Getting to Wetland-Specific Water Quality Standards

\V/

New Hampshire's Approach

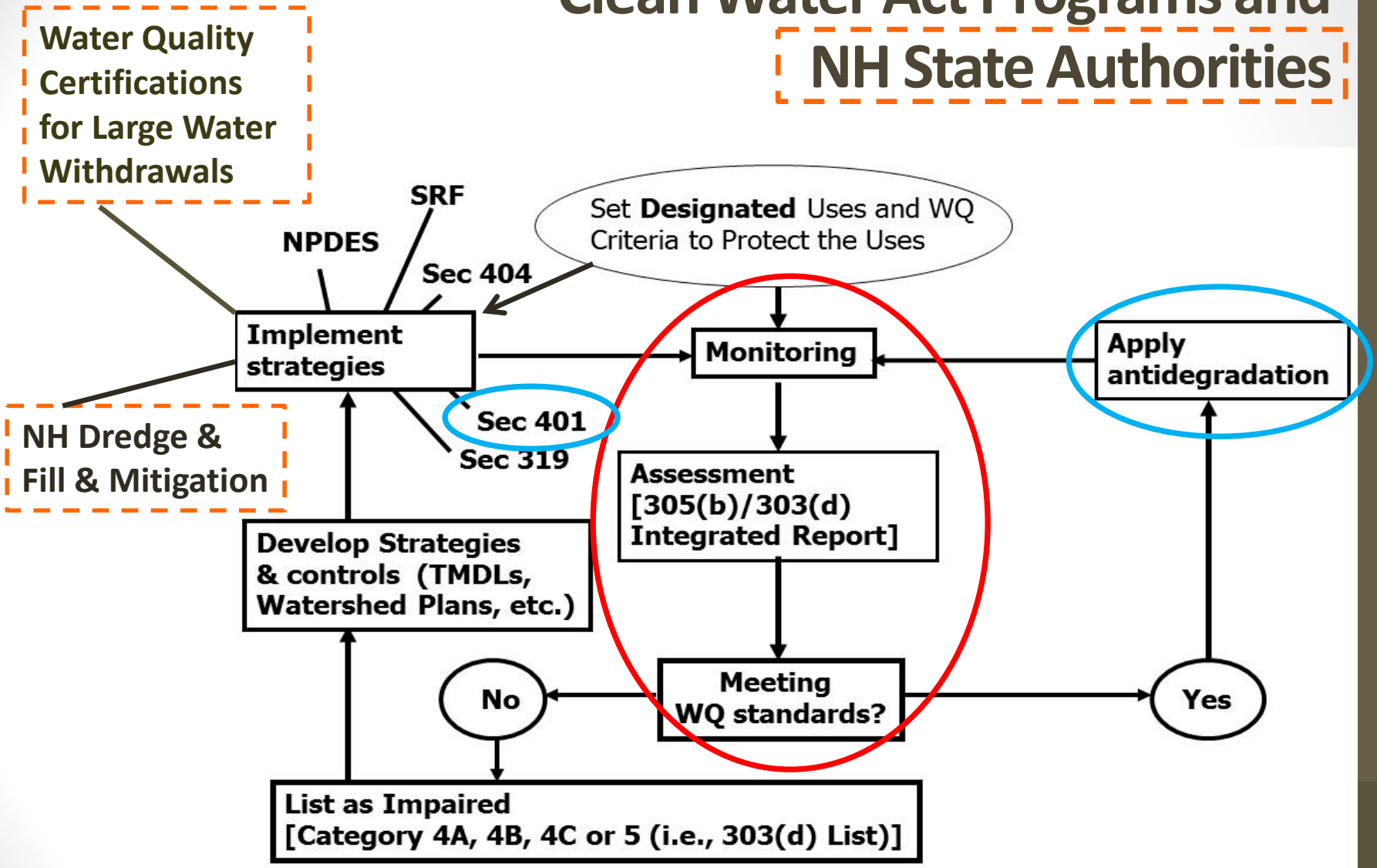
Sandy Crystall, PWS
sandra.crystall@des.nh.gov
ACWA-ASWM Webinar
July 26, 2016

