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Nearshore Terrestrial Indicators

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Nearshore Terrestrial Ecosystems

Background

Definition: *The physical structure and living communities of the land along the lakes' edge.*

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Land By the Lakes

Background

- Shaped by distinctive physical processes
- Unique ecological communities
- Focal point for human activities, causing major stress.
- How well are we protecting and restoring?

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Land By the Lakes: SOLEC 96

Background

"B" Rated Ecoregions

Status of Ecological Health for 17 Great Lakes coastal ecoregions

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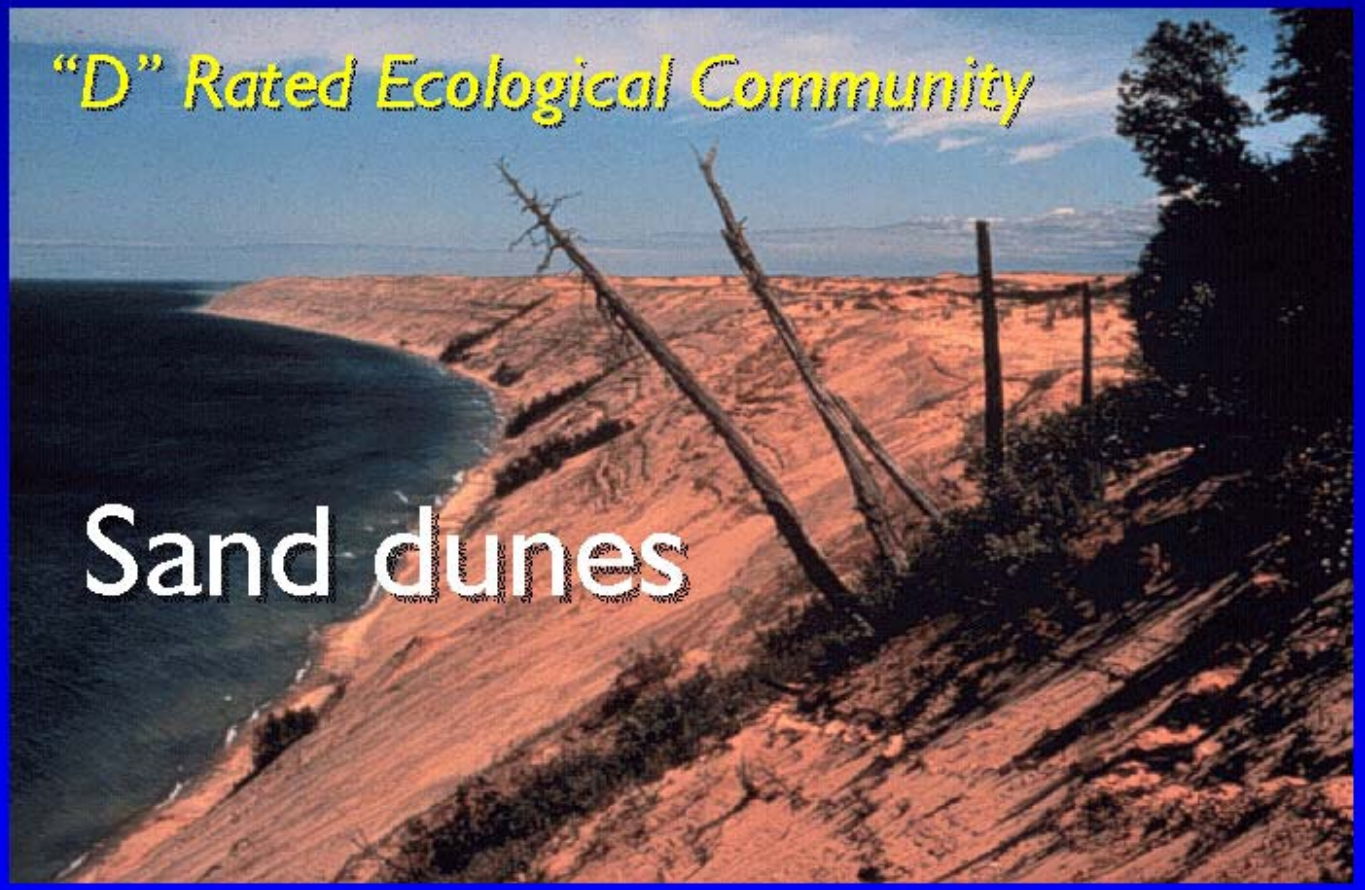
Land By the Lakes: SOLEC 96

