

REPORT OF THE WORKSHOP ON SMART PARTNERSHIPS FOR SUSTAINABILITY IN THE FISHING INDUSTRY

26-28 November, 1997
Penang, Malaysia



BAY OF BENGAL PROGRAMME

BOBP/REP/81

**REPORT OF THE WORKSHOP ON SMART PARTNERSHIPS
FOR SUSTAINABILITY IN THE FISHING INDUSTRY**

26-28 November, 1997
Penang, Malaysia

Edited by Kee-Chai Chong
and S.R. Madhu

BAY OF BENGAL PROGRAMME
Chennai, India
1999

This document contains the report of a Workshop on “Smart Partnerships for Sustainability in the Fishing Industry.” It was held in Penang, Malaysia, on 26-27 November, 1997, and was organised jointly by the Institute On Governance, Canada, and the FAO’s Bay of Bengal Programme, with support from the Maritime Institute of Malaysia (MIMA), the Department of Fisheries, Malaysia (DOFM), and the Canadian International Development Agency (CIDA).

This report contains the papers presented by workshop participants including the keynote address and the presentations of “country experiences” from South Asia and Southeast Asia.

The Bay of Bengal Programme is a multi-agency regional fisheries programme which covers seven countries around the Bay of Bengal – Bangladesh, India, Malaysia, Maldives, Indonesia, Sri Lanka, Thailand. The Programme plays a catalytic and consultative role in developing coastal fisheries management in the Bay of Bengal to help improve the conditions of small-scale fisher-folk in member-countries.

The BOBP is sponsored by the Governments of Denmark and Japan. The executing agency is the FAO (Food and Agriculture Organization of the United Nations.)

Foreword

“Partnership” is key word in development today. The world is too complex, and problems too complicated, for individual talent or cerebral genius to tackle. At the global level, problems are not merely multi-national, they are multi-disciplinary, multi-sectoral and multi-professional. But even at the national and local levels, almost any problem, major or minor, requires a partnership of some kind, the bringing together of people from different backgrounds and aptitudes and skills. In fact, “Any person who is not part of the solution is part of the problem” (to quote Lucy Richards in “Living Ethics”).

This is very true of fisheries management. To be grasped in its entirety, even the problem of over-production in fisheries and the depletion of fishery and marine resources - let alone the solution - needs to be discussed together by all stakeholders in fisheries, so that they are aware of the magnitude of the crisis and the need for urgent solutions.

The workshop on “Smart Partnerships for Sustainability in the Fishing Industry,” held in Penang, Malaysia, in November 1997, was in this context very timely. Leading decision-makers in fisheries from various countries were exposed to the whys, whats and how of smart partnerships. There were useful inputs from Canada and Australia concerning some successful experiences of smart partnerships. One would have liked to hear about more success stories, but perhaps there aren't too many yet. One hopes that a similar workshop held five years hence can focus entirely on success stories!

I hope that this workshop report makes a small constructive contribution to the literature on the subject, and that it facilitates more smart partnerships.

Kee-Chai Chong

Programme Coordinator, BOBP/FAO

30 September, 1999.

CONTENTS

1.	Workshop Prospectus	
2.	Workshop Summary	2
3.	Workshop Programme	
4.	Opening address by <i>Dato · Mohd Mazlan bin Jusoh, Director-General of Fisheries, Malaysia</i>	8
5.	List of participants	10
6.	Keynote address: “International experiences in community-based fisheries management – successes and pitfalls” by <i>Dr Masamichi Hotta</i>	14
7.	Sustainability of fisheries – global challenges for the future by <i>Kee-Chai Chong</i>	17
8.	Building legitimacy for smart partnerships: fisheries co-management and legitimacy issues by <i>Sevaly Sen</i>	28
9.	Towards community-based management in inshore cod fisheries: the experience in Newfoundland, Canada by <i>Richard Cashin</i>	36
10.	The Queensland fisheries: management model by <i>Patrick Appleton</i>	49
11.	Community inputs into fisheries resource management: Approach of the Queensland Department of Primary Industries Australia by <i>Peter Finglas</i>	60
Practical country experiences from Southeast Asia		
12.	Community-based fisheries management in Phang-Nga Bay, on the Andaman coast of Thailand, by <i>Jate Pimoljinda</i>	66
13.	CBFM: An alternative approach to fisheries management in Malaysia by <i>Kamaruzaman Haji Salim</i>	77
14.	CBFM in eastern Indonesia by <i>Victor PH. Nikijuluw</i> .	85
15.	Fishing and resource management partnerships undertaken by Pt Usaha Mina (Persero), Indonesia by <i>Soepanto & Victor PH. Nikijuluw</i>	99
16.	Community-based fisheries management in the Philippines : an overview by <i>Annadel S. Cabanban</i>	107
Practical country experiences from South Asia		
17.	Fisheries and fisheries management in India by <i>G D Chandrapal</i>	114
18.	CBFM: Sri Lanka’s experience by <i>M T K Nagodavithana</i>	121
19.	Development of aquaculture as an integrated fishing industry in Sri Lanka by <i>Kusul Perera</i>	127
20.	Partnerships for fisheries resource management in the Maldives by <i>Jadullah Jameel, Director-General, Ministry of Fisheries & Agriculture</i>	133
21.	Poverty eradication and sustainable fisheries development in coastal fishing villages of Bangladesh by <i>Md Serajuddin & Qaizi Mohammad Saif Rahman</i>	138

1. WORKSHOP PROSPECTUS

Context

Around the world, the people who depend on fish for their livelihood -- whether they be villagers feeding their families on their daily catch, government officials, or CEOs of large fish processing industries -- are looking for better ways to ensure the sustainability of the fish stocks off their shores.

What is the most effective way to protect fishery resources? Who should be involved in the regulatory process? What is the role of government in developing and enforcing regulations? How can fishing associations and fishing industries ensure that their interests are protected? In what cultural, economic and political contexts can self-regulation work?

There are no clear answers to these questions -- no perfect models to follow. Each country must develop regulatory systems and processes best suited to their unique circumstances. However, there are some valuable experiences and lessons in community-based management which might be of interest to those who are searching for new approaches. Community consultations and inputs are all-important and all-pervasive in such an approach.

Objectives

Smart Partnerships for Sustainability in the Fishing Industry is a seminar organised through a partnership between the Institute On Governance (IOG), and the FAO's Bay of Bengal Programme (BOBP) with support from the Maritime Institute of Malaysia (MIMA), the Department of Fisheries, Malaysia (DOFM), and the Canadian International Development Agency (CODA). The primary goal is to share lessons and experiences on the regulatory processes in the fishing sector.

The objectives of the seminar are to:

- understand the global forces shaping changes in the regulatory process in the fishing sector;
- . learn about innovative approaches to self-regulation which have been implemented in other countries;
- . understand the factors contributing to the successes and failures of self-regulation in different social, economic and political contexts;
- explore how participants might enhance the effectiveness of their own regulatory processes through enhanced private-public sector partnerships.

Who Should Participate

Countries which have been invited to participate in the seminar include: Australia, Bangladesh, Canada, Denmark, India, Indonesia, Malaysia, Maldives, Philippines, Sri Lanka and Thailand. From each country representatives are invited from the government and the fishing community.

Approach

The seminar will be designed to encourage open exchanges and learning. The approach of the seminar will be highly interactive and participatory. Participants will be encouraged to seek insights which will be most useful to them in their own contexts.

2. WORKSHOP SUMMARY

“SMART PARTNERSHIPS” – THE MESSAGE FROM PENANG

By Karin Borzel (Institute On Governance) and Kee-Chai CHONG (BOBP)

(Based on an article in *Bay of Bengal News*, June 1998)

Sustaining the fisheries resource and alleviating poverty among fisherfolk – these are ambitious goals. Achieving them is possible only through “smart partnerships” among different types of stakeholders – such as the government, the fisherfolk community, the scientists, the private sector: This was the theme of a workshop in Penang, Malaysia

“The Pearl of the Orient” – beautiful Penang, Malaysia – was the venue for a three-day workshop on “Smart Partnerships For Sustainability in the Fishing Industry” which was held from 26 to 28 November, 1997. It was organised jointly by the BOBP and the Institute On Governance (IOG, Canada), with support from the Department of Fisheries, Malaysia (DOFM), the Maritime Institute of Malaysia (MIMA), and the Canadian international Development Agency (CIDA).

The workshop’s objectives were

- . to provide an understanding of the global forces that shape changes in the regulatory processes in the fishing industry;
- . to share information about innovative approaches to self-regulation which have been implemented in different countries;
- . to provide an understanding of the factors behind the successes and failures of self-regulation in different social, economic and political settings; and
- . to explore how the participants might enhance the effectiveness of their own national regulatory processes through enhanced private-public sector partnerships.

The 50-odd workshop participants came from both developed and developing countries. There were plenary presentations from Dr Masamichi Hotta (Japan), Mr. Richard Cashin (Canada), Mr. Patrick Appleton and Mr. Peter Finglas (Australia), Ms. Sevaly Sen (Denmark) and Dr Kee-Chai CHONG (BOBP). Country experiences were reported from Malaysia, Philippines, Thailand, India, Indonesia, Maldives, Bangladesh and Sri Lanka.

Each presentation was followed by discussion. Together, they provided insights into the successes and failures of fisheries management, and yielded suggestions for more successful practices. Community-Based Management (CBM), highlighted throughout the seminar, was seen as a key factor behind the sustainability of fishing industries, whether national or global.

In his opening address, the Director-General of Fisheries, Malaysia, Dato’ Mohd Mazlan bin Jusoh, said that fisheries resources were getting depleted because of overfishing, over-capitalization and technological overkill, habitat degradation and pollution. This grim scenario was being re-enacted around the globe. Without the support and participation of stakeholders in a smart partnership, fisheries management programmes were bound to fail. Resource users should take active part in working out strategies and programmes for fisheries resource management.

“Each and every stakeholder can exert himself and make an impact on fisheries management,” Dato Mazlan observed

In his keynote address on “International experiences in community-based fisheries management – successes and pitfalls,” Dr Masamichi Hotta said that when fishermen themselves help design management, a high rate of compliance can be expected. There will be no need for external enforcement of regulations; consequently the enforcement will be both effective and cost-effective. “Further, in a close-knit fishing community, social sanctions are far more effective than legal sanctions.”

Dr Hotta outlined certain key factors in the design of CBFM – devolution of management authority to the community; establishment of territorial boundaries; and incentives to fishermen to set up management systems.

About devolution, Dr Hotta said that fostering viable community-level organisations is the first step in CBFM. Even where such organizations exist, they cannot immediately assume CBFM responsibilities in the absence of any experience or expertise in CBFM. This is a gradual process. Where fisheries management authority is delegated to fishermen, care should be taken to ensure a fairly equitable sharing and distribution of benefits among fishermen.

Establishment of territorial boundaries in the area adjacent to a fishing community is a basic element in CBFM. This is done, for example, in the traditional fisheries systems of Japan, the Philippines, Indonesia, Sri Lanka, Papua New Guinea, Fiji. The merit of demarcating waters for the exclusive use of fishermen is that they then have incentives to establish self-regulating systems, because they own a wealth-producing property. Development of co-operative marketing is one such incentive. It would strengthen the bargaining power of fishermen.

Dr Hotta provided some examples from Japan’s rich experience in CBFM. He said that coastal fisheries in Japan are managed by some 1,200 fisheries co-operative societies. Each co-operative has its own by-laws within the framework of national fisheries laws and fisheries co-operative laws. Access to territorial waters is limited to members of co-operatives. They establish regulations concerning boats, gears, seasons, areas, mesh sizes, marketing of fish etc.

Fisheries research institutes in Japan play a very constructive role in fisheries management by alerting fishermen about the state of resources. Smaller-sized fish, falling fish prices, lower incomes from fishing, greater fishing competition – all these are warning signals that research institutes look out for.

Coastal fisheries in Japan is classified into three types from the management standpoint – reef fisheries, mobile-species capture fisheries and aquaculture. Management methods for the three types differ.

Judging from the workshop’s discussions and the proposed follow-up activities, the workshop was a great success. Information and experiences were shared. Participants returned home convinced that the battle to create a sustainable industry does have its warriors. In the words of Mr. Richard Cashin of Canada, “There is no single solution. There is no single lesson”. The process of sharing and learning, through seminars such as this, enables a search for solutions that everyone can adapt everywhere to further the cause of sustainability. Participants agreed that opportunities for meaningful partnerships among the diverse groups of stakeholders are endless.

Here are glimpses into a few papers presented at the workshop.

Ms Sevaly Sen, from the Institute of Fisheries Management, spoke of the “moral distance” of government from its people as partly responsible for the continuing ineffectiveness of government’s top-down approach to fisheries management. Because of this “moral distance,” the fishing community does not fully appreciate management efforts introduced (or rather imposed) by the government. Likewise, government does not fully understand the local conditions of the fishing community it wishes to regulate. Ms Sen said the concept of fisheries “co-management” encompasses a wide range of partnerships between the government and stakeholder resource users, especially in the process of consensus solutions.

Dr Kee-Chai Chong spoke on “Sustainability of Fisheries: Global Challenges for the Future”. He focused on three factors that have caused environmental degradation and resource depletion: overpopulation, consumption excesses, and abusive use of technology.

He said the needs of an increasing population can be met if the idea of sustainable development and management of fisheries is promoted. “Without management, there is no way supply can meet demand.”

Decrying consumption excesses, Dr.Chong said that human irresponsibility has exacted a heavy toll from fisheries. He said “Mother Nature has been bearing a large part of the costs. It will no longer subsidise irresponsible consumption and production”. Management was needed to moderate “undesirable human impact” and regulate it.

Technology can be used positively, but the current power- hungry attitude makes it a tool of destruction. Fisheries planners do not help either because they keep projecting higher and higher per capita fish consumption in their 5-year national development plans. These automatically translate into pressures for the production unit to find ways to increase production based on the planners projections. Today, the per capita consumption of fish in Japan is already 65 kg/capita/year. In Hong Kong, Taiwan, Singapore and Malaysia, it varies from 40 to 55 kg/capita/year while in Indonesia and Thailand, it is only about 20-25 kg/capita/year. For India, Bangladesh, Sri Lanka it is still way below 10 kg/capita/year. With ever increasing projections made by fisheries planners, is it any wonder that our fisheries are continuously under severe and heavy fishing pressures. World trade in fish has surged to over US\$ 50 billion a year.

Dr. Chong said that management “revolves round the effort to help the natural resource ecosystem and the environment to cope with increased uses”. This type of management can best be done through “smart partnerships” or, the forging of partnerships between different stakeholders in the entire marketing chain (government, fisherfolk, market intermediaries, chefs/cooks, consumers, etc) so that the interests of all stakeholders can be considered. The government continues to play an important role in smart partnerships, by maintaining order and resolving political and legal disputes.

Community-Based Management (CBM), Dr Chong said, confers on people limited rights or ownership of their fisheries system and promotes positive changes by altering socio-cultural attitudes and practices that relate to fisheries management. He identified three basic steps for the success of CBMs. First, a consensus must be arrived at through public hearings on what is at stake for all concerned. Once this consensus is established, the style and type of management to be implemented must suit the needs of the communities. Finally, education. Educating the public through practices such as ecolabelling and realistic cost estimation based on the valuation of natural resources will create informed consumers and producers who will take personal responsibility for fisheries management.

Dr. Chong said that government-centralised management intervention in fisheries is on its way out as it is cost-inefficient and relatively ineffective. Further, governments are downsizing. “Reduced government support for sustainable management of fisheries has created the need for new funding mechanisms” for management. Such mechanisms must be worked out quickly if fisheries is to be managed.

“Giving citizens pride of place and putting them at the centre-stage of management, with government managers watching from the sidelines, will go a long way toward promoting community management of local fisheries”.

In Queensland, Australia, several tiers of government bear the responsibility for fisheries management. Some light on the system was shed by two guest speakers from Queensland: Mr Patrick Appleton of the Queensland Fisheries Management Authority (QFMA), and Mr Peter Finglas, of the Queensland Department of Primary Industry (QDPI).

Mr. Appleton said that QFMA drives appropriate management, use, development, and protection of fisheries resources. It liaises with other state governments, statutory authorities and local governments and promotes co-operation at all levels for strategic planning and effective day-to-day management of fisheries.

He said that Queensland fisheries have met substantive challenges over the past 3-4 years. The management of Queensland’s fisheries has moved away from a technocratic model of management, because of dissatisfaction on the part of key stakeholders. Besides, increased population, changes to commercial and recreational fishing and pressure from traditional fisheries are impacting the capacity of the environment to sustain fishing.

As “custodians” of fisheries resources, the government must adapt to these challenges, Mr Appleton said. “In order to ensure the continued sustainability of fisheries and their effective management, all levels of government must co-operate”. Such co-operation meant the need for a different approach to fisheries management that involved equity in decision-making and long-term protection of resources. The new model adopted sets out to protect the public interest in resources, provide a technical basis for management and involve major stakeholders directly in management planning.

In 1994, the Queensland Fisheries Act was established. It sets out clear directions for fisheries management. It further established a new statutory authority, the QFMA. Prior to 1994, the QFMA’s role was unclear. Following the Act, its prime function was to deliver management based on the principles of ecologically sustainable development.

“Management planning requires a co-operative and integrated approach across agencies and user groups”, Mr Appleton said. He further elaborated that “management offers opportunities for integration of information and expertise from across a range of users and disciplines . . .”. He went on to say that, “The aim is to produce a management plan which is user-friendly, is broadly accepted by stakeholders and ensures protection of the state’s fisheries resources as well as access to them.”

For such management to occur, consultation and community involvement are necessary. Two levels of consultation and involvement were created through the Management Advisory Committees (MACs) and Zonal Advisory Committees (ZACs). MACs, Mr. Appleton explained, “are building blocks in the process of developing management plans”. They are the principal sources of planning and advice for authorities. ZACs, on the other hand, provide a forum for regional communities to provide advice on

the diverse range of issues impacting on local fisheries. The principal benefit is that ZACs enable the collection and dissemination of information to the general public.

Creating MACs and ZACs was difficult but rewarding, because they have changed the culture of fisheries management in Queensland in three significant ways. They have generated the feeling that “publicly owned resources need to be shared on a fair and equitable basis”. Second, stakeholders, government and the community have come to realise that fisheries resources are limited and that uncontrolled and irresponsible fishing by any group must not be permitted. Finally, that the role of government agencies is facilitation, negotiation and mediation.

Mr. Appleton was not able to comment on the success or failure of such a process as it is still in the developing stages. New arrangements and processes take time but can create an “ownership attitude”. Further, the Queensland model will only be as successful as the participants allow it to be. The workability of the new arrangements will depend on the support and participation of the users.”

