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and Criteria Workshop

Advancing State and Tribal Programs



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TALU 202

# *Potential Application of Tiered Aquatic Life Use Model in Wisconsin*

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- Overview of Wisconsin's classification system
- Potential use of TALU with Wisconsin's current classification system
- Benefits and Limitations of implementing TALU in Wisconsin

## Wisconsin's current classification system:

# Water Quality Standards for Wisconsin Surface Waters

- Fish and Aquatic Life
- Recreational Use
- Public Health and Welfare
- Wildlife
- Outstanding/Exceptional Resource Waters (ORW/ERW)

# Wisconsin's current classification system:

## Water Quality Standards for Wisconsin Surface Waters

Wisconsin Administrative Code, Chapter NR 102

<http://www.legis.state.wi.us/rsb/code/nr/nr102.pdf>

# Wisconsin's current classification system:

## Fish and Aquatic Life Use Categories

Cold Water (CW)

Warm Water Sport Fish (WWSF)

Warm Water Forage Fish (WWFF)

Limited Aquatic Life (LAL)

Limited Forage Fish (LFF)

# Wisconsin's current classification system:

Fish & Aquatic Life Sub-Category	Dissolved Oxygen Criterion
Cold Water	7.0 mg/L (during periods of natural reproduction) 6.0 mg/L
Warm Water Sport Fish	5.0 mg/L
Warm Water Forage Fish	5.0 mg/L
Limited Forage Fish	3.0 mg/L
Limited Aquatic Life	1.0 mg/L

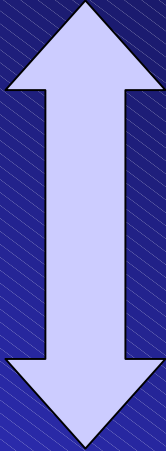
## Wisconsin's current classification system:

- Used to help regulate water quality standards by designating attainable (potential) fish and aquatic life uses in surface waters.
- Linked to the Wisconsin Pollution Discharge Elimination System (WPDES).

# Wisconsin's current classification system:

Current classification system NOT a tiered approach.

