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Aquatic Biodiversity Investment Areas (ABIAs) in the Great Lakes Basin

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Aquatic Biodiversity Investment Areas (ABIAs)

A specific location or area within a larger ecosystem that is;

- especially productive,
- supports exceptionally high biodiversity and;
- contributes significantly to the integrity of the whole ecosystem.

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Objective

Identify and provide a scientifically-defensible basis for the selection of Aquatic Biodiversity Investment Areas (ABIAs) in the Great Lakes.

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Fish as Indicators of Biodiversity

- excellent indicator of overall ecosystem integrity and health
- preserving fish biodiversity is compatible with the conservation of individual endangered species and populations
- evidence that high biodiversity areas for one taxonomic group are similar for other groups

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ABIAs in the Great Lakes Basin

3 Phases:

1) A **Conceptual Framework** was developed to structure the development of a methodology for identifying ABIAs;

2) A **Survey** approach is being used as a short-term strategy for identifying candidate ABIAs and;

3) A scientifically defensible method, called **Habitat Supply Analysis,** is being developed as a long-term strategy for identifying ABIAs.

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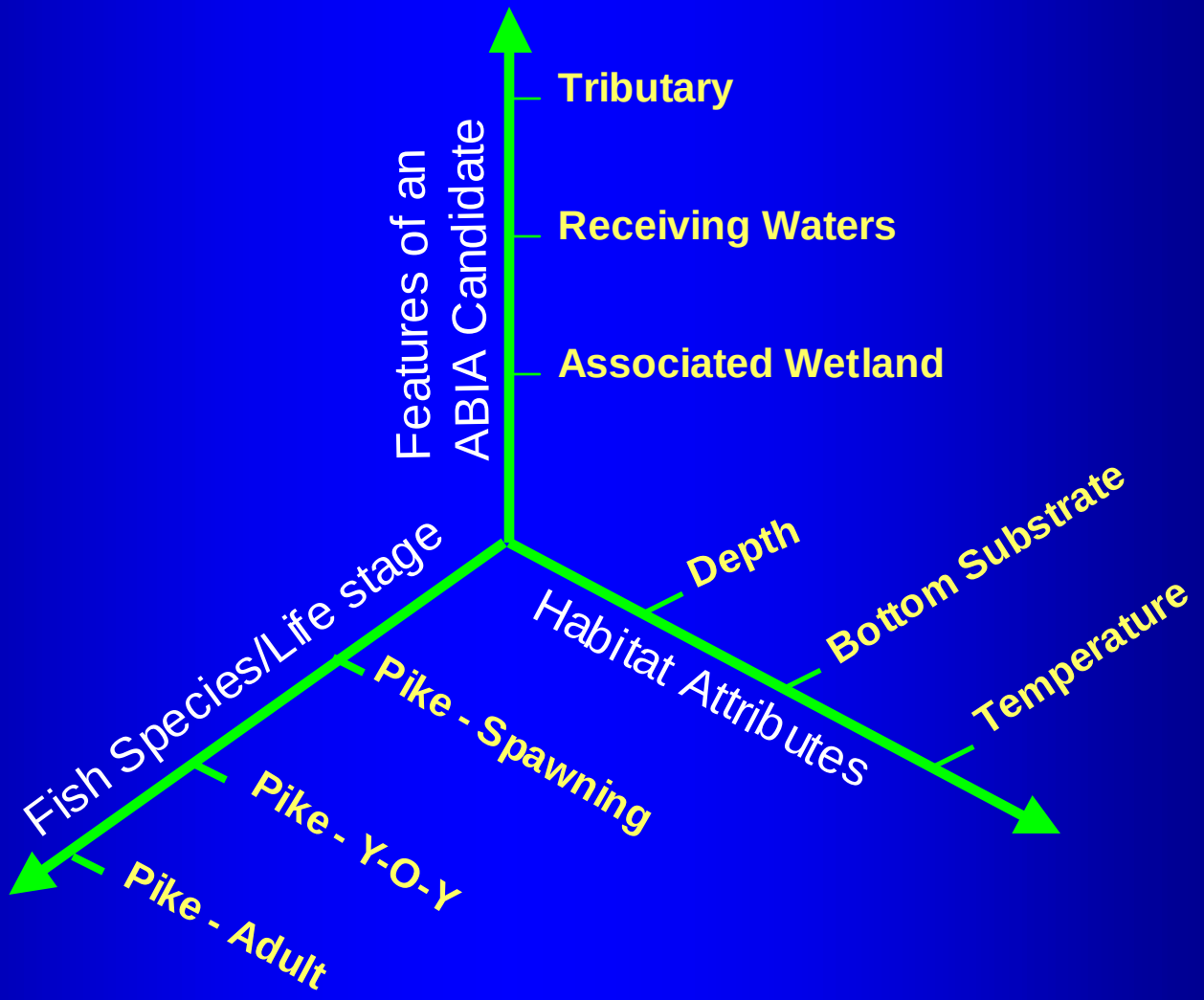
Conceptual Framework



