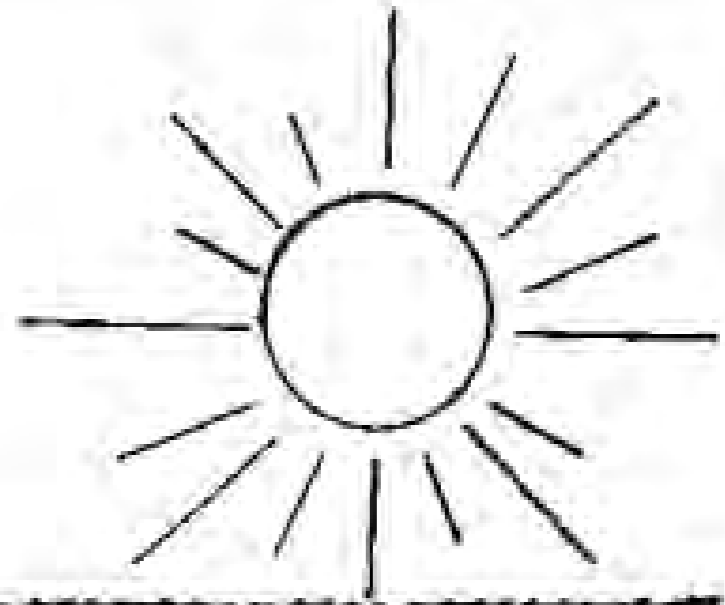


Sense of Place

*Kim Gabel, Environmental Horticulture
Agent*

UF/IFAS Monroe County Extension

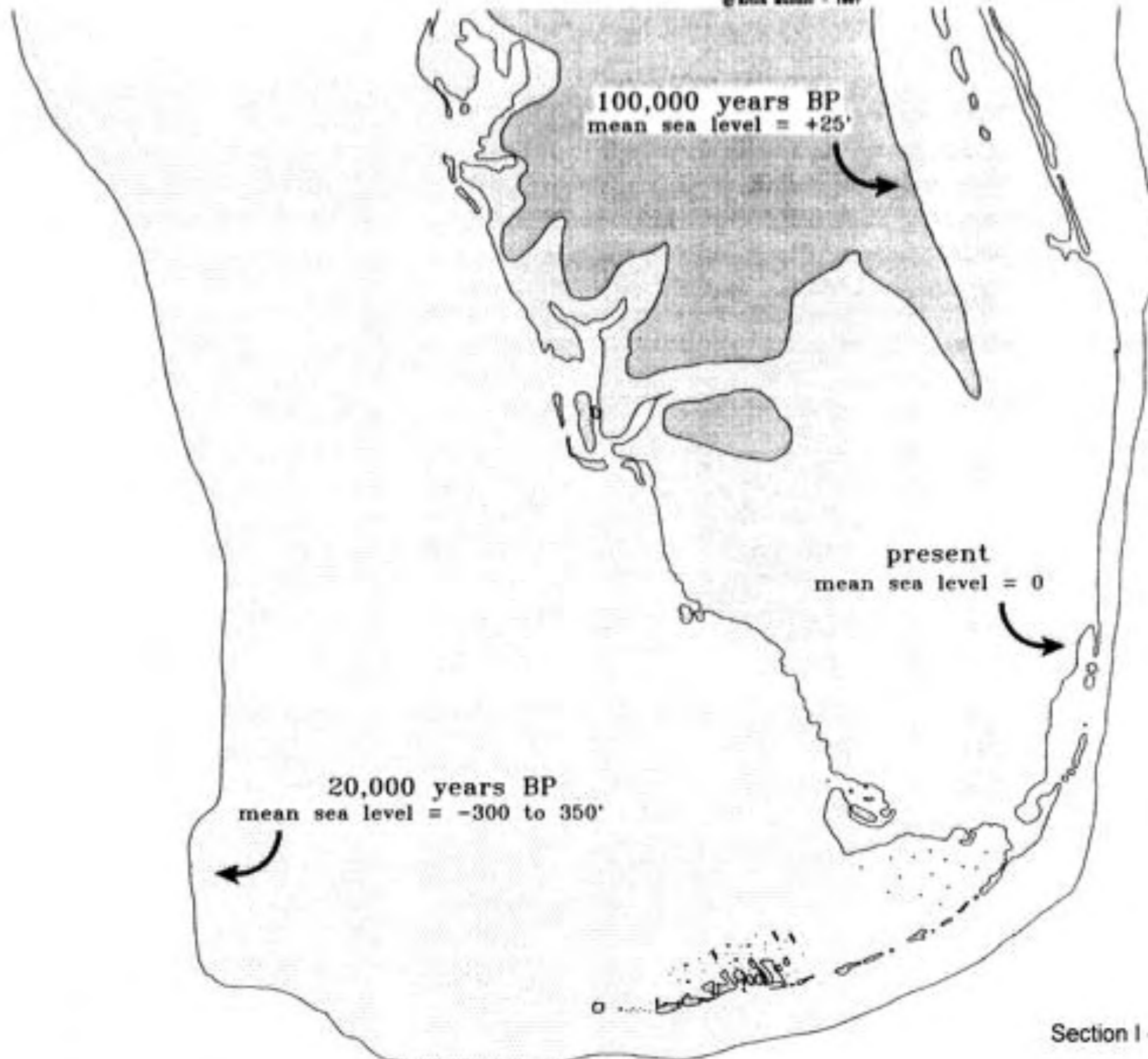


Mudbank *Peat* *Sand*

Key Largo Limestone or Miami Oolite



Florida Bay *Florida Keys* *Hawk Channel* *White bank* *Reef shelf*



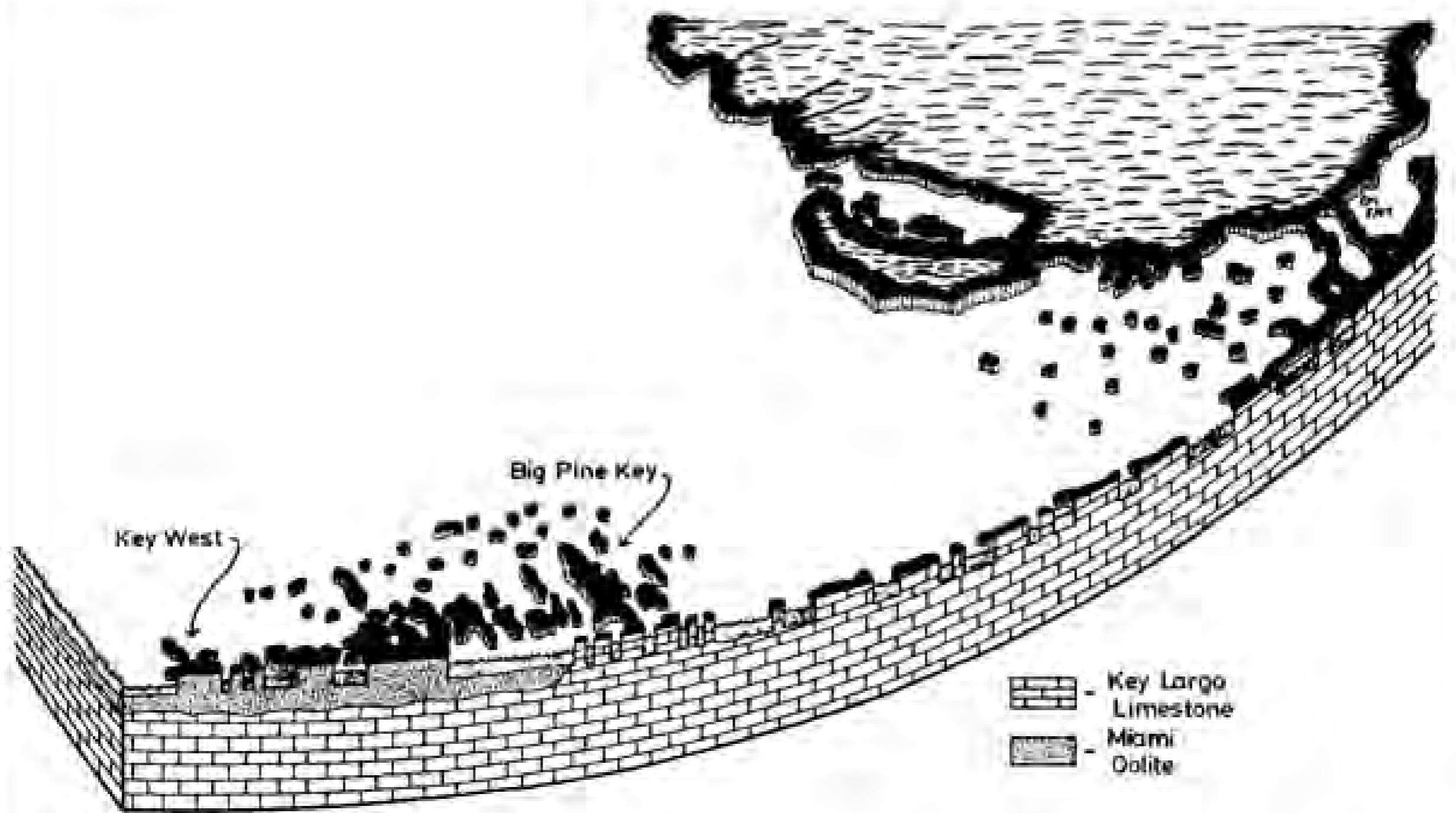


Figure 5. Cross-section of the Keys - This cut-away illustration shows the relative