**Good**



**Bad**

Cold Water

Warm Water Sport Fish

Warm Water Forage Fish

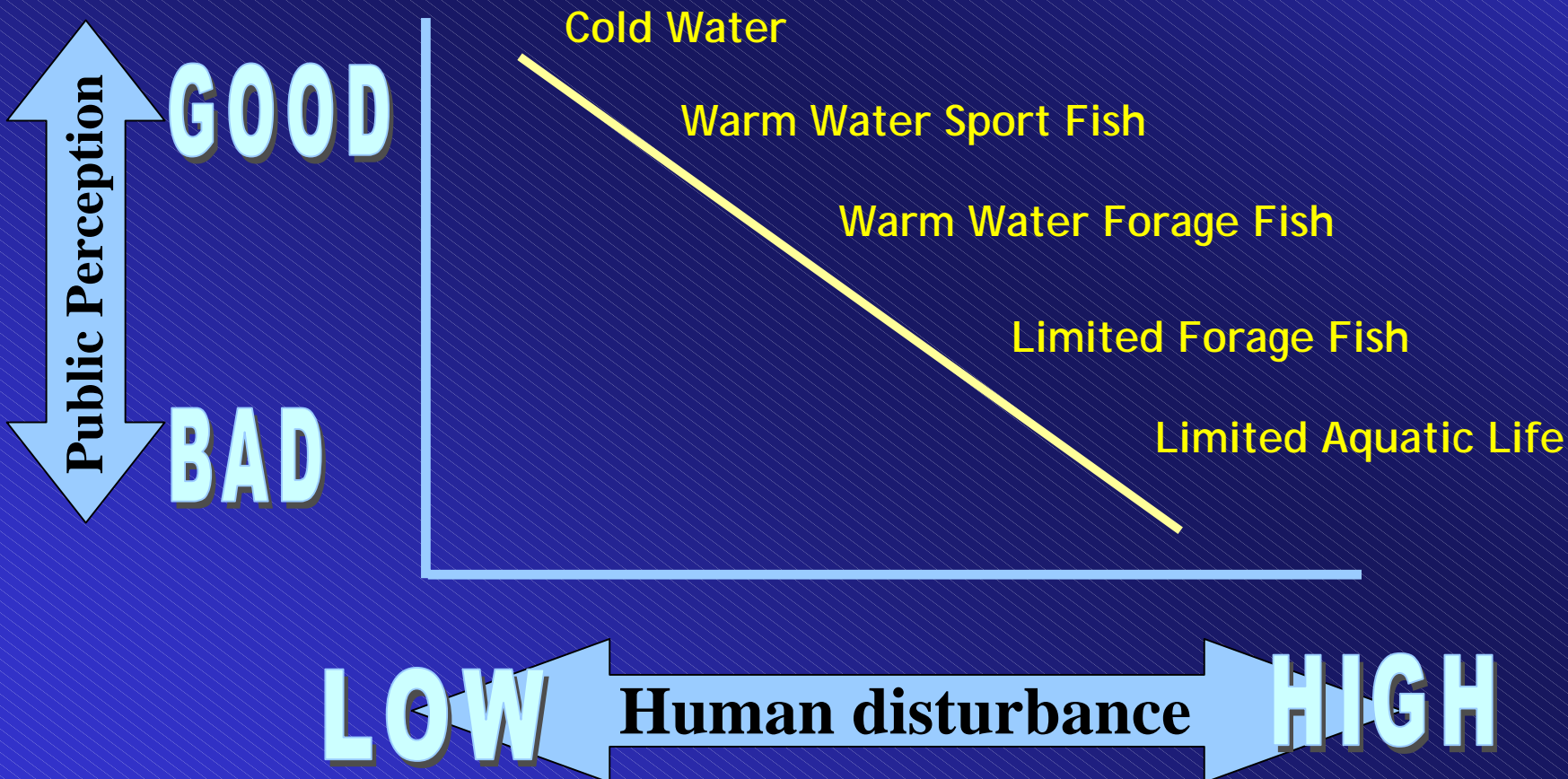
Limited Forage Fish

Limited Aquatic Life



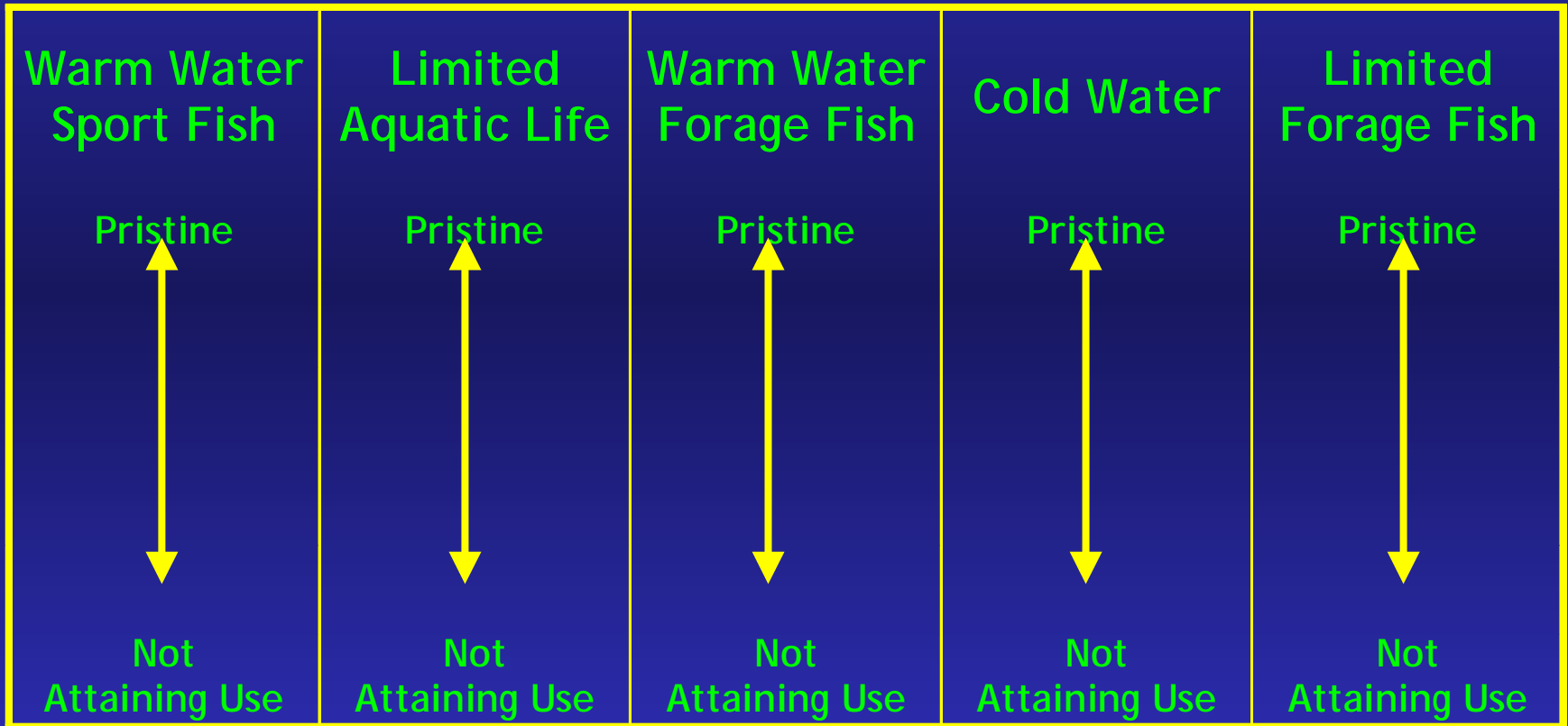
# Wisconsin's current classification system:

HOWEVER, the general public, regulated community, and environmental advocacy groups see the classification system as a quality gradient directly related to human disturbance...