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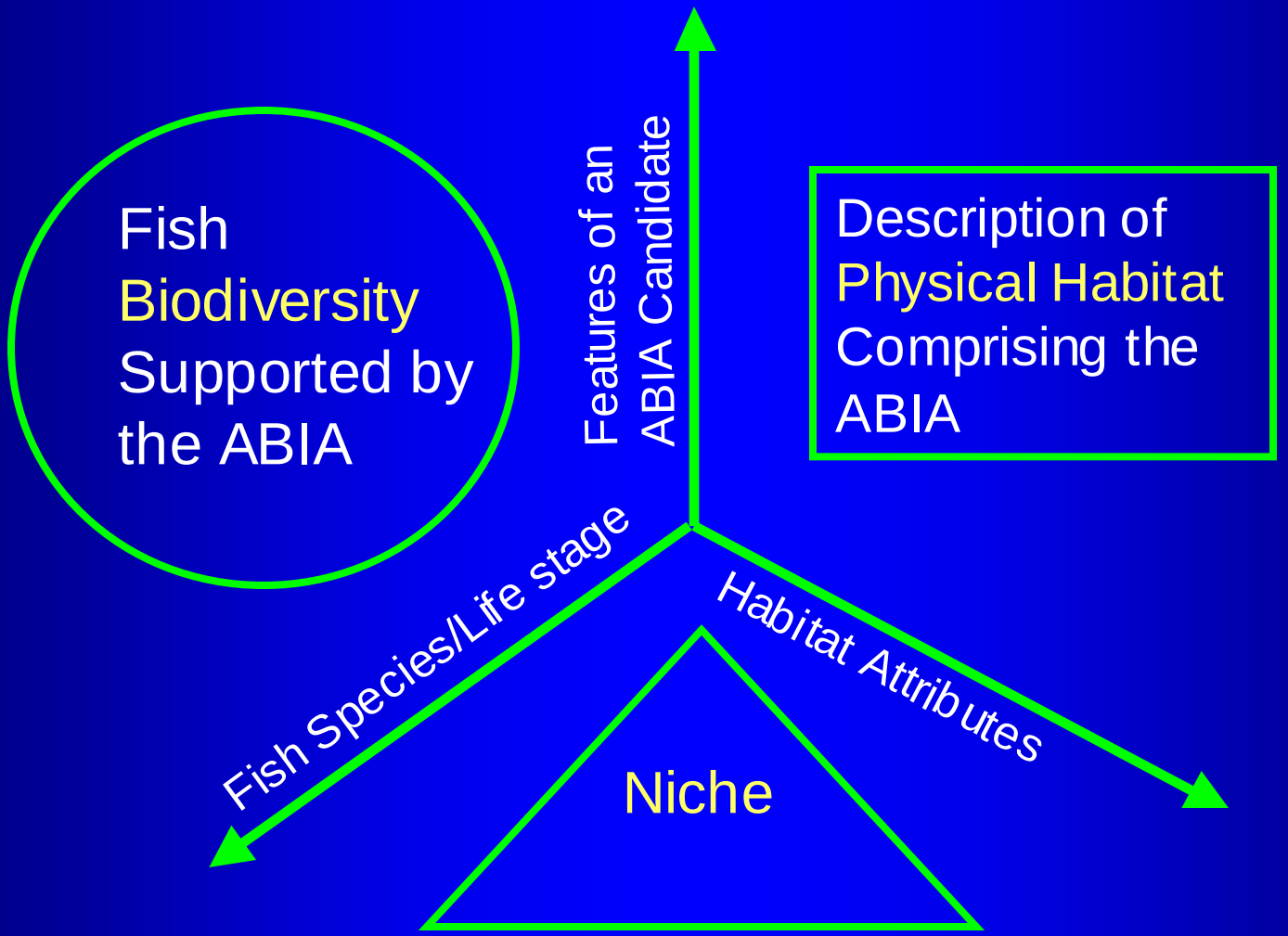
Conceptual Framework



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Survey to Identify ABIA Candidates

- 700+ experts on Great Lakes ecology were asked to identify candidate ABIAs.
- Results were compiled in a GIS-compatible database and mapped in ArcView®