positions of Key Largo limestone and Miami oolite in the Lower Keys.

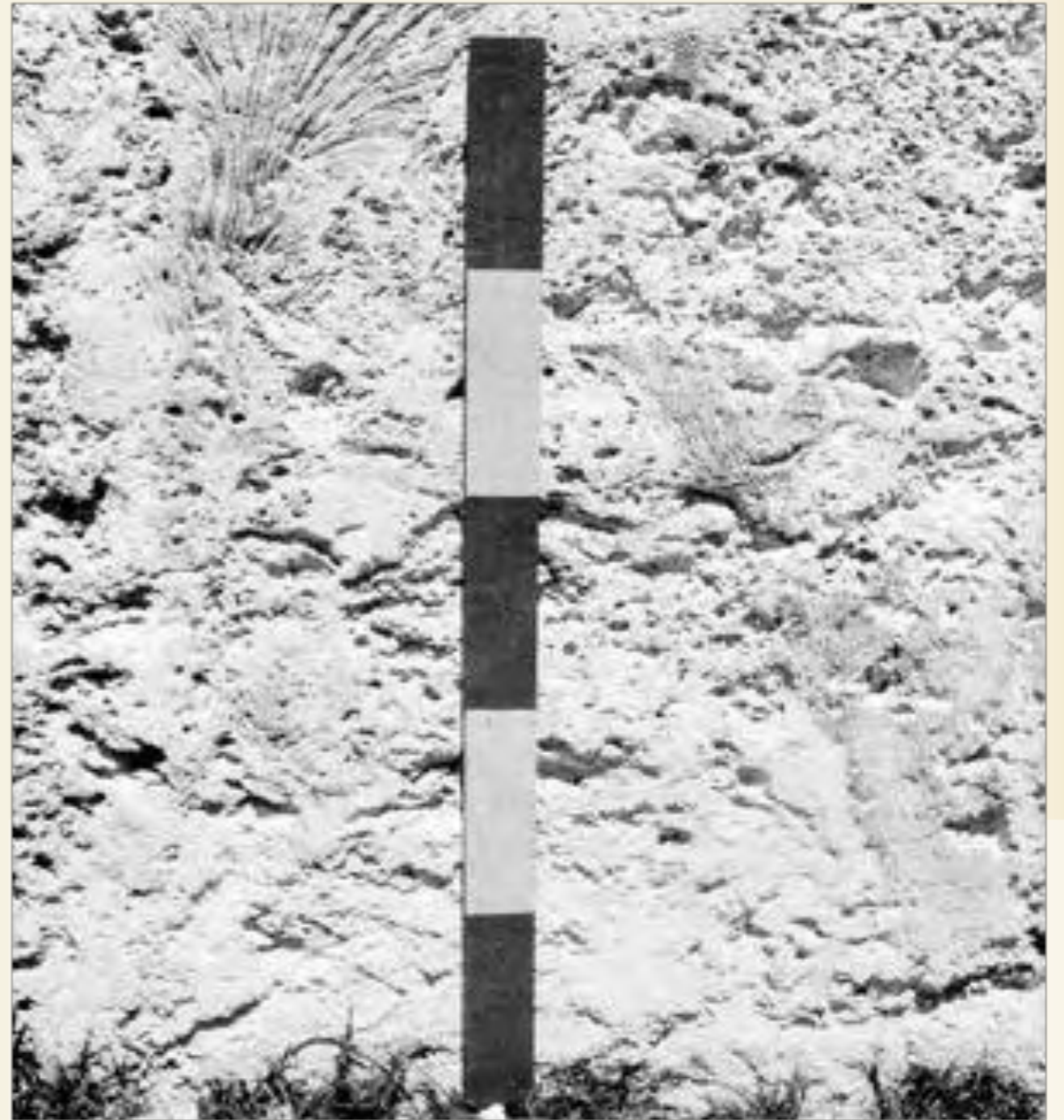
Key Largo Limestone

White to light gray marine limestone, which contains numerous fossil corals.

Some of these corals have been partially dissolved by ground water and the spaces remaining filled with crystalline calcite.

The Key Largo limestone is found at the land surface in the Florida Keys from Sand Key to Loggerhead Key.