Background

Status of ecosystem health for 12 special Great Lakes ecological communities



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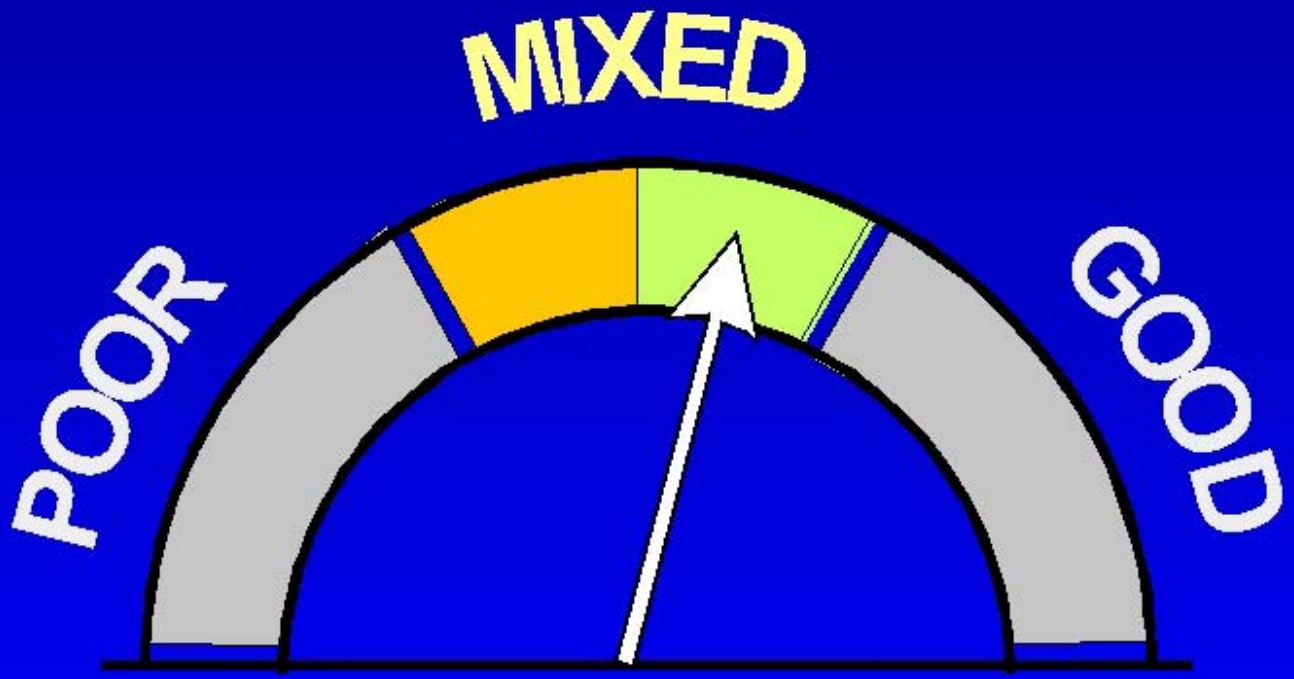
Land By the Lakes: SOLEC 96

Background

Status of overall nearshore terrestrial ecosystem health



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Land By the Lakes

Background

The Conclusion:

The **health of the land by the lakes**, nearshore terrestrial ecosystems, **is degrading** throughout the Great Lakes.

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Why Indicators?

Background

We need to know:

How ecosystems are changing and what is causing the changes.

The status of ecosystems and their components now.

What we are doing about changes that degrade ecosystems.

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Selection Process

Background

- STEP 1: 145 potential indicators identified from source documents
- STEP 2: 19 experts assisted in indicator assessment and selection
- STEP 3: Integration and review of selected indicators
- STEP 4: Description of each recommended indicator

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Stressor Category

The Framework

Physical:

- Hardened shoreline
- Artificial coastal structures
- Nearshore land use intensity
- Lake level fluctuations

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Stressor Category

The Framework

Biological:

- Nearshore problem species

Chemical:

- Contaminants affecting productivity of bald eagles
- Contaminants affecting the American otter

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Status Category

The Framework

Indicators related to habitats:

- Nearshore natural land cover

Indicators related to health and stability of ecological communities/species:

- Nearshore species stability
- Special lakeshore communities
- Nearshore endemic species
- Nearshore threatened species

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Program Responses Category

The Framework

- Community/species plans
- Agency dollars allocated
- Shoreline management plans adopted
- Nearshore protected areas


Example
8129, SPECIAL LAKESHORE COMMUNITIES
Indicator:
Sand dunes

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Sand Dunes

Example

Measure:

Area, quality, and protected status of sand dune communities occurring within 1 kilometre of shoreline.

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Sand Dunes

Example

Purpose:

A direct measure of changes in sand dune habitat.

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Sand Dunes

Example

Ecosystem Objective:

Relates to IJC Desired Outcome 6: Biological Community Integrity and Diversity

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Sand Dunes

Example

Endpoint:

No net loss in area or quality of shoreline sand dunes.