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

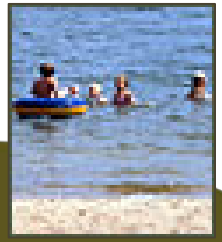
Overview

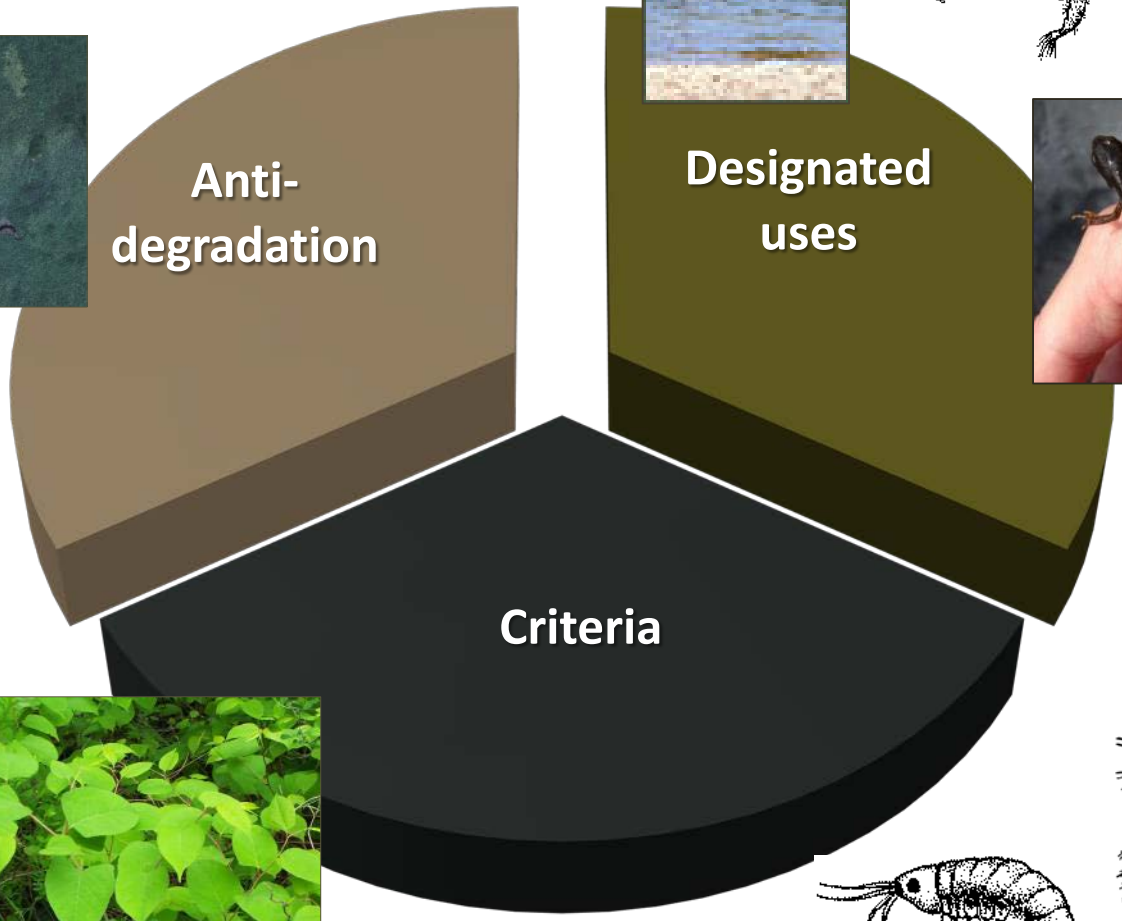
- What is our *purpose* for developing wetland water quality standards?
- What is the *process* that New Hampshire is pursuing to develop standards?
- Usability of the templates to that process?