An excellent exposure may be viewed at Windley Key Fossil Reef Geological State Park, at mile marker 85.5 in the keys



Miami Oolite

- “Ooids” are hydrogenic sand grains named for their eggshaped
- Ooids form by precipitation of calcium carbonate around a small particle (CC or OM)

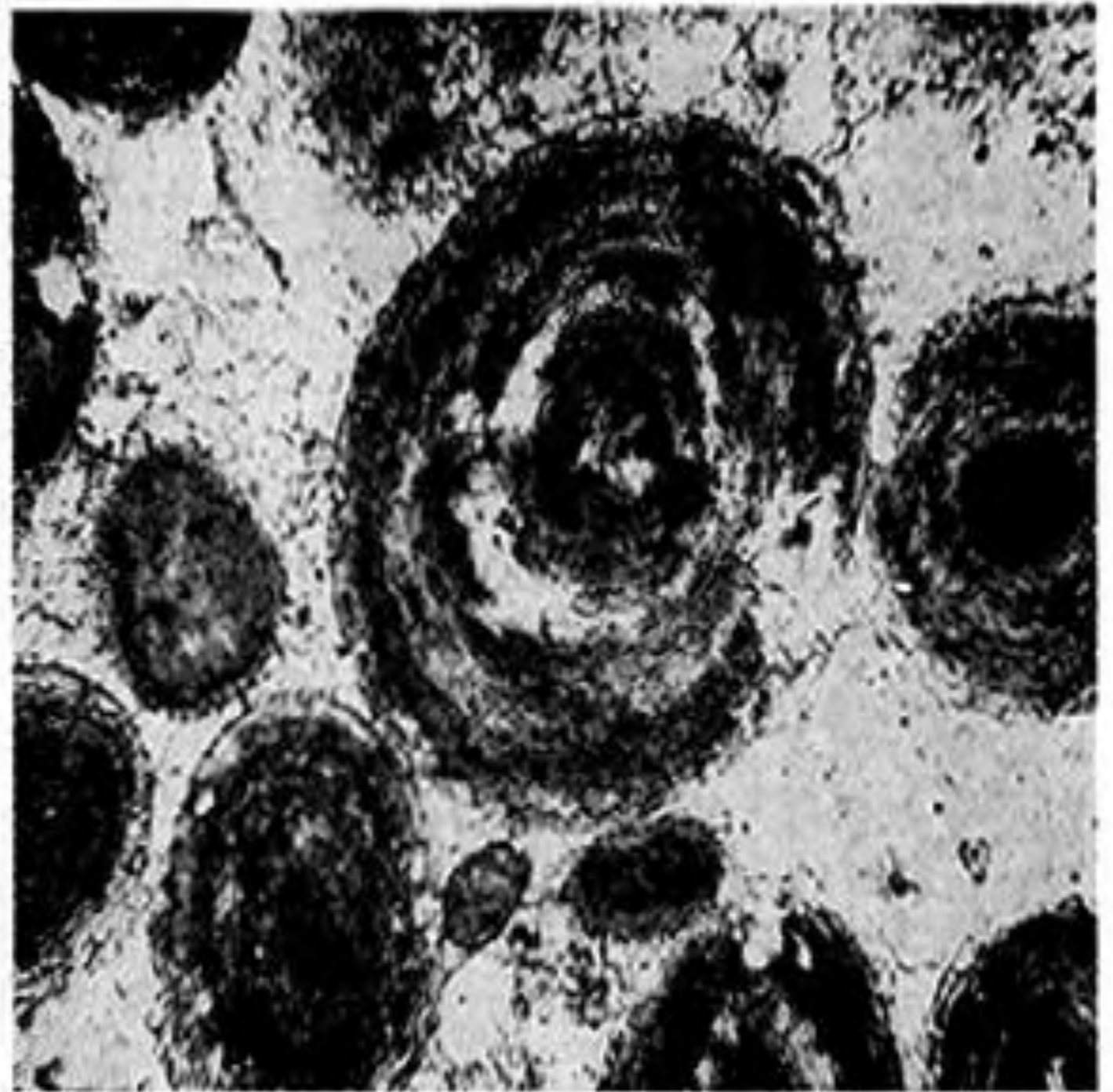


Figure 2. Thin section of the Miami Oolite showing the concentric structure of the ooliths, 100 times natural size.

Man Made Fill (Marl)

- Crushed oolitic limestone or coral bedrock that has been spread over the original soil material.



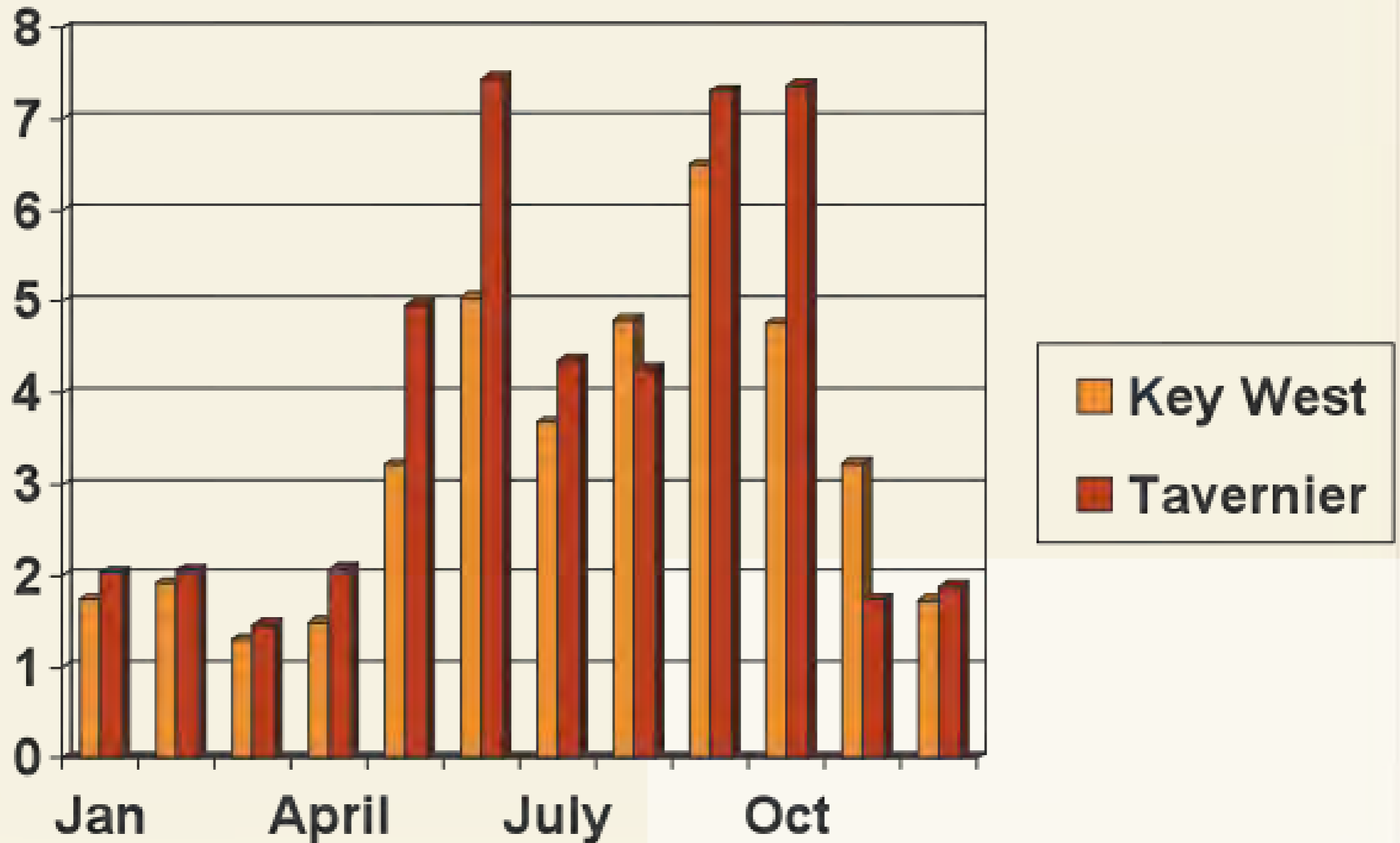
Keys Weather & Climate



Key West Temperatures

Month	Avg	High	Low	Month	Avg	High	Low
January	68.7	85 1960	41 1981	July	84.5	95 1951	69 1952
February	70.1	85 1989	46 1989	August	84.3	95 1957	68 1952
March	74.1	87 1977	47 1986	Sept	82.6	94 1951	69 1985
April	77.7	89 1988	48 1987	Oct	80.1	93 1962	60 1957
May	80.6	91 1989	65 1988	Nov	75.5	89 1988	49 1959
June	82.9	94 1952	68 1961	Dec	71.0	86 1978	44 1989

