

ABALONE INFORMATION SYSTEM

HOST DETAILS

- Organisation: Department of Primary Industry
 - Location: DPI Queenscliff Centre, 2A Bellarine Hwy, Queenscliff
 - Facilitator: Harry Gorfine
 - Nominal Work Hours: 8:15am – 4:45pm
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TASK

Develop A Fishery Information Management System For The Victorian Abalone Industry.

KEY OBJECTIVE

Produce a template and implementation strategy that electronically links different fishery dependent datasets into a reporting framework for industry.

BACKGROUND

There is a shift towards industry self-governance at local scales that is gathering momentum among Australian abalone fisheries. Some of the precursory elements have been in gestation for several years, but the Commonwealth Fisheries Research & Development Corporation has recently committed \$3.5M to a project to develop the process nationally (<http://www.mffc.gov.au/releases/2005/05083m.html>). Not all industry associations have accepted this approach, but there are some indications industry is generally becoming more receptive to considering the potential benefits. Victoria has three separate abalone management zones each with its own catching sector association that collectively span the entire coastline. Two Victorian abalone industry associations have led the way in formalising self-governance strategies by entering into voluntary memoranda of understanding (MOU) with Fisheries Victoria. The MOUs place specific catch caps and size limits above the legal minimum length (LML) on different reefs or regions. They also have codes of practice (COP) that impose spatially variable daily boat limits on their divers. A third industry association pro-actively introduced its own in-house strategies several years earlier than the others, an initiative that appears to have been effective in preventing potential escalation of localised depletion to a level that would impact on catch quotas for their zone. Indeed during recent years the quota available to its members has increased. Consequently, there has been little incentive to adopt a formal and prescriptive approach to fine scale co-management arrangements, although they do have a COP for their contract divers.

To support their decisions about local management strategies, industry associations have been conducting their own assessment workshops using a process developed for them by a private fisheries consultant. In addition they are participating in data acquisition strategies that go beyond conventional catch and effort reporting. These strategies are under-pinned by advances in electronics technologies that have spawned a variety of accessible, affordable and compact measuring instruments that make use of electronic and computing technologies. These instruments allow the shell lengths of large numbers of abalone to be measured and the vessel position, diver time underwater and catch rate to be logged during fishing operations without undue imposition on the diver or their deckhand. This project brief represents an attempt to address the issues regarding data management and information needs to support the Victorian abalone industry's engagement in local co-management decisions about their fishery.

SPECIFICATIONS

Much of the data will be acquired electronically, either at sea or in a processing factory, and some subjective information will stem from standardised questionnaires. Although the tools for acquisition of data and industry observations already exist, a methodology is required for processing and storing these data in a relational database and generating reports. Suggestions and recommendations for refinement of some of the tools currently used, particularly their application protocols, and suggestions regarding additional tools and technologies would be beneficial.

Industry report their catch, effort and fishing location details daily via Interactive Voice Response (IVR) to the Abalone Quota Management System (AQMS) administered by Fisheries Victoria. Regular summaries of cumulative catches for each reef code are provided to industry in electronic form. As mentioned above, electronic instruments aboard vessels allow the shell lengths of large numbers of abalone to be measured and the vessel position, diver time underwater and catch rate to be logged during fishing operations without undue imposition on the diver or their deckhand. Unlike the IVR which is used to ensure compliance with regulated catch quotas, the use of data acquisition tools at sea is voluntary with potential for bias and inconsistency in application. Currently there is no agreed sampling design or application protocol such that use is largely ad hoc and opportunistic.

A relational database has been developed by PIRVic in MS Access® and provides a reporting function. However, the graphical features of this software are primitive and unsuited to production of good quality reports. All reef code areas have been mapped and ground-truthed using Arcview® software and can be overlaid on a large number of marine environmental datasets including bathymetric, substrate and marine parks ecosystem inventory layers. However, is relatively expensive and cheaper display software is required that is more amenable to use by industry. Fisheries Victoria has capacity to post cumulative catches by reef code as pdf files on the Department of Primary Industries (DPI) web-site for industry to access via password. However, use of available software is in its infancy and linkages are sub-optimal and access to the DPI site competes for space and maintenance with a large number of unrelated applications that generally receive higher priority. A separate website under industry control might be a better alternative.

The uplink of quantitative fishery dependent data into a fishery computer model run by PIRVic is already well established. However, not all available or potentially available data are utilised in the modelling process. Some of the unused data are of interest to industry. The challenge is to process, summarise and report as much data to industry, both at the individual and association level whilst adhering to confidentiality and privacy regulations, in a way that is both intelligible and useful for educated non-scientists. Industry need to be able to interrogate any system that is developed as a result of this project.

Target Disciplines

1. Environmental engineering
2. Information & communications technology
3. Socio-economics - industry capacity building
4. Natural resource management
5. Population biology