# Wisconsin's current classification system:

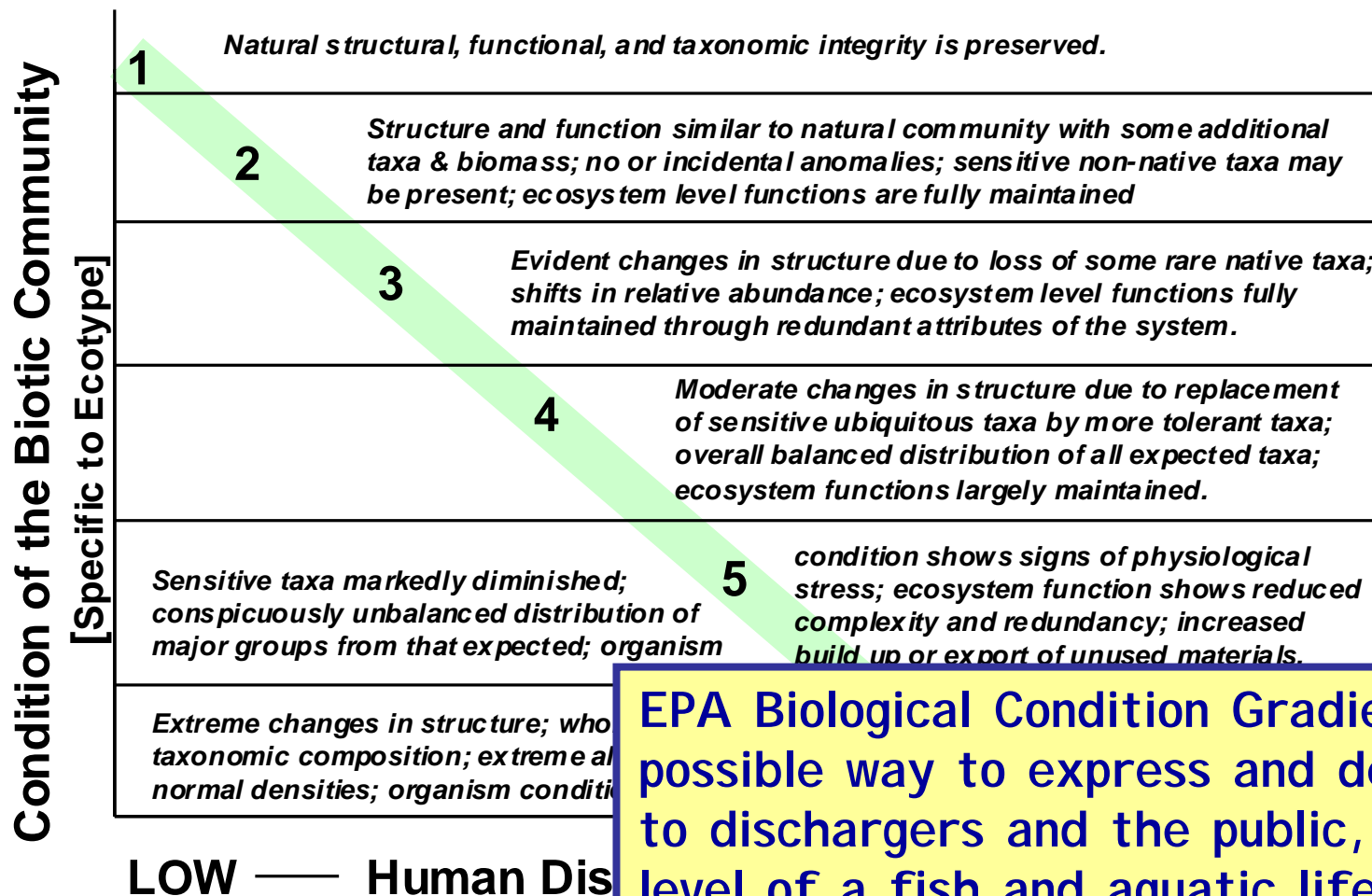
## The correct perception:



# EPA Biological Condition Gradient

## Tiered Aquatic Life Use Conceptual Model: Draft Biological Tiers

(10/22 draft)



EPA Biological Condition Gradient is a possible way to express and describe, to dischargers and the public, the level of a fish and aquatic life use that is or isn't being attained at individual sites.

# Wisconsin's Concept

- Apply biological gradient to all sites with designated fish and aquatic life use
- Gradient would apply to each site and classification category to help determine if existing use is fully, partially, or not attained

- Continued -

# Wisconsin's Concept

- Requires establishing the gradient at which a use is considered to be fully attained in different regions of the state
- Accomplished by using reference sites/conditions in each region and for different stream types (cold, warm, substrate type, gradient, watershed land use, etc.)

# EPA Biological Gradient and WI's conceptual framework

Tiers could be utilized to describe the level of existing condition at each site, and to compare it to the attainable use:

- Pristine or Near Pristine
- Highly Attaining
- Fully Attaining
- Minimally Attaining
- Partially Attaining
- Not Attaining