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Sand Dunes

Example

Feature and illustration:

Map of location and extent of sand dunes

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Sand Dunes

Example

Dunes Complex

In Managed Areas by
Level of Protection

Feature and illustration:

Protection status

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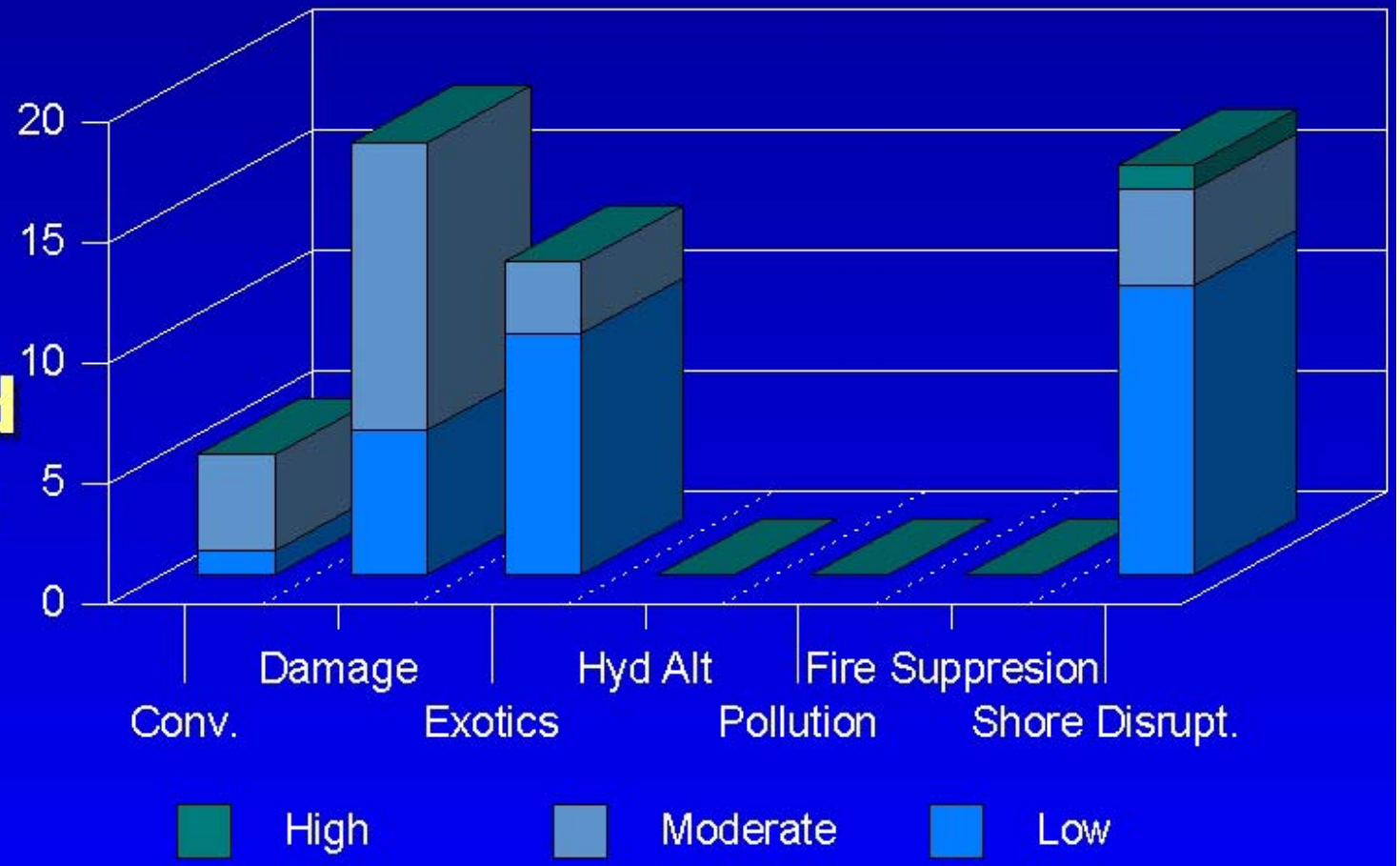
Sand Dunes

Example



Feature and illustration:

Threats

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Sand Dunes

Example

Feature and illustration:

Quality of sand dunes

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Sand Dunes

Example

Limitations:

Scale

Regular detailed data collection

Aerial interpretation

Incomplete location and quality data

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Example

Interpretation:

Repeat every 3-5 years to track changes over time.

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Develop Monitoring Protocol

Next Steps

REPORTING

Report monitoring results

- as trends over time?
- as compared to historical conditions?
- as a defined target?

ADAPTATION

Determine whether existing monitoring programs and databases can be adapted.

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What We Will Know as a Result

Next steps

- The kinds and degree of **human effects**
- The current **status of** special lakeshore **communities, species, and processes**
- Whether **current responses** are adequate to **protect ecosystems**