

Summary of the Workshop of June 30, 1975

OREGON'S SUBTIDAL CLAMS - INTEGRATION OF RESEARCH AND MANAGEMENT

The meeting was opened with a summary of the current situation and the need for integration of research and management efforts. A strategic approach to research and management was proposed - the heart of which was four principles established at a workshop sponsored in part by the President's Council on Environmental Quality. These principles are given below:

1. The ecosystem should be maintained in a desirable state such that:
  - (a) consumptive and non-consumptive values can be maximized on a continuing basis;
  - (b) present and future options are ensured;
  - (c) risk of irreversible change or long-term adverse effects is minimized.
2. Management decisions should include a safety factor to allow for the facts that knowledge is limited and institutions are imperfect.
3. Measures to conserve a wild living resource should be formulated and applied so as to avoid wasteful use of other resources.
4. Survey of monitoring, analysis and assessment should precede planned use and accompany actual use of wild living resources. The results should be made available promptly for critical public review.

These may become a formal recognized and strategic base for management, although the professional managers present at this workshop stated that they already followed many of these rules.

Figure 1 is a diagram which shows the relationship of general principles to specific management tactics. It can help to clarify the reasons by which a management decision is made and to establish whether the basis of a decision is

ecological, political, economic, or a combination.

Input from biologists filters its way through many levels--but the commissioners make the final decision. Previously the FCO was limited to looking only at the biology of the species. They can now examine the socio-political situation as well and think about managing for optimum sustained yield instead of maximum harvest of biomass. The tools used in management are: seasons, quotas, bag limits, gear restrictions to make a fishery "inefficient", limited entry, and licensing.

Specific items mentioned to study in regards to subtidal clams are:

- 1) Location and extent of subtidal beds
- 2) Species composition
- 3) Age structure
- 4) Biomass
- 5) Economics
- 6) Ecological niches
- 7) Spawning times and releasers
- 8) Effect of harvest on habitat
- 9) Methods of improving the habitat
- 10) Recruitment into harvested areas.

Construction of a simulation model of the clam fishery was proposed.

The project would function as a forum for integrating the present knowledge on clams, as a way to involve interested managers and researchers in a mutual project to understand each other's point-of-view, and to produce a functioning, dynamic model to test management policies. It is possible that a model of the subtidal clam population would help in the design of research on the resource.

Current research on Oregon clam populations has so far been in the form

of observations designed to locate the subtidal beds and identify species. Current information on abundance is therefore not yet complete. Preliminary work was summarized in two handouts--a literature review and a Summary of Natural History of the major hardshell clams--along with the mention that data on larvae, currents, associated infauna, and physical and chemical features of major clam habitats were thought to be important.

Discussion revealed that the economic feasibility of a commercial clam industry in terms of primary and secondary jobs, market volume, and market stability is of prime importance in assessing the social implications of clam management policies. In accordance with Heisenberg's principle that the observer influences the observation, the current research is influencing the effectiveness of some management options by stimulating interest in clam harvesting.

Political, social and economic constraints upon the management of the resource were briefly covered. Social constraints involve people problems. The local possessiveness of people and the problem of deciding appropriate usages are examples. Economic constraints involve the existence of a market, the available profit margin, the employment multiplier for a given industry, the effect of commercial operations on recreation, and alternative jobs available to local operators. Political constraints involve both the social and economic considerations. The political process may respond to the biological constraints, but does not always follow the best biological use. Agencies must stay within defensible economic and social bounds or the public will take the issue directly to the legislature.

Indian fishing rights and navigational dredging and filling projects will also influence management practices. These are all important reasons to determine the extent and ecology of the resource.

It also appears important that the fishery be efficient, but efficiency does not always imply large size. The technology permitted in a commercial clam harvest must be ecologically "efficient" as well as money and energy efficient. Harvest methods ought not to substantially hinder resettlement of the bed, or waste non-commercial species. Good management would allow only harvest methods that become commercially non-feasible before the resource approaches exhaustion, and thus are self-corrective.

The thread running through the workshop appeared to be that management of the Oregon subtidal clam resource requires a balance between biological and economic constraints, and that more information on both realms is required at this point. Key questions involve the relationship of the subtidal to the intertidal clams; the life history, evolutionary strategy, and ecology of the clams; the economic implications of harvesting; jurisdictional rights; and dredging projects.