Mr Peter Finglas Of Queensland’s Department of Primary Industry (QDPI), concurred with much of Mr. Appleton’s remarks. He said that QDPI functions as a rural economic development agency that links government and industry in partnership to “increase the profitability of primary industry-based enterprises on a sustainable basis”. Overall, QDPI is responsible for management, use, development and protection of aquaculture, marine plants and fish habitats. However, the fisheries resources are available to all, and the “responsibility for their management and stewardship is a public service shared by government, the resource user and the general community”.

Specifically, the Department of Primary Industries is guided by policies that ensure equitable and consistent decisions which impact fish habitats. A part of this process of policy creation is to include communities in the decision-making process. Mr. Finglas stressed that it is important to “include inputs from the community early on in the process to ensure that decisions are based on available knowledge and that community members are genuinely part of the process”.

Mr. Finglas stressed the importance of community inputs into decision-making. Partnerships between fisheries agencies such as QDPI and the community reduce conflicts, increase information sharing and create a feeling of ownership within the community. Result: they become a part of the solution to the challenges now facing the fishing industry.

3. WORKSHOP PROGRAMME

Wednesday, November 26, 1997

Thursday, November 27, 1997

8:00 - 9:00	Registration	8:30 - 10:00	The Queensland Fisheries Management Model
9:00 - 10:00	Opening Ceremony: Opening Remarks by BOBP, DOFM, IOG. Opening Address by the <i>Director General of Fisheries, Malaysia</i>		<i>Mr Pat Appleton</i> Management Authority, Queensland Fisheries, Australia
10:30 - 11:30	Keynote Address: International Experiences in Community-Based Fisheries Management: Successes and Pitfalls <i>Dr Masamichi Hotta</i> , Adviser, Overseas Consulting Department, Tetra Company, Japan		Community Inputs into Fisheries Resources Management: Approach of the Queensland Department of Primary Industries, Australia <i>Mr Peter Finglas</i> Department of Primary Industries, Queensland, Australia
11:30 - 12:30	Sustainability of Fisheries: Global Challenges for the Future <i>Dr Kee-Chai Chong</i> , BOBP	10:30 - 12:30	Practical Country Experience from Southeast Asia: Malaysia Indonesia Thailand Philippines
2:00 - 3:00	Building Legitimacy for Smart Partnerships <i>Ms Sevaly Sen</i> , Institute of Fisheries Management, North Sea Centre, Denmark		
3:30 - 5:00	Towards Community-Based Management in Inshore Fisheries: The Experience in Newfoundland, Canada <i>Mr Richard Cashin</i> , Marine Institute International Newfoundland, Canada	1:30 - 3:30	Practical Country Experience from South Asia: India Sri Lanka Maldives Bangladesh
		4:00 - 5:30	Panel Discussion and Closing

4. OPENING ADDRESS

by Dato' Mohd Mazlan Bin Jusoh
Director-General of Fisheries Malaysia

{Wednesday, November 26,1997}

It is my great pleasure to welcome you to the Pearl of the Orient for the seminar on “Smart Partnerships for Sustainability in the Fishing Industry”. This seminar is organised through a partnership between the Institute On Governance, Canada, the Department of Fisheries, Malaysia and the Bay of Bengal Programme.

The objectives of the seminar are to understand the global changes in the regulatory process in the fishing sector; to learn about the innovative approach to self-regulation which has been implemented in other countries; to understand factors contributing to the successes and failures of self-regulation in different social, economic and political contexts; to explore how participants might enhance the effectiveness of their own regulatory process through enhanced private-public sector partnership.

Around the world, people depend on fish for their livelihood. Most of them, being villagers feeding their families on their daily catch, are struggling with the problem of dwindling catches. Scientists and government officials too are under pressure to ensure that the fish stocks are sustainable for their national needs.

The fisheries resource is depleting because of overfishing, over-capitalization and technological overkill, habitat degradation and pollution. This grim scenario is being re-enacted more and more often around the globe. The governance of the coastal environment is not only complex, it has become a matter of great concern to governments in recent years because of the lack of stakeholder consultation in enforcing management policies. Without definitive support and the participation of stakeholders in a smart partnership, management programmes are doomed to fail. It is therefore imperative that the stakeholder approach to management be seriously considered. Resource users in partnership with government officials and other stakeholders should be involved in active participation to work out strategies and programmes for the management of fisheries resources.

In fisheries management, everyone in the entire market chain is a stakeholder and has a role in the management process. Each and every stakeholder can exert himself and make an impact on fisheries management. Thus in smart partnership management, a special effort is made to listen to, learn from and take into account local practices and knowledge including their respective beliefs and value systems. Achieving the objectives of smart partnership for fisheries management will mean going through various steps, methods and procedures. A well-managed fishery is the only answer to sustainability. What we are aiming at is to make other users and stakeholders aware of their responsibility and to be more involved in taking care of the fisheries resource for their own long-term well-being.

Sound management programmes for sustainable development and utilization of these resources are needed. The exchange of experiences and of procedures for fisheries management among the countries in the region are timely and necessary so that we may learn from the experiences of our friends elsewhere. I believe that this seminar will promote further co-operation and coordination among countries to establish efficient smart partnerships. I should therefore like to suggest that you take full advantage of the discussion

that follows the presentations of our distinguished speakers. They have a lot of experience in these areas. You will also learn from the efforts that have been made by the various countries in the region to solve the problems that beset their fishing communities and industries. You will gain an overview of the region as a whole and you will be able to compare the difficulties of others with those of your own countries. We have the opportunity to open our minds to explore new ideas. Let us now use this short period of time to listen, learn and digest what is happening, what has been tried and what is new to us. I believe that within the next few days we can come up with a set of recommendations as a foundation for further deliberations.

I should like to thank all of the distinguished resource persons, organisations and nations for giving your valuable time to attend this seminar. I hope that you will have a very pleasant stay in Penang which is one of our most attractive cities. I now take great pleasure in announcing this seminar open.

Thank you, I wish you every success in your deliberations.

5. LIST OF PARTICIPANTS

Organisers

FAO/Bay of Bengal Programme (BOBP)

Dr Kee-Chai CHONG
 Programme Coordinator
 9 1 St Mary's Road
 Abhirampuram,
 Madras 6000 18, India
 Ph: 9 1 44 4936294
 Fax 91 44 4936000/6102
 e-mail: bobpkcc@md2.vsnl.net.in

Institute On Governance (IOG), Canada

MS Kathleen Lauder
 Director
 2A Jalan 3166 Section 3
 Petaling Jaya, Selangor Darul Ehsan
 Malaysia
 Ph: 603-795-7979
 Fax 603-795-75 10
 e-mail: klauder@iog.po.my

Dr Tony Tsou
 2A Jalan 3/66 Section 3
 Petaling Jaya, Selangor Darul Ehsan
 Malaysia
 Ph: 603-795-7979
 Fax 603-795-75 10
 e-mail: klauder@iog.po.my

MS Karin Borzel
 Junior Program Officer
 2A Jalan 3/66 Section 3
 Pending Jaya, Selangor Darul Ehsan
 Malaysia
 Ph: 603-795-7979
 Fax 603-795-7510
 e-mail: klauder@iog.po.my

Advisor

Mr. Tan Cheng Kiat
 120 Jalan Terasek Dua
 Bangsar Baru
 59 100 Kuala Lumpur, Malaysia
 Ph: 603 2834905
 e-mail: cktan@dof.moa.my

Supported by

Department of Fisheries, Malaysia

Mr. Ibrahim Saleh
 Director
 Fisheries Research Institute
 I 1960 Batu Muang
 Pulau Penang,
 Malaysia
 Ph: 604 626392516
 Fax 604 62622 10
 e-mail: ppi01@dof.moa.my

Maritime Institute of Malaysia

Mr. Mohd Nizam Basiron
 Senior Analyst
 16th Floor, Wisma Sime Darby
 Jalan Raja Laut
 50350 Kuala Lumpur
 Malaysia
 Ph: 603 29 12960
 Fax 603 293911713044
 e-mail: nizam@mima.gov.my

Mr Tan Kim Hooi
 Researcher, MIMA
 16th floor, Wisma Sime Darby
 Jalan Raja Laut, 50350 Kuala Lumpur
 Malaysia.
 Ph: 6032912960
 Fax 603 2939 117/3044
 E-mail: khtan@mima.gov.my

Country Presenters

BANGLADESH

Mr. Md Serajuddin
 Assistant Director
 Marine Fisheries Office
 Department of Fisheries
 C G O Building No I, Agrabad,
 Chittagong,
 Bangladesh.
 Ph: 03 1 7209 181723850

INDIA

Mr. G D Chandrapal
Deputy Commissioner
Ministry of Fisheries
Krishi Bhavan
New Delhi, India

INDONESIA

Dr Victor Nikijuluw
PT. Usha Mina
JI Salemba Raya 16
Jakarta, Indonesia
Ph: 61 021 331530

MALAYSIA

Dr Kamaruzaman Haji Salim
Fisheries Officer
Department of Fisheries, Malaysia
8th & 9th Floor Wisma Tani
Jalan Sultan Salahuddin
50628 Kuala Lumpur
Ph: 603 4403576
Fax 603 2910305
e-mail: kamsa101@dof.moa.my

MALDIVES

Jadullah Jameel
Director-General
Ministry of Fisheries & Agriculture
Government of Maldives, Male

PHILIPPINES

Dr Annadel Cabanban
Borneo Marine Research Unit
Universiti Malaysia Sabah
9th Floor, Gaya Centre
Jalan Tun Fuad Kinabalu
Sabah, Malaysia
Ph: 088 464133
Fax 088493991
e-mail: annadelc@ums.edu.my

SRI LANKA

Mr. M T K Nagodavithana
Director, Department of Fisheries and

Aquatic Resources
Maligawatte Secretariat, Colombo 10
Sri Lanka
Ph. & Fax: 449170

THAILAND

Mr. Jate Pimoljinda
Director
Andaman Sea Fisheries Development
Centre
77 Sakdidej Road
Phuket, Thailand 83000
Ph: 66 76 391140
Fax 6676391139
e-mail: jpfafdec@sun.phuket.ksc.co.th

Plenary Presenters**AUSTRALIA**

Mr. Pat Appleton
Queensland Fisheries Management Authority
Level 6,40 Tank Street
P O Box 344 Fortitude Valley
Brisbane, Queensland
Australia 400 6
Ph: 0011 60 07 3225 1839
Fax 0011 60073225 1823
e-mail: appletp@qfish.cbd.dpi.qld.gov.au

Mr. Peter Finglas
Industry Manager (North Queensland)
Fisheries Resource Management
Northern Fisheries Centre
P O Box 5396
Cairns, Queensland 4870
Ph: 0740529812
Fax: 0740351 401
e-mail: finglas@dpi.qld.gov.au

CANADA

Mr. Richard Cashin
Fishing Industry Renewal Board
Sire Humphrey Gilbert Building
P O Box 1267, Postal Station C
St Johns, Newfoundland

A1 C 5M9 Canada
Ph: 709 7723263
Fax7097723316

DENMARK

MS Sevaly Sen
Institute for Fisheries Management
and Coastal Community Development
The North Sea Centre
P 0 Box 104
DK-985 1 Hirtshals, Denmark
Ph: 45 98 942 855
Fax4598944833
e-mail: s.sen@qmw.ac.uk

JAPAN

Dr. Masamichi Hotta
Tetra Co. Ltd.
Shinjuku-Land Wing 6-3-1
Nishishinjuku, Shinjuku - Ku
Tokyo, Japan
Ph : 81 3 3342 0159
Fax: 81 3 3342 0245

Country Participants

BANGLADESH

Prof. Quazi Saif Rahman
Secretary General
Mechanised Boat Association
Pathat Ghat, Chittagong
Bangladesh

DENMARK

Mr. Joe Ryan
Senior Environmental Advisor
Carl Bro International
Granskoven 8
Glostrup, Denmark
Ph: 45 43 48 64 33
Fax4543486742
e-mail:jxrcbi@carlbro.dk

INDIA

Mr. Radhakant Tripathy
Secretary
Fisheries Department
Writers Building
Calcutta 700 00 I, India

INDONESIA

Mr. Thamrin Wahidin
Co-operative Manager of KUD, Malifut
Koperasi, Unit Desa Malifut
Jl Adam Malik Malifut Kec. Makian
Kabupaten Maluku Utara, Indonesia
Ph: (0921) 21201
Fax (092 1) 25226

MALAYSIA

Mr. Abdul Hamid b Yassim
Fisheries Officer
Department of Fisheries, Malaysia
8th & 9th Floor, Wisma Tani
Jalan Sultan Salahuddin
50628 Kuala Lumpur, Malaysia
Ph: 603 4403576
Fax 603 2910305

Mr. Ahmad Nadzri Mohd. Hassan
Assistant Secretary
Commodity Development Division
Ministry of Agriculture
Jalan Sultan Salahuddin
50628 Kuala Lumpur, Malaysia
Ph: 603 29820 11
Fax 603 2944008
e-mail: pk20@smtm.moa.my

Mr. Aziz b. Ujang
Assistant Economic Affairs Officer
Fisheries Development Authority of Malaysia
7th Floor, Wisma PKNS
Jalan Raja Laut
5078 Kuala Lumpur
Malaysia
Ph: 603 2924044
Fax6032911931

Mr. A Rahman b Mohd
 State Fisheries Director
 Department of Fisheries, Malaysia
 Wisma Perikanan, Chenderias
 21080 Kuala Terengganu
 Terengganu, Malaysia
 Ph: 609 6173353
 Fax6096173351

Mr. Baharin b. Omar
 Assistant Economic Affairs Officer
 Fisheries Development Authority of
 Malaysia
 7th Floor Wisma PKNS
 Jalan Raja Laut
 50784 Kuala Lumpur, Malaysia
 Ph: 603 2924044
 Fax6032911931

Mr. Chin Tuck Seng
 Assistant Secretary
 Commodity Development Division
 Ministry of Agriculture
 Jalan Sultan Salahuddin
 50624 Kuala Lumpur
 Malaysia
 Ph: 603 29820 11
 Fax6032944008

Mr. Ismail Abu Hassan
 State Fisheries Director
 Department of Fisheries Malaysia
 Pejabat Perikanan Kedah
 Level 5, Wisma Perseliatuan
 Jalan Kampung Ban
 Alor Setar, Kedah, Malaysia
 Ph: 604 7342 135
 Fax6047304623

Mr. Izharuddin Ariffn
 Assistant Fisheries Officer
 Department of Fisheries, Penang
 Jalan Akuarium
 11700 Gelugor

Pulau Penang, Malaysia
 Ph: 604 6572777
 Fax 604 6572323

Mr. Mohd Zaidi b Zakaria
 Universiti Putra Malaysia Terengganu
 Fakulti Sains Gunaan dan Teknologi
 2 11030 Kuala Terengganu
 Terengganu, Malaysia
 Ph: 609 6696411
 Fax 609 6694660
 e-mail: zaidi@upmt.edu.my

Mr. Mohd Norddin b. Yakob
 Fisheries Officer
 Department of Fisheries, Malaysia
 Jalan Akuarium
 1 1700 Gelugor
 Pulau Penang, Malaysia
 Ph: 604 6572777
 Fax6046572323

THAILAND

Mr. Tanu Nabnien
 Field Coordinator
 Wildlife Fund of Thailand
 4 Moo 1 Tumbol Ko Kaew
 Amphor Muang
 Phuket, Thailand 83000
 Ph: 66 76 39 1776
 Fax6676391776

Mr. Edward G Tupacz (Jerry)
 Wetlands Project Coordinator
 Wildlife Fund Thailand
 25 1/88-90 Phaholyothin Road
 Bangkhen
 Bangkok, Thailand 10220
 Ph: 66 2 5213435
 Fax6625526083
 e-mail: pisit@mozart.inet.co.th
 or wildlife@mozart.inet.co.th

6. KEYNOTE ADDRESS

INTERNATIONAL EXPERIENCES IN COMMUNITY-BASED FISHERIES MANAGEMENT - SUCCESSES AND PITFALLS

by Masamichi Hotta

Management of small-scale fisheries has become very critical during the past decade, and poses an extraordinary challenge both for local communities and governments. Unlike large-scale fisheries, small-scale fisheries at the national level is difficult to manage. Reasons:

- Limiting the effort of small-scale fishermen means lower incomes and fewer job opportunities for them.
- Doing away with the practice of free and open access to fishery resources, and imposing management curbs, often leads to serious economic and social problems for fishing communities. But if the open-access condition remains untouched, resources get depleted, economic returns fall, and community stability is endangered.

An FAO-Japan expert consultation on fisheries management was held in Kobe in 1992. It emphasised the need for bottom-up rather than top-down approaches to manage small-scale fisheries. Since then, numerous studies have been undertaken. There is now widespread acceptance of the concept that sharing of authority between a government and a community is important for effective fishery resource management. This concept is known as community-based fishery management or CBFM. Interest in decentralised management systems is now growing in Malaysia, Philippines, Sri Lanka, Thailand, Indonesia and Viet Nam.

The basic principles of CBFM are participation of fishermen in (a) planning and decision-making on measures to be taken; and (b) implementation, control, surveillance and evaluation of management activities.

Why CBFM? When fishermen themselves help design management, a high rate of compliance can be expected. There will be no need for external enforcement of regulations; consequently, the enforcement will be both effective and cost-effective. Further, in a close-knit fishing community, social sanctions are far more effective than legal sanctions.

Key factors in the design of CBFM are — devolution of management authority to the community; establishment of territorial boundaries; and incentives and motivations to fishermen to set up local management systems.

Devolution of management authority to the community: Adequate village-level fishermen's organizations are needed for the purpose. But governments are often handicapped by the dearth of such organisations. Even where such organisations do exist, they cannot immediately assume CBFM responsibilities in the absence of any experience or expertise in CBFM. Acquiring it is a gradual process. Fostering viable community-level organisations is the first step to CBFM.

The community-level organisations entrusted with fisheries management responsibility should be economically and socially viable. Else, fishermen will not trust the organisation. In fact, such organisations

should win fishermen's trust in their competence and capacity even before they get involved with resource management.

When fisheries management authority is delegated to fishermen, care should be taken to ensure a fairly equitable sharing and distribution of benefits among fishermen. "Fishing by rotation" is one way this objective can be achieved — fishing spots are rotated among fishermen so that all of them get to fish in the most fertile areas. A "pooling system" that distributes all fishing earnings in an area equally among fishermen of that area is another method. This is practised in Japan. In Sri Lanka, fishermen return some of their earned money to the community by donating cash or a social facility for the community.

Whether the local community can manage the fishery resource depends partly on government support. Some fishery administrators may be reluctant to relinquish authority and power.

CBFM should be integrated into the national legal framework, because community-based organisations need legal recognition for their decisions to be enforceable. They can regulate the behaviour of local fishermen through informal community sanctions, but they have no control over fishermen from other communities. If they are given legal authority, they will be able to enforce regulations on fishermen outside the community.

