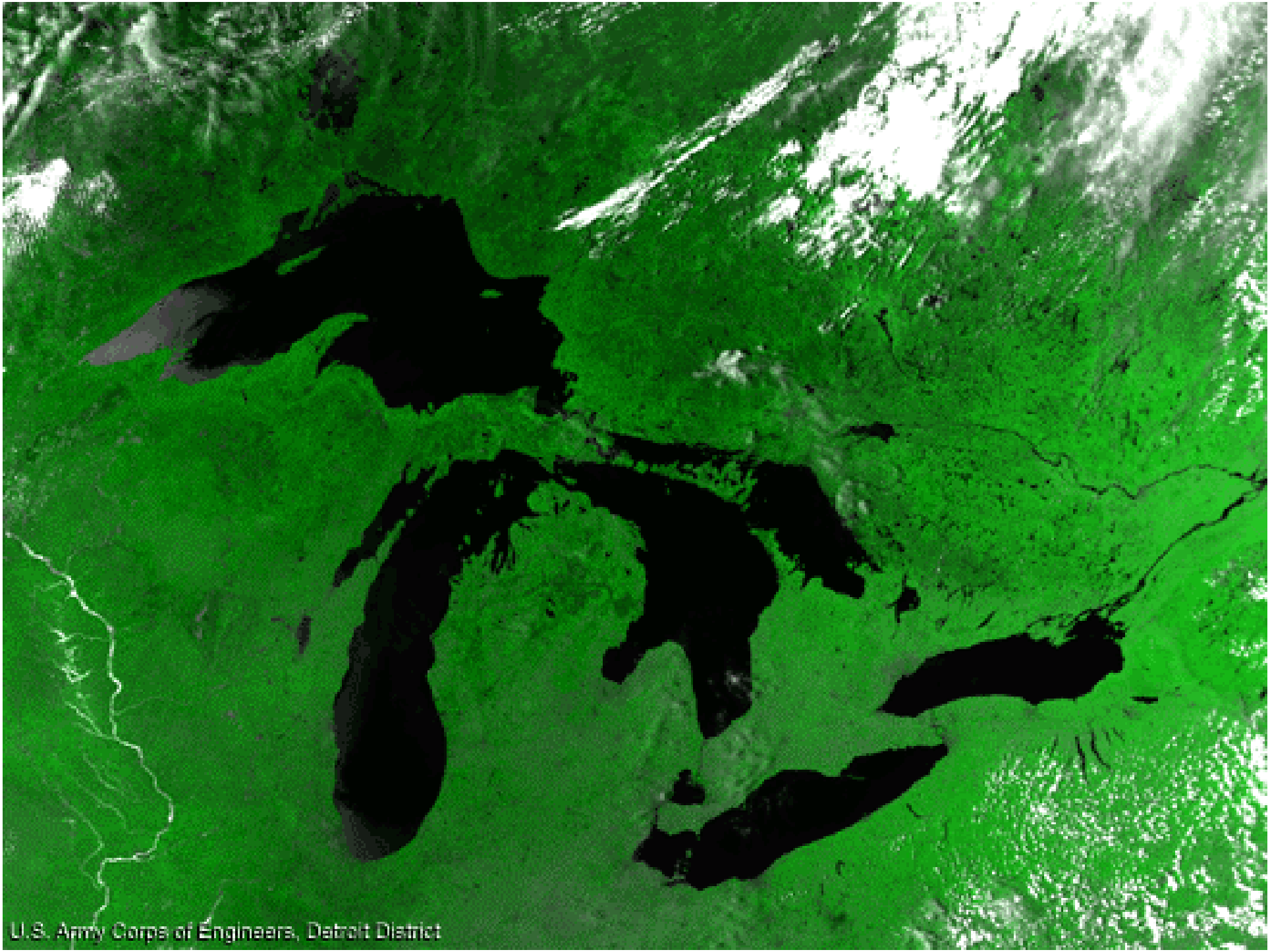
Great Lakes Indices: A Concept for Discussion