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Survey Results

- ABIA Nomination

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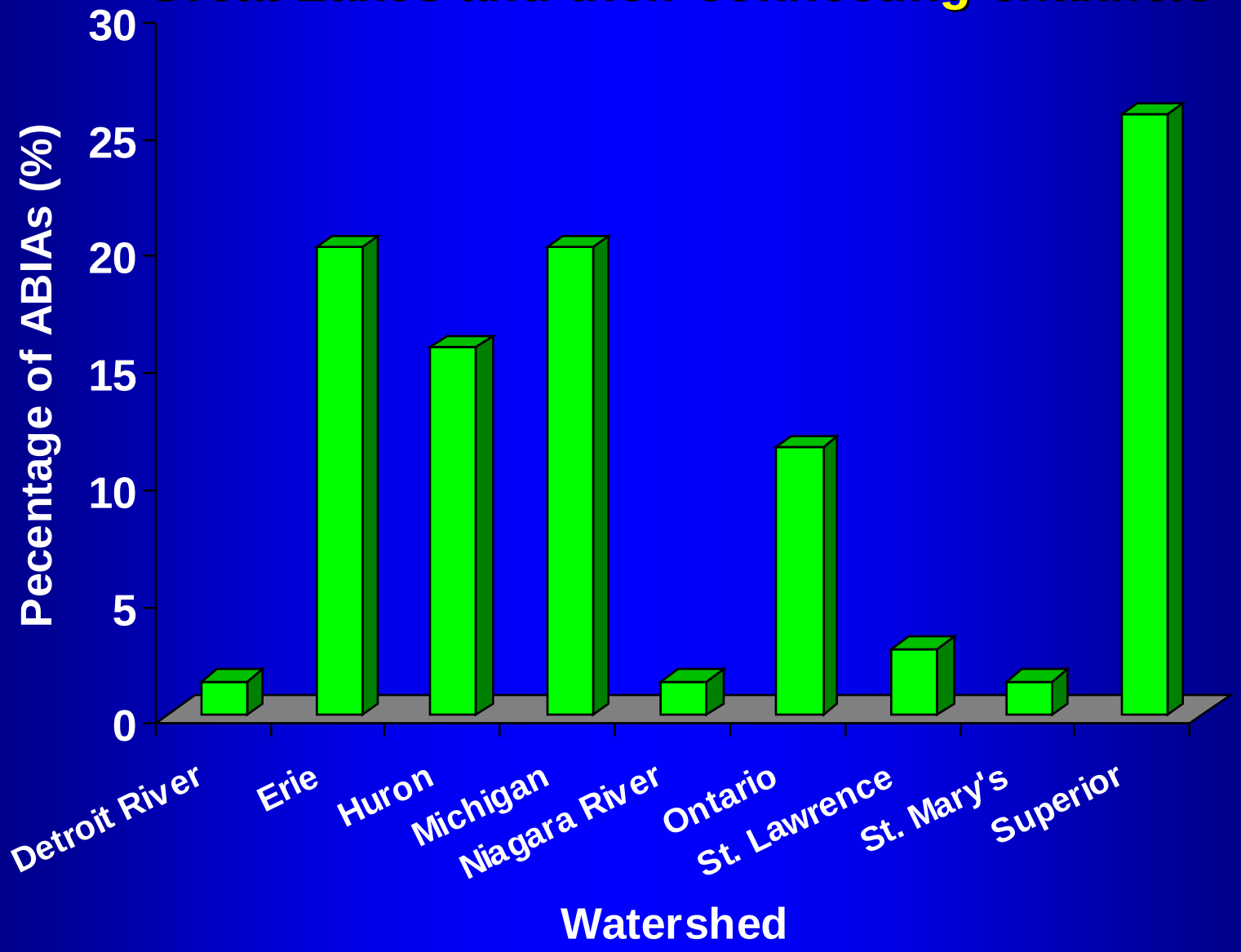
Percentage distribution of ABIAs across the Great Lakes and their connecting channels