Establishment of territorial boundaries in the area adjacent to the community is a basic element of CBFM. This is done, for example, in the traditional fisheries systems of Japan the Philippines, Indonesia, Sri Lanka, Papua New Guinea, Solomon, Fiji etc.

The merit of demarcating waters for the exclusive use of fishermen is that it gives fishermen incentives to establish self-regulating systems -they own a wealth-producing property. Compliance is built on trust. Control over resources by fishermen would make a management regime feasible -they will be motivated to preserve their resource.

Incentives to fisherman to establish local management systems: Such incentives could be created through collective action in fishing and fish marketing. Development of co-operative marketing would be one such incentive. It would strengthen the bargaining power of fishermen. Co-operative marketing can be combined with management. For example, the local management authority can instruct fishermen on whether fishing should be carried out on that day, after studying market trends for fish. If prices are unfavourable, fishing trips would be cancelled.

In Japan, coastal fisheries resources are managed by some 1,200 fisheries co-operatives throughout the country. Each co-operative has its own by-laws within the framework of national fishery laws and fisheries co-operative laws. This legal system empowers co-operatives to exercise a fishery right or some kind of property right over resources within their jurisdiction. Access to territorial boundaries is limited to members of co-operatives. The co-operatives establish regulations concerning boats, gear, season, area, mesh size, marketing of fish etc.

Could the legal framework for decentralised fisheries management practised in Japan be a model for other countries? Thorough studies are needed to determine the answer. Very careful adaptation to local conditions would be necessary if Japan is indeed taken up as a model.

Fisheries research institutes in Japan play a very constructive role in fisheries management by alerting fishermen about the state of resources. Smaller-sized fish, falling fish prices, lower incomes from fishing, greater fishing competition -all these are warning signals. Fishermen then take up management measures

themselves. In the past, fisheries management was taken up only during a crisis. Nowadays, fishermen are more careful, thanks to support from research institutes.

Coastal fisheries in Japan is classified into three types from the management standpoint-reef fisheries, mobile-species capture fisheries and aquaculture.

Management methods for the three differ, and are classified into five by objectives:

Discipline and order in fishing grounds: Management is designed to prevent a mad rush to fertile fishing spots such as artificial reefs. "Fishing by rotation" regulates the type of gear used, the fishing periods and hours, the position of the gear to be set.

- *Management of fishing grounds:* The carrying capacity of a fishing ground is limited. If you introduce more fishing boats, the total output will remain the same, while individual catches will decrease. Therefore the optimum number of fishing vessels is determined, and surplus vessels are transferred to other areas to improve cost-effectiveness.
- *Fish price stabilization:* Fish prices are stabilised by a policy of quotas and effort control. Two days of fishing followed by a non-fishing day is an example.

Resource conservation: The use of larger mesh size has not merely helped conserve fish stocks, it has also improved returns by increasing the size of fish and raising the price of fish.

- *Enhancement of fish stocks:* Fish farming and the setting up of artificial reefs can help enhance fish stocks.

The common objective of these measures is to maximize economic returns under a sustainable fishery environment.

In sum, fisheries co-operatives in Japan play a vital role in CBFM. Their characteristics:

- . All members of the co-operative assign sale of fish to the co-operative. This enables the co-op to understand and assess production trends and the status of management effort.
- . Successful co-ops have a committee to ensure smooth coordination among fishermen on management measures. Such committees have helped mediate and monitor views among fishermen and establish a consensus on management action.
- . Without exception, successful co-ops comprise an active study group of young fishermen who help generate new ideas. Practices such as the "pooling system" for catches and "rotation in fishing", now widely prevalent in Japan, were set up by such study groups with the help of fisheries research stations.

A law concerning conservation and management of marine aquatic resources, commonly known as the law of the TAC, came into effect in 1997. Sardine, jack mackerel, mackerel, saury, Alaska pollack and crab are the fish species to which TAC is applied. Continuing efforts will be made to integrate TAC systems into existing fisheries legislation and management mechanisms. The law of the TAC obliges fishermen to report their catches.

Issues to be taken up in future will include (a) application of TAC to Chinese and Korean vessels that operate in the waters around Japan. (b) establishment of a single management authority (c) setting up early catch reporting systems and (d) withdrawal of vessels.

7. SUSTAINABILITY OF FISHERIES: GLOBAL CHALLENGES FOR THE FUTURE

by Kee-Chai CHONG

Background

Today, we find ourselves in a race against time

Judith Kildow. 1997

One of the world's most crucial challenges today is how to find the resources to feed its people. The world population is projected to grow to 8 billion by 2020 A.D. and 9 billion by 2030 A.D. -up from the present 5 billion (UNCED 1992). **By 2000 A.D.**, 60 of the world's 80 most populated cities – with populations above four million people each — will be located in developing countries. By 2020 A.D., developing countries will account for 7 of the 8 billion people on this earth; most of them will live in cities (CIRAD 1994).

In contrast to rural areas, which are predominantly centres of production, urban areas are mainly centres of consumption. As rural areas empty out through rural-urban out-migration, who will produce food for the teeming millions in overcrowded cities? The growing shortage of labour in Malaysian fisheries is temporarily overcome by importing fisherfolk from neighbouring Thailand. Can Malaysia reverse this out-migration?

How can we cope with ever-rising demand for fish when the fisheries resources are rapidly shrinking? Markets absorb any seafood that is landed – it is highly exportable. Many developed countries obtain seafood from developing countries, depriving local people, especially the poor, of the animal protein they need for their daily diet.

With people living longer than before, populations soaring and incomes rising, consumption can only go up. Production has dropped below earlier consumption levels, especially in the coastal communities of developing countries such as Bangladesh, India, Philippines and Indonesia. Long used to a relatively secure livelihood from the sea, these communities now find their source of sustenance being threatened. Over-population, over-fishing, fisheries habitat degradation and an over-active seafood export drive are some of the causes for the shortage of fish and the plight of fisherfolk.

The poor today live in a degraded environment whose eco-systems are over-stressed. This is especially true in South Asia, where half of the region's one billion people live below the poverty threshold of US\$250. In this region, as elsewhere in Asia, fish is the main source of animal protein in the people's diet.

The sea is exhaustible, even if many of its resources are self-renewing. As population grows, pressures on the use of coastal resources intensify. Any human use of natural resources impinges on their natural states, which are altered forever. The resource stock gets degraded and depleted, flow of goods and services gets thin. Further, the sheer numbers of people exacerbate such degradation and depletion. If man leaves the sea alone, the sea may be left to its own devices. When man uses it, the sea cannot be left to look after itself. Management is called for to moderate undesirable human impact and regulate its use.

Resource use can be both productive and consumptive. Productive use of resources means that the resource stock can be used over and over again. Consumptive use of resources kills the possibility of re-use. Fisheries, like other natural resources such as water, are being subjected to mindless and consumptive use.

The goods and services produced from fisheries, such as petroleum/gas deposits, and water, are given an economic value at the market place, a price. But this system of pricing is flawed. The market prices do not reflect the products' real value. These prices do not take into consideration the scarcity of the products, their resource and "environmental value".

There is a definite need to change our present system of national accounting. The costs of goods and services of the natural resources and environment should be so computed as to accurately reflect their real value. It is only recently that awareness about the importance of such a system has been aroused.

Our present environmental woes are a direct result of this accounting flaw. The earlier we correct the system of national accounting, the better. Once this is done, the market values of these resources will go up. Consumption will go down as moderation takes over and unnecessary waste is reduced.

Fish in the marketplace are under-priced. Mother Nature has been bearing a large part of the costs. It should no longer do so. Irresponsible consumption and production should not be subsidised.

Fish, in particular high-value preferred species, are getting more and more scarce. Prices are spiraling day by day, even for species which were once shunned (ask any Malaysian homemaker), and fishing grounds and coastal habitats are being destroyed. The lowly ikan kembong or mackerel (*Rastrelliger* sp.) sells for RM 12-15/kg or about US\$4-5/kg.

Blind faith in technology

Continuing advances in science and technology are supposed to improve the quality of life and welfare of the people by increasing output, cutting cost and minimising the drudgery of manual labour. However, in fisheries the pursuit of technical and economic efficiencies in production has accelerated the depletion and destruction of fisheries resources. In fact, technological excess should rank third, after over-population and over-consumption, as a major cause of resource depletion and environmental degradation.

Everyone is aware of the power of technology (particularly the greedy and indiscriminate use of technology in fisheries-capture and culture) to extract the highest returns in the shortest time possible. The "carrying capacity" of the human species has suffered steady erosion. Technological excess in fisheries and aquaculture reflects this erosion. Result: the carrying capacity of fisheries, of natural resource systems and the environment, has been exceeded.

Governments of fishing nations must desist from adding to the present excess capacity in the industry, both in fishing and seafood processing. They should instead go all out to reduce capacity- by attracting capital away from fishing, by finding alternative employment for fisherfolk, and curbing the fresh entry of fishing boats and fisherfolk as well. This should also be done for seafood processing capacity. In this context, the industry can help the government by not pressurizing the government to attract additional investments to boost fishing and processing capacity. The urgent task is to reduce existing capacity.

Excess capacity in fisheries has many causes. A major cause is the lack of ownership or well-defined property rights concerning the resource. Fisheries is largely perceived as a public or collective good,

available to one and all. The open-access nature of the fisheries does not give fisherfolk any incentive to manage and conserve the fisheries. Another cause is the dearth of alternative income-generating opportunities in rural areas, especially remote coastal areas. Fishing is consequently the employment of last resort for many rural inhabitants. The insatiable demand for seafood is another cause of excess capacity.

So technology continues to be used to exceed the carrying capacity of the fishery resource. The users of the technology seek to maximise output to pay for the high capital investment cost of the technology.

Technology is supposed to be neutral in its application. But the application of technological advances in fisheries has never been questioned. Every advance that comes to the market is blindly accepted and indiscriminately used to increase output without regard to environmental and social costs. These are invariably inflicted on the resources and habitats, and the people, especially those least able to shoulder the costs. The human species must learn to establish a new relationship with Mother Nature.

The first step in managing stressed and over-fished stocks is to reduce effort. The next challenge is to control and reduce fishing power in overall fishing effort. Is a cap on technological advances in fishing needed? Attempts have been made since the dawn of fishing to keep increasing the power of technology in fishing. These range from non-motorised to motorised fishing boats, from simple hook and line to large encircling or sweeping nets, from dependence on the master fisherman's skill and experience in locating fish to advanced electronic devices such as fish finding sonar or echo-sounder, etc.

Conventional textbooks on fisheries management have seldom been questioned. Likewise, hardly any person questions the so-called traditional systems of community-based management of fisheries. There is no denying that community involvement and participation are needed. But resource management cannot be completely participatory. Government ought to be active, to enable and facilitate community actions. Governments are expected to step in when those empowered are not able to resolve their problems among themselves. Law and order are still a vital government function and responsibility.

Interdependence and smart partnership

As the world gets crowded and living space gets more and more scarce, inter-dependence becomes more and more crucial. Isolation isn't possible any more. The fisheries and coastal resources planner and manager ought to recognise this fact. Inter-dependence should be used to forge smart partnerships. New forms of partnership, and new forms of people participation, are also needed.

There is a lot to be gained from co-operation, much to be lost from non-co-operation. In developing a management plan, the government as the key stakeholder must consult and involve all possible stakeholders, especially in working out necessary management processes. This will ensure stakeholder input into the process, and prevent later recrimination by those left out or not represented. By forging alliances and partnerships among all stakeholders, all the interests and stakes are brought together into a forum for open discussion on what is at stake for all, not a particular stakeholder group or vested interest.

Global partnership forged at the 1992 Rio Earth Summit is being translated at the grassroot level. A new beginning in governance by the people through shared responsibility and strategic partnership among all stakeholders holds the key to sustainability of the fishing industry.

But the building of wide-ranging partnerships at all levels of society among different stakeholders is a time-consuming process, as it calls for a division of responsibilities among various stakeholders. This is not an easy task, as the Rio Summit experience has shown so far. Even when a consensus is arrived at, like the one proudly proclaimed at Rio, it does not amount to anything tangible if there is no commitment or political will to implement what had been agreed to.

Developed countries must play a more active role not only in technology transfer and human resources development, but also in fostering smart partnership with developing countries in global resource management and in mitigating transboundary problems affecting the global environment. Partnerships between developed Europe, North America and Australasia on the one hand, and developing Asia, Africa and Latin America on the other, are called for to work out solutions to feed and clothe the world.

Stakeholder fisheries management

There are so many demands on fisheries and coastal resources in the coastal zone, making their management so complex, that without the government intervening as arbitrator, there would be civil strife and chaos. In stakeholder consultation and analysis, the government can actively encourage stakeholders to voice their concerns, state their expectations and demand their dues. It is then easy to dispel erroneous perceptions or clarify matters one by one. This done, a common basis can then be built up for a consensus on what is at stake for all concerned. When a consensus is not possible, negotiation can be attempted. When all else fails, the government should step in.

The next challenge is how to make sense of fisheries management and operationalise the process of management. Managing declining or over-fished or depleted fisheries stocks is complex because of the conflicting need to balance production and conservation. Any management reform in fisheries has to be location-specific and adapt to the circumstances at that location. Management must satisfy the community's needs.

A 1984 survey of fishing in Asia undertaken by the Far Eastern Economic Review observed that "most fishing communities in Asia live on the brink of starvation", It went on to state that "they are largely ignored by their governments or are given low priority in national development plans". Even today, many of them earn very low incomes. There has been little advance in their living standards.

It is neither easy nor fair to ask hungry people to restrain consumption. In land-scarce Asia, production effort has inevitably been directed at intensification -- not only on land but in water too. Fisherfolk without access to land have relied on coastal waters for their sustenance.

Empowerment is one of today's buzzwords. It means decentralisation of government authority to facilitate the vigorous participation of the people — the stakeholders — in activities that concern them. Empowerment can work only if the people are enthusiastic about accepting the responsibility delegated to them. Are the coastal and rural citizenry willing to assume the new responsibility?

Self-governance is fast spreading – as a catchword. Everyone pays lip-service to it. While the government's primacy in matters of state cannot be questioned, its role in natural resource management is increasingly being questioned because of bureaucratic inefficiencies. There have been many failures in resource management, especially in fisheries.

Building local capacity in natural resource management by equipping local communities with the skills and tools to manage the resources in their backyards, is an approach which should be stepped up.

Wherever such local capacity already exists, the communities should be empowered to manage the resources. Self-governance or community-based management does not bypass the role of government but supplements it. Positive socio-cultural attitudes and practices concerning fisheries management should be promoted to strengthen self-governance.

Self-governance does not mean doing away with conventional methods of fisheries management. On the contrary, self-governance does rely on conventional methods and techniques of management but the community of stakeholders plays a bigger role in management than in conventional management. Self-governance could be regarded as an exercise in responsible and responsive individual and collective behaviour in production and consumption. It is stakeholders who determine resource use and management.

Consumer power and consumer choice

Choice is a powerful concept in economics. The judicious exercise of choice in the marketplace can send powerful signals to producers and market intermediaries, as well as to stakeholders. Consumers can help shape the future direction of commerce, trade and industry. If the global environment is deteriorating and the resource base shrinking, it is partly because consumers aren't exercising their power to influence the character of industry. The Earth Island Institute has mounted a public campaign, calling on all consumers to buy only 'Earth Island Certified Turtle-Safe™ Shrimp'. Reason: They found that "over 150,000 sea turtles die in shrimp nets every year". If consumers decide to buy only those shrimp that are caught with turtle-saving nets, they will help protect the turtles. Another example on these lines is dolphin-safe tuna certification.

In southern India, a large fish buyer who controls about 70-80% of the fish supply market, surprised a BOBP-supported stakeholder consultation recently. He said he would gladly co-operate with fisheries officials by not buying endangered species of fish. He added that if he does not buy the fish, fisherfolk will have no reason to catch them. Fisheries management awareness is evidently catching on, even among big players in the market.

Ecolabelling

The practice of ecolabelling – whereby an authorized or respected agency inspects products from an environmental standpoint and allows the products to carry a label indicating the the agency's approval – is spreading in the west. Ecolabelling works when fish and other seafood are marketed through an institutionalised distribution and marketing system. In many developing countries, however, fish is sold and distributed by small vendors. The marketing system is traditional, and involves many sellers. Ecolabelling is not expected to catch on in developing countries for some time.

In contrast, an institutionalised marketing system exists in developed countries. In the United Kingdom, supermarkets account for around 60 % of fresh fish and 80 % of frozen fish sales (O'Riordan 1997). He says that these stores, conscious of their public image and their market shares, would welcome the ecolabelling initiative even more than the consumers themselves. Ecolabelling can go a long way towards promoting responsible behaviour, not only by producers but also by consumers. The effect of the Marine Stewardship Council created in 1996 is another example.

Sustainable production can be assured when the production is responsible, consumer-oriented and driven by the pocket of the ultimate consumer.

Fisheries management by design

Fisherfolk must not view management as government interference. However, past government effort at management, being largely top-down in nature, has not been effective. Fisheries management is called for to help human use of resources. Without human use, there would be no need for human intervention. Management revolves around the effort to help the natural resource ecosystem and its environment to cope with increased use.

Fisheries management consists of activities to protect and enhance the habitat and the ecosystem, regulate the use of inputs in catching fish, and regulate the level of output to be landed. Management helps provide the conditions for sustainable production by 'manipulating' the resource habitat and environment. It frequently includes artificial means of resource enhancement. This is to ensure resource use sustainability, that is, the rate of harvest does not exceed the rate of resource regeneration.

Conventional management systems for fisheries have not worked out as expected, because the fisherfolk were drawn into a management system alien to them and imposed on them without their full consent. Governments in many countries are now beginning to mobilise the population in the local community as partners in fisheries management. There are also other systemic weaknesses in fisheries management systems today, which ought to be remedied.

A flexible mix of management approaches, strategies and methods has been found to be more successful than a rigid set of approaches. This is because a rigid system does not provide solutions when the system does not work as planned. The fishing community must be given other options when those tried out earlier did not work out.

Further, fisheries management legislation today does not provide for fisherfolk and other coastal stakeholders to be heard, let alone represented, in management councils when they discuss management measures. This is especially true in many developing countries, where such legislation was formulated when management was still in its infancy and administrative control was concentrated in the hands of the government.

To ensure the success of this new management partnership, governments must re-examine the beliefs, values, perceptions and attitudes of the people towards such a partnership. This is because changes are usually slow to establish and take root. Smart partnering calls for an imaginative combination of different stakes among divergent groups of stakeholders. Their needs should be met through consensus-building and negotiated settlement.

What smart partnership in management does is to customise the fisheries management in the local area according to the conditions, needs and circumstances prevailing in the area. The interests and needs of the local community come first.