Paul Bertram
US EPA
Great Lakes National Program Office


U.S. Army Corps of Engineers, Detroit District

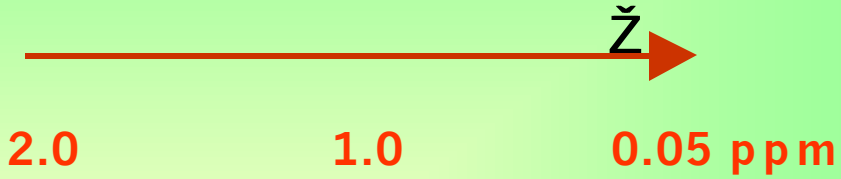
Concept of Great Lakes Indices

- Consolidate several indicators into an index
- Look at related indicators together
- Provide simplified assessment of environmental conditions
- Simple numeric scale
- Visual cue

Great Lakes Indicator Example: Walleye in Lake Erie

- Contaminants in edible fish tissue
- Abundance or yield
- Preyfish
- Habitat Availability

Contaminant Concentration in Edible Fish Tissue



Contaminant Concentration
in Edible Fish Tissue

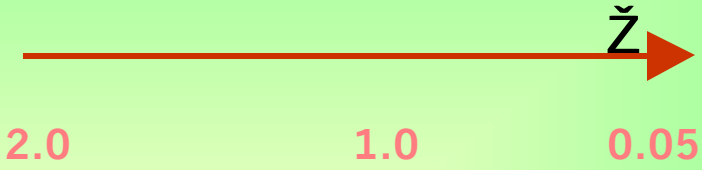
2.0 1.0 0.05 ppm

Annual abundance/ yield

