

Incorporating Lake Protection Priorities in Watershed Planning

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Purpose of Guidance

- Elevate the importance of lake protection in Minnesota
- Provide a consistent framework for developing lake protection plans at the major watershed level
- Support concepts in Minnesota's Nonpoint Source Funding Plan -- *to protect high-quality unimpaired waters at greatest risk for degradation of water quality*

Key documents:

[Incorporating Lake Protection Strategies into WRAPS Reports \(state.mn.us\)](https://state.mn.us)

Minnesota's lake protection guidance

[Lakes of Phosphorus Sensitivity Significance - Resources - Minnesota Geospatial Commons \(mn.gov\)](https://mn.gov)

GIS-data layer

[Lakes of Phosphorus Sensitivity Significance \(2022\) \(mn.gov\)](https://mn.gov)

A ranked priority lake list based on sensitivity to additional phosphorus loading and the significance of that sensitivity. Methods used for GIS-data layer.

Protection Guidance Development Process

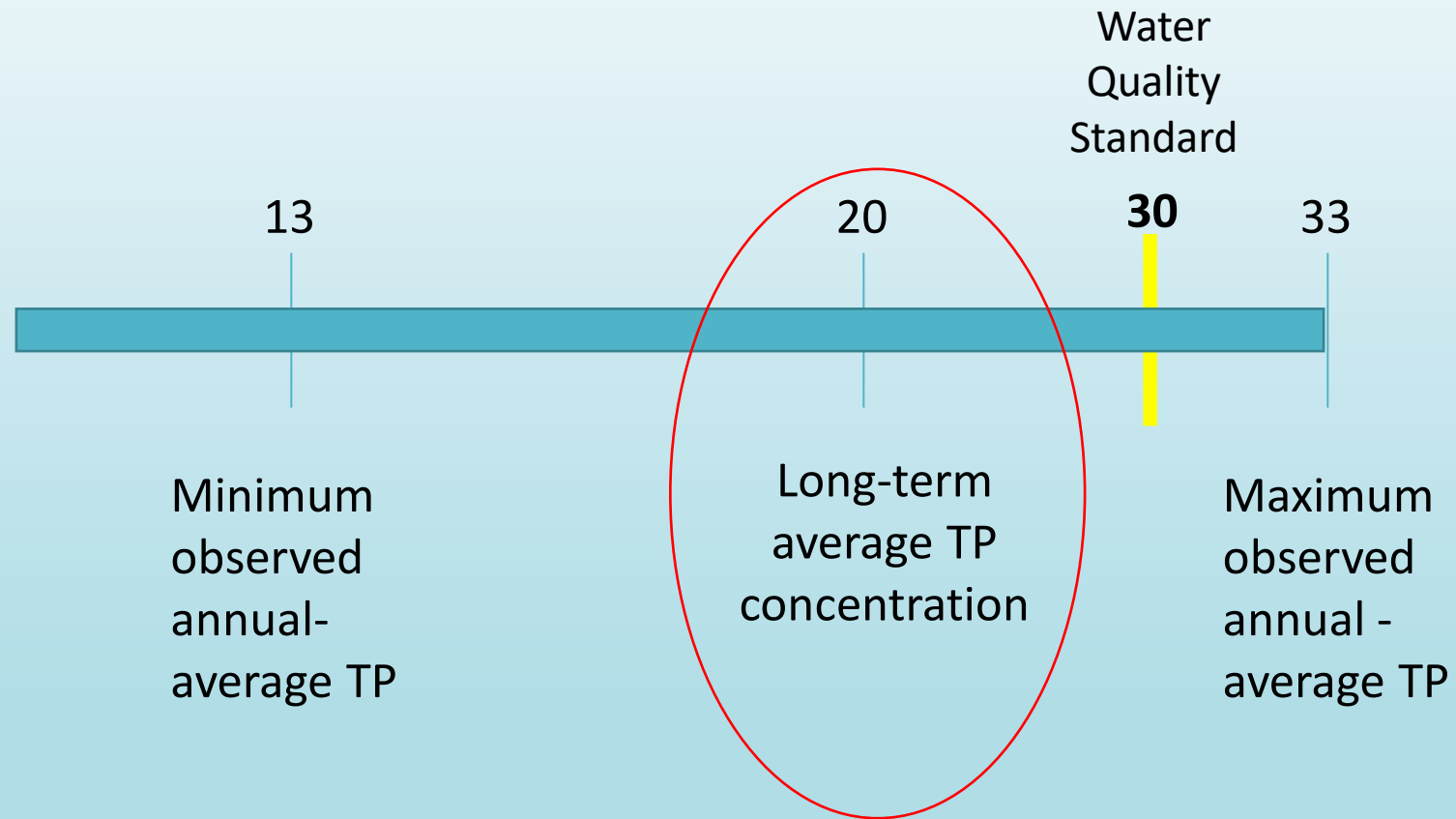
- Five steps
 - Steps 1-3 – WQ assessment and initial protection targets and priorities for lakes (done by state agencies)
 - Steps 4-5 – Incorporation of local issues, concerns, and values to refine targets and priorities
- Considerations
 - Current water quality and watershed conditions
 - Existing and potential land use changes in watersheds
 - Risk of decreasing water quality
 - Local recreational, aesthetic, and economic values