Resource management is location-specific and therefore calls for site-specific intervention. But more than this, it has to be flexible. When it is rigidly implemented, the local community has found it difficult to adapt and adjust to new suggestions on fishing practices and other behavioural requirements. They also need flexibility to adjust to changes in stocks, sea and other maritime conditions.

So far, management of fisheries and other coastal resources had applied broad universal tools of management without any adaptation to local conditions. Local managers are better equipped to deal with local management problems.

However, it is being noticed more and more in recent years that fisherfolk who have historically fished in a certain fisheries ground are now keeping other fisherfolk out of their traditional fishing ground. This is in spite of the fact that the latter (who were kept out) have also been fishing for a long time albeit in a different ground or fisheries. Today, fishing encroachment is being handled quite differently than in the recent past. Fisherfolk today are more radical and assertive about their rights than before. One group of fisherfolk is able to keep another group out, even though the latter has theoretical open access; this is because fisherfolk of the same type 'bond' together.

This is partly a result of the government's earlier initiative in demarcating different fishing zones for different types of fisherfolk. The government should capitalise on this development. It should take fisheries management even further through participatory community-based management.

Making a Beginning and Starting Small

Fisherfolk must begin to assume responsibility in fisheries management and not leave such responsibility solely in the hands of the government. Recent experiences from Malaysia and Thailand -not to mention Japan, where there is a long tradition of fisherfolk-centred management — are instructive. In both Malaysia and Thailand where a variety of fisheries management measures has been implemented and enforced, the managed fisheries shows positive and strong signs of not only responding to management but actually recovering. Wherever the fisheries resources and their habitats and ecosystems are protected, stocks have recovered.

More recently, Malaysian anchovy fishers have reported that they can now fish for anchovy year round, instead of for just 3-4 months as in earlier years. This is a direct result of the setting up of a fish sanctuary and marine park around Pulau Payar, near Kuala Kedah in the state of Kedah. As the stock biomass begins to increase within the sanctuary, more and bigger fish swim out to join the fisheries outside the 2 nautical mile boundary of the protected area. Thus, the protection provided by the sanctuary not only benefits the fisheries but also the fishers. Not only are their catches increasing but also their incomes, because of the larger sizes of fish. (It would be interesting to recall that fisherfolk around Pulau Payar had misgivings when the latter chain of four islands was declared as marine park/fish sanctuary back in 1989.)

Anchovy fisherfolk off another island, Pangkor, have similarly requested the Department of Fisheries, Malaysia, to establish Pangkor as a fish sanctuary.

In Thailand, fisherfolk in Phang-Nga Bay are encouraged to deposit any gravid female crabs into special community spawning cages. Once the crabs have spawned, the fisherfolk are allowed to remove the spent crabs for sale. Proceeds from the sale boost community chest for community welfare programmes. Likewise, small-scale fisherfolk in the Bay have been successful in keeping out fish trawlers from the 3000 m nearshore waters which have been allocated to them. With the help of the Royal Thai Department of Fisheries patrol boats, these fisherfolk have used their own boats to police the waters quite effectively. Similar experiences are now reported from the southern coasts of India, around Kerala and Tamil Nadu.

The installation, deployment and use of artificial reefs, and to an extent of durable fish aggregating devices, have shown that when these are administered for fisheries management and not as a fishing gear or tool, they can promote stock recovery. Artificial reefs can be of two or more types — those for which some controlled or regulated fishing is allowed and those that are closed to fishing. Once a convention has been established, rotational fishing among the fisherfolk can be introduced. In Phang-

Nga Bay, Thailand, fisherfolk fishing for 3-4 hours a night using hook and line from an artificial reef deployed within the 3,000 m zone, can net a profit of at least 500 Baht.

The lesson from these experiences is that it is imperative to make a quick start first and demonstrate to fisherfolk what management can achieve. Once the local community can see the results for themselves, they do not need to be convinced. Taking an idea from the drawing board and planting it firmly on the ground is the best way to get started. There is also no need to start in a big way. Once fisherfolk's trust and confidence in the approaches, methods and benefits of management is won, there is no turning back. Management can be strengthened without need for further intervention by the government.

Polunin and Roberts (1993) reported that the standing stock of fisheries resources in the Saba Marine Park and Hol Chan Marine Reserve grew over a period of only four years. In fact, in Saba, fish populations have continued to increase, with further growth in standing stocks of between 60% and 320% between 1991 and 1993. Similarly, in Florida Keys, standing stocks of snappers and grunts increased by 93% and 439 % respectively over a 2-year period (Clark et al 1989 as reported in Roberts 1997) and have continued expanding since the Bohnsack et al study in 1992. Rapid increases have also been demonstrated in Philippines reserves (Alcala 1988, Russ 1991 again as reported in Roberts 1997). In sum, studies to date have shown very rapid response by fish populations to protection in sanctuaries, in as little as five years.

According to Roberts (1997), Dixon et al (1993) estimated that by protecting the rich marine resources of the island, the Bonaire Marine Park contributed US\$ 32 million annually to the island economy through tourist revenues from recreational divers.

When fish stocks are protected from fishing, and their habitats from damage, their biomass increase and expand. Such effects have been thoroughly documented throughout the world and are reviewed in detail elsewhere (Alcala 1988, PDT 1990, Roberts and Polunin 1991, 1993, Dugan and Davis 1993, Bohnsack in press as cited in Roberts 1997).

For example, Polunin and Roberts (1993) found that the standing stock of fishes was 1.9 times greater in the no-fishing zone of the Saba Marine Park in the Netherland Antilles due to larger and more numerous fishes. According to Roberts (1997), marine reserves benefit fishers in two ways, both of which depend on their boundaries 'leaking' from the protected to the non-protected zones. First, more and larger fishes produce many more eggs than exploited populations. The larvae of almost all marine fishes have a dispersal phase during which they drift in open water for a period of days to weeks before changing into juveniles or fish larvae, which will replenish populations in fishing grounds.

Second, juveniles and adults are expected to move across the boundaries of reserves. Higher population densities within reserves suggest that there will be net emigration into fishing grounds. Studies of the Sumilon Island marine reserve in the Philippines showed that catches in the unprotected part of the island rose on account of migration from the reserve (Alcala and Russ 1990 as reported in Roberts 1997). In Barbados, Rakitin (1994 as cited by Roberts 1997) found a gradient of decreasing abundance of fishes from the centre of the marine reserve outwards into unprotected areas, suggesting movement of fishes from reserves to fishing grounds. Roberts (1997) suggests that these movements would compensate for loss of fishing grounds within the reserve. The magnitude of compensation would increase as stocks build up.

Bringing Back “Old Values and Beliefs”

As we approach the next millennium, 21st century consumers will rule the marketplace through purchasing power generated by growing affluence. They will be able to influence the development, management and use of whatever natural resources remain. To influence resource allocation and use positively, they should imbibe humankind's time-tested values and beliefs. Modernisation and materialism have destroyed most traditional value systems concerning Mother Nature, individual responsibility and discipline, which used to encourage thrift and restraint, respect for authority, and consideration for fellow beings.

The idea of sustainable development and management of fisheries is currently widely promoted. It is not only overdue, but is critically needed today, more than at any other time in our civilization. The benefits from sustainable development and management are immense, given the rapidly deteriorating environment and the shrinking resources that plague humankind today.

The capacity of local communities to solve their own problems has to be built up urgently. Training in negotiation skills can prepare them to organise themselves to plan and manage their lives. In this respect, governments can help to evolve, promote and demonstrate principles, approaches and practical applications to participatory community-based resource management, especially in a site-specific context. Instilling appropriate values and attitudes towards nature and towards ownership of fisheries resources, fishing and fishing technology, management and sustainability is a first step to achieving sustainability of the fisheries.

What is at stake?

There should be no doubt about the magnitude of the challenges that lie ahead. The picture painted so far shows that the world's fisheries continues to be threatened, though understanding of problems has improved, also knowledge to overcome them. We not only need additional supplies of fish to feed a growing population, we need to moderate seafood consumption by the well-to-do. In some countries, the per capita consumption of fish already exceeds 30 kg/annum; but planners there, by sheer force of habit, project further increases in consumption!

Human beings are a thinking species, having been endowed with brains, but we are slow learners. We have knowingly indulged in consumption excesses. Awareness about the need for responsible behaviour is urgent. The public should be educated about the challenges identified, and enjoined to act individually for the collective good. For sustainability.

Reality checks

Can the world produce enough to ensure that every one of us has access to basic needs without usurping the integrity of the environment?

The fisheries production and supply system has not kept abreast of consumption. An adjustment it must make is to step up management to ensure that supply can meet responsible demand for fish. There is no dearth of legislation to guide conservation and sustainable management of resources. What is problematic is the implementation of such conventions. Political will is often lacking. Funds are a perennial problem. Enforcement capability is another constraint even when funds are not. But it is never too late to begin. In fact, a very good start has been made in many countries during the last decade or so.

Who will pay for management and conservation?

During the pre-colonial period, the responsibility of managing the fisheries rested with the tribal chief or village/community chief. Or the community council of elders. This system of management was jettisoned during colonial rule, when the colonial power took over ownership of all the natural resources. After independence, the same government-driven top-down system of management continued.

The costs of centralised management interventions in fisheries have largely been borne by the governments. But the centralised management system has not produced the expected impact. It has been neither effective nor cost-effective.

In Malaysia, an estimated 30% of the fisheries development budget goes toward enforcing fisheries management. The money spent on this “cat and mouse” system can be put to better use to directly benefit fisherfolk. To improve the road network, for example. To build community learning and earning centres in each fishing village, or better health care facilities.

The government is looking at alternative ways of financing fisheries management. It hopes that the money released from enforcement can be used to promote participatory fisheries management. Stakeholder consultation and analysis are presently under way in selected coastal areas to explore a community-based system of management – under which the community in co-operation with the Department of Fisheries regulates or polices the community. Setting up a community organization to manage local area fisheries is an exercise in social engineering, a process in which Malaysia has ample experience.

With the threat of loss of government support for management of fisheries and coastal resources, alternative funding mechanisms must be quickly be worked out. Funding uncertainties can be overcome by evolving self-financing mechanisms – such as collection of user fees and payment of a cess. Malaysia's experience in collecting a cess. for its rubber-replanting scheme is a useful precedent.

Conclusions

It is obvious that our present economic system promotes development rather than management and conservation. The culture of materialism prevails over the culture of management. The pursuit of material wealth and pleasure should be tempered by awareness building and public education, by trying to instil consideration and respect for others, even by arousing a sense of shame, and a sense of equity.

By inculcating a more caring attitude towards the environment, we can go a long way towards developing a culture of responsible behaviour in consumption and production. We should perhaps start with children.

The prices of goods and services marketed must reflect their environmental and resource scarcity. A serious effort must be made to evolve valuation techniques that take the environmental and resource costs into account. Marketing practices that reflect the “true” price should be developed.

The capacity for self-governance can be developed among citizens by first encouraging small management activities which the fisherfolk can identify with – such as release of fish seeds in open water (open water stock enhancement). Once they see the benefits, they need no further hand-holding. Putting them at the centre-stage of management would be the best way to bring about community management of fisheries.

References

01. Roberts, Callum 1997. Marine Reserves: A Brief Guide for Decision-Makers and Users, Bay of Bengal News Vol. II, No. 7, September 1997, Madras India.
02. CIRAD 1994. CIRAD News, *Centre de Cooperation Internationnelle en Recherche Agronomique pour le Development*, December 1994 France.
03. Kildow, J. 1997. The Roots and Context of the Coastal Zone Movement, 25th Anniversary Invited Paper. *Coastal Management*, Vol. 25 No. 3.

8. BUILDING LEGITIMACY FOR SMART PARTNERSHIPS: FISHERIES CO-MANAGEMENT AND LEGITIMACY ISSUES

by **Sevaly Sen**

*Institute of Fisheries Management and Coastal Community Development
North Sea Centre, Denmark*

Introduction

Fisheries in many parts of the world are under pressure or in a crisis. Many of the management problems in fisheries have been attributed to the remoteness of government from the people and the activities it wishes to regulate — a situation that has been described as the “moral distance” of government. This has five causes:

- . government often lacks-and fails to acquire — knowledge of the specificity of the fisheries to be managed;
- . government often applies or presupposes values that conflict with, or are insensitive to, those involved in the fishery;
- . management regulations that do not take into account local conditions, may seem crude, inflexible or inappropriate for these conditions;
- . government receptiveness to feedback about the consequences of the management regime may be limited, and
- . user or stakeholder participation in the management system may be weak

Co-management, a partnership between government and resource users, is being put forward as a system that may help close this moral distance of government. It is supposed to do so through greater participation of resource users in the management process, resulting in improved fisheries management — both in terms of resource conservation and compliance.

This paper argues that merely establishing a co-management regime is not sufficient to achieve the dual goals of resource conservation and compliance with management rules. What is also necessary is the establishment of legitimate co-management regimes—those that receive general support, endorsement and authorization.

Co-management

Community-based management, co-management and co-operative management are some of the many terms used to describe management systems that involve the participation of both user and state in fisheries management. Although these terms are often used interchangeably in this paper, *fisheries co-management is defined as an arrangement where responsibility for resource management is shared between government and user group?* These partnerships incorporate a wide range of possible arrangements, and need not only be “community-based” with associations of spatially or geographically defined communities and small-scale **fisheries**. For simplicity, fisheries co-management arrangements

1 Cotterell, R., *Laws Community*, Oxford University Press, 1995

2 Jentoft, S. Fisheries Co-management: delegating government responsibility to fishermen's organisation. *Marine Policy* Vol. 13, No 2, 1989;

can be classified into five broad types according to the role government and resource users play. This is illustrated in Figure 1.³

- (a) Under an **instructive co-management arrangement**, there is only a minimal exchange of information between government and resource users. This type of co-management regime differs from centralised management only in the sense that mechanisms exist for a dialogue with resource users. But the process itself tends to be one of government informing resource users about the decisions they plan to take.
- (b) Under a **consultative form of co-management**, mechanisms exist by which the government consults with resource users; but all decisions are taken by government.
- (c) In a **co-operative system of co-management**, government and resource users function as equal partners in decision-making.
- (d) **Advisory co-management** is where resource users advise government of decisions to be taken, and government **endorses these** decisions.
- (e) Finally, **informative co-management** is where government has delegated decision-making authority to user groups who are responsible for informing government of these decisions.

Co-management is not a static process. Over time, a particular fishery may be co-managed in different ways. For example, it could start with the consultative form and end with advisory or informative co-management.

Co-management experiences

As part of the IFM/ICLARM Fisheries Co-management Research Project, a literature review⁴ was carried out which covered 22 case studies on different co-management arrangements in five regions: Africa, Asia, Europe, North America and the Pacific. The case studies included artisanal, semi-industrial and industrial fisheries in both freshwater and marine habitats. In practically all of the cases, the main rationale for introducing a co-management arrangement was that the fishery was nearing over-exploitation or was already over-exploited. Co-management here was a form of crisis management, seen as a way of imposing stewardship over fish resources. In other cases, co-management was implemented in order to prevent or resolve conflicts among user groups or between user groups and government. Sometimes this was in addition to the problem of over-exploitation.

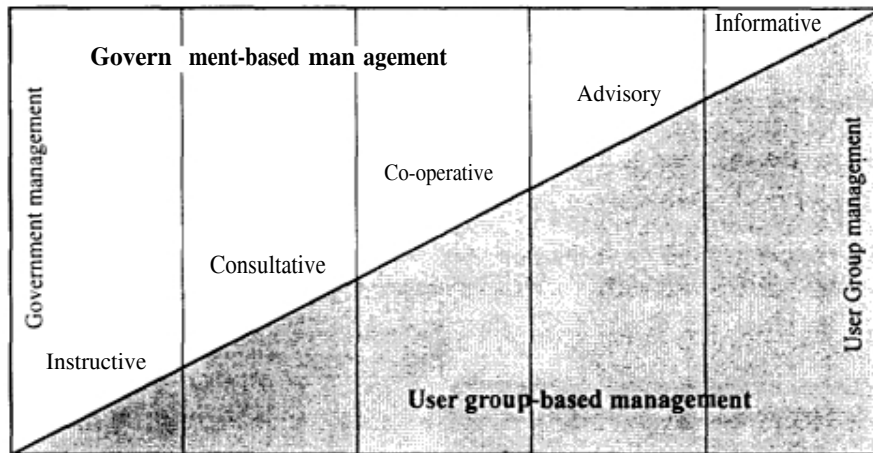
Most of the case studies provided a general overview rather than detailed information. However, the review **did enable distillation** of eight factors that determine the type of co-management in place.

Berkes, F., Co-management and the James Bay Agreement. In *Co-operative Management of Local Fisheries: New Directions for Improved Management and Community Development* (ed E. Pinkerton). pp. 189-208. 1989. **Pinkerton, E.** (cd), *Co-operative Management of local Fisheries*, University of British Columbia Press, Vancouver, Canada 1989, **Hanna, S.A.**, Creating User Group Vested Interest in Fishery Management Outcomes: A Case Study of the Pacific Fishery Management Council. Presented at the World Fisheries Congress. Athens, Greece. May 5-9 1992.

³ **Sen, S. and J. Raakjaer Nielsen.** Fisheries Co-management : a comparative analysis. *Marine Policy*, Vol, 20, No 5. 1996,

⁴ A more detailed description of the literature review is given in Sen and Raakjaer Nielsen, op cit. Note 3.

FISHERIES CO-MANAGEMENT TYPOLOGIES



- (1) *Capabilities and aspirations of user groups.* The way governments decentralize or delegate management authority has an effect on the type of co-management. Although the aim of government might be co-operative co-management, this can be achieved only if resource users are also willing to take on shared responsibilities and are capable of doing so.
- (2) *Co-operative, advisory and informative co-management* occurred in situations where user groups were able and willing to take up the responsibility. Unorganized or poorly represented user groups, low levels of education, lack of empowerment – such factors hindered a more equal participation in the decision-making process. The review indicated that developing countries trying to initiate co-management may be working with communities where there is no existing organisation of user groups, so that these have to be introduced. Thus the co-management arrangement is likely to be instructive or consultative, until user groups are organised and capable of participating more equally in the management process. Although existing organisations of user groups are not a pre-requisite to co-management *per se*, the nature of user group organisations does play an important role in determining the type of co-management regime.
- (2) *Top-down or bottom-up approaches.* The type of approach used in the co-management process influences the type and nature of user group participation in decision-making. It is more likely that there will be instructional or consultative co-management with top-down approaches, and advisory or informative co-management with bottom-up approaches. Where governments actively pursue co-management as part of their overall fisheries development policies, the type of co-management tends to be instructive or consultative.
- (3) *Difficult decisions.* Greater user participation in co-management also occurs when governments are unwilling or reluctant to deal with the political, social or economic responsibility of taking hard decisions – preferring to let the user groups deal with the problems.
- (4) *Management tasks.* The type of co-management arrangement implemented depends on the management tasks to be undertaken. There is evidence that the more specific the tasks are (harvesting and market regulation), the lower the level of decisions taken. Very little information was available on the policy formulation process, but there are some indications that where this

does take place, co-management tends to be instructive or consultative. This observation is supported in general co-management literature.”

