Lake habitat integrity and monitoring

A nature conservation perspective



www.gov.uk/natural-england









- Why these components are important
- The condition in England
- How we monitor them

Today

A narrative for conserving freshwater and wetland habitats in England http://publications.naturalengland.org.uk/publication/6524433387749376 Collaborative project with CEH EA on the steering group Relied heavily on Lake inventory EA datasets NBN

Natural Water Quality

 Impacts on lake habitat are well known

Abiotic

- Phosphorus
- Nitrogen
- Dissolved oxygen
- Acid neutralizing capacity
- Other pollutants?

Biological indicators

- Macrophytes
- Phytobenthos
- Phytoplankton
- CPET
- LAMM



Neutral - original biota



Acid - no fish



Current condition in England



Phytoplankton



NATURAI

ENGLA

Macrophytes





Hydrology

- Water level fluctuations support transitional habitats and species that utilise these
- Flushing rates control movement of substance through lake systems
- Drawdown alters lateral connectivity
- Extreme fluctuations results in denuded littoral zones
- Moves areas of erosion
- Drainage ditches often increase efficiency of nutrient delivery





Biology

- Invasive non-native species
- NBN data
- Natural biological assemblages
- Whilst species data is collected tools do not assess this
- Coverage of taxa



Physical habitat

- Natural substrates
- Natural shoreline
- Marginal fringe
- Not monitored
- Biological tools not designed to detect it



Use "Go Back" on your Browser to return to species page

Figure 4.2 Schematic representation of the vegetational stages associated with succession in a shallow lake. The zones are also used to describe the stages of w etland vegetation.







Lakeside vegetation

- Damselflies and some dragonflies require lakeside vegetation for emergence
- Permeable lake side habitat is required to allow animals to exploit the range of resources required
- The importance of deadwood and tree roots has been established for lake invertebrates and fish
- Presence of trees affects depth of lake mixing
- Transitional habitats have a role to play in reducing sediment and nutrient loads to lakes
- Cannot be seen as an endless sink can also be a source



Connectivity

- Riparian land use
 Land class data
 Recorded during WFD surveys
 LHS
- Physical structures preventing substance and species movement
- Structures EA data base
- App



Naturalness Class per SW Type



Summary



- Lake Habitat Integrity is about natural functioning
- Restoring natural processes
- With suitable levels of connectivity
- So they are sustainable and resilient against future pressures
- The picture we have of lakes at present is partial
- This limits our ability to clearly portray the extent of various pressures
- Some gaps could relatively easily be addressed