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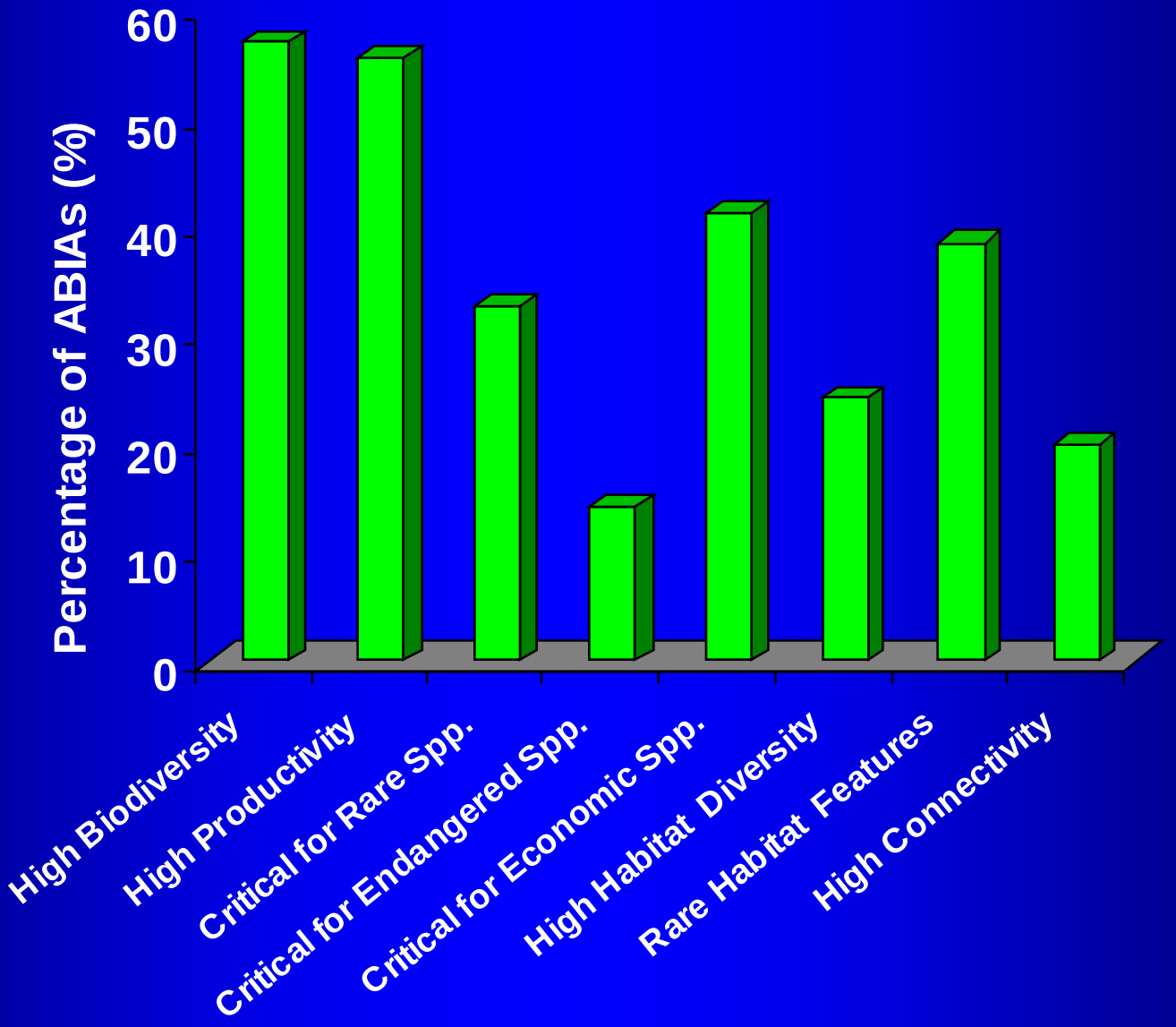
Percentage of ABIAs Described by Various Attributes