- (5) *Stages in the management process.* In general, information from the literature review indicates that co-management arrangements, whatever the type, occur during implementation and only to a minor extent in planning. There is no clear evidence from the case studies of user participation in evaluation. However, in some cases, the implementation process is being continually evaluated by government and user groups.
- (6) *Boundaries.* The importance of boundaries in fisheries co-management has been thoroughly discussed in the literature.⁶ These discussions indicate that the more clearly defined the boundaries, the greater the role of resource users in the decision-making process. However, the boundaries issue is very complex, as in any fishery there are many boundaries (physical, social, technical, economic, political) and there is often a combination of boundaries that determines (who, where and how) the type of co-management arrangement.
- (7) *Homogeneity/heterogeneity of user groups.* Where user groups were homogenous — functionally, territorially or socio-culturally — they helped group cohesion. Socio-cultural homogeneity was also important for collaboration between user groups. Where there was socio-cultural heterogeneity in multi-user group situations, co-management was more difficult and government had to take a more dominant role in decision-making.
- (8) *Political culture and social norms.* The political culture and the social norms of the country and society also affect the **type** of co-management arrangement. Societies not familiar with political empowerment may find it difficult to participate on an equal basis with government. The political (modern and traditional) structure in the country may also exclude certain types of co-management arrangements and encourage others.

Co-management and considerations of legitimacy

While the factors identified in the preceding section clearly affect the type of co-management arrangement in place, there is a growing awareness that legitimacy may also have an effect on the type of co-management arrangement and its effectiveness. In many countries, co-management is a relatively new concept. There is often a belief that once a co-management system is set-up, management problems facing the fishery will be reduced. Emphasis has been placed on establishing the institutional set-up — identifying the stakeholders; organising meetings; encouraging the formation of user group associations; sensitizing government officials to the concept—rather than debating or deliberating on whether the co-management arrangement is legitimate.

This section discusses the factors that may affect the legitimacy of any particular arrangement. It is argued that a co-management system is more likely to be successful (and be complied with) if the decision-making process is considered legitimate by those directly making the decisions, by those directly and indirectly affected by the decisions (i.e. those that endorse the decisions) and by those in higher

⁵ *Op cit note 2*

⁶ *Istrin E. Governing the Commons: the Evolution of Institutions for Collective Action, Cambridge University Press, Cambridge, 1990; Pinkerton, op. cit note 2.*

positions of authority (i.e. those that authorize the decisions). The following section will then explore how these aspects of legitimacy may affect the type of co-management arrangement.

In its broadest sense, legitimacy refers to the belief that a norm or normative system governs or should govern one's actions. It is assumed that management systems will be more stable and enduring if they can be characterised as legitimate. Because they are considered legitimate by all those involved in the fishery, they will be able to induce compliance. Thus, legitimacy is the connection between authority and consent.

Consequently, it is argued that a system can be made more legitimate if those that are expected to obey also contribute to the decision-making process because such a system is more likely to reflect their norms. Closely related to this are ideas of participation and empowerment. User participation and empowerment enable restraint of government authority and make possible significant control over the resource.

There are three aspects to legitimacy, all of which are closely inter-related

- . the legitimacy of the management system itself (including information);
- . the legitimacy of the organisations/associations involved and
- . the legitimacy of the people within those organisations.

In addition (and to make things even more complicated), the legitimacy of each of those three aspects has to be assessed from three different perspectives:

- . those directly involved in the decision-making;
- . those directly affected by the decisions (endorsement) and
- . others who are more powerful or influential than the organisation (authorisation)

In examining the multi-dimensional aspects of legitimacy, the type of questions which should be investigated is best illustrated by an example. If it is assumed that a co-operative co-management regime is managing a particular fishery, there is likely to be some form of organisation (committee association, board etc.) which has representatives of both resource users and government, making decisions on how the fishery should be managed. To assess whether such a co-management regime is legitimate, Table I outlines some of the questions which would need to be asked from all three perspectives.

Although the questions are quite similar, it is important to stress that the answers might be very different, according to the collective perspective of the three groups of people (the actors, the endorsers and the authorisers). Thus, a management system which may be considered legitimate by those who are directly participating and being affected by it, may not be believed to be legitimate by those in positions of greater authority, such as the central government. A lack of legitimacy perceived by one of three groups increases the risk that the system might fail in the long term.

Closely related to legitimacy is the concept of external and internal transparency.

Collective perspectives will be greatly affected by the level of transparency of decision-making processes and the methods used to select decision-makers. For example, if it is not transparent to endorsers why

Table I FACTORS AND PERSPECTIVES OF LEGITIMACY

FACTORS	PERSPECTIVES	
	DECISION-MAKERS E.G. CO-MANAGEMENT BOARD	PEOPLE AFFECTED BY DECISIONS (E.G. FISHERS, TRADERS)
MANAGEMENT SYSTEM	Does each decision-maker consider that the management system reflects his own belief system of what is right?	Do they believe that it is a workable, fair, realistic and effective system?
INSTITUTIONAL ARRANGEMENTS	Do they believe that the arrangements are best suited to carry out the management functions?	Do they believe that their interests were taken into account? Do they believe that the institutional set-up is capable/competent to carry out the management task?
PERSONS WITHIN THE CO-MANAGEMENT ORGANISATION	Do they believe other decision-makers are both representative and competent to carry out their tasks?	Do they believe that the decision-makers represent their interests? Do they believe that they are competent to take decisions?

particular decision-makers (in terms of their position) are participating in the process, they may doubt the legitimacy of the organisation itself. If it is not transparent to authorisers how certain decision-makers are representative of the group they are meant to represent, this will affect their perspective of legitimacy of both the organisation **and** the people involved.

Legitimacy and Co-management Typologies

Determining the variables which influence the three aspects and the three perspectives of legitimacy can also be closely linked to the factors that determine the type of co-management arrangement. Knowledge of socio-economic variables within a fishery, especially the types of authority considered legitimate, will not only help to determine the type of co-management regime which is more appropriate when co-management is introduced, but also influence the general direction of co-management initiatives. Weber suggested that there were three types of legitimate authority:

- (1) *Traditional authority* where compliance is a matter of personal loyalty to an elder, parent or chief within the framework of customary obligation. This is communal and person-centred, relying on custom, reciprocity and the integration of family, work, religion and locality.
- (2) *Charismatic authority*, where authority derives from personal qualities or achievements rather than social position. Charismatic leaders often hold traditional roles or legally constituted offices. Consent is emotion-driven and directly focused on the leader.

- (3) *Rational authority*, where compliance relates to the system and not to particular persons. This kind of authority requires explicitness, coherence, predictability and impersonality. Consent to this authority arises from belief in the correctness of the rules and the formal system, rather than the sanctity of the social order.

In many fisheries co-management arrangements, evidence of all three types of authority exists. One of the oft-cited strengths of traditional marine resource management systems is the control and authority of traditional elders. One of the weaknesses of some co-management arrangements has been the reliance on one or two charismatic leaders. This becomes a matter of concern when the leaders have no natural successors.

However, in an ideal world, co-management arrangements should be based on rational authority; traditional and charismatic authorities carry with them the dangers of arbitrary, non-representative rule. This would also be consistent with the global trend towards the promotion of participatory democracy in all spheres of economic life. With a rational authority model, the arrangement is likely to be co-operative.

While this may be the ultimate aim of a co-management arrangement — from the perspective of some actors or endorsers of the co-management arrangement — legitimisation may come from traditional or charismatic authority. In these situations, authorizers may find only an instructive or consultative co-management arrangement acceptable because they are unwilling to delegate decision-making powers in cases of conflicts concerning who has legitimate authority.

People who are promoting co-management must not assume that participatory democracy will necessarily be regarded as legitimate by everyone involved in the co-management process — especially if those believed to have legitimate authority are excluded from the process.

Therefore, in order to build and strengthen legitimacy of a co-management arrangement, it is critically important to determine, through the collection of attitudinal information:

- . the factors which determine the type and nature of legitimate authority from the collective perspectives of the actors, the endorsers and the authorizers;
- . the areas where there are conflicts and commonalities of legitimate authority (traditional, charismatic and rational). Where conflicts exist about which authorities are legitimate, no form of co-management may be possible. Each group will question or harbour doubts about the other's legitimacy.
- . the ways in which traditional and charismatic authority can be used to promote rational authority. Recognition that these authorities can be co-opted into the co-management process rather than excluded may bring greater legitimacy to the co-management process.

Conclusion

Co-management encompasses a wide range of possible partnership arrangements between government and resource users. Often, the incentive for government entering into co-management arrangements has been the failure of state-run management schemes to prevent resource over-exploitation or prevent conflicts within the fishery or between fisheries. Development and promotion of co-management arrangements with resource users is considered to be a way by which negotiated solutions for fisheries

management can be achieved, involving sharing of knowledge, mutual understanding of problems and joint formulation of solutions.

A number of factors have been identified which affect the type of co-management regime which can be usefully applied in situations where co-management is being considered as a new management option. In a fishery with clearly identified boundaries and a cohesive group of resource users willing and able to take on management tasks, co-management is likely have greater user participation than a fishery with diverse resource users who are unwilling to take on responsibility for management.

However, the potential for improved fisheries management through co-management arrangements cannot be realised by simply establishing (usually through a top-down approach) a co-management “institution” characterized by one of the five typologies. This paper argues that it is also necessary to ensure that the co-management process is considered legitimate by those who design and implement it, those who are directly involved and those who authorize it. Compliance with the regime will then improve. In addition, identifying the factors which affect legitimacy, and identifying in particular the three types of legitimate authority (traditional, charismatic, rational), will assist in identifying the most appropriate type of co-management arrangement.

9. TOWARDS COMMUNITY-BASED MANAGEMENT IN THE INSHORE COD FISHERIES: THE NEWFOUNDLAND EXPERIENCE

by **Richard Cashin, P.C., O.C., LL.D.**
Chairman, Fishing Industry Renewal Board
St. John s' Newfoundland, Canada

It is just 20 years since Canada declared its 200-mile EEZ limit. This launched a period of renewed hope and optimism for people in the coastal communities of Atlantic Canada, but more particularly for the fisherpeople of Newfoundland and Labrador. The Grand Banks of Newfoundland are legendary. The early economic work of Harold Innis is but one of many historic references going back to the 15th century to the waters off Newfoundland and Labrador which teem with codfish.

In the 19th century and till the time of the II World War, Newfoundland and Labrador fishermen fishing cod — with traps, baited hooks and the like, mostly inshore with some schooner/bank fisheries — regularly caught in excess of 200,000 tonnes from the northern cod stock which ranged from the coast of Labrador to the northern Grand Banks. In the early '70s, even with more modern technology, the inshore landings of codfish in that great northern cod stock had dwindled to 40,000 tonnes. In the '60s and '70s factory freezer trawlers from all the major distance-water fleets in Europe reported annual catches of 600,000 - 700,000 tonnes. Now that this resource was to be managed by Canada, you might get some sense of what the 200-mile limit in 1977 meant to the fisherpeople of those coastal communities.

The two other codfish stocks in Newfoundland coastal waters are in NAFO Division 3Ps on the South Coast of Newfoundland and in NAO Division 4RS - the Northeastern Gulf of St. Lawrence. Together these stocks, on average, yielded perhaps a little more than half of the annual catch from the Northern 2J3KL stock.

Foreign fleet too were involved in these two stocks. This activity was largely confined to France, Spain and Portugal. The latter two did not receive any access to these areas after 1977. However, France's presence continues up to the present time. After the boundary settlement, its share of these stocks is now fixed at 15.6 per cent for 3Ps cod and less than 3 per cent for the 4RS3Pn cod TAC.

In the years from 1977 to 1991, the Total Allowable Catch (TAC) of northern cod rose from the 1978 figure of 135,000 tonnes to 266,000 tonnes. Particularly in the early years, Canada prided itself on a superior management programme that established a TAC at less than the maximum sustainable yield for the purposes of permitting regeneration. It is not my intention today to dwell at length on what went wrong, but merely to put today's situation in a recent historical context.

The Source of the Problem

In order to properly understand the scientific, management, access and other issues facing government and industry today, let us first look at what happened with the advent of the 200-mile limit.

Inshore fixed gear landings in the last few years of ICNAF management had declined from a peak of 250,000 tonnes for the northern cod stock to approximately 40,000 tonnes.

Even under ICNAF, in the years immediately preceding the 200-mile limit, quotas had been reduced. In the first year of extended Canadian control, the quota was set at 135,000 tonnes, 35,000 tonnes of which

was still allocated to foreign vessels. Eighty per cent of the remainder was for the fixed gear coastal fishery in that year.

At the same time, a lot of people in government and industry were concerned about Canada's ability to harvest this great resource. A pilot project was initiated to encourage the participation of Canadian deep-sea wetfish trawlers in the northern cod fishery for the first time. Hitherto, the Canadian offshore fleet fished cod only on the Grand Banks, and in the Southern and Western stocks to which I have made reference. Their main fisheries had been on the flatfish and redfish stocks, primarily on the Grand Banks, and off the south and west coasts of Newfoundland.

In other words, faced with the historic record that foreigners had caught more than 600,000 tonnes, and whereas historically Newfoundlanders had achieved an average of only 200,000-250,000 tonnes with fixed gear, there was an assumption that the cod stock, properly managed, would yield such a bountiful resource that harvesting the Total Allowable Catch would be beyond the capacity of traditional inshore fishermen.

The thrust of Canada's case to achieve a 200-mile limit had been based on the interests and the dependency of the population adjacent to the resource — the small boat fishermen in the coastal communities of Newfoundland and Labrador. As Canadian quota management developed in this stock during the late '70s, the allowance for the inshore reached 100,000 tonnes. This increased to 115,000 tonnes in the early '80s, and indeed for a time was guaranteed to be 2/3 per cent of the Total Allowable Catch.

In the succeeding years, as scientific estimates of the biomass increased, increases in quota in this stock were assigned almost exclusively to the growing Canadian offshore sector, while the foreign fleet's participation continued to diminish. Whereas in the early stages of Canadian management, the inshore was given about two-thirds of the quota, the absolute amount remained constant. Therefore the percentage dropped until at one point it fell to 43 per cent of the TAC (1 15,000 mt out of 266,000 mt).

The use of an inshore allowance is quite a significant difference as far as managing today's fishery is concerned. There was no set quota for the fixed gear fishermen. The assumption was that passive gear fisheries in certain years may exceed their allowance, in other years they would not achieve it. And because Canada and its scientists were confident that we had the leading model for conservative management of the resource, the Government sanctioned the use of an allowance.

Interestingly enough, the allowance in a TAC of 266,000 tonnes just before the collapse of the stock, reached its maximum at 1 15,000 tonnes. Indeed, the allowance was caught in very few of the years after 1977.

It is significant to note that the analysis conducted by scientists in the evaluation of the stocks and the ultimate establishment of quota was based primarily on their own annual research surveys and the catch rates of deep-sea trawlers. At no time up to the present day have scientists devised a way to assess the stock based on similar data and other factors from the inshore area. Their explanation is that the multiplicity of operations, the variety and passive nature of the gear types and the lack of inshore effort data, makes such an exercise too uncertain. The assumption was that research survey and catch rate data from the offshore component was sufficient for stock assessment to establish a quota for the whole stock area.

Although in the early years of Canadian jurisdiction, there was definite evidence of increasing abundance of cod in inshore waters, by the mid '80s — less than a decade after the implementation of the 200 mile

limit-inshore fishermen, especially in the northern cod area (J3K1), were concluding from their own empirical evidence that the stock was in trouble.

It did not take a rocket scientist to figure out that if you have to double your fishing effort for the same volume, your catch rates are down and the stock is in trouble. The whole scientific and political establishment was impervious to these observations of the fixed gear fishermen. These were the descendants of **those who had** prosecuted the fishery in this manner for over 400 years. They had regularly achieved an average annual catch that approximated the Total Allowable Catch for offshore and inshore areas during the 1980s.

Briefly put, the scientists developed an assessment model, in part based on information which they received from those foreign nations that had harvested the stock with offshore factory freezer trawlers. Their assessments relied exclusively on offshore trawler catches and catch rate data. This data was supplemented with annual survey data from their own research vessels.

In the late '70s and early '80s, there was an appearance of a return of codfish to the traditional northern cod inshore fishery. By the mid-'80s, there was a terrible cleavage between the inshore fishers, more particularly those fishing the northern cod, and the scientific community. The empirical evidence of these inshore harvesters was that the number of nets or days fishing to harvest the same amount of fish had increased considerably. Their own experience with catch rates was at variance with that of the offshore northern cod fishery.

A similar cleavage existed in the western stock, where inshore fixed gear fishermen were unable to catch their quota, while the small, inshore mobile otter trawlers had good catch rates which in effect exceeded their quota.

The annual inshore catches of northern cod never exceeded 115,000 tonnes after 1977. These inshore catches included landings in excess of 500 tonnes in small 10-meter trap boats to a few tonnes in small inshore 6-meter vessels.

The experiences in the other two smaller stocks were slightly different. The South Coast of Newfoundland (NAFO Area 3Ps) historically had both an offshore and inshore fisheries component. For rather complicated reasons, there was some kind of a better *modus vivendi* between the inshore fixed gear and the otter trawl deep-sea fishermen on the South Coast.

The historical average catch in the fixed gear inshore fishery on the South Coast (3 Ps), for the 18 years prior to the extension (**exclusive** of 1975-76) was 24,500 tonnes. Subsequent to the implementation of the 200-mile limit, the inshore catch average was only slightly less (22,500 tonnes). This stock did not have the same dramatic increases or decline in landings. While the inshore catch component of the stock has been under quota, the nature of this fishery — i.e. small boats, a much higher percentage of **hook** and line enterprises, longer seasons — meant that the quota did not impose the same restrictions on normal operation which, as we will discuss later, became a major factor in all offshore fisheries, **as** well as inshore otter trawl fisheries, particularly in the Gulf of St. Lawrence.

In this Gulf of St. Lawrence stock off the West Coast of Newfoundland, the inshore fishery developed quite differently from the other two stocks. About 100 fishing enterprises acquired small otter trawlers which, in the mid '80s had the capacity to catch more than their fleet quota every year. This encouraged them to move to individual quotas, thus giving them greater involvement in the early development of co-management arrangements.