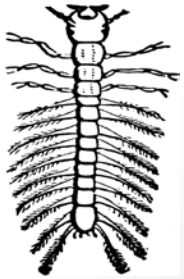
Clean Water Act Programs and NH State Authorities



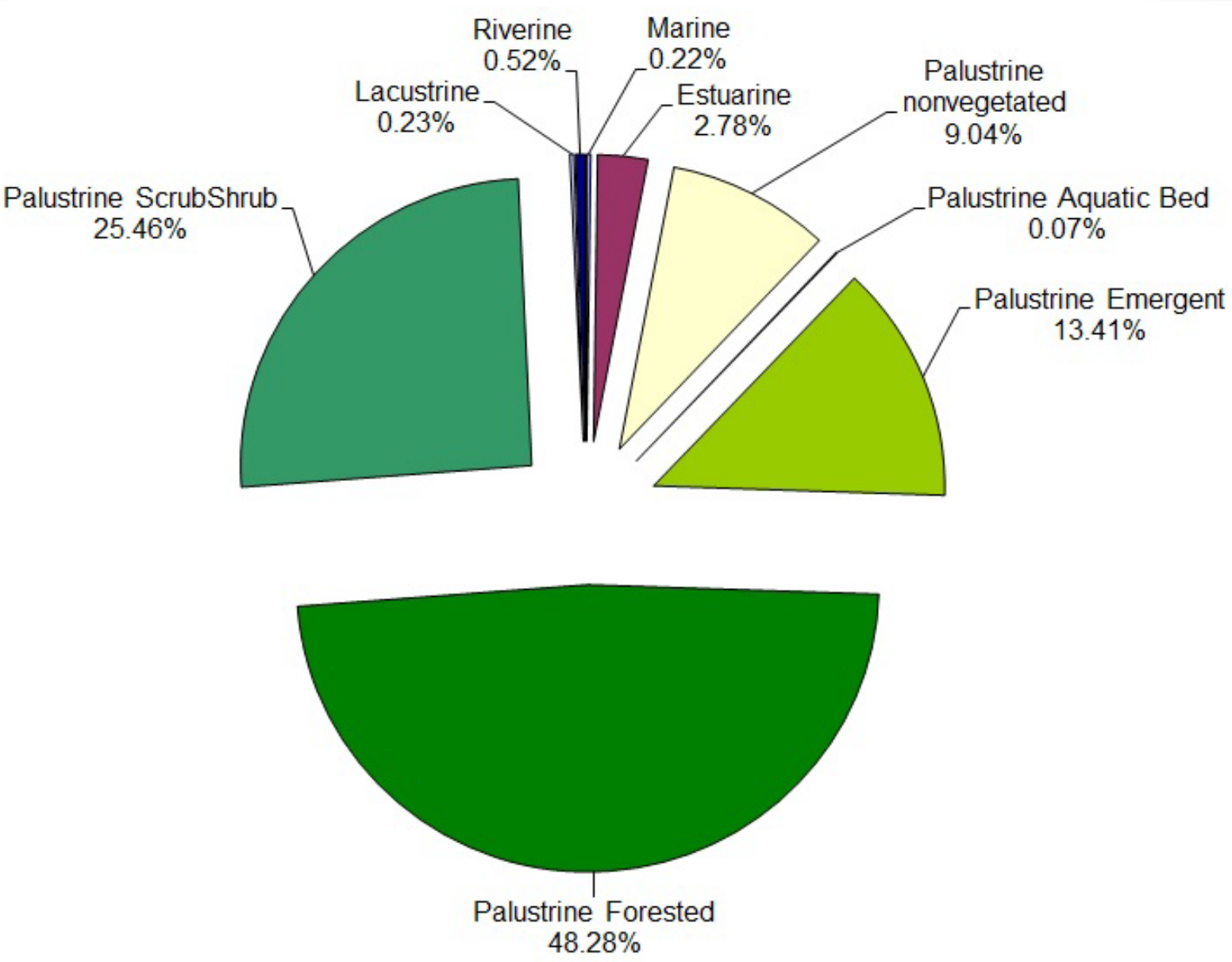
Water Quality Standards







NH's Wetland Resources



Designated Uses

NH's Current Narrative Criteria for Wetlands

Biological & Aquatic Community Integrity

- The surface waters shall support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.
- Differences from naturally occurring conditions shall be limited to non-detrimental differences in community structure and function. (Env-Wq 1703.19)

