

# Mapping changes in habitat boundaries

## Background

The transect survey method enables you to locate the boundaries of habitats at two points along transect lines. To detect changes in habitat location, size, shape and boundaries you will need to:

- repeat the habitat measurements that you made during the baseline habitat survey along each transect. This includes measuring the distance of habitat boundaries along each transect. For example, the edge of the saltmarsh/sandflats boundary along transect one was at 45 m (from the marker peg at the landward end of the transect) in 2005 and at 48 m in 2010. Therefore, the saltmarsh has extended its seaward boundary by  $(48 - 45 \text{ m}) = 3 \text{ m}$  over the five years between 2005 and 2010
- or measure changes in the location, size (area,  $\text{m}^2$ ) and shape of each habitat type in your estuary. To do this requires more detailed measurements that involve mapping the entire boundary of a habitat, such as a shellfish bed, seagrass meadow, saltmarsh, mangrove stand, or sandflats. This requires you to locate points around the habitat boundary using a GPS or magnetic compass. The **Plant and Shellfish modules** of this toolkit describe the methods to map the location, size, and shape of habitats. You should also read the appendix **Locating Your Position** and become familiar with using a GPS or compass.

How frequently you will need to update your estuary habitat map will depend on how quickly you think habitat changes are occurring. In most cases, repeating the habitat survey once every 5–10 years should be sufficient. However, rapid changes can occur after large storms. For example, most of the year-to-year sedimentation that occurs in an estuary happens during a few large rainstorms. These natural events can deposit centimetre thick layers of mud and sand in your estuary and, in extreme cases, smother shellfish beds and seagrass meadows. Habitat changes can also result from the activities of people, such as changes in land use (e.g., urban development, forest harvesting), stormwater and sewage discharges, construction of causeways, seawalls and marinas, and mangrove removal.

The methods presented in this **Habitat Mapping module** will help you to identify the key environmental issues and to understand the 'big picture' for your estuary. This will also provide a basis for developing your Estuary Monitoring Action Plan (E-MAP).