Economic and Environmental Benefits of Coastal Wetlands

MODULE TWO

Michigan Great Lakes Shoreline Landowner Education Program
Stewardship Concept:

Viewing the resource over the long term reveals important economic benefits that short-term concerns of having a groomed beach now do not encompass.
Great Lakes Coastal Wetlands

Wetland Zones

- **Upland:** Characterized by woody shrubs and trees, swamp and forest.
- **Shrub:** Characterized by shrubs, grasses and herbs.
- **Wet meadow:** Characterized by plants such as sedges, grasses, rushes and herbs.
- **Emergent:** Characterized by plants that emerge from the water, usually those rooted in lake sediments.
- **Aquatic:** Characterized by submerged plants and those with floating leaves.
Fluctuating Water Levels: Water levels fluctuate yearly...

Great Lakes Water Levels for Lake Michigan/Huron Graphed for Consecutive Years
Lake Michigan/Huron: 1918-2003

1972 Clean Water Act
Average
Water levels also fluctuate by month (and even by day!)
High Water Levels

What we see:
– Erosion
– Loss of wildlife habitat

How we react:
- Hardening of shoreline
- Building Marinas, boat launches, and other public access based on high water (instead of averages)
Low Water Levels

What we see:
- Increased Vegetation
- Changed access to water

How we react:
- Grooming (beach-going activities)
- Dredging (boating activities)
- Pier extension
Low Water Levels:
We’ve been there before...

“...the bay shoreline in many places is not only littered and weed-choked, but dangerous because of broken glass...”

(Bay City Times, April 19, 1966)

...in more recent history, we also remember Historic High Water (mid 80’s)
Benefits of Coastal Wetlands

Ecological Benefits

- Habitats supporting diverse Wildlife and Aquatic Food webs
- Water Filtration (including nutrient retention)

Economic Benefits

Individual Benefits

- Erosion Control (protecting shorelines)

Community Benefits

- Recreation
- Tourism
Habitats for:

Fish

Birds

Insects

Other Wildlife

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National Park Service

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National Park Service

B. Schroeder

National Park Service

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National Park Service

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National Park Service
Impact on replenishing G. L. sport fishing stocks (e.g. yellow perch, walleye, pike, bass)

For Nearshore, coastal habitats:

- **Shallow, warm waters**
- **Biotic production greater**
- **Fish diversity greater**
- **Critical spawning/nursery areas for fish**
- **Most Great Lakes fishes use for at least one stage of life**
Great Lakes Water Levels currently rising...

- Above average precipitation over past 12 months for all Great Lakes basins

- May 2004 precipitation – totals set new record high for Lake Michigan-Huron basin

- Driven by Lake Superior!
Snow Water in Lake Superior Basin

2002

2003

2004
Role of vegetation during varying water levels

- Wetland vegetation in different places, at different times, doing different things

- **Low Water Levels**
  - Shore vegetation → terrestrial habitats
  - New areas of lake bottom exposed to sunlight → new areas of aquatic plant production

- **High Water Levels**
  - Submerged vegetation → habitat and production for aquatic systems
  - Vegetation & root systems provide erosion control

*J. Read, MI SG
B. Schroeder, MI SG*
Best Management Practices (BMP’s)

Grooming only as necessary

Example: building a trail leading to beach or waterfront

ALTERNATIVE: Building a narrower trail to beach

Grooming entire beach
Best Management Practices (BMP’s): Managing shoreline vegetation?

Discing / turning under vegetation

ALTERNATIVES:

1) Mowing

2) Cutting/trimming
   (leaving 18-20”)

B. Schroeder, MI SG
US Army Corps of Engineers
Myth: West Nile Virus

- *Culex* species (spp) of mosquito is primary carrier of West Nile Virus

- Requires standing water for breeding habitat

- Coastal habitats are NOT favorable *Culex* breeding habitat. (due to susceptibility to regular disturbance by wind or wave action)

Economic Impacts

- Fishery and Wildlife Populations
- Increasing Tourism
- Land Owners
Sportfishery...

- Great Lakes (U.S. waters):
  - 1.8 million anglers
  - 23 million days of fishing
  - 16 million fishing trips

- Economic Value:
  - Between $4-$7 Billion

- Great Lakes (U.S. waters):
  - Nearly 19 million lbs

- Dockside Value:
  - Approx. $18 million

...Commercial Fishery
... Waterfowl Hunters or Bird Watchers

- **In Michigan...**
  - 55 thousand Waterfowl hunters (approx estimate)

- **In Michigan...**
  - 2 million bird watchers

Data source: USFWS 2001
Wetlands and People

- Fisheries (Sport/Commercial Fisheries)
- Hunting and Wildlife Watching

But also...

- Land Ownership
- Beach Recreation

...and more
Landowners...

“Great Lakes shoreline properties continue to receive a disproportionate amount of development pressure compared with inland real estate.”

(MI Sea Grant and the Michigan Land Use Leadership Council)
MYTH: Negative Impacts on Local Tax Base/Resale Values

- Sandy beaches more likely preferred over vegetated beaches; and
- May sell for different prices

...that said...

Bangor Twp (Saginaw Bay) case study shows:
- No evidence of negative impacts on tax base
- No decline in property values; in fact
- Values have increased
...to simply enjoying the Beach!

- Beachfront Owners,
- Tourists
- Surf Anglers

...and more....
Questions?