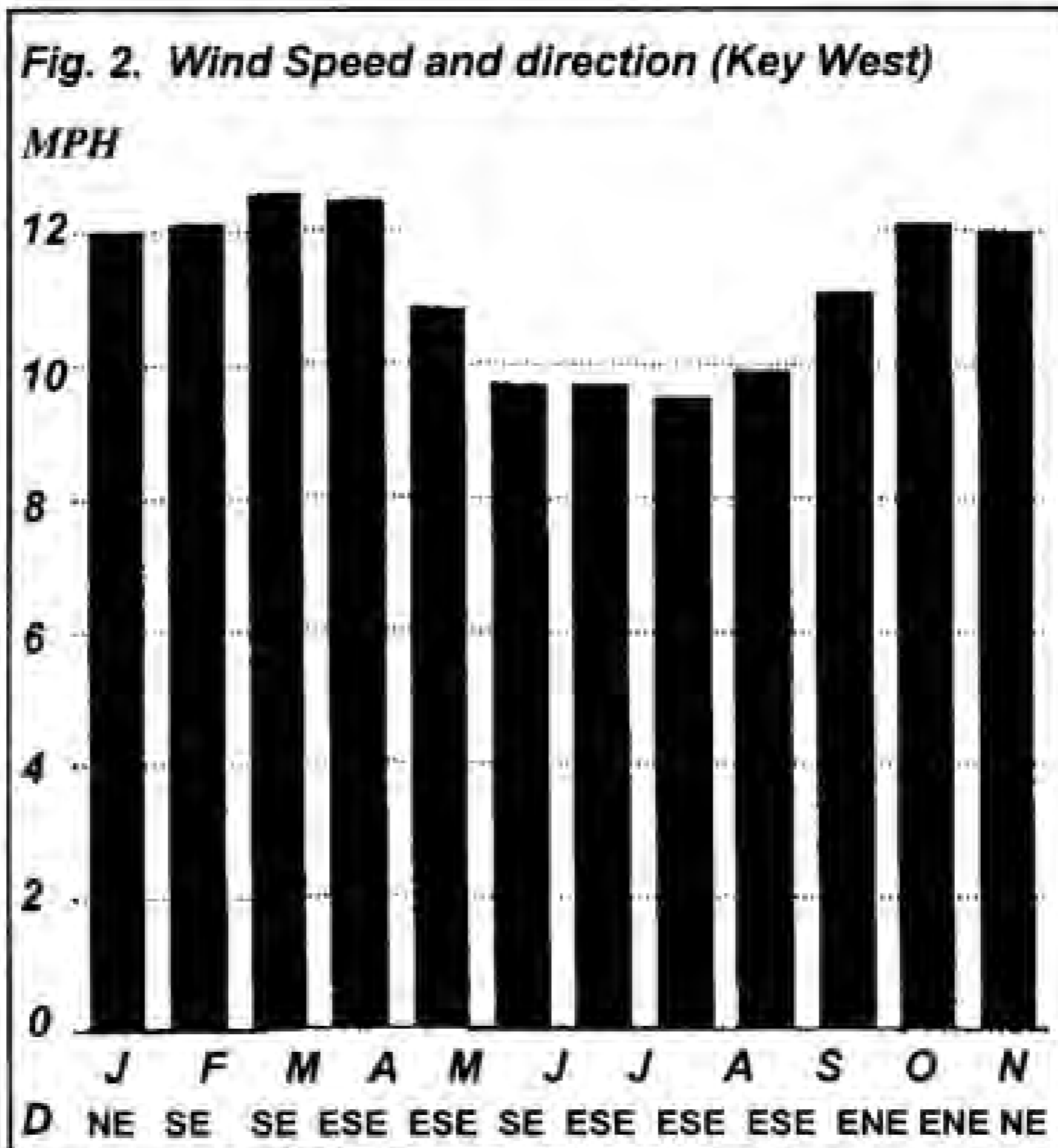
Fl Keys Average Precipitation



Relative Humidity

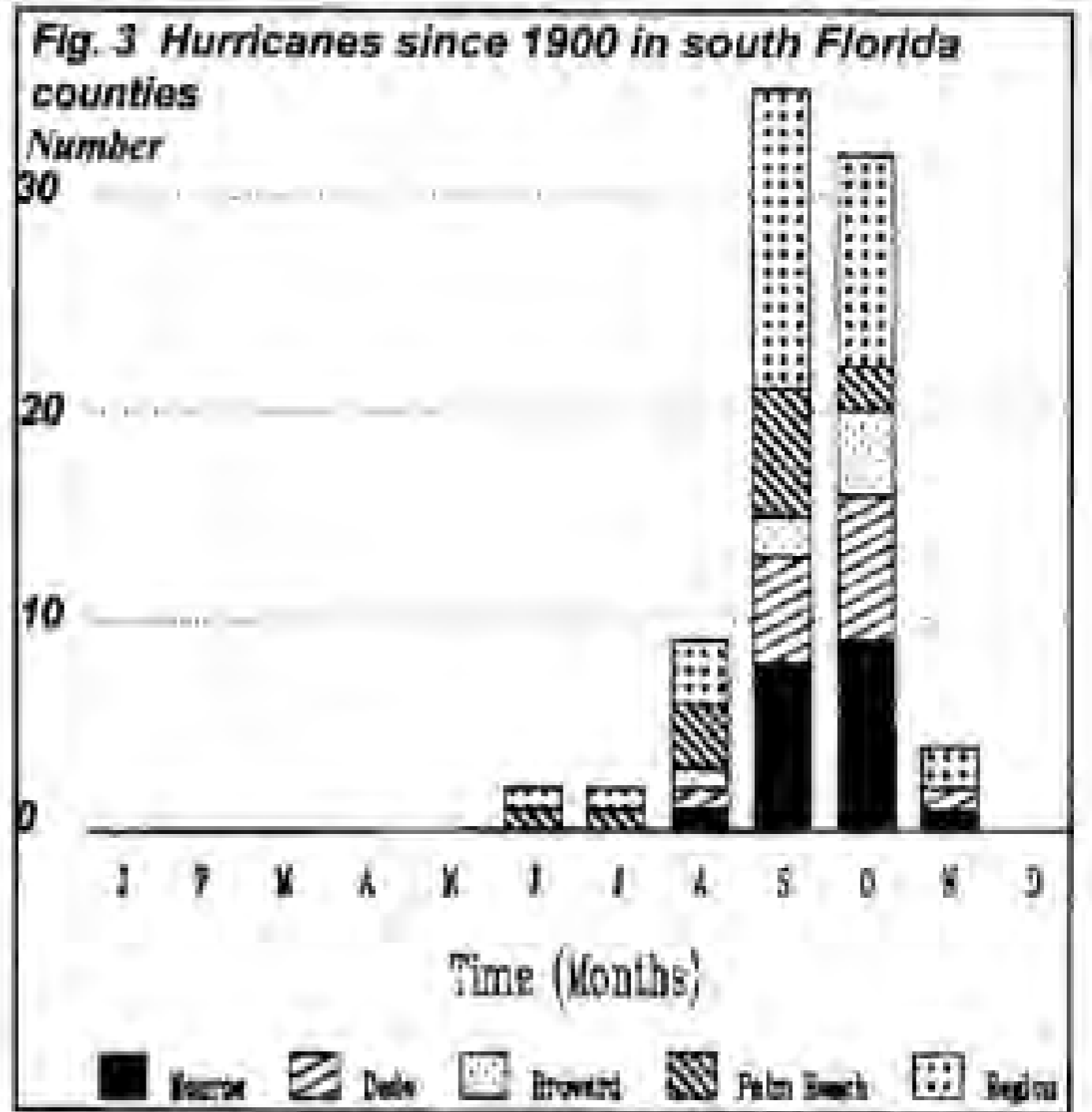
- RH indicates the amount of water in the atmosphere compared to the total water it could hold at a given temperature.
- Averages relative humidity is 75%