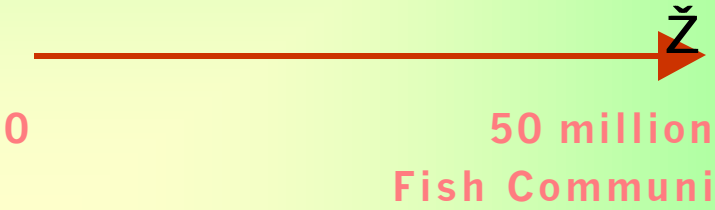
0 50 million pounds

Fish Community Objective

Contaminant Concentration
in Edible Fish Tissue



Annual abundance/ yield



Prey Fish

Contaminant Concentration
in Edible Fish Tissue

2.0 1.0 0.05 ppm

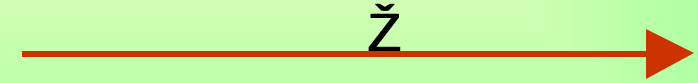
Annual abundance/ yield

0 50 million pounds
Fish Community Goal

Prey Fish

0 Fully supporting
Fish Community Goal

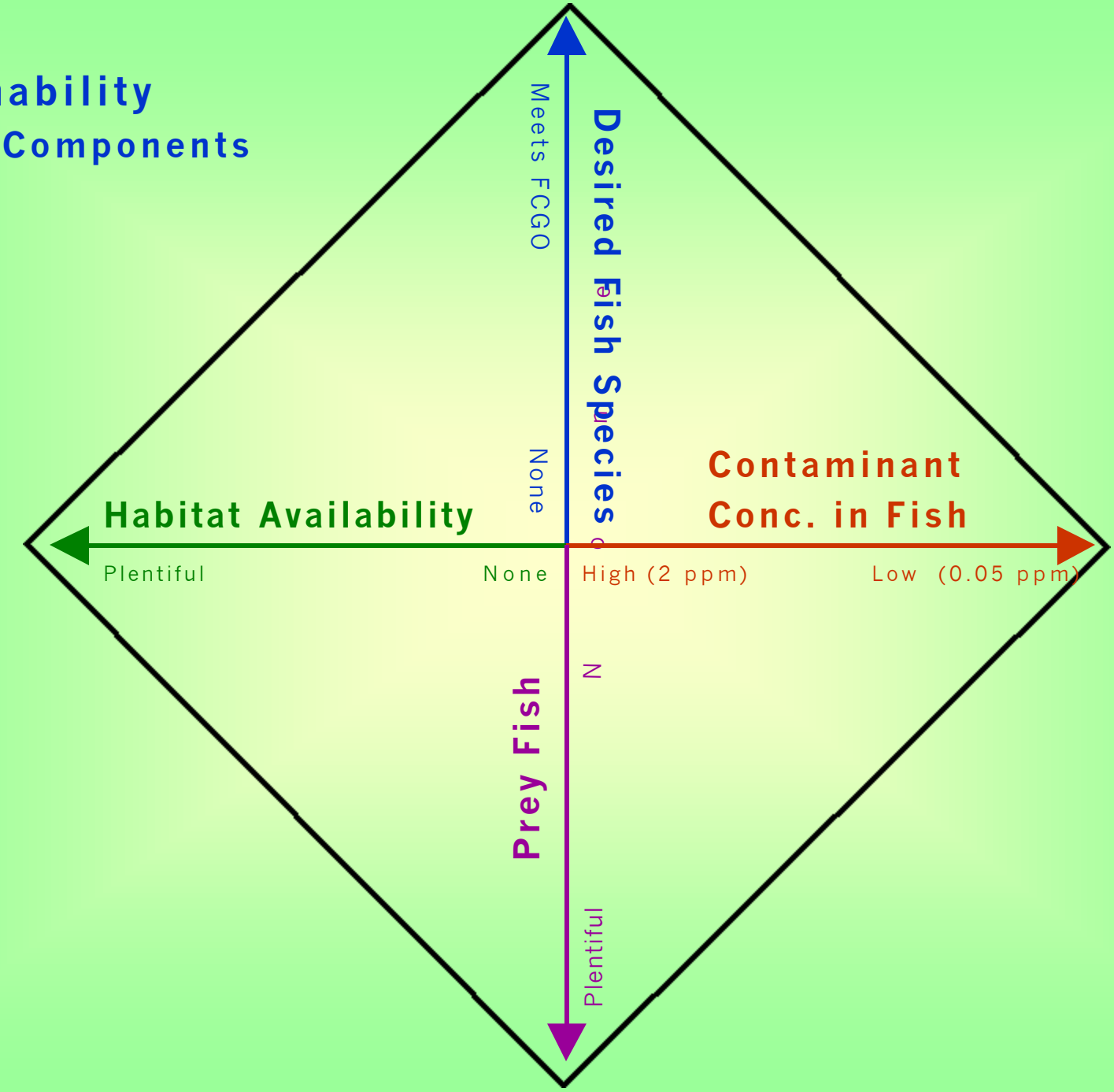
Habitat



0 Fully supporting
Fish Community Objective

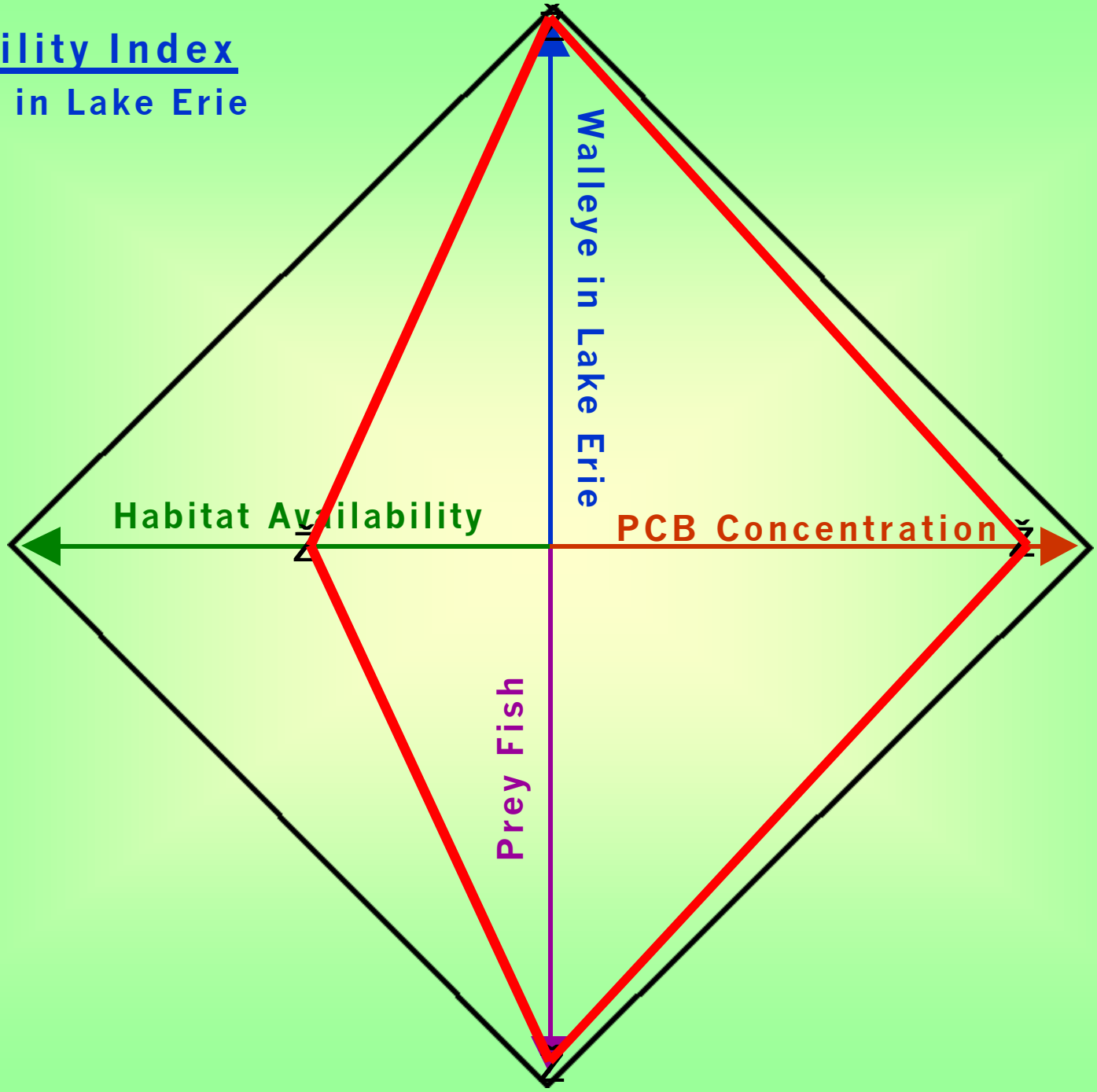
Fishability

Key Components



Fishability Index

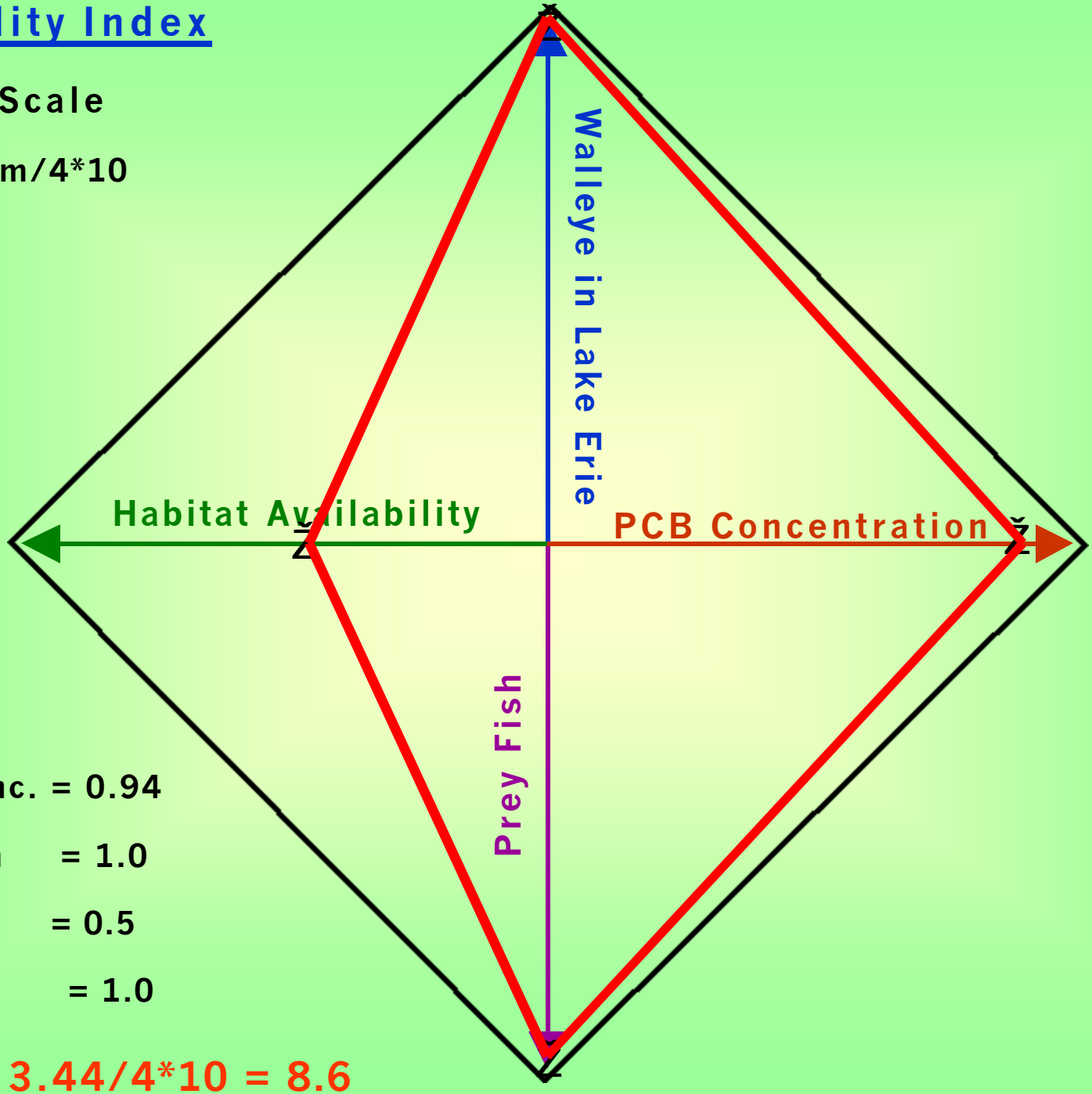
Walleye in Lake Erie



Fishability Index

Average Scale

Index = sum/4*10



