Revealing the Local Geospatial Knowledge Base of Oyster Fishing at Bluff, New Zealand

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ABSTRACT

This presentation discusses and demonstrates ways in which modern technology, specifically Web-based GIS (augmented by low-tech data gathering strategies), and a web page based on local meetings of fishermen and other community members can be combined to generate a fishery knowledge base. It is intended that this digital resource will be instrumental in developing a Bluff oyster fishery management plan that is holistic in concept and sustainable in purpose. Common pool resources that involve direct exploitation of natural habitat, such as in the Foveaux Strait (the site of the Bluff oyster fishing grounds) risk resource depletion beyond the point of sustainability. For the internationally iconic Bluff oyster, the commercial infrastructure of its fishery and specifically the community that depends upon it, various forces have converged (including overfishing and disease) to create a possible state of medium-to-long-term non-sustainability.

Various stakeholder groups in the fishery feel they have important information and knowledge (the content of which often conflicts from group to group) potentially to aid the sustainable management of the fishery. However, only some - the commercial interests and scientific research institutions - have historically had the power to make their views registered. This leaves community members marginalised, and consequently an important cultural heritage, tangibly local knowledge, risks foundering at the generation gap.

This presentation is about a project that uses technology to give the community the power to make their voice heard in the decision-making arena, so they can have a direct effect on the future of their resource. Consequently, an extensive amount of consultation has taken place, in the form of meetings with people directly involved with oyster fishing (i.e. those who have been or are fishermen themselves), keen to discuss and broadcast their views. Such verbal information, accounts and anecdotes of Bluff oyster fishing over the last 70 years have been collected, supported by the collation of existing archival records. This has been recorded through interviews and videotaped meetings of fisher groups, augmented by fishers marking historical and current oyster bed extent on hard-copy chart templates. Thus there are explicit (mapped information) and implicit (anecdotal) sources for the geospatial digital resource, hosted on a multimedia website.

The local geospatial knowledge gained will be explored here in particular. This is in the form of digitised polygons of the oyster beds that the 15 surveyed fishermen have collectively worked over the last six decades. From this, a decade by decade view of where fishing concentration has taken place can be derived. Furthermore, through the collection of ancillary data such as the popular name of an oyster fishing ground, a consensus map of the estimated areal coverage of these can be built for the first time

(Figure 1). However, this project does not exclusively present the views of one group of stakeholders – the resource seeks to include all views with equal emphasis. Hence, a scientific and explicit spatiotemporal view on the oyster industry (the view that prevails through the scientific literature and government reports) is juxtaposed alongside the community one.
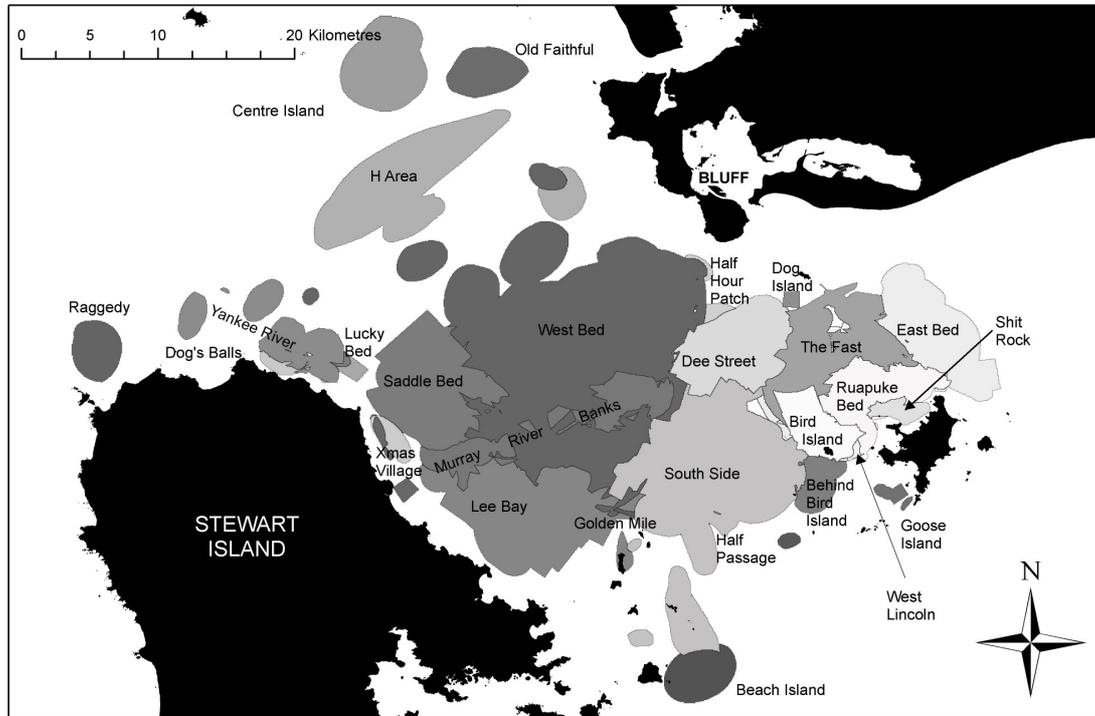

Figure 1: A map of oyster fishing grounds (patches) in the Fouveax Strait. The estimated areas have been derived from the fishermans' raw data (digitised polygons from areas drawn on hard copy charts). The raw polygons have been arranged by patch, their density being used to calculate these patch polygons.