Winds



Tropical Storms & Hurricanes

- Hurricane season:
- June through November
- 1 in 7 chance for hurricane force winds Key West and Miami
- Most destructive forces: wind and storm surge



Solar Radiation

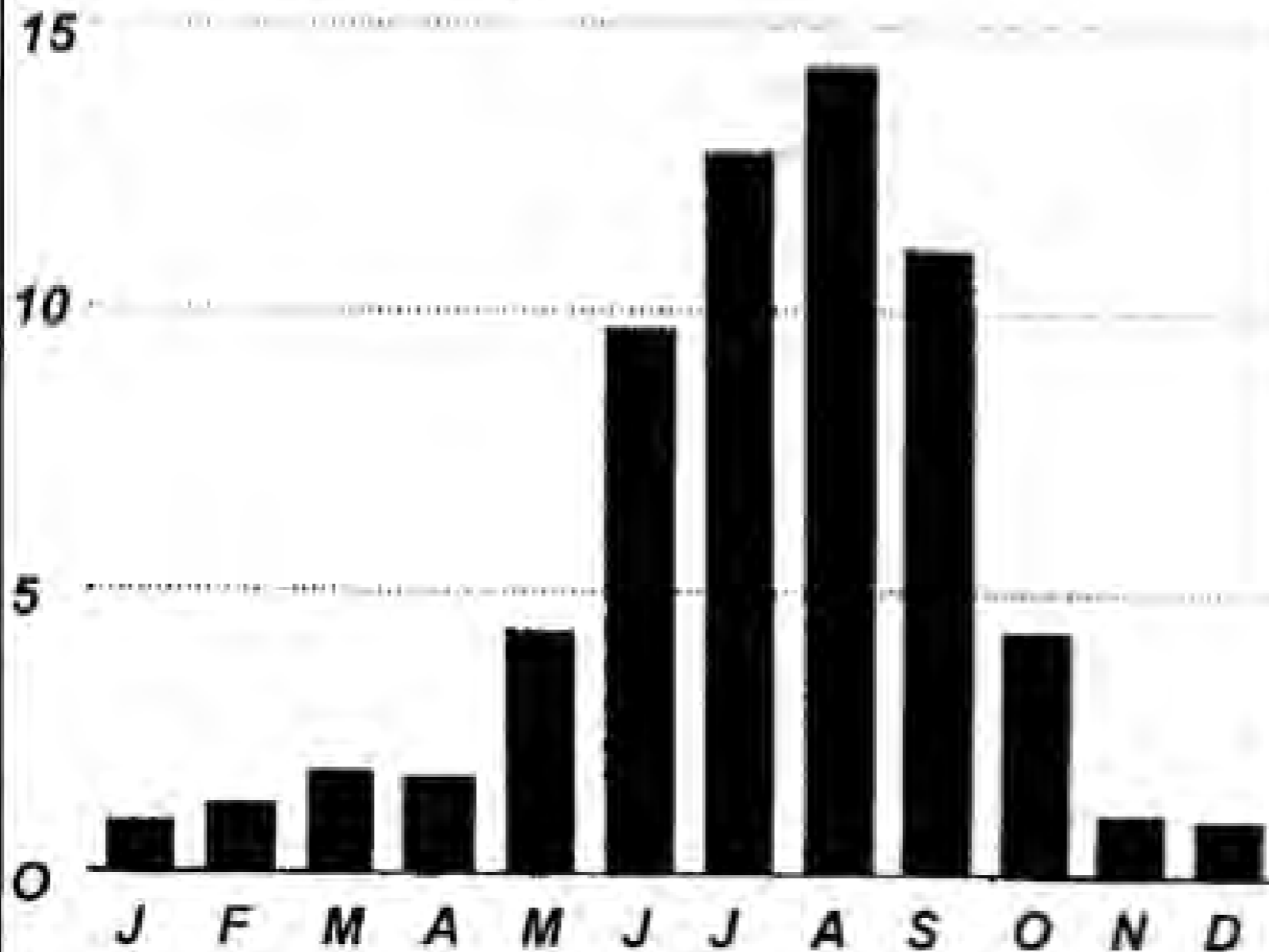
- Annually the sun shines 3/4 of the possible hours, ranging from 70% in December to 84 % in April



Thunderstorms

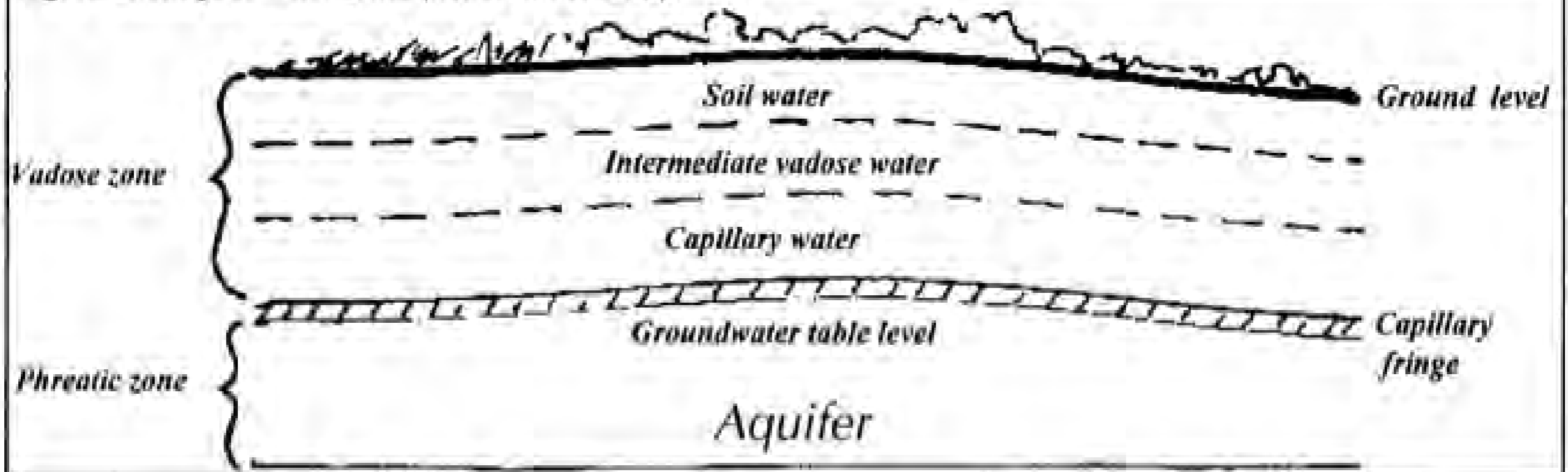
Fig. 4. Thunderstorm occurrence (Key West)