Again, in this fleet, the same problems of mis-reporting and dumping developed. In fact, these problems were much worse if anything with this fleet than with the company-owned fleets. Because this fleet was smaller, more cohesive and more successful, it was then — as it is now — easier to move towards notions of co-management.

So by the late '80s — 1988, '89 and '90 — there was growing concern within the inshore sector, particularly about the state of the northern and western cod stocks.

From 1988 to 1991, the government brought in more stringent measures to control fishing excesses, such as dumping at sea, high grading, etc. Onboard observers were placed on offshore vessels. There is no doubt that the rules of the road had been tightened up. Then came the announcement of a great catastrophe.

From Moratorium to Re-opening

In July of 1992, the northern cod fishery, which had sustained the majority of the coastal communities in Newfoundland and Labrador since the 16th century, and which had fueled the expansion of the European freezer trawler fleet in the '50s and the '60s was closed. Fifteen or more offshore fishing communities, primarily in Newfoundland but also in Nova Scotia, were shut down. Where once they had harvested over 100,000 tonnes annually from that stock, now they had none.

The inshore harvesters who took just under 100,000 tonnes annually, now had none. A year later, cod stocks off the West and South coasts of Newfoundland, which between them had generally produced about half as much codfish as the northern cod stock, were also closed, as well as some smaller cod stocks off the coast of Quebec, New Brunswick and Nova Scotia. In all, more than 40,000 people were directly affected, 75% of them in the provinces of Newfoundland and Labrador.

An ambitious programme of adjustment and income support was undertaken that is still in place. For a large number of people, particularly those dependent on the newly developed Canadian offshore fisheries and those in coastal areas without access to other species, the prospects remain grim.

In the four or five years since the moratoria, some of the shell fisheries, particularly snow crab, have increased dramatically; and recent indications suggest that a much more bountiful stock of shrimp is moving to the waters of Northeastern Newfoundland. Other small groundfish fisheries remain open in the Maritime Provinces, where there are also large and lucrative lobster and crab fisheries.

During this past year there was a glimmer of hope as the southern and western cod stocks off Newfoundland had a limited test fishery. I believe that the encouraging results, particularly in the southern (3Ps) cod stocks, could mean a return to the historic catch levels of those areas in the near future.

The moratorium remains in place on the major northern cod stock, and the scientific information is gloomy. Now, ironically, small boat fishermen in coastal regions are claiming that there is a greater abundance of cod inshore. Certainly, the early indications in the southern and western fisheries are that the optimism of small boat fishermen about the state of these inshore stocks was understated. Where once the scientists were accused of not being cautious enough, they are now accused by inshore small boat operators of the reverse.

A climate of high unemployment, with some people having virtually no hope of returning to the fisheries and others struggling in the shellfish, herring and capelin fisheries, creates a new challenge for the harvester in coastal communities. How do you share these new resources and the old diminished resource

among such a large number of harvesters? To complicate the matter for these coastal people, all of this has occurred in the '90s, when the assumptions of governance are not only being challenged but reshaped.

During this decade, fiscal restraint has been a major preoccupation of governments worldwide. Fiscal restraint in large part drives some notions that, of and by themselves, are worthy of pursuit. An example is co-management, which in Canada is now called the development of co-management arrangements with the object of achieving biologically sustainable and economically viable fisheries.

Recent publications that I have read from the Department of Fisheries and Oceans talk about industry taking on a greater responsibility for managing fisheries and, in particular, for identification and resolution of fisheries management problems.

As we meet here today, the Canadian Council of Professional Fish Harvesters, a national body of harvesters' organisations which had its founding convention only within the last year, is involved with the Department of Fisheries and Oceans in developing an appropriate policy for co-management agreements in multi-species fisheries.

The extent to which the notion of co-management is embraced, varies from region to region and from fishery to fishery. Those who are more apprehensive tend to be the ones who have been most adversely affected by the collapse of the groundfish stocks and are licensed for resources that are currently over-subscribed.

All of this, to some of these people, is part of a plot to get them out of the fishery. There has been a major downloading of government costs on the primary producer — dramatic increases in licence fees and in the cost of dockside monitoring programmes; observers at sea; the preparation, execution and administration of Conservation Harvesting Plans — good ideas, some will say. But many fishermen remain skeptical, believing this is as much about downloading of costs as anything else.

The government is also open to criticism that government patronage of the fishery remains; that there is still a command and control mentality. In short, there are many real as well as imagined obstacles to the whole idea of partnerships and co-management.

Prior to the moratoria, and in the years subsequent to the 200-mile limit, the Canadian deep-sea and foreign components of the northern cod fishery, indeed of all stocks, were controlled by an annual catch limit. This Total Allowable Catch (TAC) included a provision for an estimated inshore catch, which was not placed under a strict quota. This was called the "inshore allowance". In the TAC that rose to 266,000 tonnes in the late '80s, the inshore allowance was approximately 15,000 tonnes.

As a consequence of not having a strict quota, the fixed gear fishermen who pursued this fishery were not under the same constraints as fishermen who operated in quota fisheries or fishermen who had individual quotas. Therefore, in the inshore fishery, there was no incentive for mis-reporting (cheating). By the early 1980s, the offshore fishery, and even the small West Coast otter trawl fishery, had enterprise or individual quotas.

There is a great deal of evidence that those with individual quotas initially were the ones who abused the privilege of fishing through dumping, high grading, and mis-reporting. They are perceived not without some justification - as a major villain in the demise of the cod fisheries.

There were probably 8,000 to 9,000 enterprises with access to the inshore fishery. These included very small enterprises that were either marginal or part-time, and substantial enterprises. Before the moratorium

there was no real conflict. In the fixed gear fishery, there was no perceived threat to the stock by the so-called “Olympian race to the fish”. In quota fisheries such as offshore, the well-documented negatives of this Olympian race to the fish —overloading, dumping\discarding,, excessive catches, poor quality — were the reasons that these highly technologically advanced fisheries were placed on individual or enterprise quotas.

Simply put, these same pressures did not exist in the small boat inshore sector on the part of fishermen, the government, the scientists or the fish managers.

Ultimately, by the mid-'80s, through political pressure from fishermen, the government began to re-examine the science, and new, more stringent control measures were imposed on the offshore sector and on the mobile gear inshore sector. These measures included compulsory onboard observers on all offshore trawlers. About 100 of them had access to all Atlantic Coast groundfish fisheries and were now catching, in addition to other species, in excess of 100,000 tonnes of northern cod.

During that period, prior to the moratorium, some of the management measures that are now essential in all fisheries were really not applicable to any of the Newfoundland fixed gear inshore fisheries. What do I mean by this?

Well, both the deep-sea sector and the inshore mobile gear sector in all these fisheries were subject to a fleet quota. In the early eighties, this one overall fleet quota led the deep-sea sector to engage in what has been referred to the “Olympian race to the fish”. This led to dumping, poor quality practices, and problems with overloading of vessels.

Good, intelligent management led to the introduction of enterprise allocations in the offshore fisheries and individual quotas in the inshore mobile gear sector.

This did allow them to better plan and better manage the fishery, to do a lot of good things to reduce the cost of catching and producing the fish and to improve the quality of the end product.

However, it also created other problems. When you have your own individual quotas, there are opportunities — or at least temptations — for you to cheat, e.g., to dump/highgrade, to misreport, and so on. Ultimately this led to stricter rules, such as dockside monitoring and placement of at-sea observers.

None of these conditions applied to the inshore fishery for the simple reason that there was no fixed quota for the major stock and, for reasons discussed elsewhere, they were not a factor in the other two stocks. The inshore cod fishery uses three main gear types (traps, gill-nets and baited hooks). The cod trap is the main inshore cod gear. It is a passive gear. Landings from cod traps can vary greatly from year to year and region to region. Cod trap fishermen in a given year, in a period of just six weeks, might land 500 or 600 tonnes. The next year they may only land half of that. Because they were not on a fixed quota, there were no incentives for them to engage in the abuses mentioned earlier. Likewise, they did not have to make the same kind of operational decisions that they will have to make in the fishery of the future.

Let me give you an example. Many of the thousands of licence holders who had access to the fishery, were quite marginal or part-time. Overall, the Olympian race to the fish was not really a factor because in any given year they could have caught much more fish if it was available because there was no quota to worry about.

I mention this because the fishery of the future will be different. The same people who had no real constraints in the past are now, in any reopening or newly emerging fisheries, faced with a whole new set of problems and issues that I will come to later,

Since the groundfish moratoria of 1992 and 1993, the Department of Fisheries and Oceans has introduced certain aspects of co-management. One such case on which the Fishing Industry Renewal Board has worked is the development of Conservation Harvesting Plans. These are now in effect in varying degrees, in most fisheries in Atlantic Canada.

Since 1992 there have been significant annual increases in crab and shrimp quotas in Newfoundland waters. All of these fisheries are managed by Conservation Harvesting Plans (CHPs) which are prepared and submitted by licence holders. The CHPs deal with such management issues and requirements as:-

sharing/allocating the allowable catch

gear sizes or limits

open and closed seasons

trip/daily/weekly catch limits

catch monitoring arrangements

There is an area of great concern about effective co-management and partnership arrangements for inshore cod fisheries. In some respects this is an obstacle. Fixed gear harvesters who traditionally fished under an adequate quota or an allowance were not concerned with the adverse effects of the Olympian style fishery.

It is particularly difficult for harvesters in the under 35 foot vessel class. Approximately 80 % of the core licence holders in the Newfoundland region operate fixed gear vessels under 35 feet and historically, in effect, had an open cod fishery unhampered by a quota.

In the past few years, the first steps towards co-management in these fisheries have been in the development of Conservation Harvesting Plans by the licence holders themselves. Let me give you an example of what transpired in 1997 in one such instance.

As I have mentioned, on the south coast of Newfoundland, small boat fishermen historically landed between 2 1,000 - 25,000 tonnes of cod, virtually year in and year out. In 1997, that fishery was allocated a quota share of approximately 6,800 tonnes. There are three basic gear types used in that fishery: baited hooks or line trawls, gill-nets and cod traps.

The Fishing Industry Renewal Board was charged with the responsibility of working with the fishermen to assist them in developing a harvesting plan. This involved new sharing arrangements and a potentially new division of quota. Where once we had one quota we now had to subdivide it. Why?

Solutions and Approaches to the Current Challenge

Historically, cod traps, which are used only in the eastern area of the south coast, caught 18.4 per cent of the total inshore landings on average over the last 10 fishing years. That could vary somewhat up or down from year to year. The cod-trap fishery in this one area takes place in two different parts at two

different times of the season. The historical catch in this cod-trap fishery was about 4,100 tonnes, which would have been caught over a six-week period at the maximum.

If **we had** opened the fishery as it was closed (with one global quota **and** no gear limits), it was quite conceivable that a relatively small number of successful cod-trap operators could have quickly taken over 75 per cent of the whole quota available for 1997 before others had any real fishing opportunity.

To make matters worse, the fishermen in that area of 3Ps felt that their fishery should never have been closed; and indeed the ultimate result of the limited fishery supported that. The fishermen examined a number of fishery management options. These included sub-dividing the quota into 10 different area shares. Statistical information was available for the whole of the 3Ps NAFO zone for catches by all gear types. That data was also divided into 10 smaller statistical sections.

The fishermen had the option to divide the quota into 10 areas based on historical average catches, and to further divide on the basis of the average historic catch for each of the three gear types in those areas. Of course, there was also the option of individual quotas for each licence holder. The problem with applying individual quotas was that 75 % of the inshore catch has been by vessels under 35 feet (11 meters), but there is no statistical information on individual vessel catches for that fleet segment.

In addition, there were many licensed fishermen whose primary fishery in that area was lobster, but had little history in groundfish. How could we achieve an equitable individual sharing arrangement in those circumstances?

If all fishermen were to share equally, this would be a bonanza for the marginal groundfish fishermen who mostly fished lobster, and a severe penalty for those who had maximised their opportunities in the cod fishery without the constraints of quota in the past.

Ultimately, the fishermen agreed to sub-divide the overall quota and created two Conservation Harvesting Plans — one for the eastern area and one for the western area of 3Ps. The CHP for the eastern area was the more complex, because that is where the trap fishery was prosecuted. In that area the CHP included sub-allocations by gear type which were further divided into monthly period quotas. The western area went with one quota for all gear types but used seasonal sub-quotas to spread fishing effort over time and space.

The CPHs for each area contained weekly catch limits, gear limits and separate allocations for by-catch fisheries only. All of these measures were designed and agreed to by fishermen to allow the greatest possible access to the available quota over the maximum time, area and number of licence holders.

Where to From Here?

The manner in which the catch quota was distributed in the 3Ps test fishery of 1997 gives a clear illustration of some of the very serious problems confronting harvesters in the era of co-management. Indeed, if there were no co-management, these problems would confront resource managers from the Department of Fisheries and Oceans.

At one time, the management regime for fixed gear effectively allowed these managers to fish their full effort with very little interference through the fishing year. With current quota levels, much stricter

controls of dockside monitoring (where every pound of fish is actually counted), and random at-sea observers, particularly on larger vessels, tremendous changes are occurring in fishing patterns and causing distortions in the distribution of catches compared to previous levels.

The biggest factor influencing this right now is the reduced level of annual quota. If we return to historical levels of quota, which are almost four times last year's catch, this would even out. Even if we were to achieve that in the near future, improvement in fishing technology coupled with improved and mandatory catch monitoring would probably continue to cause certain kinds of distortions. All of these developments become a very serious impediment to fishermen in making their decisions in a co-management context.

A particular issue in this regard is the possibility of introducing individual licence holder quotas. Many inshore fishermen see advantages to themselves from such a system of management. However, there is a tremendous fear that IQs might be imposed on an equal share basis because of lack of individual catch records and the fact that a majority of marginal groundfish licence holders would benefit from such an approach.

There is statistical information for vessels over 35 feet that would allow that fleet segment to identify their historical share of the quota resource. They have catch records to base individual shares on their past history, say, over the past ten years, and agree to adopt individual quotas. The mathematics of this is fairly simple. Unfortunately, this fleet grouping represents a small portion of both the total catch and the total number of fishermen.

There is an added complication in that some fishermen in 30-34 ft. vessels are just as productive as those in 35-40 ft. vessels. This makes the use of individual shares appear unfair to those who fish side by side with others who could enjoy the individual benefits of such an approach simply because government data systems recorded individual catch information for larger vessels only.

Until this data problem can be solved fishermen are now seeking and examining alternative methods to share the resource in less competitive ways to reduce the race to the fish and protect the historical shares of the productive fishermen.

For the purposes of this discussion, I would like to look at the South Coast of Newfoundland cod fishery, which is NAFO Division 3Ps. We have catch data broken down by statistical sections, which show the historic average catch by fishermen in each section by gear type. Now we also have the results of the 1997 test fishery, which clearly shows a distortion in resource access compared to the past.

One of the options that was suggested to fishermen when preparing their Conservation Harvesting Plans for 1997 was to sub-divide the inshore quota into 10 statistical areas. Then the fishermen in each area would have, collectively, the average share of the quota, which the harvesters from that area had caught over the last 10 years. They would be able to fish anywhere in the stock area, but their quota would be established by their home section's historic record.

The failure to do that has exacerbated the distortions. Indeed, had they done that, there may well have been distortions in individual results, but I do not think these would have been as dramatic as is now the case. Not having opted this way in 1997 will make it harder for fishermen to come to an agreement on this question in the future.

In recent years, a new, single, simple solution has arisen to the problem of over-capacity in various fisheries. It has emerged as the cure-all to the so-called irrational behaviour first explained by Scott

Gordon's application of the theory of common property usage to commercial fisheries, and is now in vogue. This solution advocates the introduction of Individual Transferable Quotas. It is espoused as the ultimate in self-regulation, and will lead to a proper rationalisation of the fishery.

Like all single, simple solutions, its claimed virtues are to be viewed with a great deal of caution. That is not to say that in certain circumstances and within certain parameters, the notion of individual transferable sharing arrangements can indeed be useful and acceptable.

It is not my intention today to go into a detailed analysis of this concept. Throughout my life's experience, academically and in work, I have always been fascinated by those who espouse single solutions and have from time to time delighted in attacking the simplicity of some of their notions. Certainly there are a lot of problems in implementing individual transferable quotas. A lot of adverse effects are apparent to critics.

Quite aside from the windfall to the first generation of quota holders and the subsequent increased capitalisation that flows from transferability, a host of practical arguments challenges the universal application of ITQ/IQs. One basic problem which small inshore fishers face today is that their fisheries lack a proper data base on which to calculate and allocate individual shares.

The experience in Newfoundland with Individual Transferable Quotas is that they have really been in place only in two fisheries—the offshore trawler fishery (this is the fishery where many abuses identified are due in part to the nature of the individual quotas), and the small otter trawl fishery, which had similar abuses. There is also a deep-rooted suspicion among the fixed gear fishermen that these quotas are really an attempt to create greater corporate control and eliminate them from the fishery.

In the Newfoundland experience, one of the things that often bemused those who watched the advocates of the Individual Transferable Quotas, was their oft-stated phrase: "Well this wouldn't apply to vessels under 35 feet.

" In actual fact, as we look at the history of the cod stocks we have talked about today, and if one accepts the premise that historic effort is the main basis for individual quotas, then collectively the harvesters in vessels under 35 feet will continue to receive the largest share of the catch".

The problem in the Newfoundland inshore fishery is that we do not have individual catch data for vessels under 35 feet. So while collectively their share of the catch was greater than for vessels over 35 feet, we also know that 30 % of them actually caught 80 % of the fish. The real struggle and challenge in moving towards some new, smaller, quota-sharing arrangement that will allow for greater local control is overcoming the problems created by lack of individual data.

That is why we are pursuing the division of the quotas into smaller allocations based on area, gear type and vessel size. For example, in 3Ps we once had a single quota for the entire inshore fishery. But as we move towards new management regimes with greater local control, one of the instruments may be to sub-divide one single quota into several local area quotas or many individual licensee quotas. This approach could include rules for transferability within the group, both on gear type and local area basis.

This will go a long way to moving us towards a more effective co-management regime. A paranoia and fear exist among small boat owners when they listen to some of the high-priced academics or experts who advocate Individual Transferable Quotas and point to large corporate models. These things create a view among small boat fishermen that this is really a large corporate grab for the resource.

So the challenge is to take fisheries management to the local level with smaller, easier-to-manage quota sharings. This approach will provide us a way to attack and dissect this problem and move to a management regime that is less intrusive and more in keeping with the assumptions of governance of our day. It will result in a more deregulated fishery, more determined by commercial forces, but also more controlled by local resident fishermen.

Recent Developments

Actually the Government of Canada is now taking steps to encourage and formalise the undertaking of these types of new management arrangements. The Federal Department of Fisheries and Oceans accepts several forms of co-management agreements with fishermen's organisations or groups.