# Example: Tiered Aquatic Life Use model for Warm Water Sport Fish Water:

Pristine / Near Pristine	<p>The IBI, HBI, number of fish species and fish population are all at the upper end or higher than the reference conditions. Minimal or no human disturbance. No non-native species present.</p> <p><b>PERIODICALLY MONITOR TO ASSURE THAT CONDITIONS ARE MAINTAINED</b></p>
Highly Attaining Use	<p>The IBI, HBI, number of fish species and fish population are all within and above the mid range of the reference conditions.</p> <p><b>PERIODICALLY MONITOR TO ASSURE THAT CONDITIONS ARE MAINTAINED</b></p>
Fully Attaining Use	<p>The IBI, HBI, number of fish species and fish population are all within the mid to low range of the reference conditions. Room for improvement may be indicated by low end of reference conditions.</p> <p><b>LOWER PRIORITY: ASSESS ADD'L MANAGEMENT NEEDS IF TIME PERMITS</b></p>
Minimally Attaining Use	<p>5% of fish community are species not tolerant to low DO. 5 fish species are present including channel catfish and 4 non-game fish species. The IBI, HBI, number of fish species and fish population are below the reference condition ranges. All organisms appear healthy and are uncontaminated.</p> <p><b>HIGH PRIORITY: ASSESS ADD'L MGMT NEEDED TO ATTAIN REFERENCE CONDITION</b></p>
Partially Attaining Use	<p>5% of fish community are species not tolerant to low DO. Two channel catfish found in a ¼ mile stream segment contained PCBs.</p> <p><b>URGENT TO HIGH PRIORITY: ASSESS MGMT NEEDED TO ELIMINATE CONTAMINATION</b></p>
Not Attaining Use	<p>Less than 50 fish per 100 meters, 2 fish species present – Fathead minnow and Brook stickleback (100 % fish community tolerant to low DO).</p> <p><b>URGENT PRIORITY: ASSESS WATER QUALITY, HABITAT AND WATERSHED CONDITIONS TO DETERMINE PROBLEMS AND SIGNIFICANT MANAGEMENT NEEDS</b></p>

# Example: Tiered Aquatic Life Use model for Warm Water Sport Fish Water:

Pristine / Near Pristine	The IBI, HBI, number of fish species and fish population are all at the upper end or higher than the reference conditions. Minimal or no human disturbance. No non-native species present. Periodically monitor to assure that conditions are
<b>Fully Attaining Use</b>	<b>The IBI, HBI, number of fish species and fish population are all within the mid to low range of the reference conditions. Room for improvement may be indicated by low end of reference conditions. Assess additional mgmt. needs if work schedule permits (lower priority).</b>
Partially Attaining Use	found in a ¼ mile stream segment contained PCBs. Assess mgmt. needed to eliminate contamination (urgent to high priority).
Not Attaining Use	Less than 50 fish per 100 meters, 2 fish species present – Fathead minnow and Brook stickleback (100 % fish community tolerant to low DO). Assess water quality, habitat and watershed conditions to determine problems and significant management needs (urgent priority).



## Example: Tiered Aquatic Life Use model for Limited Forage Fish Water:

<b>Fully Attaining Use</b>	Scores for IBI , HBI , etc. comparable to applicable reference conditions. PERIODICALLY MONITOR TO ASSURE THAT CONDITIONS ARE MAINTAINED
<b>Partially Attaining Use</b>	Scores for IBI , HBI , etc. somewhat less than applicable reference conditions. HIGH PRIORITY: ADDITIONAL MANAGEMENT NECESSARY TO ACHIEVE FULL USE ATTAINMENT
<b>Not Attaining Use</b>	Scores for IBI , HBI , etc. significantly less than applicable reference conditions. URGENT PRIORITY: IF USE ATTAINABILITY ANALYSIS CRITERIA NOT SATISFIED, AGGRESSIVE WATER QUALITY MANAGEMENT ACTIONS NECESSARY TO RESTORE TO FULL USE ATTAINMENT.

# Potential BENEFITS of using this model

- Increased ability to communicate with public interest groups and regulated community the status of local waterbodies.
- Information provides a way to prioritize and justify where additional management activities could be most beneficial.

## Potential LIMITATIONS of implementing the TALU model

- Model requires extensive use of adequate reference sites. This may limit our ability to use and defend this model, as adequate reference sites may be difficult to locate in the more human-populated ecoregions.
- Need for effective and appropriate monitoring data.

- Wisconsin sees this model as a useful tool.
- If implemented in Wisconsin, it is likely that the model would encourage more effective communication with public interest groups and the regulated community.

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