Wetlands Narrative Criteria

- Wetlands shall be subject to the criteria listed in this part (Env-Wq 1700).
- Wherever the naturally occurring conditions of the wetlands are different from the criteria listed in these rules, the naturally occurring conditions shall be the applicable water quality criteria. (Env-Wq 1703.02)

Wetland WQS Templates

all | depressional | estuarine | lacustrine | lacustrine fringe | marine | mineral flats

organic flats | palustrine | riverine | slope | tidal fringe | [state-defined type] wetlands, as

defined by the Cowardin | HGM | [state-defined] classification scheme, shall maintain

biological | physical | chemical | hydrological conditions - as determined by

established baselines | least-human-altered wetlands | least-impacted wetlands

reference-standard wetlands | reference wetlands | state-specific standard - including, but not

limited to: [choose all] | base flow, flow regime, and wetland hydroperiod

chemical, nutrient, and dissolved oxygen regime of the wetland

conditions favorable to protection and propagation of threatened, endangered, and at-risk species

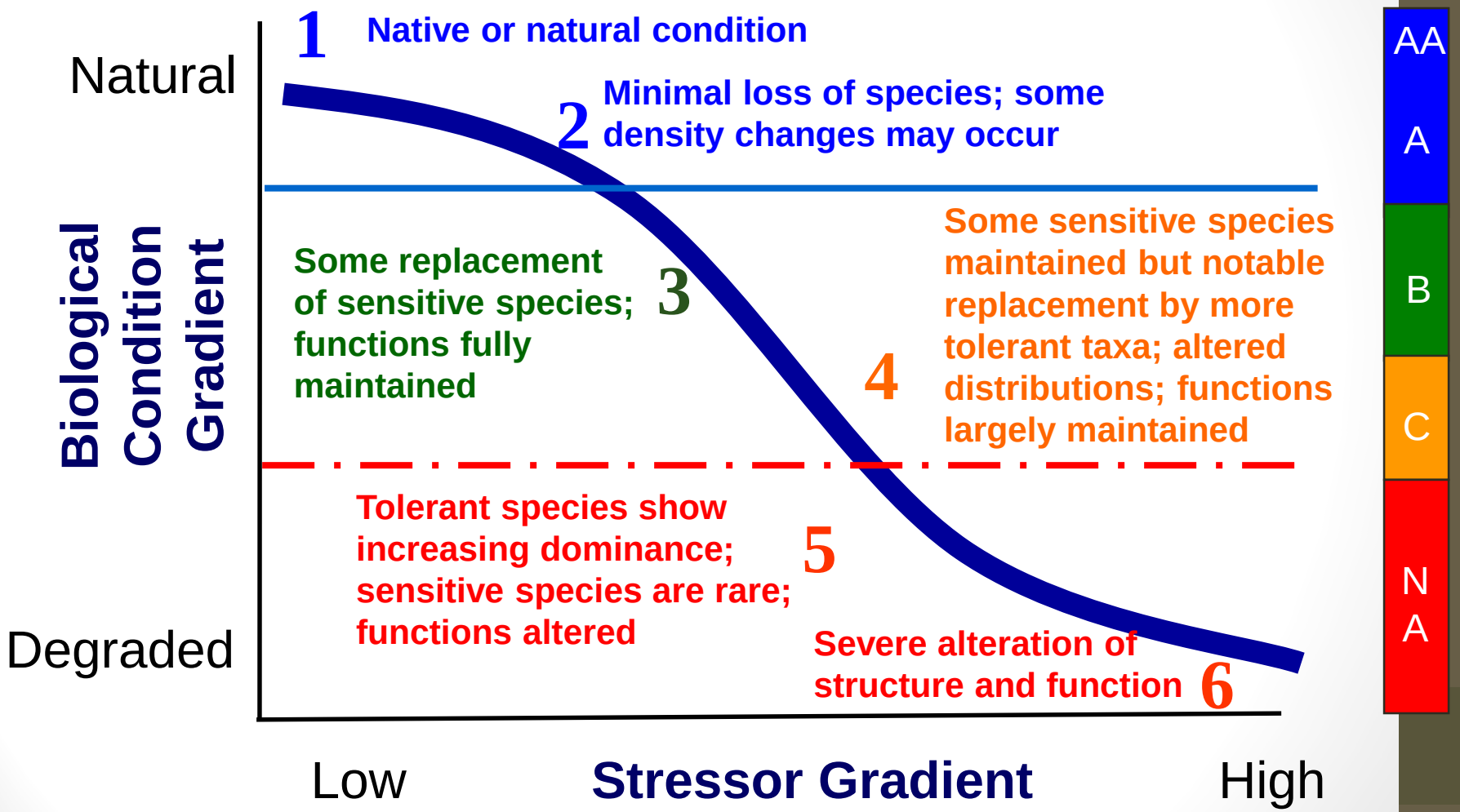
conductivity | floristic quality | integrity of species diversity, abundance, and zonation