The most simple form is the one I described for the 3Ps inshore cod fishery. This is the case where fishermen prepare their own Conservation Harvesting Plan and agree to enter into a universal dockside monitoring arrangement with a third party organization. In this case, no formal signed document is necessary. When the dockside monitoring arrangements are in place the Department will open the fishery against the CHP prepared by fishermen.

In other more advanced co-management cases, fishermen's groups are willing to pay for special additional enforcement, fisheries science or data collection services. The Department will enter into formal signed Special Project Agreements (SPAs) for the fishery in question. These agreements include all the provisions of the standard CHP as well as the terms and conditions under which the additional Special Project services will be carried out and paid for. Some of these may be carried out by the Department directly or by third parties mutually agreed to.

At present, the Department is endeavouring to implement more and more of these approaches through the use of multi-year integrated fisheries management plans. These include the fishermen's CHPs, the Special Project Agreements and the fishery enforcement, licence sanctions, and stock conservation measures that will apply for the duration of the management plan.

All this provides an increased measure of stability on which such fisheries will operate for several years in a row. It also avoids rehashing all the various management issues every year.

These approaches to more sophisticated and comprehensive co-management arrangements are more easily embraced and implemented in the lucrative fisheries, usually with fewer participants. For example, in the offshore scallop fishery, two-thirds of this quota is held by the three largest Atlantic Canadian fish companies, with only a handful of additional participants.

In 1997 the Department of Fisheries and Oceans entered into an Integrated Fisheries Management Plan for snow crab in the Southern Gulf of St. Lawrence. The five-year plan includes a quota-sharing formula, which allows some temporary access that could result in an increase in the number of participants in any given year.

However, there is a threshold, a combination of volume and price, that will trigger this participation by additional fishers. Conversely, if that combination of price and volume declines below an agreed minimum, the fishery reverts to the original 130 participants. The vessels in this fishery are over 45 feet, many of them are 50-foot vessels.

A similar arrangement exists in another area of the Southern Gulf involving crab fishermen along the West Coast of Cape Breton Island. This snow crab fishery in what is known as Area 19 was the first in Atlantic Canada. to adopt Individual Quotas as a management tool.

From an initial six licences, the fishery expanded over time by reducing boat quotas and increasing the number of inshore licences. By 1992 the number of licensed fishers involved in the fishery had reached 74. Due to significant price increases, heavy pressure mounted to increase the number of participants. Initial attempts by government to resolve this issue were rejected.

Eventually the snow crab fishermen's association in the area came up with a sharing proposal, which would reduce their trap allocations and their Individual Quotas from 50,000 pounds to 43,000 pounds. They suggested that a portion of this reduction go towards conservation, and the remainder be used to increase the number of participants by 37. These new participants would have a significantly lower quota.

The incentive for historic participants in this fishery was long-term security. Of course, there are still licensed fishers in the area who feel they should have access to this resource, but that matter is now settled, at least for the term of this agreement.

However, at the present time there is no legal basis for the Minister of Fisheries and Oceans to commit to guaranteed access to fisheries quotas to select groups for more than one year at a time. This creates a certain lack of security on the part of licence holders who are agreeing to make financial contributions to the management of "their fishery" without a full guarantee that the Minister will be permitted to deliver on government's commitment to resource access.

Steps are now under way to correct this deficiency in the Canadian Fisheries Act. Amendments will soon be introduced in the House of Commons to provide the Minister with necessary powers to enter into full-fledged legal partnering agreements with fishermen' groups to really share in fishery management function. In the meantime, the Fishing Industry Renewal Board is continuing the initiatives it started in 1997 to move the inshore cod fisheries away from global competitive fishing to more locality-based fishermen designed management arrangements.

The next phase of this activity will be to address the distortions that occurred in the 1997 fishery and moved the process further along so that as the quota increases community groupings can be in more control and increase their benefits from the resource.

Earlier on, I made reference to the Canadian Council of Professional Fish Harvesters, an umbrella organisation, which includes fishers' organizations in British Columbia, Quebec, the Maritime provinces and Newfoundland.

It is only in Newfoundland that virtually all of the fishers are members of a single organisation. Elsewhere, particularly in Nova Scotia, there are a multiplicity of organisations based on community and gear type. In the past, membership in these types of organisations has fluctuated.

The new challenges facing fish harvesters today are influencing them in all areas to embrace some form of organisation. The Canadian Council of Professional Fish Harvesters will seek to find some common ground on some of these important issues and assist the provincial organisations in their moving forward.

In Newfoundland, the work of the Fishing Industry Renewal Board and the Department of Fisheries and Oceans is facilitated by the existence of such a large and significant organisation, which has committees elected on a community, regional and provincial basis, as well as committees based on gear type.

The consequences of new fiscal restraint and the demands on fishers by government for greater participation in the management of the fishery has placed additional pressures-financial and otherwise — on the fishers themselves and their organisations.

The ultimate success in the development of new approaches for the fishery of the future will best lie in a clearer and more defined basis for this new relationship between fishers, their organisations and the government.

10. THE QUEENSLAND FISHERIES: MANAGEMENT MODEL

By Patrick Appleton

*Queensland Fisheries Management Authority
P O Box 344, Fortitude Valley, Brisbane,
Queensland Australia 3006*

1. EXECUTIVE SUMMARY

Arrangements for the management of Queensland's fisheries have seen substantial change during the last 3-4 years. There is increasing demand on the State's fisheries resources from commercial, recreational and traditional users. Developments in river catchments and on the coastal zone are also impacting on the capacity of the environment to sustain fisheries.

New fisheries legislation was introduced late in 1994, bringing with it a clear emphasis on ecologically sustainable development principles as well as new institutional arrangements for decision-making. The processes leading to decisions on resource management are based on principles that require consultation, involvement of stakeholders, statutory management plans and accountability.

The success of the new arrangements depends, in large measure, on the preparedness of all the people who will be concerned with decision-making to seek outcomes based on longer-term sustainability of the resource.

2. THE CHALLENGES FOR QUEENSLAND'S FISHERIES

During the late 1970s and 1980s expectations steadily rose about what Queensland fisheries resources could provide. This expectation was maintained in the early 1990s with escalating demand on fishery resources from commercial, recreational and traditional fishing sectors.

Other changes were also occurring. The development of river catchments and coastal zone areas due to housing, tourism and agricultural projects also impacted on the capacity of the environment to sustain fisheries.

The impact of these developments and changes has meant that the pressure on Queensland's fisheries resources has increased significantly and will continue to do so. Perhaps more importantly, the complexity of the problems facing the Government as a custodian of these public resources has increased substantially. The most crucial problem facing the Government is the question of access among competing stakeholder groups. The Government faces the challenge of

- maintaining a viable economic and commercial sector with emerging opportunities;
- . accommodating a growing recreational fishing sector as an important part of many people's lifestyles; and
- . facilitating tourism growth, much of which concerns the coastal environment while ensuring the sustainability of the resource.

Given the changes that have occurred over the last couple of decades, the key challenges facing fisheries managers in Queensland in the foreseeable future are:

- stock assessment and life cycle information for key species;
- . catch-effort information, especially for recreational fishing;
- . assessment of the state of Queensland's freshwater fisheries;
- . identification and protection of critical habitat areas;
- . management of unused (latent) effort;
- . capturing new market and value-adding opportunities;
- . determining equitable access between various stakeholders;
- . incorporating aspirations of indigenous people into allocation of fisheries resources; and
- . community understanding of fisheries management measures.

All of these challenges to the Government and to fishery managers involve the presence of stakeholder groups, either individually or collectively.

Until the early 1990s, the preferred method of managing fisheries in Queensland was what could be called the technocratic model. The technocratic model was essentially based on the view that fishery scientists and managers knew what was best for the fishery, and made recommendations to the Government with very little consultation with key stakeholders and no consultation with the community. There was some consultation with the commercial sector but little or no consultation with the recreational or indigenous fishing sectors. Liaison and discussion with other natural resource management agencies with an interest in fisheries was also very poor.

By the early 1990s, the recreational fishing sector had become more vocal in its dissatisfaction with the way fisheries management was being conducted, particularly in the way it perceived that commercial fishing was being given preferential treatment. In December 1992, the Deputy Premier of Queensland, who was not the Minister for Fisheries but was a keen recreational fisher, was given approval by the Government to conduct a State Government Inquiry into Recreational Fishing. This event, along with the changing policy position of a number of other State governments, and the Commonwealth government, in managing natural resources under ecological sustainable development principles, precipitated a complete new direction for the way fisheries would be managed in Queensland.

The Inquiry, which was conducted by a Committee comprising 15 members, in addition to the Deputy Premier who chaired the Committee, contained only one commercial fisher. This imbalance was perceived by the commercial fishing sector as a huge threat to their position in fisheries and they fought against the Inquiry from the beginning. The recreational sector argued that the composition was fair because the Committee was charged with reviewing recreational fishing. The reality was somewhere in between the two positions. As both sectors target the same species generally, it was impossible to review recreational fishing without making observations on commercial fishing. What the inquiry did achieve, however, was to increase substantially the profile and hence, both technical and political debate on the future management of an important natural resource.

3. THE QUEENSLAND CONTEXT

Along the 3,500 km coastline of Queensland and throughout its inland waterways, fishing has a strong cultural significance. This culture has a history that goes back thousands of years, to the indigenous

aboriginal fishers, and extends to the European settlement of Australia 200 years ago. Most coastal communities in Queensland, particularly north of the densely populated south-east corner based around the city of Brisbane, contain commercial fishers. They contribute not only to the economic viability of their community, but also to the social fabric and culture of each community. Recreational fishing is also one of the most popular activities in these communities, with enthusiasm and commitment to fishing activities rivalling all other social and cultural interests.

Though Queensland is a large State, the last 15 years have seen the concept of unlimited frontiers and remoteness as a source of protection for natural resources change rapidly. This change is due mainly to population growth which is currently 2.5 per cent per annum. Queensland's population is expected to increase from the current level of 3 million to 4 million by 2010. Most of Queensland's population is situated in the coastal zone, with the Gold Coast, Sunshine Coast and Cairns regions growing rapidly with increases in population of 70 per cent, 50 per cent and 100 per cent respectively over the last 15 years.

In Queensland, there are currently about 2,000 primary commercial fishing boat licences. Aquaculture operations also continue to expand. These sectors support large industries based on provision of equipment to catch, process and store seafood as well as the distribution and sale of the product. The total harvest and production of commercial fisheries in Queensland during the 1995-96 financial year was about 29,000 tonnes of seafood estimated at \$A228 m.

Population increases have generated not only an increased demand for seafood but also an increase in recreational fishing effort. Greater numbers of participants with improved access and mobility have resulted in increased recreational fishing effort in the coastal zone, as well as in inland waters, at a rate not seen previously. It is estimated that there are currently about 900,000 recreational fishers in Queensland who fish at least on an annual basis. Parts of Queensland which were until recently the preserve of a small number of commercial or indigenous fishers are now being accessed by a growing number of recreational fishers.

Tourism is one of the most significant and fastest growing sectors of the State's economy, generating \$A7500m in revenue and providing employment for 50,000 persons or 10 per cent of the State's workforce. Fishing-related tourism, particularly through the activities of charter boat operators and fishing guides, is undergoing rapid growth and in the future may rival the economic importance of providing locally captured seafood for consumption by tourists.

In Queensland, there are several tiers of government which have responsibilities for fisheries management. In order to ensure the continued sustainability of fisheries and their effective management, it is necessary for all levels of government and authorities to co-operate. The Federal Government of Australia has legislative responsibility for fisheries resources in most offshore waters inside the 200-mile Exclusive Economic Zone and for several species that cross jurisdictional boundaries. There are also fisheries which are managed on the basis of Joint Authorities by arrangement between the Federal Government and the State of Queensland. In undertaking their legislative responsibilities, some Federal Government agencies such as the Great Barrier Reef Marine Park Authority which has responsibility for managing the Great Barrier Reef, may impact on the management of fisheries, though it is not their primary area of responsibility.

At the State level, the two agencies responsible for the management of fisheries in Queensland waters are the Queensland Fisheries Management Authority (QFMA) and the Queensland Department of Primary

Industries (QDPI). The QFMA's primary function is to ensure the appropriate management, use, development, and protection of fisheries resources. The QFMA currently is in the process of formulating Management Plans aimed at achieving this function. The QDPI is responsible for the management, use, development and protection of aquaculture, marine plants and fish habitats. It is responsible also for fishways and for the management, control and, where possible, elimination of diseased fisheries resources. There is a high degree of co-operation between the QFMA and the QDPI. Both organisations also liaise with other State government agencies and Statutory Authorities which have interests and responsibilities in aquatic and coastal environments.

At the level of local Government, co-operation between the QFMA, local authorities and the QDPI is required on a regular basis. Local authorities, for instance, often have control over access to foreshore areas or platforms where recreational and commercial fishing occurs. Thus, co-operation amongst all levels of government is essential for strategic planning and day-to-day management.

Major stakeholders are represented on Management Advisory Committees (MACs), which provide advice to the management agency (QFMA on State-wide fisheries issues, and Zonal Advisory Committees (ZACs) which provide advice to QFMA on regional fisheries issues).

Major stakeholders involved in decision-making processes include representatives of the commercial fishing industry (Queensland Commercial Fishermen's Organisation), recreational fishing interests (Sunfish), indigenous and traditional fishing interests, conservationists, scientists, enforcement officers and managers. Non-government representatives are generally motivated by self-interest. There is, however, greater acknowledgement that all stakeholders are interested in the sustainable use and continued existence of fisheries resources. The consensus reached is often not in the best interests of any single interest group, but is a compromise in the best interest of the resource or sustainability of the fishery. All of these interest groups have representation on ZACs and MACs and provide input into management decisions and formulation of management plans. Prior to the implementation of management plans, the public has the opportunity to comment on the suitability of the management plan and its objectives, via responses to discussion papers and draft management plans which are released for public comment.

4. APPROACHES TO DEALING WITH THE CHALLENGES

As indicated above, the management of fisheries in institutional and participational standpoints is quite complex. The need for changes to respond to these circumstances and emerging issues was evident to many in the stakeholder groups, management and government.

The catalyst for hastening the process was provided by the State Government Inquiry into Recreational Fishing. Many people in the commercial sector were concerned that such an inquiry would not pay sufficient regard to their interests in terms of access arrangements. However, in hindsight, it is now recognised that the process of the Inquiry motivated all stakeholders to focus on the status of fisheries resources. This highlighted the need to modernise arrangements based on clear policies and principles to meet the challenges of today.

It was obvious that a different approach was required which could provide longer-term protection for the resource and equity in decision-making. One option was to adopt a more technocratic approach and dictate outcomes in strict accordance with known scientific evidence. Another possibility was to take a path where management of the resource would be determined on the basis of which stakeholder group could muster the most support, and hope that this coincided with the best social and economic outcome.

The model adopted, which incorporates elements of these extremes, was designed to set clear direction to protect the public interest in the resources, to provide a technical basis for management and to involve major stakeholders directly in the development of management planning.

Following the State Government Inquiry in August 1993, the Minister for Primary Industries released a discussion paper on fisheries policy and legislation entitled "Fisheries: Managing for the Future". The purpose of this paper was to identify the principles, policies and strategies which would underpin new legislative and consultative mechanisms.

The outcome of this public process was an agreement that any new legislation and management arrangements should be based on several fundamental principles:

- (i) Given the limited knowledge base, there is a need for a precautionary approach to fisheries resource management.
- (ii) Management arrangements must have the flexibility to respond rapidly to changing circumstances.
- (iii) Management arrangements must be simple and easily understood.
- (iv) Management arrangements should be minimal in their impact on people while ensuring protection of the resource.
- (v) Arrangements must involve stakeholders in decision-making.
- (vi) Broader community values must be considered in management decisions.

These principles are laudable statements in their own right but the challenge was how to put them into practice.

Queensland Fisheries Act 1994

The Queensland Fisheries Act 1994 is described as enabling legislation which sets the broad objectives of fisheries management as well as the determining mechanisms to achieve these objectives. The Act sets out clear directions, including key institutional responsibilities, while allowing for flexibility in developing management arrangements and processes to deal with circumstances for individual fisheries. Its passage through Parliament is noteworthy for the broad cross-sectional support it received. It was well supported also by the various fishing sectors.

The objectives of the Queensland Fisheries Act 1994 are:

- (i) to ensure that fisheries resources are used in an ecologically sustainable way;
- (ii) to achieve the optimum community, economic and other benefits obtainable from fisheries resources; and
- (iii) to ensure that access to fisheries resources is fair.

The following institutional arrangements were established to deliver these new initiatives:

- (i) the establishment of the Queensland Fisheries Management Authority to manage and protect fisheries resources in c&operation with the Queensland Department of Primary Industries; and
- (ii) provision for the Department of Primary Industries to manage the protection of fish habitat and prevention, control and eradication of disease in fish as well the management of aquaculture.

goals set by the Government. The success of fisheries management plans in achieving objectives will depend on their being developed in association with other natural resource management strategies.

Preparation of a draft plan for a fishery and reasonable community consultation are fundamental components of the process. To this end, the inputs of the MACs are of fundamental importance.

Consultation and Community Involvement via MACs and ZACs

Much thought and consideration was given to the best method of achieving management arrangements which would be broadly accepted and integrate the aspirations of stakeholders and the broader community. A clear finding of the State Government Inquiry into Recreational Fishing was that stakeholders were frustrated with what was perceived as the 'closed shop' nature of fisheries management. The Queensland Government has a strong policy of seeking community consultation and openness in decision-making, particularly when it relates to management of public resources.

In response to this and building on the experience of arrangements implemented at the Commonwealth Government level, it was decided to establish two levels of consultation and involvement in fisheries management, viz. Management Advisory Committees (MACs) and Zonal Advisory Committees (ZACs). Each has different, although at times overlapping, tasks to advise the QFMA in the development of management arrangements.

Management Advisory Committees (MACs)

The MACs are essential building blocks in the process of developing management plans. MACs are the principal source of planning and advice to the Authority. They advise on appropriate management, use, development and protection of fisheries resources. They recommend development, implementation, performance review and amendment of management plans for each of Queensland's fisheries. They prioritise research, monitoring, surveillance and enforcement for these stocks and finally, they provide a forum for discussion of management matters amongst all significant stakeholders.

There are currently six MACs:

- ¹ TRAWLMAC
- ¹ REEFMAC
- ¹ SUBTROPICAL FINFISH MAC
- TROPICAL FINFISH MAC
- ¹ FRESHWATER MAC
- CRABMAC

Membership of the MACs varies, depending, on the circumstances. However, all major users are represented (commercial, recreational, charter operators, indigenous), as well as key scientists and representatives of government authorities involved in natural resource management and primary production. A Senior Resource Manager from the QFMA is also a member of each specific MAC. Each MAC usually comprises 12- 15 members.