A Synthesis of Many Ideas

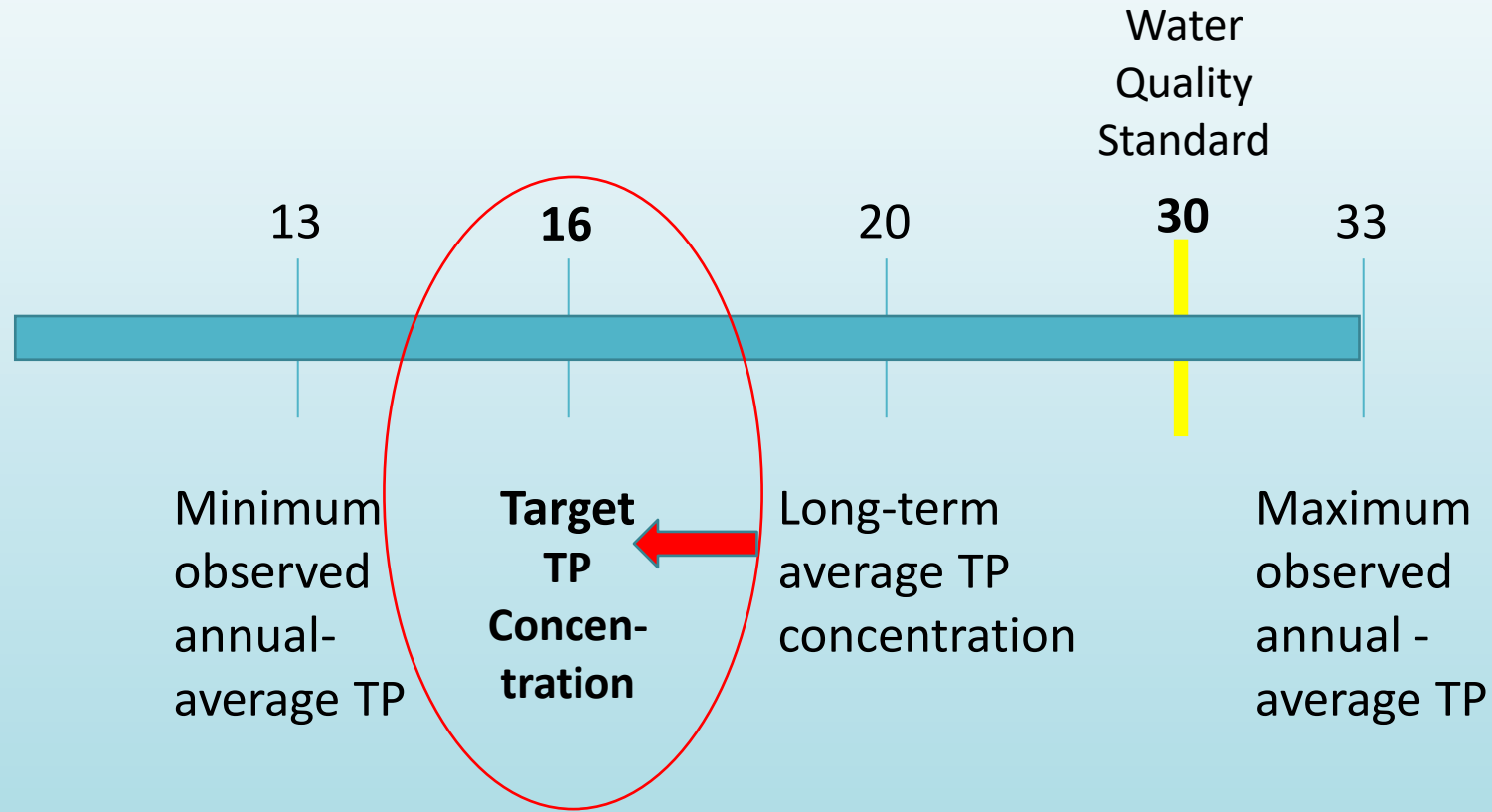
- Research identified many state documents that had addressed lake protection in some form or fashion
- Worked to synthesize many good ideas
- Tried to keep document relatively short, approachable