normal movement of fauna | pH of wetland waters | salinity | size and shape

soil type and horizon structure | water currents, erosion, or sedimentation patterns

water levels or elevations | water temperature variations .

Maine's Biological Condition Gradient (BCG) and Tiered Aquatic Life Use (TALU)



NH: Develop Numeric Biological Thresholds

Initial focus on thresholds for:

- Open water/fringing wetlands (riverine, lacustrine, and palustrine emergent wetlands); 23-48% of universe per NWI
- Designated Use: Aquatic Life Integrity

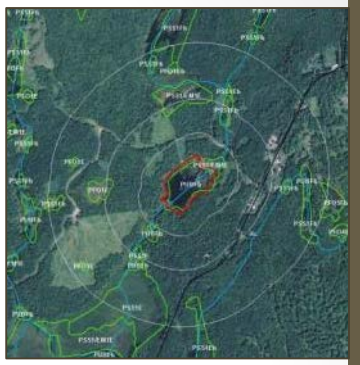
Indicators to use in numeric translators:

- Macroinvertebrates in open water/ fringing wetlands. (Use Maine's model and evaluate appropriateness)
- Ecological Integrity Assessment (Nature Serve/ NH Natural Heritage Bureau) and Maine's Wetland Human Disturbance Assessment
- Floristic Quality Assessment or other vegetation-based metrics/ indices

Current Monitoring Effort to Develop Thresholds

Targeted monitoring (NWI & aerial imagery)

- Aquatic macroinvertebrates
- Water grab sample
- Field meters (water)
- Vegetation survey
- Landscape survey
  - Including GIS analysis (land use)



Variables in Maine's Wetland Macroinvertebrate Provisional Linear Discriminant Model