Mean number of days



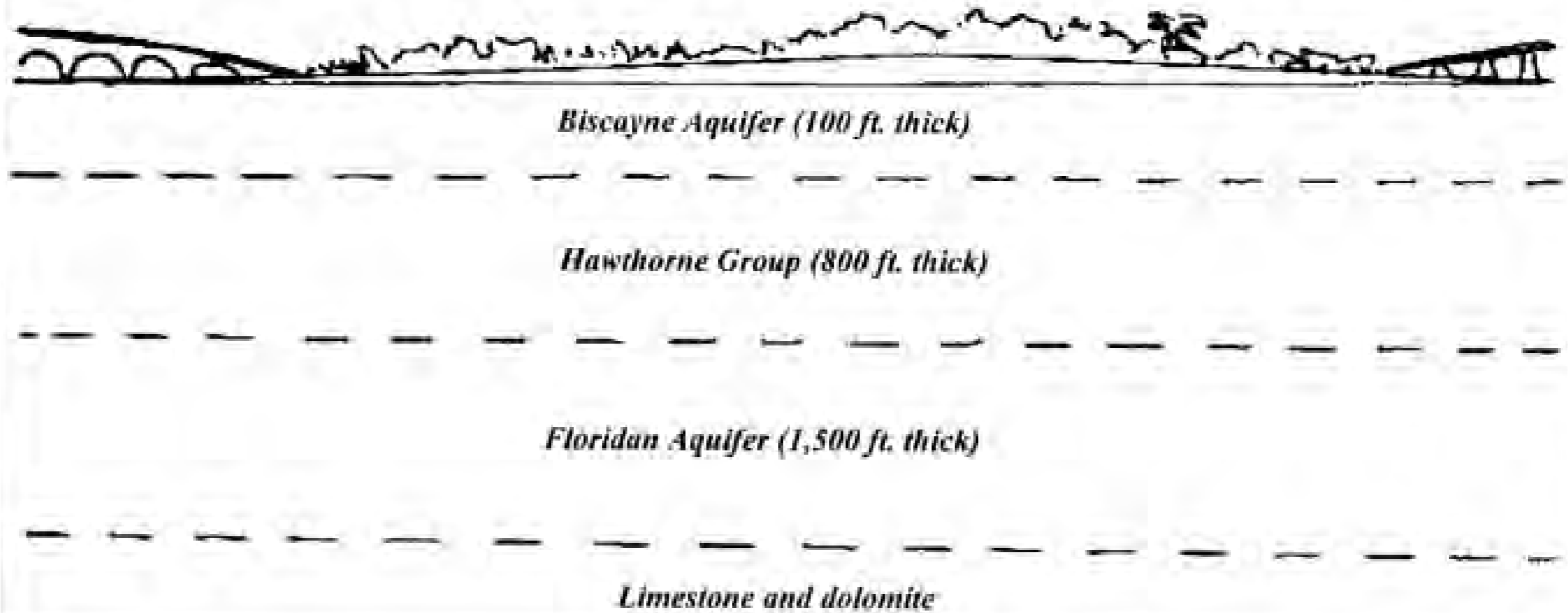
Keys Hydrology

Fig. 1. Subsurface water zones (not drawn to scale).



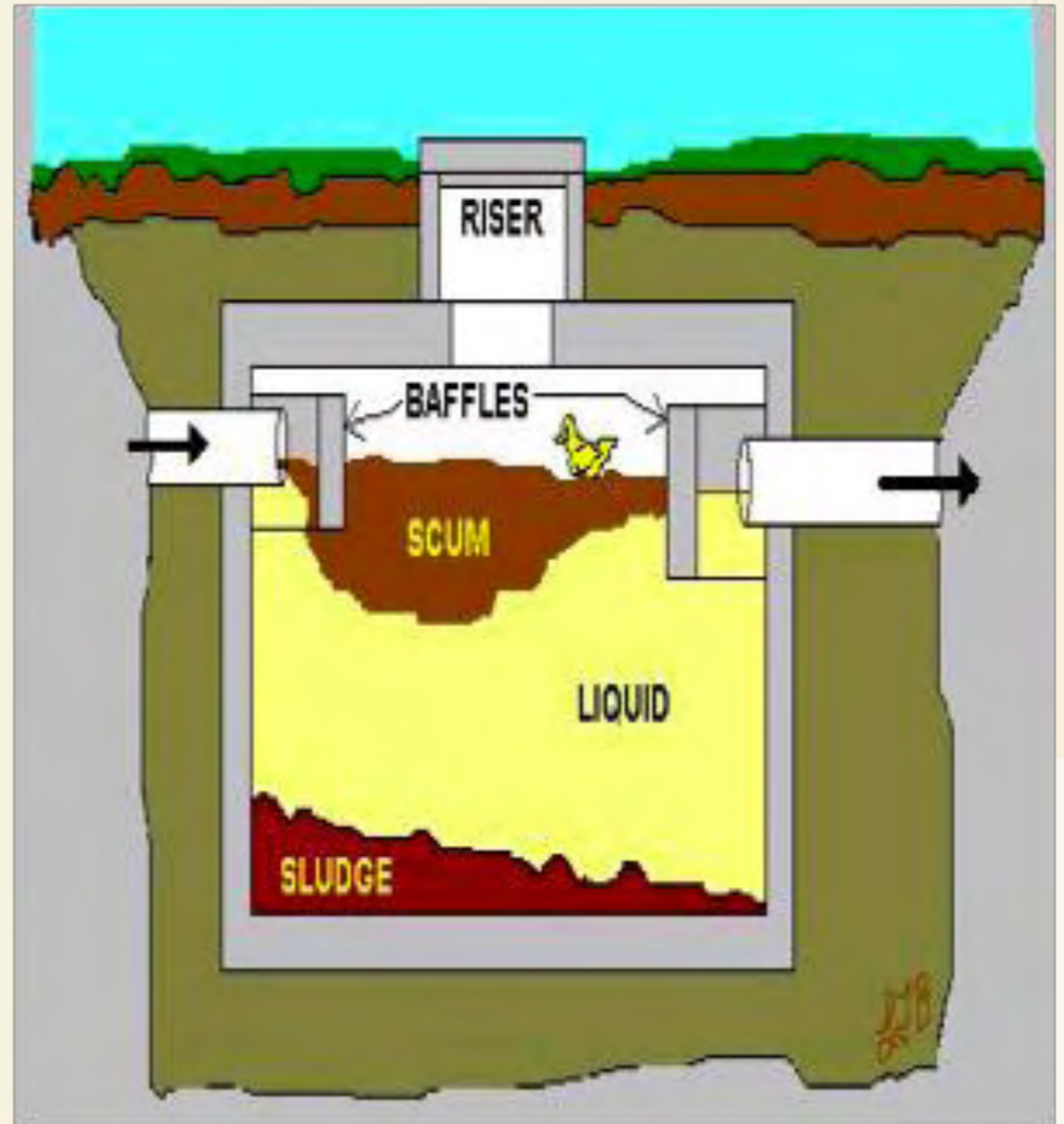
Aquifers

Fig. 2. The Biscayne and Floridan Aquifers beneath Monroe County



Point Source Pollution

- Landfills, underground gasoline storage tanks, septic tank leachate and wastewater injection wells



Non-Point Source Pollution

The CULPRITS



When it rains, water that is not absorbed into the ground, intercepted by vegetation, or evaporated flows into surface waters such as rivers, canals and coastal waters. This flow is called runoff. As the runoff flows over the roads and land, it picks up pollutants.



