

Session 2 Group Discussion

Question 1. Groups 5 and 12

If you have a shared stock, what should you monitor and how much monitoring do you need?

— The question was addressed under the following assumptions:—

- it is a single stock;
- all parties are interested in its sustainable management;
- monitoring would cover (i) initial surveys to determine important parameters, e.g. natural mortality (M); and (ii) regular monitoring of fishing activity and stock status, e.g. spatial and temporal distribution of catch and effort; and
- the shared stock (a) lies within a single fisheries jurisdiction with access to multiple uses (e.g. coral trout on the Great Barrier Reef is exploited by commercial, recreational small boat and charter boat sectors, together with non-extractive use by tourist operators and recreational divers); or (b) straddles two or more State boundaries and is exploited by one user group (e.g. goldband snapper in NW Australia; northern bluefin tuna). (The nightmare situation of multiple jurisdictions and multiple users was not included.)

— Features to be monitored common to scenario (a) and (b) above would be:—

- catch, fishing effort and CPUE data;
 - indices of abundance of target species (fisheries independent);
 - the vulnerability of the stock to different gear, and hence user groups;
 - the degree of geographical movement by both the fish and fishermen;
 - basic life history parameters, e.g. reproductive schedules, rates of growth;
 - fishing and natural mortalities;
 - catch allocation between parties, specifically in terms of space, time and gear used, and taking account of the need to allocate quota for the purpose of research surveys;
 - the age/size/cost structure of the fishing fleets; and
 - compliance with jurisdictional boundaries.
- The highest priority for monitoring of a shared stock was given to reliable estimation of catches, as this is likely to be the starting point for resolving sharing arrangements.
- How much monitoring to be undertaken will depend on the market value of the catch together with its socio-economic

value to other users; the level of cooperation between partners; the cost of data collection and the usefulness of data available from other fisheries; and the estimated opportunity cost of not having various types of information for managing the fishery sustainably.

- A useful innovation in the case of cross-jurisdiction commercial fisheries where quota management is a likely alternative, would be to set aside a percentage of the total allowable catch (TAC) to be used towards the cost of research.

Question 2. Groups 3 and 8

Under what circumstances should Australia not attempt sustainable management at all?

- The reality is that Australia cannot abnegate her responsibilities to manage for sustainable utilization because, for example, of politics; legal responsibility; law of the commons; follow-on effects, economic and ecological; and any requirement to change fishery practices. In addition there may be a need to convince management partners to change/ provide incentives; and minimum management requirements to meet Environmentally Sustainable Development (ESD) obligations, e.g. limited entry.
- In general, therefore, not managing is rarely an option — indeed, most legislation has some ESD or similar clause to preclude this without political agreement.
- Notwithstanding the above, the groups signalled some situations where management for sustainable utilization is not feasible or not desirable:—

- where the costs of management would far exceed the value of the fishery;
 - straddling stocks where Australia's neighbour is independent of Australia's control and where cooperative management to achieve sustainable utilization appears unlikely, e.g. goldband snapper, shark, mackerel;
 - where the potential impact of Australian exploitation is so small as to be not worth managing;
 - fringe parts of stocks which do not contribute to spawning success, e.g. New South Wales lobster, some scallop fisheries;
 - situations where special or temporal adaptive management could result in unsustainable activities;
 - in freshwater, examples would include the extermination of exotic species, e.g. European carp, tilapia; elvers caught near manmade barriers; perennial or "bloom" species, in e.g. Lake Eyre; impoundment fisheries, or areas subject to flooding, drainage, etc.
- None of this should imply an "open slather" approach by Australia nor a failure to recognize the importance of social or cultural closures or reactions that are not based on sustainability.

Question 3. Groups 2 and 4

How would collaborative tagging programmes be conducted with nations that have limited resources for applying and recovering tags?

- Before serious consideration is given to collaborative tagging it needs first to be

firmly established that the resource is of significant value, and that a significant proportion of the resource is actually or potentially available to both parties. There must be a clear identification of the need for information likely to be obtained from tag recapture programmes.

— Once it is agreed that tagging is required, consideration needs to be given to:—

- ensuring that fishermen, researchers and managers of the partner country understand the benefits of tagging and the importance of returning tags;
- establishing good communication and liaison between scientists and fishermen in both countries, preferably enhanced by exchange visits;
- ensuring that both nations are involved in tagging and recovery, and that tag recapture methods are validated to ensure uniformity and scientific rigour;
- ways of transferring technology to the partner nation, e.g. in the design of the logbook programme and the database;
- understanding how other nations work and transfer results, possibly from other collaborative experiences, e.g. Northern Territory University/ Indonesian *Trochus* project, CSIRO/ Indonesian baitfish project; and
- identifying who is exploiting the stock in the partner nation, e.g. artisanal fishermen are often an important component.

— The purpose of tagging needs to be clearly understood, i.e. to provide infor-

mation about movements and exploitation rates between fishing zones, magnitude of the stock, age, size and growth rates of fish. Further benefits will arise from the ensuing communications and cooperation between nations. In northern Australia, suitable species for cooperative tagging programmes could include red snapper, goldband snapper and mackerel.

- Adequate funding for tagging may be a problem for a partner country — options include Australian research or financial aid; international support (e.g. U.N.).
- Incentives to participate in a tagging programme would include aid for the general community; education and experience for researchers; training for technicians; and access to Australian information and facilities.
- Potential problems could include resource limitations of the partner country; establishment of trust between partners; differing objectives of fisheries scientists in different countries; cultural differences; and practical and technical problems involving collection of tag return information over a large area, possibly with relatively poor communication systems.