Step 2a: Identify long-term average TP conc. for each lake

Example:



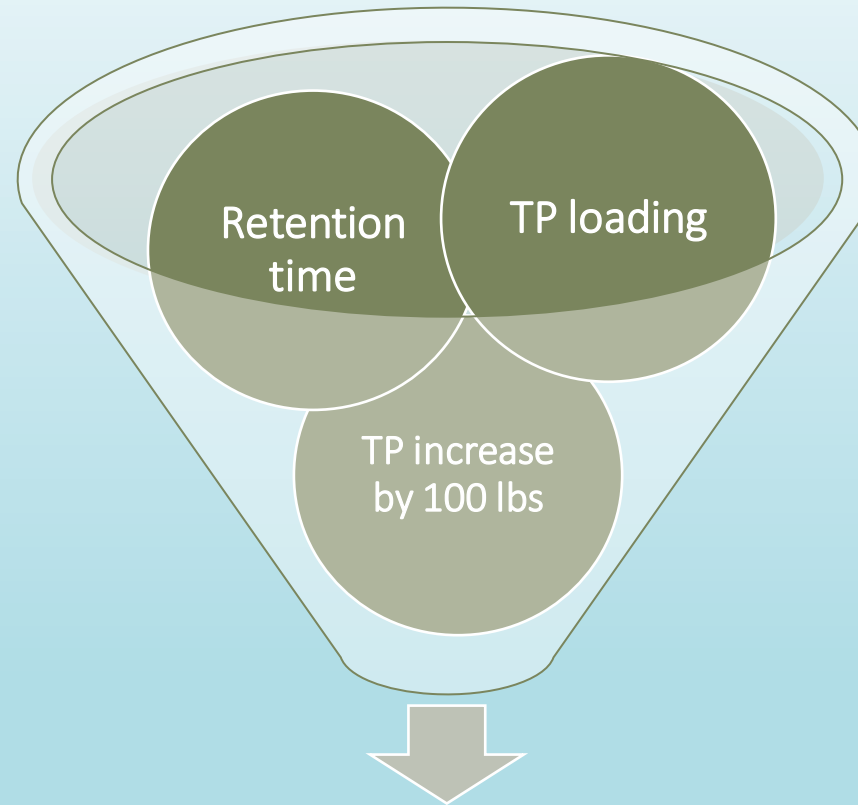
Step 2b: Sets water quality protection target/goal for each lake



(25th percentile value of summer mean TP concentrations assumed to be a target that provides a reasonable goal for reducing phosphorus inputs to a lake)