The Chairperson is independent and has responsibility for keeping the planning process on track as well as reporting to the QFMA on behalf of the MAC. These people should have a high standing in the

community. Current MAC Chairs include a University Professor, a former Australian Cabinet Minister and a Commissioner for the Environment. It is extremely important that the Chairperson possesses good leadership skills, fairness and a reasonable knowledge of fisheries resources, if the operation of the MAC is to be successful.

The Board of the QFMA is not bound by the advice from a MAC on matters within its charter. However, the Board should advise the MAC on how it has diverged from its advice and explain the reasons why. Experience has shown that divergence does not happen very often. However, it is the QFMA which has the legal responsibility for developing and implementing management arrangements and it cannot negotiate away its fundamental responsibility to manage fisheries resources in keeping with its charter under the legislation.

Similarly, being independent advisers to the Board, fishery managers are not bound by the outcomes of the MACs consultation. However, fishery managers will be required to inform the MAC of their disagreement and have their view recorded in the minutes of the MAC meeting prior to bringing it to the notice of the Board. Clearly, the role of fishery managers is changing, with expertise in fisheries management needing to be complemented by consultative and negotiational skills.

Zonal Advisory Committees (ZACs)

ZACs have a broader role than the MACs. The purpose of the ZACs is to provide a forum for regional communities to provide advice on the diverse range of issues impacting on local fisheries. Membership of ZACs is not restricted to key user groups although they should be key participants. One condition of membership is that appointees must be able to show they have a network for reporting to and consulting with a section of the community.

ZACs are a valuable source of local advice to QFMA, reflecting the decentralised nature of fishing activities in the State. After receiving formal reports from the ZAC, the QFMA refers them to the relevant MAC for consideration or it may act on the advice directly.

Ten ZACs have been established throughout Queensland and their membership typically comprises between 12 and 23 persons.

One of the principal benefits of ZACs is their capacity for gathering information on fisheries management needs and disseminating information to the broader public. Despite the strong grassroots interest in fisheries at a community level in Queensland, the understanding of the state of resources and rationale for management is poor. ZACs are providing a direct mechanism for dealing with this problem by providing this information to the community.

The establishment of MACs and ZACs was preceded by the development of a policy paper on MACs, ZACs and management plans. There was a large amount of consultation with a range of stakeholder groups on these initiatives, particularly the ZACs. The commercial sector was not very supportive of the establishment of ZACs because it felt that the opposition to commercial fishing (particularly netting in rivers and creeks) by recreational and other community groups would be the main topics for discussion at ZAC meetings. This concern has proven to be correct. However the commercial fishers on the ZAC have been able to present their point of view and, in many cases, the issue is settled in the ZAC.

The number of representatives on MACs from each of the stakeholder groups was the subject of much discussion, with commercial and recreational sectors arguing consistently for equal representation. This did occur with those MACs dealing with fisheries in which both sectors target the same fisheries resources to a significant level.

One of the major difficulties in establishing MACs and ZACs was convincing the various fishing sectors that the new management planning process was a better process than the one that existed previously, and was one in which all of them could contribute positively to the sustainability of the fishery resource. They were asked to participate in the new process by being involved in negotiation and mediation and to accept the decisions forged from that process. At this comparatively early stage of the new management planning process, there is some doubt as to whether all sectors are comfortable or mature enough to stay within the process. Some may still decide to go directly to government to lobby for their own self-interest.

The high level of consultation with key stakeholder groups, and the ability to give the public an opportunity to respond to published discussion papers and draft management plans, gives the QFMA and its management planning process a level of legitimacy and transparency in the eyes of government and community members alike. This process will not necessarily stop stakeholder groups from trying to promote their vested interests to government, but it provides governments with real alternatives to resource management allocation or sustainability issues.

The development and implementation of any new system generates uncertainty and causes anxiety to many people. The initiatives developed and implemented, including the new legislation, have all been undertaken with the involvement of the leaders of each of the stakeholder groups. A considerable amount of energy and resources went into educating and informing rank and file members of stakeholder groups and members of the general community about the new management process and its objectives.

5. OUTCOMES

The management planning or community-based management process has changed the culture of fisheries management in Queensland. It has occurred in a number of important ways.

Firstly, the community and stakeholders are gradually developing an attitude that publicly owned resources need to be shared on a fair and equitable basis. This attitude derives from the concept that the resources are of a multi-user nature and stakeholders are obliged to negotiate and listen to the aspirations of other stakeholders. The outcome is an understanding that there are several legitimate uses of the resource and that sharing on a sustainable basis is possible with goodwill and quality information available to make decisions.

Another outcome is that stakeholders, the government and the community have generally realised that fisheries are a finite resource. The sharing of information about the characteristics of fisheries resources (particularly what is not known), catch/effort data and the rate of destruction of fisheries habitat has generated a sense of awareness that uncontrolled or irresponsible fishing by any group cannot be allowed.

Furthermore, the role of government agencies in managing fisheries is changing to one of facilitation, negotiation and mediation with all major users, rather than a reliance on the ad hoc, short-term and fragmented decision-making of the past. The new role of agencies will deliver adequate protection for the resource and will allow opportunities to maximise economic and social benefits from the State's unique and valuable fisheries resource.

The leadership demonstrated by the QFMA in taking up the challenge of managing fisheries in association with key stakeholder groups was a critical element in contributing to the success of the new model. The expertise-based Board of the QFMA strongly believed that this model of management was appropriate and held firm against any efforts to dilute its effectiveness. An associated benefit was the support given by both sides of government to the process, and the sound support given by the leaders of key stakeholder groups, who were often under intense scrutiny and pressure from their constituents to modify the process for sectoral gain.

There are still several people within key stakeholder groups who do not want change. They are concerned that change will cause them hardship or inconvenience and argue that economic or status quo considerations should take precedence over stock sustainability. This issue is a very crucial one. The sustainable use of fisheries will at times cause hardship to some users, tempting the government to take options which could place the sustainability of stocks in jeopardy.

6. THE LESSONS LEARNT

None of the proposed new fisheries management plans are in place in Queensland as at 27 November 1997. Within the next two to three months, about four draft management plans will be in the public domain, seeking comments from interested members of stakeholder groups and the public.

It is difficult to say how successful these plans will be. It can be said that the measures being advocated in each of them have provoked more discussion, argument and input by far more people than any other management measure currently existing in Queensland fisheries. The extensive input into the process is expected to lead to the community and stakeholders adopting an "ownership" attitude to the final product.

Some people will argue that a management planning process which takes up to two years to achieve an outcome is too long and cumbersome and creates difficulties in maintaining a strong focus. Counter arguments to this are that the timeframe allows significantly more people to have input into the process, the elements of the plan will be more robust given the degree of negotiation behind them, and governments will be more confident that the measures in the plan will survive scrutiny and obtain greater acceptance by stakeholders and the community.

The development of a number of management plans simultaneously is extremely demanding on resources and places pressure on management agencies and stakeholder groups alike. The staged introduction of management plans would be preferable, but when expectations across several fisheries are as high as they are in Queensland at present, it is very difficult to slow down the process in any one of the major areas covered by the MACs.

It takes time for members in stakeholder groups to obtain the experience and capability to work with representatives from other groups to achieve a common goal. In retrospect, training of the MAC and ZAC members in conflict resolution, negotiation and fisheries management at the beginning of the process would have been extremely helpful.

One of the more important elements for anyone contemplating use of this model of fisheries management is to appoint strong Chairpersons to each of the MACs and ZACs. These Chairpersons should have a firm grasp of the issues, and the ability to work out a consensus. They should not harbour a bias towards any of the fishing sectors.

Another important element of the Queensland model is a legislative foundation which derives support from all political parties and has clear, precise objectives against which agencies can be evaluated. These objectives, set by the legislation, provide agencies with clear directions for action. Appropriate strategies can then be implemented to seek stakeholder co-operation and collaboration in managing fisheries sustainably.

Finally, the Queensland model will only be as successful as the participants allow it to be. The workability of the new arrangements depends directly on the support and participation of those involved in using the resource.

11. COMMUNITY INPUTS INTO FISHERIES RESOURCE MANAGEMENT

Approach of the Queensland Department of Primary Industries

by Peter Finglas

*Industry Manager (North Queensland), Fisheries Resource Management
Department of Primary Industries, Queensland, Australia.*

Summary

With the heightened awareness of the importance of linkages between the fisheries habitat and fisheries productivity, there is a greater need to involve the community in the decision-making process. Including the community into this process has advantages for both fisheries managers and the community. It serves to reduce conflict and foster a partnership approach to making tough environmental decisions. With the community being an integral part of the process, they become more informed about the terms and conditions of fisheries approvals. There is a better probability of successful fisheries management because the community is empowered with the information and the motivation to be the watchdog of the resource.

Introduction

The Department of Primary Industries, Queensland, is a rural economic development agency bringing together Government and industry in partnership to increase the profitability of primary industries-based enterprises on a sustainable basis.

Fisheries are of economic, social, ecological and traditional importance to all Queenslanders. These resources are of special significance to those with an interest in commercial fishing, aquaculture, recreation and tourism and to traditional users. Fisheries resources are available to all, and the responsibility for their management and good stewardship is a public service shared by government, the resource user and the general community.

The Department of Primary Industries, Queensland, and specifically its Fisheries Group, has been charged with providing this management in the areas of:

- ¹ Assessing fisheries resources.
- ¹ Fish stocking and other forms of enhancement.
- ¹ Aquaculture development.
- ¹ Protecting the habitat.
- ¹ Community education.
- Enforcing compliance with rules for sustainable and fair use.
- ¹ Boating safety.
- ¹ Shark control.

In this regard, the Fisheries Group conducts research, education and extension, develops policy and legislation, assists development and adoption of new technology, promotes sustainable, profitable and

competitive fisheries, promotes community use of fisheries resources and enforces fisheries laws. The Group also has overall responsibility for aquaculture industry management, planning, research, extension and fish health services. Priority areas include commercial fisheries productivity, recreational fisheries development, development of the aquaculture industry and protection and management of marine and freshwater fisheries habitats

Legislative Framework

The Queensland Fisheries Act 1994 is the legal statute that provides for the management, use, development and protection of fisheries resources and the fisheries habitat, and the management of aquaculture activities within the state of Queensland.

The objectives of this Act are:

- a) ensuring that fisheries resources are used in an ecologically sustainable way;
- b) achieving the optimum community, economic and other benefits from fisheries resources; and
- c) ensuring that access to fisheries resources is fair.

The objectives of the Act are achieved mainly by:

- a) establishing the Queensland Fisheries Management Authority (QFMA) to manage and protect fisheries resources with the chief executive of the Department of Primary Industries (DPI);
- b) giving the appropriate powers to enable the QFMA and the DPI to perform their respective functions;
- c) providing for the management and protection of fish habitats;
- d) providing for the management of commercial, recreational and indigenous fishing;
- e) providing for the prevention, control and eradication of disease in fish;
- f) providing for the management of aquaculture.

Protection of the Fisheries Habitat

The fisheries habitat is managed under provisions for the protection of marine plants, the gazettal of Fish Habitat Areas and the restoration of damaged or destroyed habitats of importance to fisheries productivity. The legislation provides for approvals to allow works to be undertaken within intertidal areas, provided the impacts of such works are minimal, they are for fisheries purposes and/or community benefit, and appropriate mitigation measures are carried out to counter any approved loss of fisheries habitat. The Department of Primary Industries is guided by a number of policies to ensure equitable and consistent decisions in terms of issuing permits which impact on the fish habitat. An important part of this process is to include the community in the decision making.

Marine Plants

Marine plants are protected in Queensland, and this protection applies irrespective of the tenure of the land on which the **plants** occur, or the degree of or purpose of the disturbance. Marine plants are defined under the Fisheries Act to include the following:

- a) a plant (a tidal plant) that usually grows on or is adjacent to tidal land, whether living, dead, standing or fallen;
- b) material of a tidal plant, or other plant material on tidal land;
- c) a plant, or material of a plant, prescribed under a regulation or management plan to be a marine plant.

The objectives of the policy which guide the issue of marine plant disturbance permits are:

- a) to ensure that marine plant resources are used in an ecologically sustainable way;
- b) to ensure the minimisation of adverse impacts of human activities on marine plant resources;
- c) to achieve the optimum community, economic and other benefits obtainable from marine plant resources;
- d) to ensure equitable access to marine plant resources;
- e) to provide all stakeholders (e.g. community, government agencies, legal profession, private landholders, fishing industry, developers, consultants, conservation groups and educators) with a clear statement on the Department's position with regard to the assessment of applications and issue of permits to remove, destroy or otherwise damage marine plants and;
- f) to provide for a decision-making process to achieve (a) to (e).

Fish Habitat Areas

Fish Habitat Areas form an important component of the ongoing protection and management of fisheries resources and wetland habitats in Queensland. The Areas are declared with the specific intent of insuring the continuation of productive recreational, commercial and traditional fisheries in the region.

A Fish Habitat Area may be declared in both marine and freshwater environments to protect important juvenile and adult fish habitats. These habitats include sand bars, shallow water areas, undercut banks, snags, rocky outcrops, pools, seagrass beds, mangrove stands, etc.

Declaration of a Fish Habitat Area complements the existing and more general fisheries habitat management (e.g. protection of all marine plants) by:

- a) providing additional statutory protection to critical freshwater and unvegetated marine habitats,
- b) publicising the fisheries values of the area, and
- c) providing guidelines on fish habitat management to other management groups and members of the community proposing works within or adjacent to the Declared Area.

The Declaration Process

The declaration of a Fish Habitat Area generally follows the process outlined below:

1. Nomination of an area as a candidate for declaration as a Fish Habitat Area (often community driven).
2. Review of nomination and assessment of its priority for further investigation.

3. Site investigation/field habitat surveys, literature searches and reviews, assessment of fish catch records and preliminary discussions with the community (e.g. commercial, recreational fishers, indigenous groups, local authorities and other interested groups) to determine if the nominated area meets Fish Habitat Area declaration criteria.
4. Preparation of an Area of Interest Plan and draft of known management issues.
5. Initial consultation with interested parties and relevant agencies.
6. Revision of information gathered during the initial consultation phase, preparation of a draft Fish Habitat Area Plan and a draft management strategy with recommendations at an appropriate management level.
7. Second round of consultation with interested parties and relevant agencies.
8. Revision of information gathered during the second round of consultation.
9. Preparation of a Declaration Plan of Fish Habitat Area Boundaries and a submission of proposal for declaration.
10. Provision of Plan and submission to the Department of Primary Industries legal section.
11. Provision of Plan and submission to the Minister for Primary Industries.
12. Provision of Plan and submission to the Governor in Council for Declaration under the *Fisheries Regulations*.

It is expected that the declaration process from Step 4 to the final declaration should take a period of approximately 12 months to complete. However, this will depend on the complexity of issues associated with the individual area.

In general terms, Fish Habitat Area status is declared over areas that contain fish habitat that are critical for fisheries productivity and sustainable fishing in the short and the long term and to maintain the ecological character and integrity of undisturbed fisheries habitats. This management level does not impact on the normal day-to-day uses of the area by the community (e.g. boating and fishing), but does severely restrict development-related disturbances. Additional management may occur through a location-specific management plan, once the Fish Habitat Area has been declared. A decision regarding the most appropriate management category is usually made following the first round of community consultation, at which time all the relevant issues should be available for consideration.

The Community : Where Do They Fit into the Process?

The issuing of permits under the *Fisheries Act* to remove marine plants or to conduct works in a Fish Habitat Area equates to giving a right to impact on a community resource, that is, the fisheries productivity of an area. It is vitally important that an assessment process is followed to ensure that these impacts are acceptable and that decisions are made fairly and equitably across the state. An integral part of this process is to ensure that the community is part of the decision-making process.

Local Fisheries Officers should become involved early in the development planning process to ensure that acceptable fisheries outcomes can be negotiated. At this time, plans are reasonably flexible and fisheries can provide advice to minimise productivity impacts. It is also important to include inputs from the community early on in the process to ensure that decisions are based on all available knowledge and that community members are genuinely part of the process.

Elements of Successful Community Input.

- Community input should be facilitated by the local Fisheries Staff as these people have built up a level of trust and respect with the community that only time and close working contact can establish.
- Consultation with the community is recognition that the Department may not possess all the available information on which to base decisions. Anecdotal information can be valuable in itself or provide a picture of trends over time.
- All information obtained from the community should be treated with respect and considered during the decision-making process.
- The lines of communication should be open and honest. For the community to provide advice and opinion they must know all of the details and not just selected non-controversial information.

Benefits from Successful Community Input.

The benefits of involving the community include:

- A better level of community acceptance of decisions which affect a shared resource.
- Better economic, sociological, political and environmental information on which to base decisions.
- Education of the community on the decision-making process, the objectives of the Department and the fisheries impact issues of the area.
- Closer links between the Department and the community, and a better understanding of the aims and objectives of the Department.
- Encouragement to community policing when the terms and conditions of the development approvals are known.

Fishcare Volunteers Programme, “Conservation Through Information”

The Queensland Boating and Fisheries Patrol (a section of the Department of Primary Industries) has traditionally performed the compliance role, particularly enforcement and education in relation to Fisheries Regulations throughout Queensland. In recent times, a greater community awareness of conservation issues has emerged. The need for an increased education role by the patrol to address habitat and resource conservation has evolved.

The Fishcare Volunteer Programme consists of community volunteers performing a practical role in the field with the following benefits:

- Promote a community-based education programme relating to Fisheries Regulations.
- Enhance the Queensland Boating and Fisheries Patrols education programme.
- Improve communication between fisheries managers and recreational anglers
- Raise recreational community awareness of the need for a conservation ethic in relation to the utilisation of fisheries resources.
- Increase community awareness of the need for management arrangements such as bag and size limits.

- Assist fishers improve their angling skills.
- Monitor the habitat.
- Monitor recreational catches

Conclusion

Including community input into the decision-making process has advantages for both fisheries managers and the community. It serves to reduce conflict and fosters a partnership approach to making tough environmental decisions. Because there is an awareness of the complicated issues involved in managing fisheries resource impacts by the community there is also a sense of being part of the solution. Solutions often reflect fisheries management objectives by leading to a better-informed community prepared to defend management decisions which they have contributed to.

References

- Beumer, J., Carseldine, L., and Zeller, B.** (1997) Declared Fish Habitat Areas in Queensland. DPI
- Couchman, D., Mayer, D., and Beumer, J.** (1996) Departmental Procedures for Permit Application Assessment and Approvals for Marine Plants. DPI
- Department of Primary Industries, Queensland.** (1996) Fishing and Aquaculture Industries, Priorities Towards 2000. DPI
- Department of Primary Industries, Queensland.** (1997) Fish Habitat Area, Declaration Process and Management Options. DPI.