Crab Tile Survey Methodology

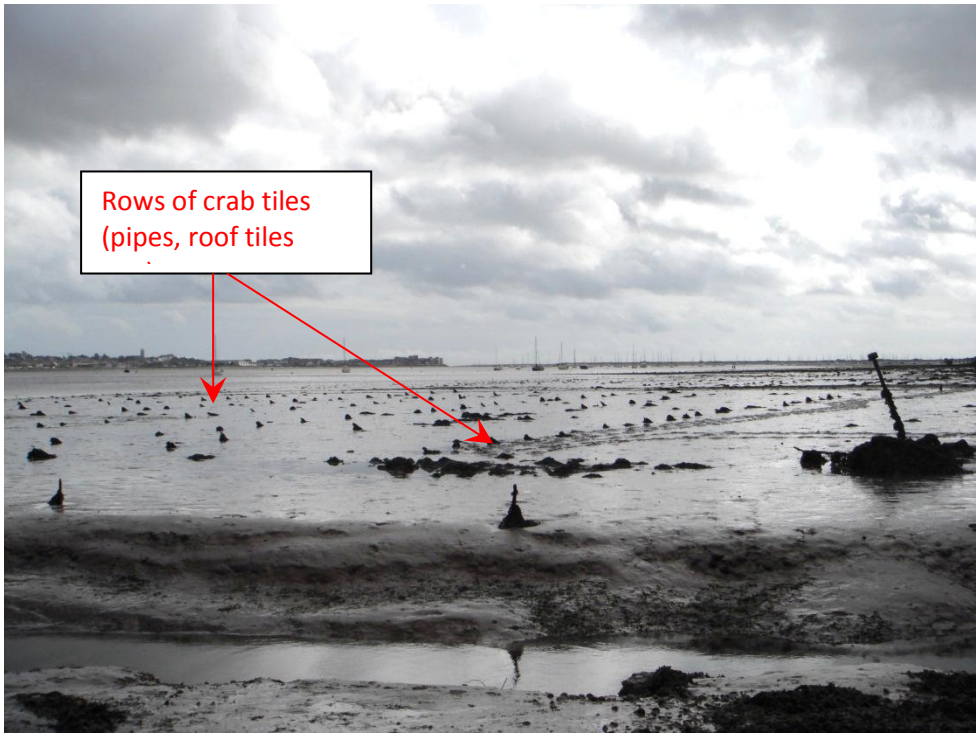
Equipment

Waterproofs + wellies
Life jackets
Handheld GPS (plus spare batteries)
Weatherwriter clipboards
Maps of estuary areas (& previous tiles if available)
Survey record sheets (waterproof paper)
Pencils
Mobile phone

Rationale

Crab tiling is the practice of placing artificial refugia (such as sections of pipe and roof tiles) on the lower shoreline to encourage shore crabs (*Carcinus maenas*) to use them as shelter during the moulting process. The 'peeler crabs' are then removed at low tide and used as bait for sea angling. Crab tiling is extremely prevalent within some Devon estuaries (e.g. the Exe), and the activity needs to be monitored to ensure that any impacts are limited, particularly in European Marine Sites.

This survey is repeated every four years (since 2001), with the location and number of crab tiles recorded, in addition to biotic and abiotic variables. An IFCA byelaw is in place prohibiting placement of crab tiles in certain areas of the Exe, and a voluntary code of conduct was agreed between the crab tilers and the Exe Estuary Management Partnership in 2003, stating that the number of tiles on the estuary must not exceed the numbers recorded in the 2001 survey. Regular monitoring is essential to make sure that no new areas of crab tiles have since been established.



Logistics and Practicalities

The survey should be scheduled for the lowest spring tide, as most tiles tend to be placed low on the shoreline. Mud can be a serious safety risk on this survey; always work in pairs, wear tight wellies and keep an eye on the tide. If areas of crab tiles are inaccessible on foot (due to soft sediments or lack of access) it is possible to do the survey by boat, estimating distance and crab tile number, and recording approximate co-ordinates.

Although the survey can easily be carried out in pairs, we have found it works best with groups of three – with one person recording the information, one counting tiles, and one calling out GPS coordinates. The survey methodology is very straightforward, and could be carried out by volunteers with little knowledge of marine biology.

Survey Methodology

1. Separate the estuary into discrete areas on GIS using low tide aerial photographs or Bing Aerial. Occasionally it is possible to spot crab tiles from aerial photos, however the data needs to be recent and high res.

2. Crab tiles are generally found in rows or distinct areas; walk around the edge of the areas taking regular GPS readings, or if it's a solitary line then note the tile width and take coordinates at the start and end. The number of tiles must be counted, or estimated if you are dealing with a very large area. Individual lines can be recorded together if they are close, also very large areas of tiles can be split down into several blocks for ease of counting. It's a very good idea to draw a simple map of each crab tile area on the record sheet, with corresponding co-ordinates. This will make life much easier when you attempt to draw polygons later!

3. An individual code should be assigned for each area or line of crab tiles, incorporating the Estuary area, initials of surveyors in the group and sequential number; i.e. EXE19/TN/SC/01. In addition to co-ordinates and number of crab tiles, information must be recorded on the characteristics of the tiles for each coded line or area – the survey form and guidelines for filling it in are included as part of the SOP. If you are using expensive waterproof paper it is possible to fit data for several areas/lines on each record sheet.

4. Once collected the individual co-ordinates are used to create crab tile area polygons in GIS, and all the additional data added to the layers……..