Surface water can be polluted through groundwater.



SOIL



Roads are a source of pollution. Oils, grease, construction dirt, trash & cigarette butts wash off roads when it rains.



Excess fertilizers wash off lawns & gardens when it rains & flow into surface water.



Things put into stormdrains and on the street can end up in our rivers, canals, & coastal waters



To Waterbody

Biotic

Biotic Systems

A Biotic Profile



*Mud or
hardbottom
communities*

*Mangrove
communities
and
transitional
wetlands*

*Hammock
and
pineland
communities*

*Nearshore
hardbottom
communities*

*Inshore
reef
communities*

*Offshore
patch
reef
communities*

*Fore reef
communities*

*Deep
reef*

Florida Bay

Uplands

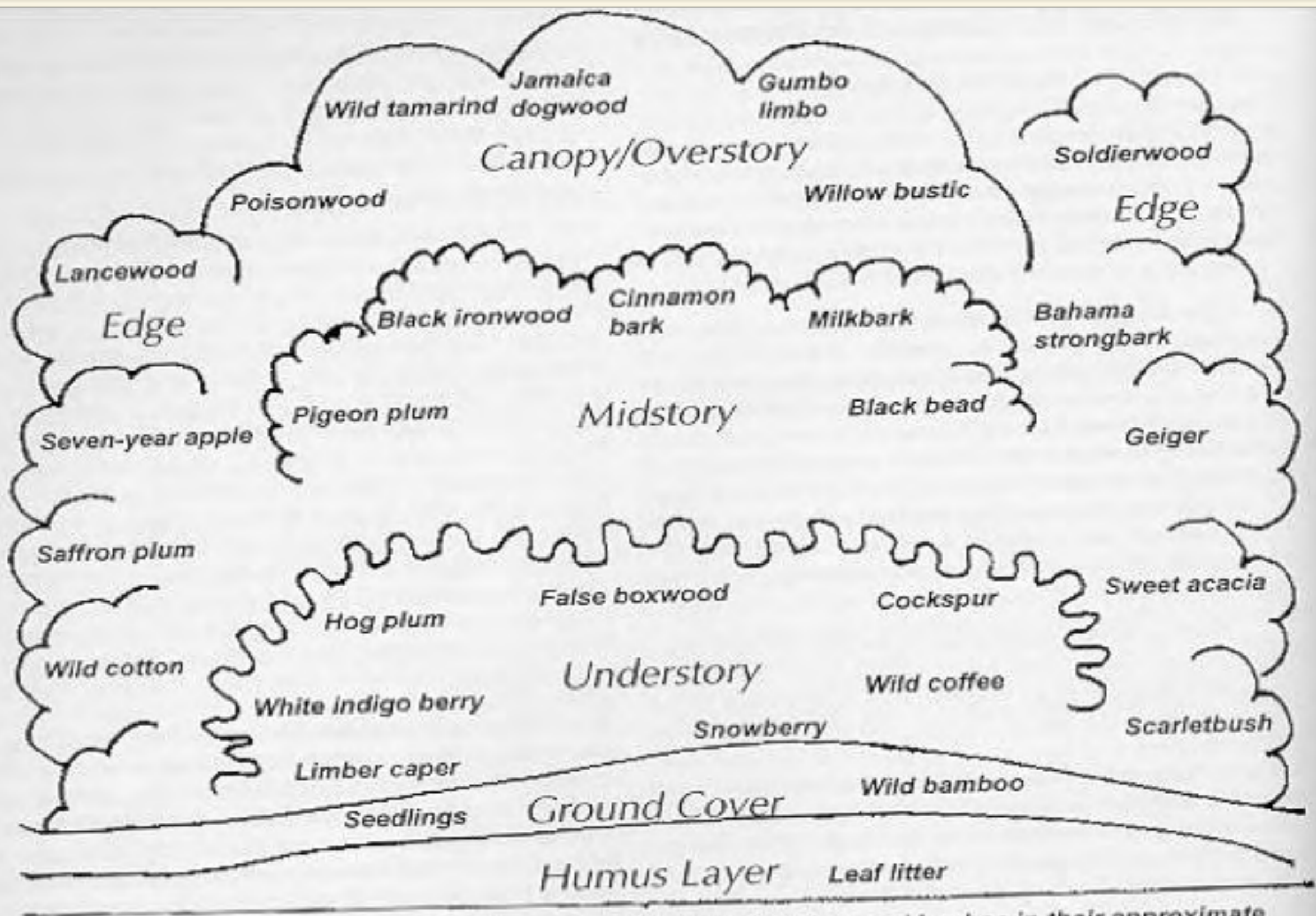
Hawk Channel

Florida Reef Tract

Tropical Hardwood Hammock







- Hammock means “cool, shady place”
- One of the most rare and unique plant communities in the U.S.
- 120 species of tropical hardwood trees, shrubs and plants, 36 are threatened or endangered





Structure of a Hardwood Hammock. This is a representation of trees and bushes in their approximate locations within a well-developed hardwood hammock.

Threats to the Hammock

-  Land Development
-  Trash Dumping
-  Loss of Humus Layer
-  Plant Collecting
-  Invasive Exotics
-  Hurricanes

Tropical Hammock in the Keys

- 🌊 North Key Largo Hammocks - C 305
- 🌊 Layton Hammock, MM 68
- 🌊 Crane Point Hammock, Marathon
- 🌊 Watson Hammock, Big Pine Key

