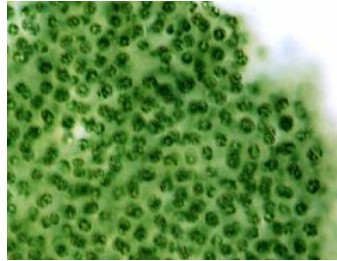


The macrophytic algae, *Ulva*, is common in the Harbor.

Plankton continued

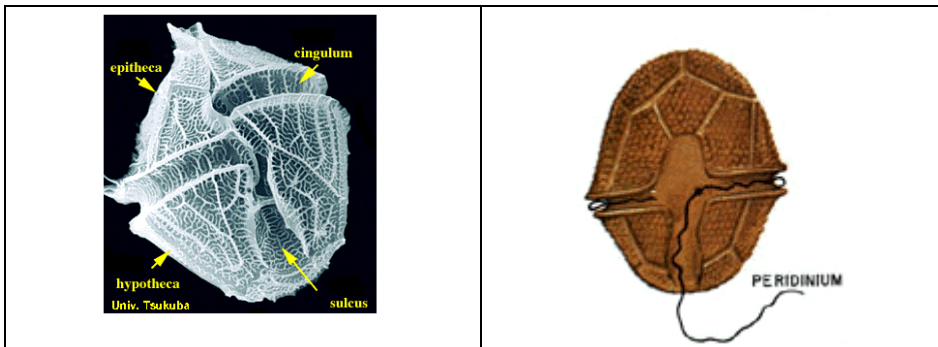
Phytoplankton continued:

Cyanobacteria: as estuaries become seriously polluted, cyanobacteria tend to dominate.



Microcystis aeruginosa

Dinoflagellates: generally a minor component of estuarine plankton, these photosynthetic creatures can bloom causing the toxic red tides.



Estuaries also support populations of red, brown and golden algae (see *Gracillaria* page 5) which are normally found on the bottoms and not part of the plankton (floating).

Plankton continued:

Zooplankton



Mixed Marine Plankton "including radiolaria, diatoms and crab zoea"









crab zoea, larval sea cucumber and polychaete






copepods and crustacea larvae

Interesting consumers:

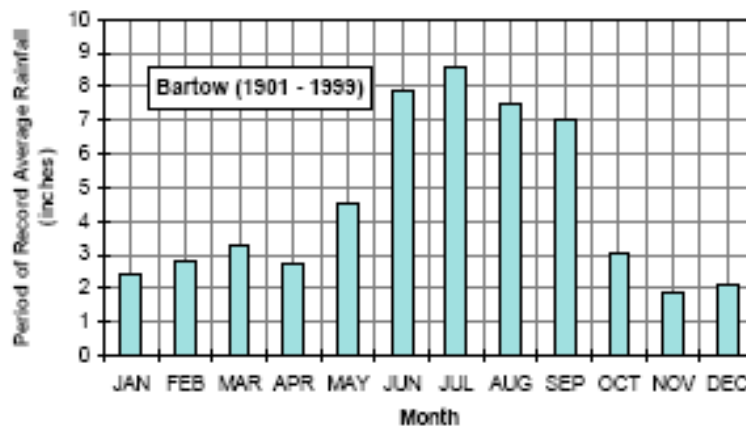
 <p>Blue crab <i>Callinectes sapidus</i></p>	 <p><i>Melongena corona</i> Crown conch</p>	 <p><i>Limulus polyphemus</i> Horseshoe crab</p>
 <p>Pinfish</p>	 <p>Menhaden</p>	 <p>Threadfin Herring</p>

Very interesting consumers:

 <p>Redfish</p>	 <p>Snook</p>	 <p>Seatrout</p>
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Seasonal rainfall

Peace River Basin Average Monthly Rainfall



http://www.swfwmd.state.fl.us/waterman/peacriver/files/peace_background.pdf

End