

11.2 PROTOCOL FOR MACROPHYTE SURFACE INVENTORY

Overview

Surface inventories provide a qualitative method of collecting data for production of plant species or community distribution maps. The end products for a surface inventory include a map showing the distribution of plant bed types, a list of species for each plant bed type and the water body or study area as a whole. In many cases, surface inventories may serve as reconnaissance surveys. Surface inventories are adequate to document gross changes in community structure or the extent of plant beds over time. Surface inventories can also serve as the initial step in supporting more intensive aquatic macrophyte surveys.

Sources

British Columbia MWLAP (2003), Alberta Environment (2006 a), Développement durable, Environnement et Parcs, Gouvernement du Québec (2007)

At a glance

*determine
littoral zone*

1 Perform a preliminary determination of the littoral zone (the shallow, shoreline, regions of a water body where light penetrates to the bottom permitting colonization by rooted aquatic macrophytes and benthic algae). Small or shallow water bodies may be littoral throughout, while large or deeper water bodies may be littoral only around the margins or in shoal areas. Maximum depth of aquatic macrophyte growth is usually limited by light penetration (i.e., the euphotic zone) but may also be limited by other factors such as slope and substrate type. In rivers, aquatic macrophyte growth is often limited by substrate type and flow velocity, and plant beds are usually restricted to river margins.

2 Survey littoral regions around lake shores or along river banks by navigating the boat in a zig-zag pattern (Figure 21); from shallow near-shore waters out to the extent of plant beds. Pattern density (i.e., distance between passes) is dependant on visibility but should allow complete coverage for visual assessment. Survey shoal areas with aquatic plant growth separately, and do not survey shorelines without plant growth.

3 Survey shallow water bodies with littoral plant growth throughout in a grid pattern. Ensure the grid density is dependent on study design, the area to be surveyed and time constraints.

4 Employ GPS tracking feature (if available) to provide an accurate record of the survey pattern and the area traversed. Record all key features such as, plant bed boundaries or transitions from one plant community type to another and UTM GPS waypoints, Describe key features in a notebook or field sheets.

*information
to record*

5 Record water depth, Secchi depth, turbidity, and bottom light level (if equipment is available) at all key feature waypoints. Record GPS coordinates periodically at representative sites within plant beds. Record water temperature and water profiles

at several shallow and deep sites.

6 Identify and record all plants found within beds. For a qualitative inventory survey, record presence of plants only.

7 In shallow water with adequate visibility, identify plants by observation from the boat. In deeper or murkier water or where a canopy of plants obscures plants at lower levels, use an underwater viewer.

8 Collect plant samples at intervals at each plant bed with the rake sampler for closer examination. Identify plants on-site or retain them for identity verification at a later time. Place collected plants in a sealable plastic bag along with a label providing all pertinent information. Record sample collections in a note book or on field sheets along with all pertinent site information and GPS location.

9 Obtain supplementary information from the very shallow near-shore waters from the shoreline or by wading into the water.

10 Ensure all samples are properly preserved in a plant press. Samples will be archived or included in reference collections

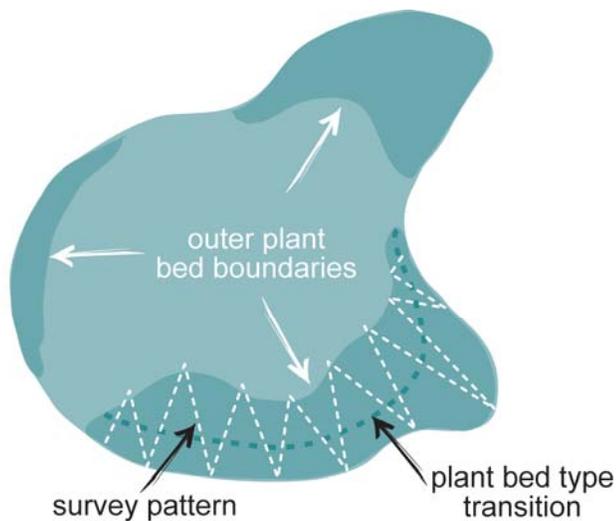


Figure 21. Example of a possible survey pattern for a surface inventory conducted on a small lake (Alberta Environment (2006a))