Total abundance

Ephemeroptera abundance

Odonate relative abundance

Trichoptera relative abundance

Shredder taxa relative abundance

Non-insect relative richness

Sensitive taxa abundance

Sensitive taxa relative abundance

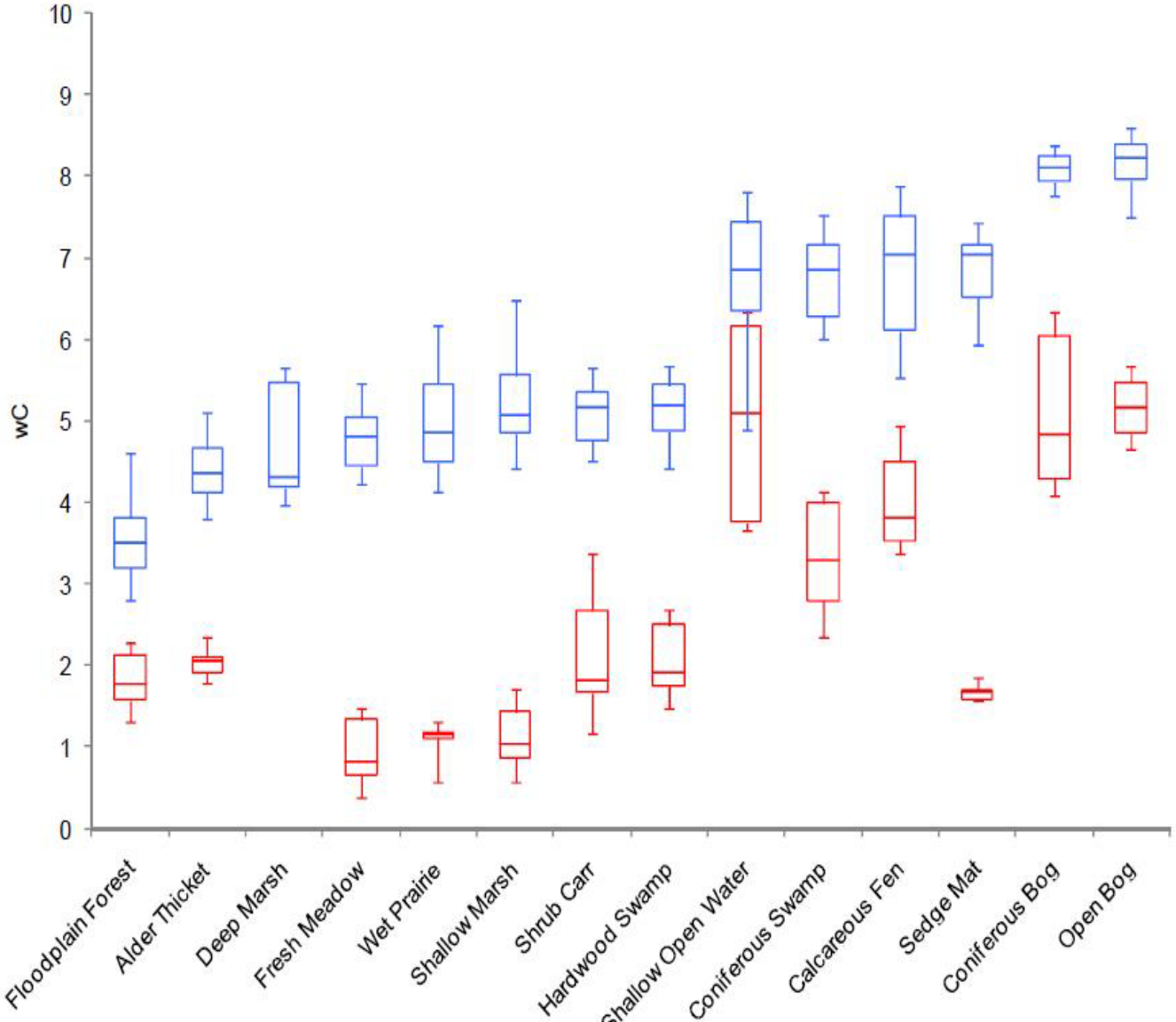
Sensitive taxa richness

Intermediate taxa relative abundance

Intermediate taxa richness

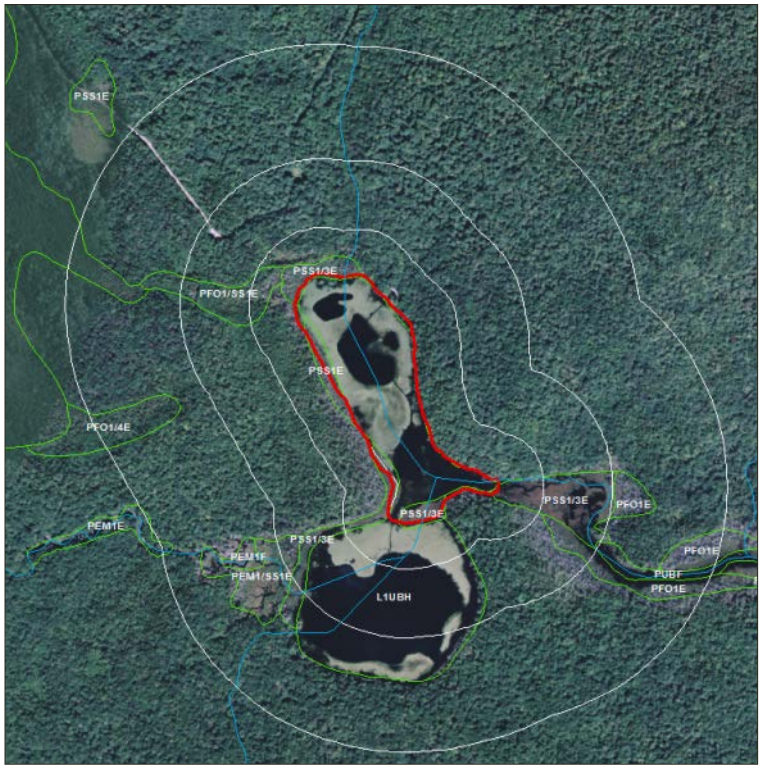
Ratio of sensitive to eurytopic taxa abundance

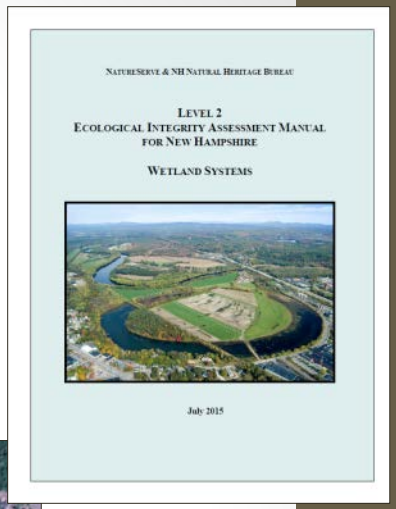
FQA: Develop range of weighted Coefficient of Conservatism values for wetland systems



From Minnesota (MPCA, 2012)

EIA: Field Data and GIS





Land Use Index = 10

Land Use Index = 1.27

Water Quality Certifications, Antidegradation, Wetlands Mapping

- Water Quality Certifications – Develop Guidance for Baseline Wetlands Data
  - Develop interim guidance (before rulemaking at a later date)
    - Pre-development (baseline) data to collect
    - Triggers that would exempt certain projects from wetlands monitoring.