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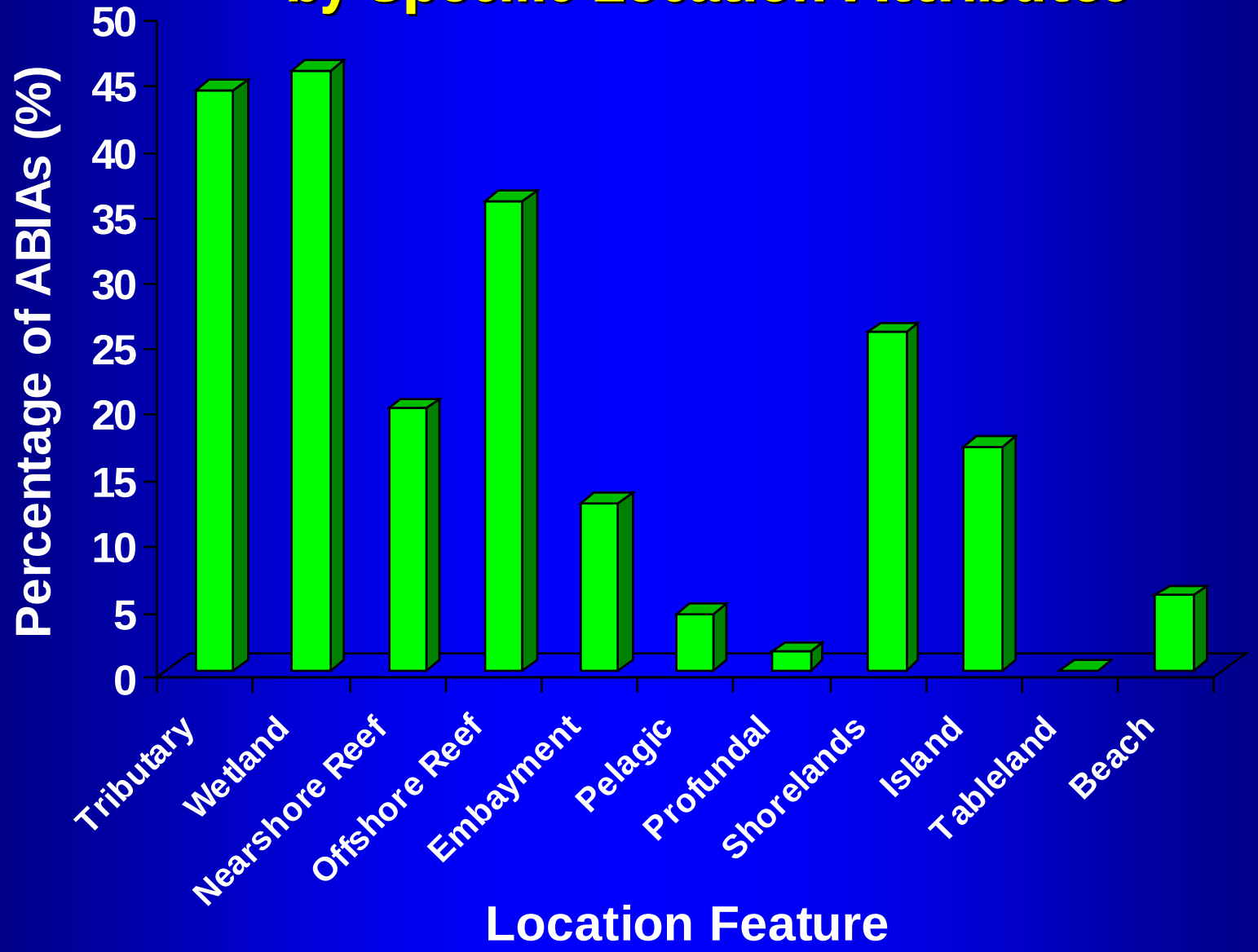
Percentage of ABIA Candidates Described by Specific Location Attributes



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Advantages of Survey Approach

- Valuable information about the location, characteristics and significance of potential ABIAs

- Information can be used to validate the Habitat Supply Analysis methodology

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Disadvantages of Survey Approach

- low response rate (<10%)
- uneven distribution of experts throughout the Great Lakes
- competence of experts to identify ABIAs cannot be assessed or compared
- loss of 'institutional memory' of previously studied sites

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Other Disadvantages

- Some areas studied more intensively than others
- Not every site is a good ABIA candidate

Solutions

- Amend the Survey to gather more data
- Develop a Scientifically Defensible approach

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Habitat Supply Analysis (HSA)

A data synthesis and integration approach that enables an implementation and testing of the **Conceptual Framework**.