It was apparent that cooperative research and management programs are fruitful for both parties and allow an effort much broader in scope than otherwise possible.

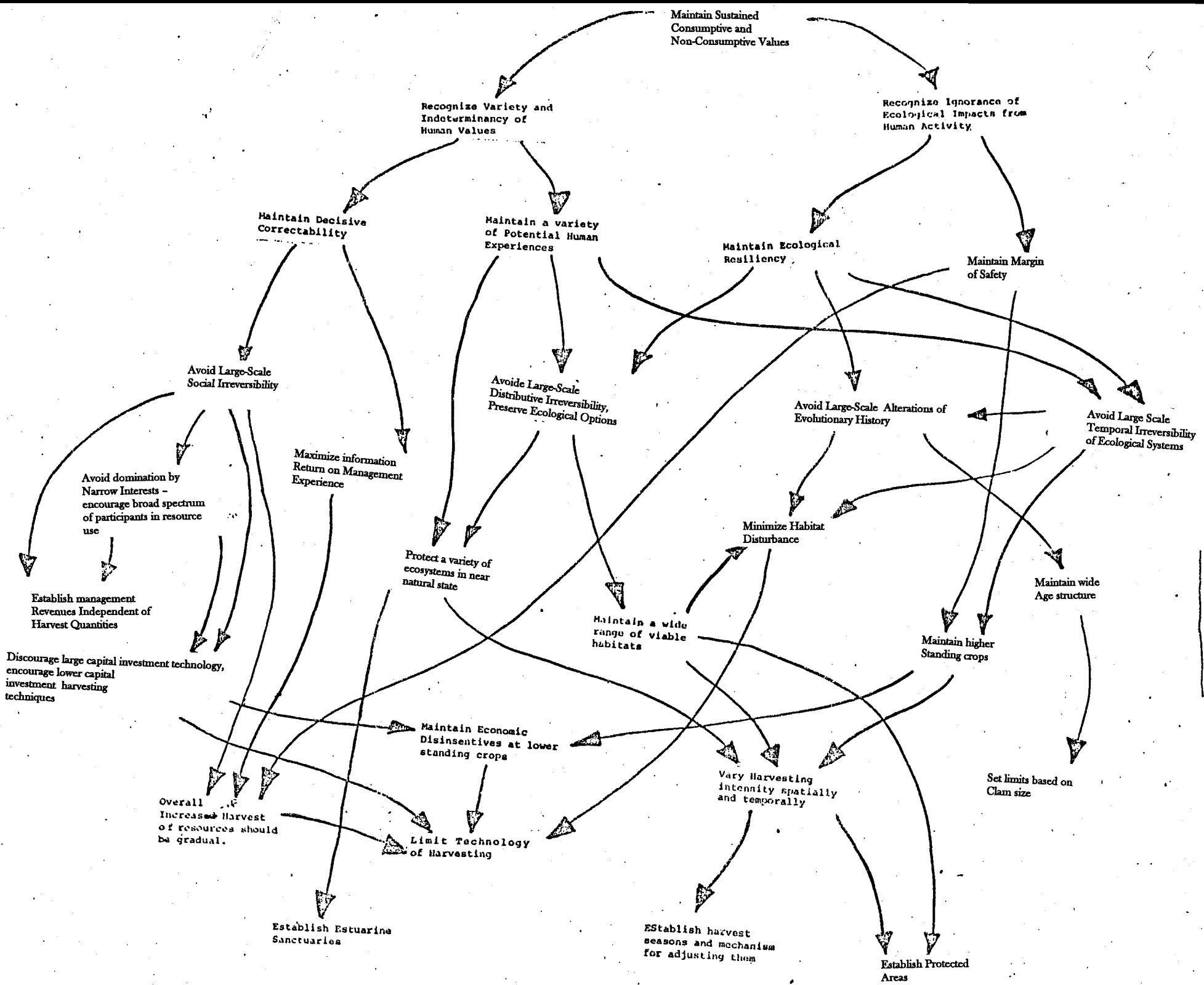


FIGURE 1