Rock Pinelands



Pine Land Management - Prescribed Burns

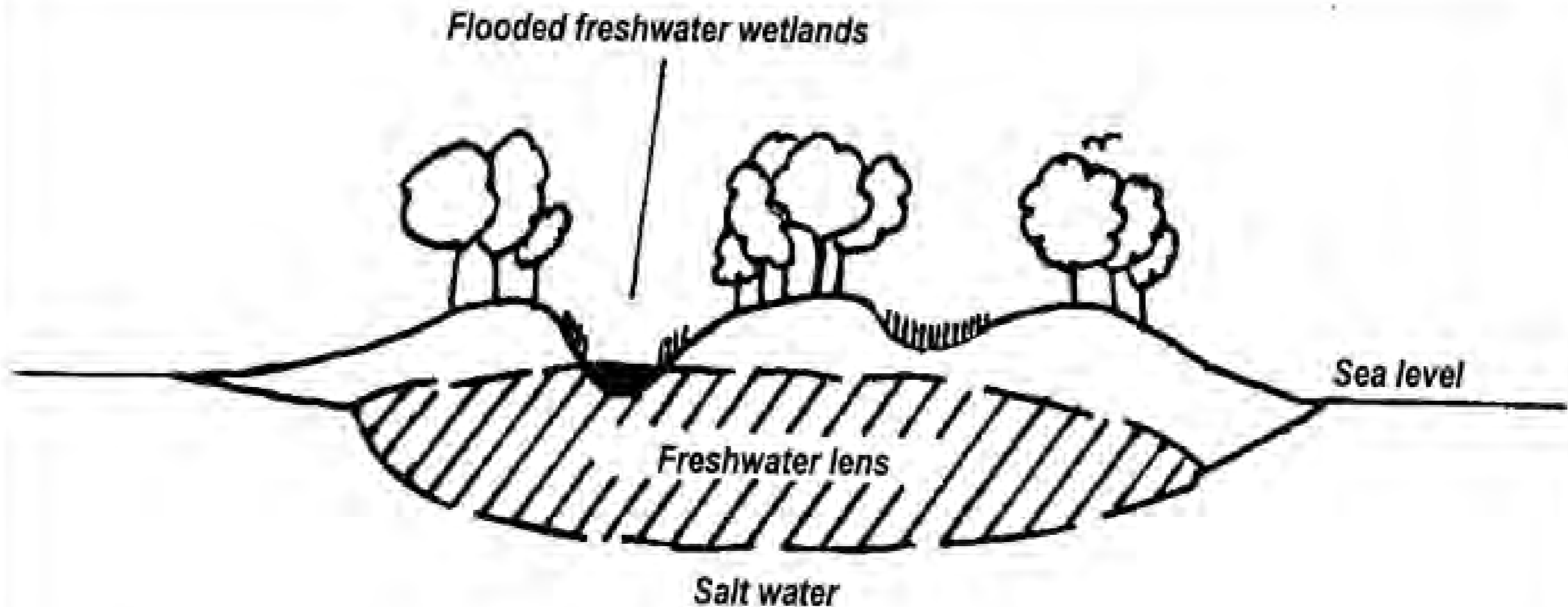


Freshwater Wetlands

- Found where water table is near the land surface, but away from the influence of tides



Fresh Water Lens



Threats to Freshwater Wetlands

- Contamination of lens from:
 - Septic Tank placed in unsuitable location
 - Injection wells for sewage effluent
 - Toxic discharge from commercial and industrial sites
 - Storm water runoff

Beach and Dune Communities

- Loose carbonate sand covers the bedrock



- Exposed limestone rock








Transitional Wetlands

- Flat gently sloping area with distinct vegetation gradient of open saltmarsh and forested buttonwood zone



Threats to Transitional Wetlands

-  Water intrusion from hurricanes and rising high tides
-  Vegetation stripped from the zone during hurricanes
-  Dumping
-  Off-road vehicles
-  Development

Mangrove Communities

- Dominant shoreline plant community in areas of low wave energy
- Land stabilizers
- Nursery areas for organisms from low end of food chain

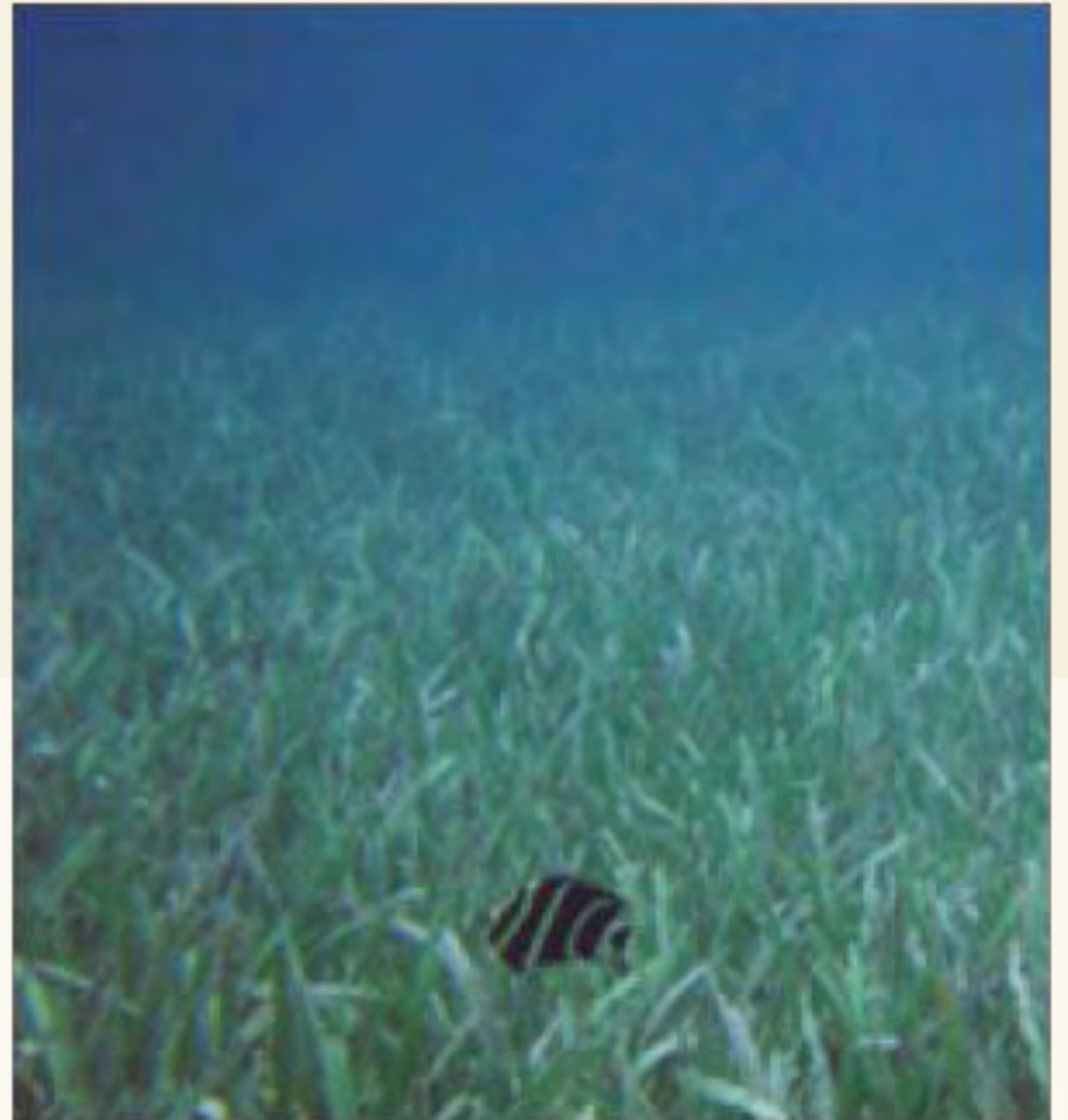


Threats to Mangroves





- Mangrove Protection Act of 1985, illegal to destroy or damage mangroves due to:
 - Human impacts:
 - Dredging
 - Filling and diking
 - Herbicides
 - Human waste runoff

Nearshore Communities

- Hardbottom and seagrasses located just off shore
- Combination of algae, sponges and corals



Threats to the Nearshore communities

-  Dredging
-  Propeller damage
-  Hurricanes
-  Stormwater runoff

Coral Reefs



Acknowledgments

- “Florida Keys Environmental Story”
Abiotic systems Biotic systems Section
1, pages 1-62