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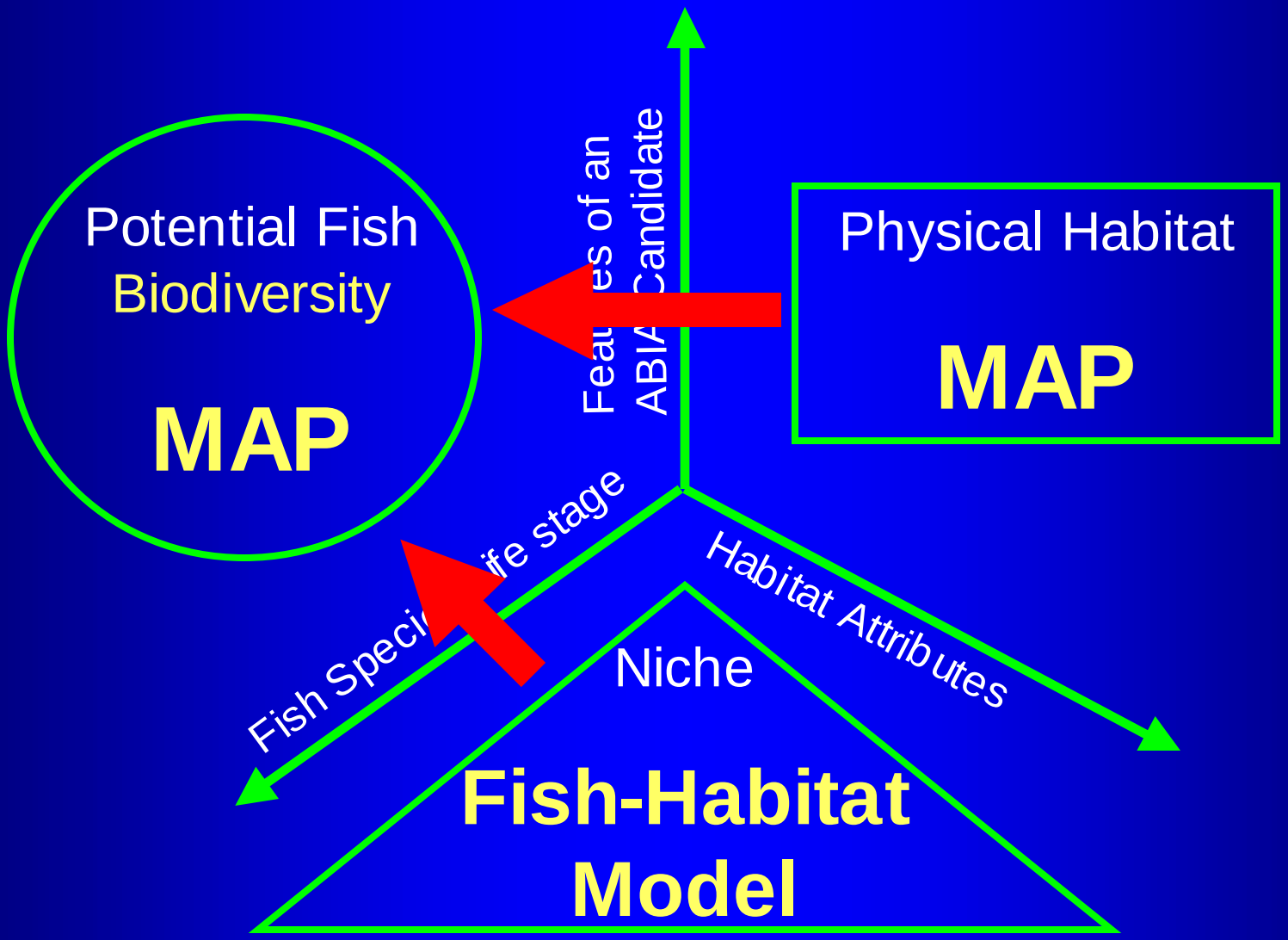
Habitat Supply Analysis (HSA)



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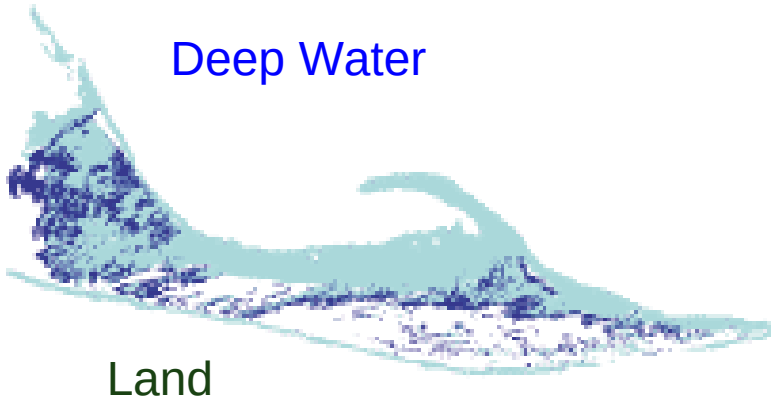
HSA for Pike at Long Point, Lake Erie

