

Overview – Pacific Ocean

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INTRODUCTION

The countries of the Pacific Ocean are characterised by a considerable diversity of economies, cultures, fishing practices, and fishing management approaches. Therefore, any attempt at cross-country comparisons or regional aggregation of information, without providing detailed explanations at the country level, is doomed to oversimplify the situation and possibly mislead the reader. Added to this are the difficulties inherent in different management environments stemming from lack of data and transparency, discrepancies between the status of management as formally reported and its true and real situation, definitional differences as to what constitutes large-scale or small-scale fisheries, and differences in whether a stock-based or gear-based definition of individual fisheries was applied. Therefore, this overview can be useful only in providing ‘first-glance’ insight into the region’s fisheries management regimes and their impacts on sustainability. For a deeper understanding of the historical, political, and economic contexts behind the aggregated data presented in this chapter, the reader is invited to refer to the regional and country reviews within this report.¹

This chapter presents the results of the FAO State of World Marine Capture Fisheries Management (SOWMCFM) Questionnaire from twenty-nine² Pacific Ocean countries, completed over the 2003/2006 period. First, national-level³ aspects of fisheries management are presented including related legislations, the costs and funding of fisheries management, stakeholder involvement and conflict management, and compliance and enforcement. The chapter then looks more specifically at the trends in the use of management tools within the top three (by volume) marine capture fisheries within the large-scale, small-scale, and recreational fisheries sub-sectors.⁴ In addition, a brief summary of existing knowledge of Pacific Ocean stocks is presented.

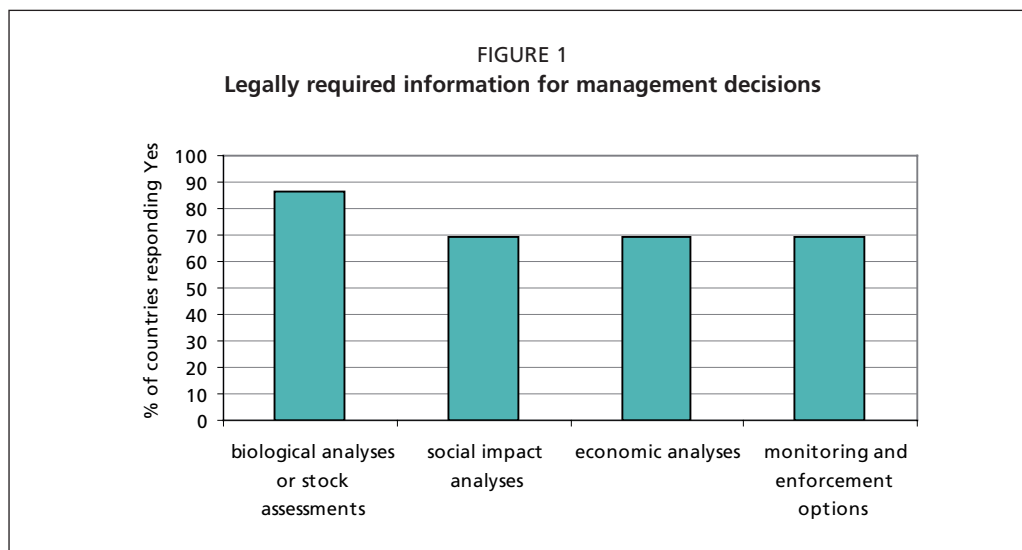
The information provided in the questionnaires are not official government responses but an attempt by each respondent to collect as much information as possible through published documents, personal communications with relevant stakeholders, and their own experiences in these fisheries. This approach permitted each country review author to provide information on the fisheries even where no official information existed.

¹ Additional resources for the reader are the chapters concerning the Pacific Ocean fisheries resources within the Review of the state of world marine fishery resources (FAO, 2005).

² Questionnaires were received from Australia (Pacific coast), Cambodia, Canada, Chile, China, Colombia (Pacific coast), Costa Rica (Pacific coast), Ecuador, El Salvador, Fiji, Federated States of Micronesia (FSM), Guatemala (Pacific and Atlantic coasts), Honduras (Pacific coast), Indonesia (Pacific and Indian coasts), Japan, Malaysia (Pacific and Indian coasts), Mexico (Pacific coast), New Zealand, Nicaragua (Pacific coast), Panama (Pacific and Caribbean), Peru, Philippines, Republic of Korea, Russia, Samoa, Taiwan, Thailand (Pacific coast), United States (Pacific coast), and Vietnam. Questionnaires were not completed for Democratic People’s Republic of Korea, Singapore, and the remaining South Pacific Small Island Developing States.

³ Includes inland and marine capture fisheries.

⁴ Also referred to as commercial/industrial, artisanal/lifestyle/subsistence/indigenous/customary fisheries, and amateur/sports fishing including non-consumptive uses, respectively.



NATIONAL MARINE FISHERIES FRAMEWORKS

In accordance with the principles of international law, as reflected in the relevant provisions of the 1982 UN Convention on the Law of the Seas⁵, the countries of the region are responsible for regulating access to fisheries resources within their exclusive economic zone (EEZ) and “to ensure, through proper conservation and management measures, that the maintenance of these living resources are not endangered by over-exploitation”.