Step 3: Prioritize lakes based on those most at risk for future impairment

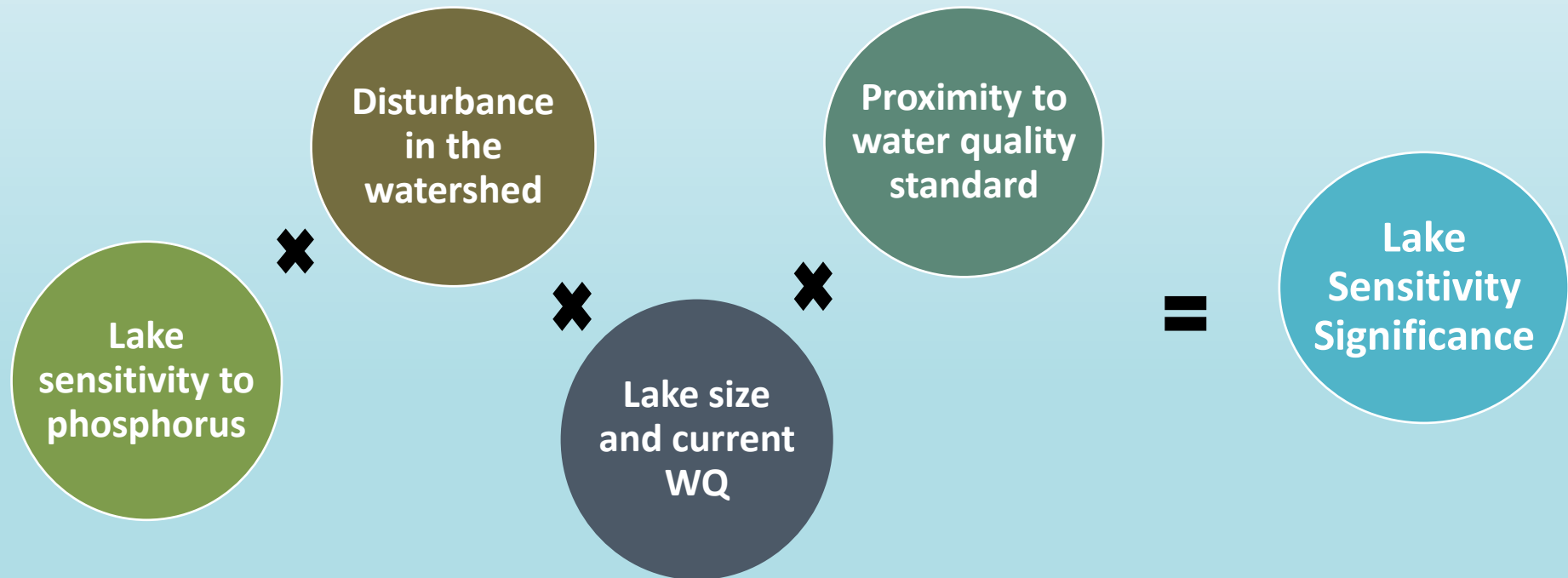
Risk identified as a combination of factors



Lake Sensitivity to Phosphorus = decreasing
Secchi transparency

Step 3: Prioritize lakes based on those most at risk for future impairment

Risk identified as a combination of: disturbance, lake size & WQ, and proximity to the WQ standard