Example

Cont. conc. = 0.94

Prey Fish = 1.0

Habitat = 0.5

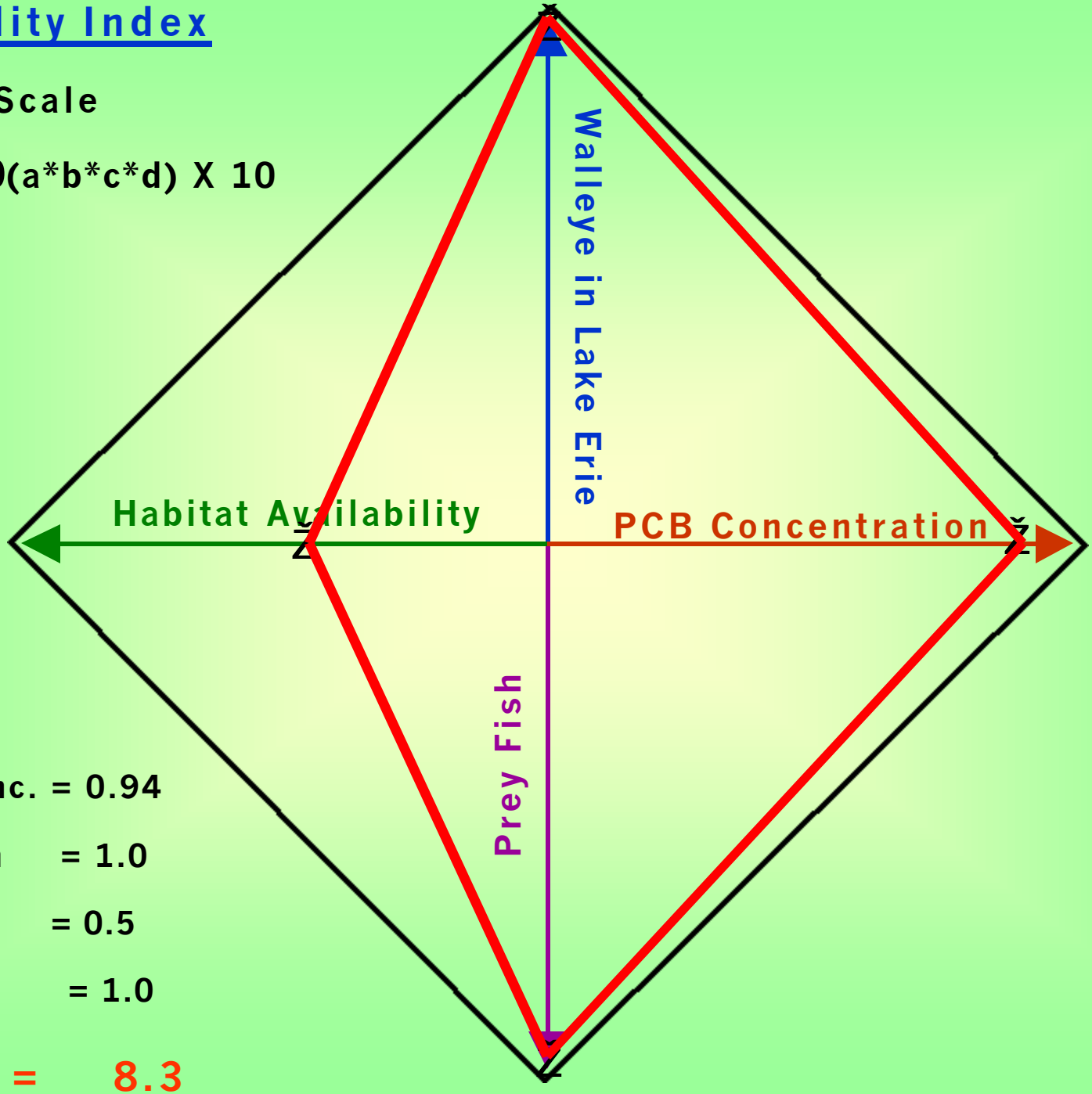
Fish Sp. = 1.0

Index = 3.44/4*10 = 8.6

Fishability Index

Product Scale

Index = $\sqrt[4]{(a*b*c*d)} \times 10$



Example

Cont. conc. = 0.94

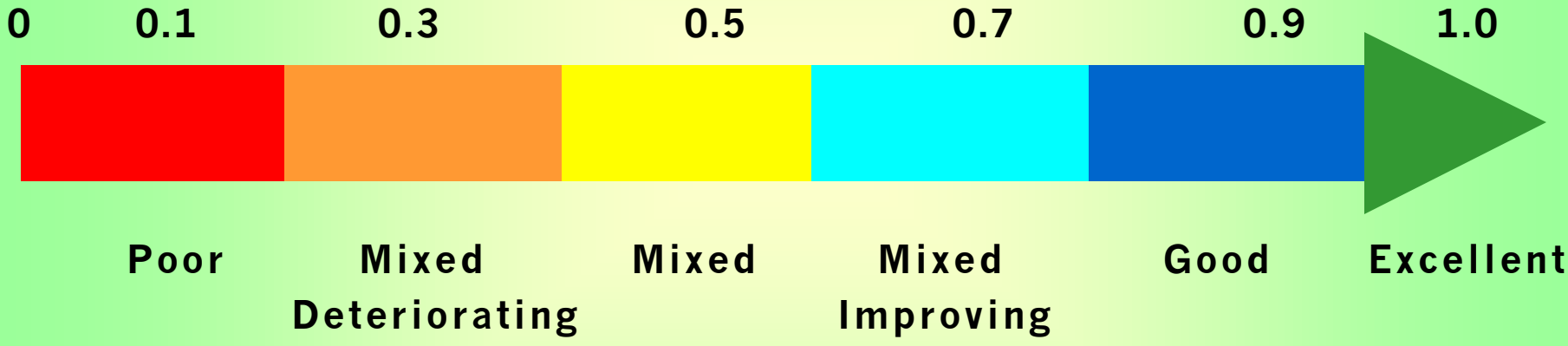
Prey Fish = 1.0

Habitat = 0.5

Fish Sp. = 1.0