- Antidegradation: Outstanding Resource Waters
  - Should other waters/wetlands receive this protection/ designation?
- Wetlands mapping
  - Update to better represent resource
  - Support probabilistic assessments

Other Challenges Unique to Wetlands

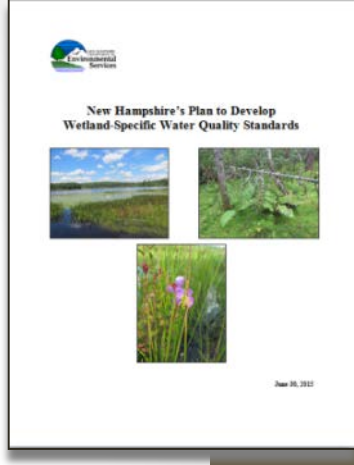
PRIVATE LAND
No access without permission

- Access
  - They may be surface waters, but they often are on private property.

- Addressing impairments
  - May relate to upland development adjacent to wetland.

Summary

- Work towards development of numeric thresholds using macroinvertebrates and vegetation as indicators.
- Apply thresholds for assessments under §305b.
- Require collection of baseline data as part of WQC (under §401 and state statute)
- Update wetlands mapping.
- Seek changes in statute and rules to strengthen applicability of WQS for wetlands.
- Future effort: revise NH's two-tier classification system



Questions?

sandra.crystall@des.nh.gov