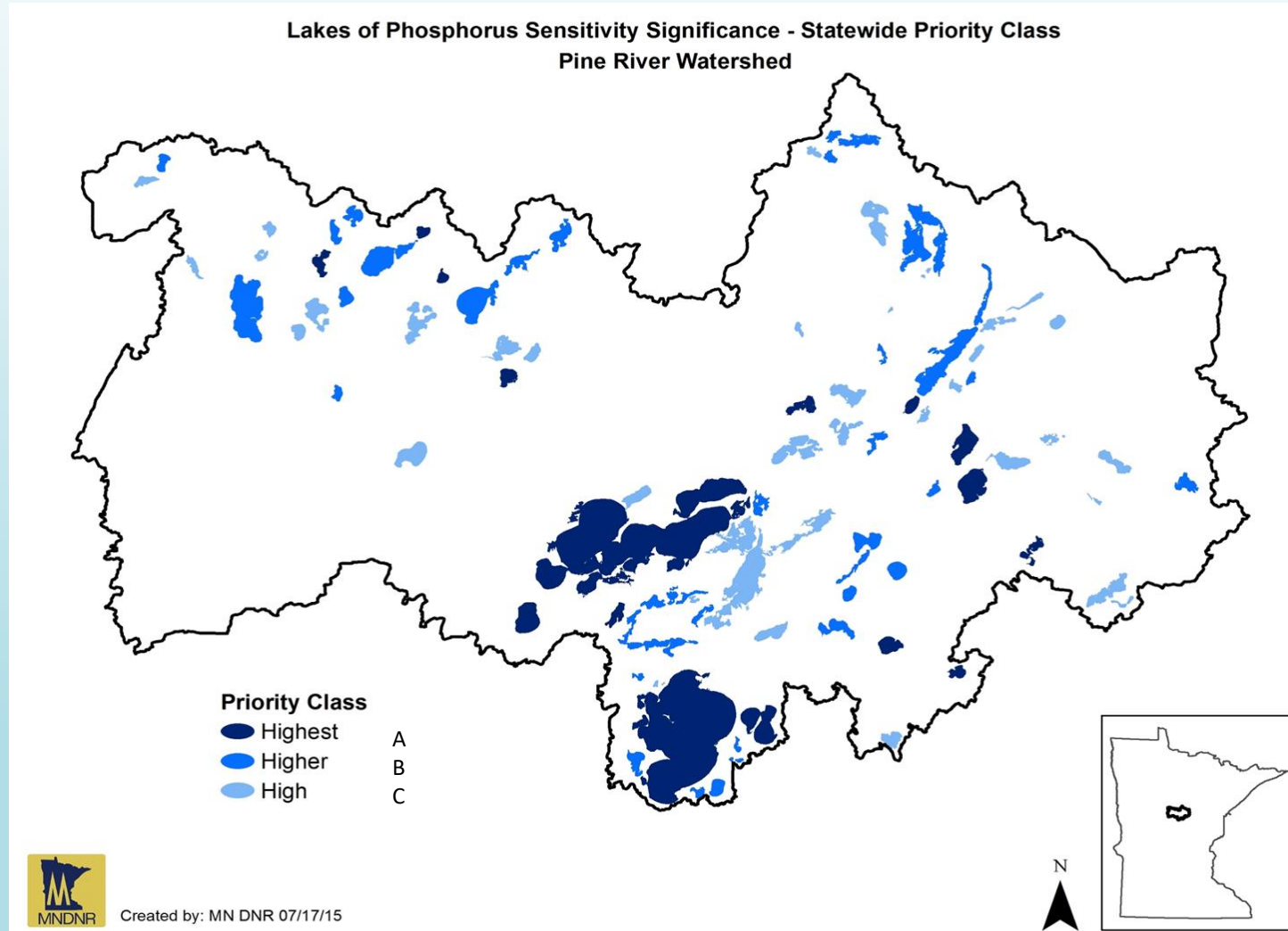


Step 3: Prioritizes lakes based on risk for future impairment

Priority defined as a combination of lake sensitivity and declining trend information



Step 3: Example Deliverable – GIS Product



Step 4: Incorporates recreational, aesthetic, and economic values in the watershed

This step connects the science and calculations to the values and priorities of the watershed residents and users



Reminder that Steps 1-3 “set the stage for dialogue” to draw citizens into the discussion to build on the initial priorities

Step 5: Identifies high-level protection strategies for the priority lakes

This step is the least developed of the five steps in the protection guidance

Key challenge for many watersheds is to realistically and adequately prioritize the number of lakes and strategies in a watershed to be able to actively manage them during local water planning activities and the implementation phase



Tim James, retired MPCA staff

Protecting lake water quality is a **multi-dimensional** effort requiring protection of **complex natural systems** and administration of many **inter-related programs** (federal, state, local, non-profit) within watersheds.

If well-integrated and managed as a whole, these efforts have the potential to protect the complex nature of our vulnerable and pristine resources.

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