Young of the Year

0%
<= 50%
> 50%

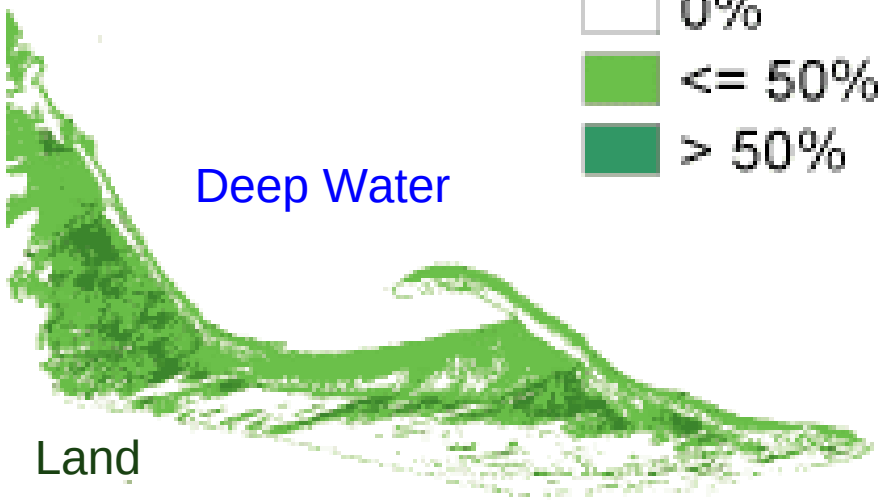
Spawning

0%
<= 50%
> 50%



Adult

0%
<= 50%
> 50%



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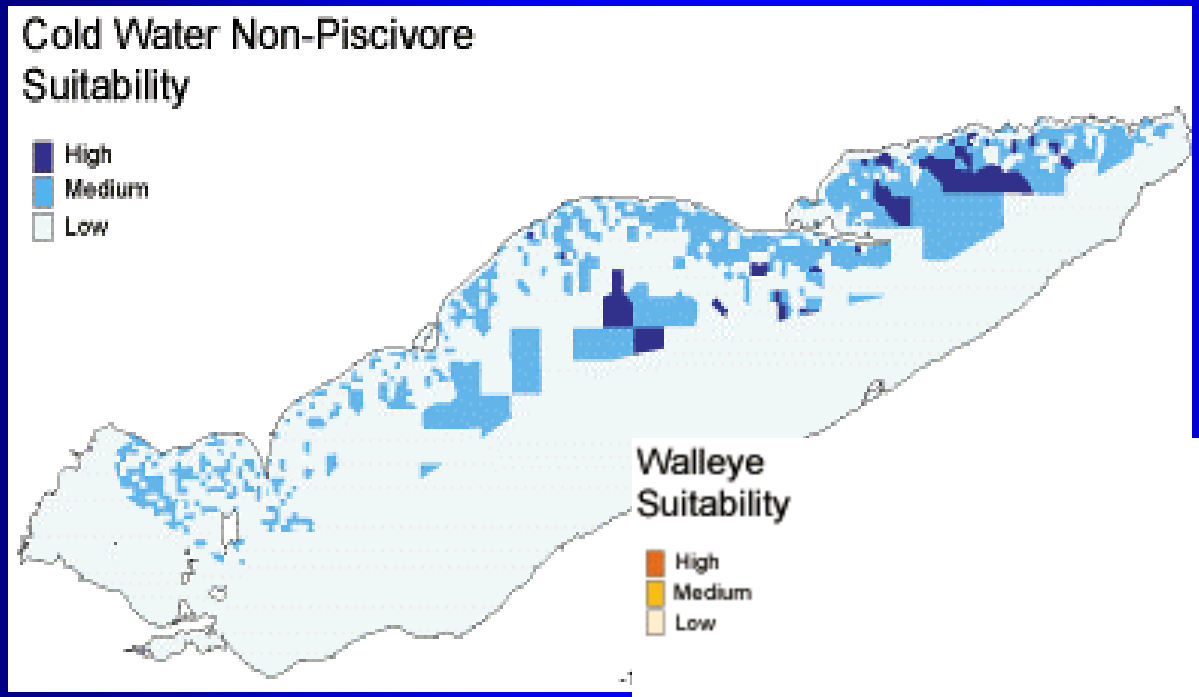
Habitat Supply Analyses for Cold Water Non-Piscivores and Walleye in Lake Erie



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Scheme for Classifying ABIAs

Healthy

Ecosystem locations that are relatively intact and functioning. **Conservation** efforts should be concentrated at these sites.

Damaged

Locations that are damaged or degraded but that still have the inherent capacity to support biodiversity and ecosystem functions if stressors are removed. **Restoration** efforts should be concentrated at these sites.

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Scheme Continued

Lost

Sites where past actions led to their complete loss thereby, eliminating important contributors to biodiversity maintenance. **Creation** efforts should be directed to these sites where feasible.

Missing

Sites that, because of their position in a sequence of locations or their contiguity to other locations, should be enhanced. **Enhancement** of habitat features would locally increase biodiversity and directly contribute to larger scale ABIA objectives.