Question 4. Groups 6 and 9

Should science and management policy be developed by independent commissions that put fish first, with nations agreeing to binding limits?

- Group 9 preferred the word 'jurisdictions' to 'nations'. Although initially there was some agreement with the proposal, further discussion produced qualifica-

tions and reservations, including the suggestion that the establishment of commissions could constitute an abnegation of responsibilities.

- Group 6 considered the benefits of an independent commission dedicated and committed to the process of fisheries assessment and management. As an advocate for the fish stocks it would be obliged to make unbiased, transparent recommendations, not avoiding them for political reasons. An independent commission would be capable of pursuing long-term strategies of stock rebuilding and conservation — political time frames are often too short, and commitment to fisheries restructuring insufficient to achieve long-term goals of sustainable utilization.
- Decision making would be less complex if stock conservation issues were separated from and given priority over socio-economic considerations and political interferences. Decisions become politically complicated when dealing with issues such as resource sharing between commercial, recreational and traditional fisheries.
- Examples of commissions thought to be successful include the International Whaling Commission, the North American Halibut Commission, and the Murray Darling Basin Commission. An example of a commission thought to be less successful is the International Council for the Exploration of the Sea.
- Perceived disadvantages of independent commissions are the likely high costs, and the reluctance of governments to relinquish control over fish stocks. Differences

could arise if there are more than 2–3 participating jurisdictions or stocks, and where there are different languages or cultures and levels of socio-economic development.

- A high level of trust, and access to high resolution quality data would be required to undertake rigorous stock assessments. Credibility would be achieved through independent review which would make outcomes difficult to criticize or avoid.
- Organizations have already been established to bring together States, countries and sectors to manage fisheries around Australia. The Protected Zone Joint Authority (PZJA) brought together Queensland, Papua New Guinea, the Torres Strait Islands and the Commonwealth of Australia. Representatives from New Zealand, Australia and Japan meet to set catch limits for southern bluefin tuna. Management Advisory Committees (MACs) have been established for many fisheries within Australia. More are needed to cover other species crossing State boundaries.

Question 5. Groups 1 and 10

How should stock assessment advice be introduced into international sharing negotiations?

- Stock assessment advice in international sharing negotiations is important given:—
 - the need for sustainability;
 - the need to optimise mutual economic benefit; and
 - the need to reduce conflict.

- As part of the process it is important:—
 - to assemble the fishery data for the assessment; and
 - for both (all) partners to reach agreement on the assessment.
- Possible approaches for introducing stock assessment advice, among a range of options, are:—
 - to convene a group with representatives of the interested parties;
 - to convene an independent third group; and
 - a combination of these two.
- Other considerations include:—
 - the need to identify mutual benefits;
 - reference to resource-sharing models in other industries, e.g. mining; and
 - transparent procedures which allow scrutiny, e.g. making stock advice a public document.
- Attention will also need to be directed towards:—
 - the credibility of the stock assessment;
 - the principles of sharing, which are the same as for domestic situations;
 - the benefits of joint venture arrangements;
 - the need to take into account the broad political agenda;
 - developing ongoing cooperative research and assessment strategies; and

- the need to take account of cultural differences.

Question 6. Groups 7 and 11

Should very large marine reserve areas be used as a basic conservation tool in shared fisheries, even for highly migratory stocks?

- The value of “Marine Harvest Refugia” was considered by one group to be (1) as an insurance against management failure and/or environmental changes resulting in, for example, recruitment failure, and (2) to provide an unfished reserve benchmark.
- Large marine reserves could be used to control harvest rate; enhance egg production; protect spawners, habitat, etc; and ensure a minimum biomass.
- By declaring such reserves, a partner in a shared fishery could be persuaded of their value.
- Such reserves need to be sufficiently large to accommodate the biological requirements of a wide range of species (general purpose reserves) and/or to protect the most sensitive stages of the life cycles (e.g. spawning, nursery) of particular examples (species-specific reserves).
- Achievements of the objectives will depend upon whether the sharing is cooperative or competitive; the ability to control fishing effort outside the refuge, and also the level of capitalization and capacity; the size, timing and location of the reserve; knowledge about migration routes and rates; life cycles of the fishes; capacity for compliance and monitoring; and other controls, i.e. additional harvest strategies in place.

- More research is needed using models to identify outcomes. The Western Australian Pilbara Coast closure, the Northern Great Barrier Reef (GBR) prawn trawl closure, and the current GBR line fishing experiment were cited as recent attempts to evaluate the effectiveness of marine harvest refugia in differing situations.
- In a shared situation a large reserve might straddle the boundary, or, where the migration route is known, the refuge may constitute a corridor across two States. Large reserve areas can also provide “catch buffers” between different jurisdictions. Even in a non-cooperative sharing situation, a large reserve a long way from the boundary could be useful.
- There is a need to convince stakeholders of productivity gains to be expected from marine refugia against the risk of stocks collapsing through inaction.
- The development of low impact gear types (e.g. some trawls) could help with conservation, but would not be a viable alternative to a complete embargo on fishing.
- The employment of Vessel Monitoring Systems internationally would assist with compliance.
- Compensation for individual fishermen who traditionally fished such areas may need consideration (e.g. by buying-out their fishing rights).