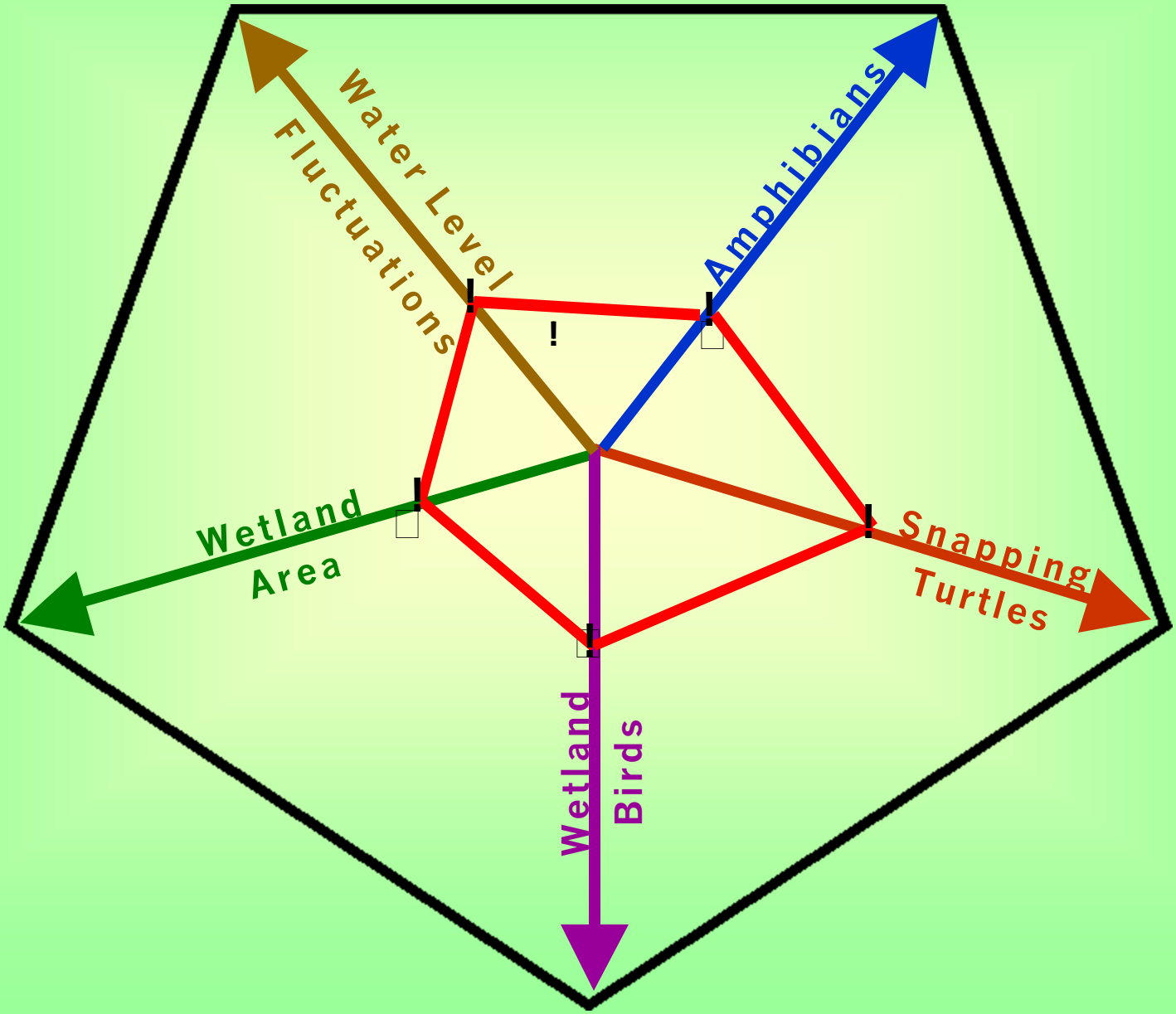
Index = 8.3

Index Scale for Qualitative Ratings



Wetlands

Key Components



Great Lakes Indices Questions for Discussion

- Is an index approach useful?
  - For managers?
  - For the public?
- What features should be in an index?
  - Numerical score?
  - Visual cue?
  - Others?
- What indicator groupings make sense?