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Next Steps

- How many ABIA nominations we should collect?
- Compile GIS-compatible data on the habitat attributes of Lake Erie
- Complete prototype application for Lake Erie
- Compile data on the habitat attributes of the other Great Lakes.

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Great Lakes Fishery Commission

ABIAs

Aquatic Biodiversity Investment Areas in the Great Lakes Basin

http://129.22.156.152/ABIA/

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Overview

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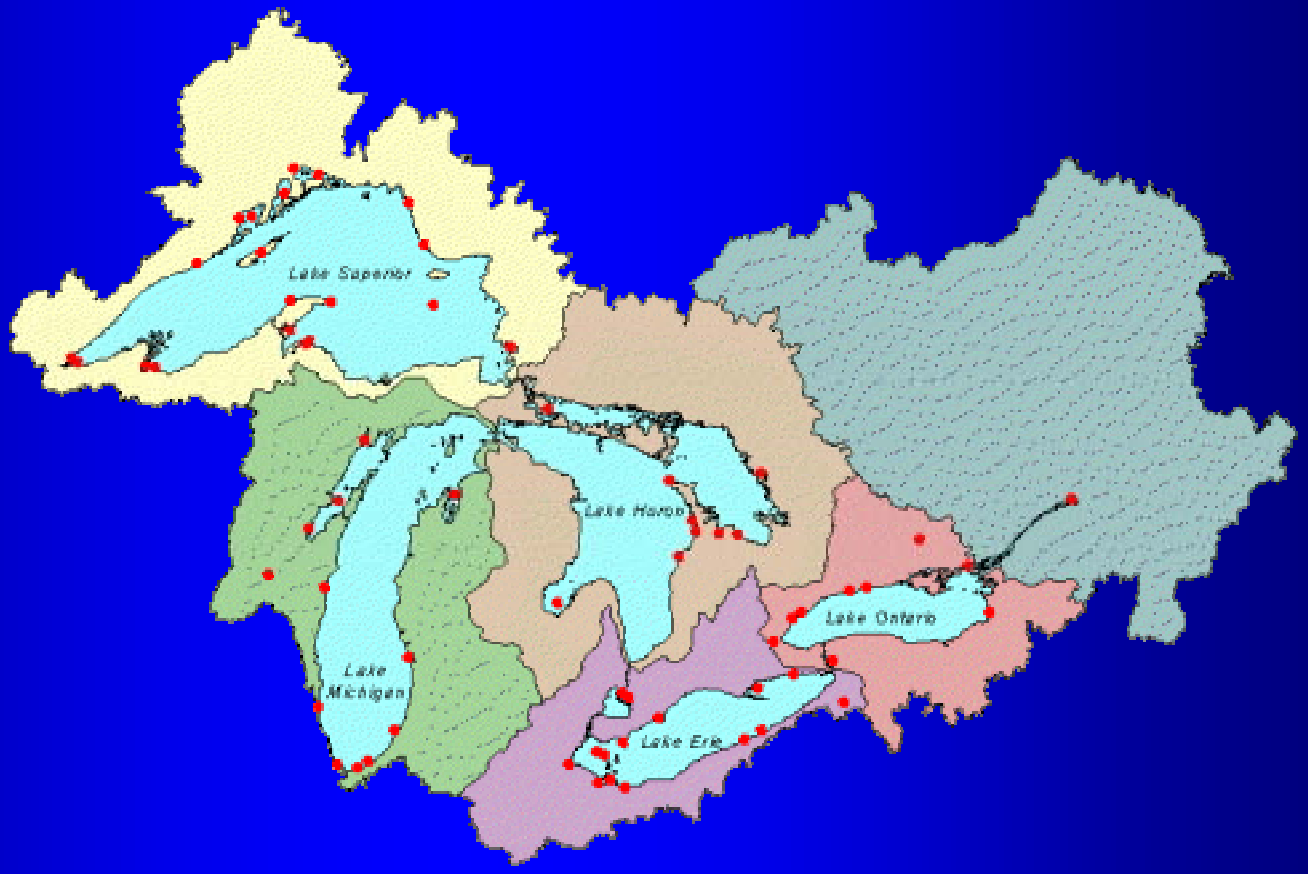
Conceptual Framework

Candidate ABIAs

Habitat Supply Analysis

Report for SOLEC '98

Glossary



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Acknowledgements

Great Lakes Fishery Commission, Lake Erie Committee, Habitat Advisory Board

U.S. Environmental Protection Agency

Environment Canada

Fisheries and Oceans Canada

Carolyn Bakelaar, Cartographics

Peter Brunette, Baytech Environmental