Legislative and political frameworks

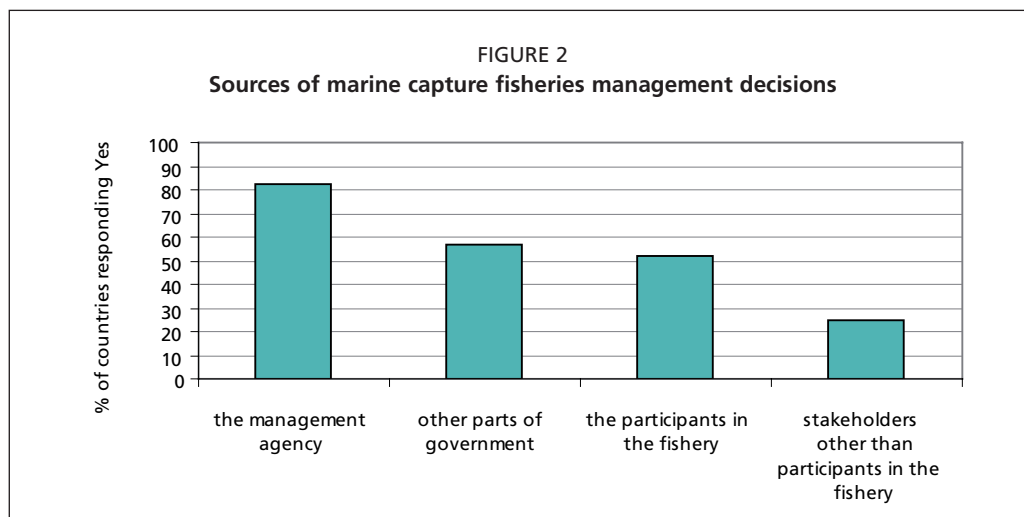
All countries studied within the region had specific legislation for the management of marine capture fisheries and all⁶ such legislation provided a fisheries management legal framework, but slightly fewer provided an administrative framework for such management (93 percent). The term ‘fisheries management’ was defined in only 31 percent of those countries responding; however, 76 percent (22 countries) of the countries had laws and regulations designed to serve as a legal framework for fisheries management (all of these 22 countries) and fisheries management plans (15 of these 22 countries). In 22 of the countries, the legal framework provided objectives for the management of fisheries, which were often (87 percent) used in management plans; however in only half of these 22 countries were priority rankings or orderings given to these objectives.

In addition, in a majority of cases, national legislations required fisheries management decisions to be based on at least one of the following analyses: biological analyses/stock assessments, social impacts analyses, economic analyses, or monitoring and enforcement analyses (Figure 1). Therefore, although fisheries management may have been a legally vague concept, there was a good amount of legal guidance and transparency on the processes for taking management measures. One should note, however, that the information for management was biased toward biological analyses, rather than toward more integrated spreads among the biological and human dimensions.

Stakeholders were formally involved in the management of marine capture fisheries in 62 percent of the countries; however, less than one third of these countries had a formal definition of what groups to include as stakeholders. When included, most often (79 percent) stakeholder participation was limited to stakeholder consultation, without

⁵ Most countries of the region are either signatories of or Parties to the Convention. Exceptions include Colombia, Ecuador, El Salvador, Peru, Thailand, the United States of America and Viet Nam. See <http://www.un.org/Depts/los/>.

⁶ Note that responses were missing for the Republic of Korea and Honduras.



shared management responsibility. However, the legislation enabled co-management structures in approximately half of the countries surveyed and complete devolution of management was legally possible in seven (24 percent) of the countries.

Steps to involve stakeholders within the countries often included:

- making information about the fisheries management process clearly documented and easily available to the public;
- providing meetings to discuss the management of specific fisheries open to all stakeholders; advertised and publicized in advance of the actual meeting dates; and
- providing opportunities for fishery and other participants to contribute to the decision-making process by providing public comments.

To assist in promoting a participatory approach, all countries used at least one of the following media to share information about management measures and meetings:

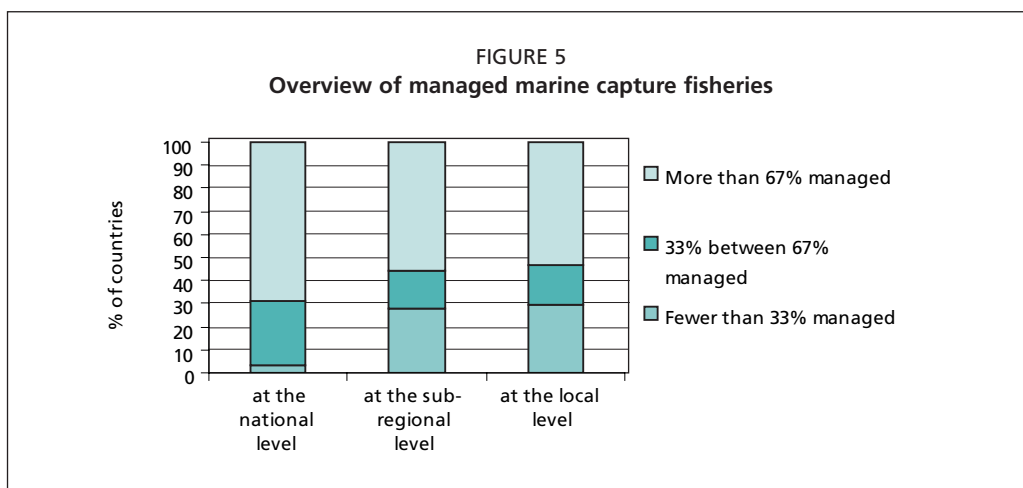
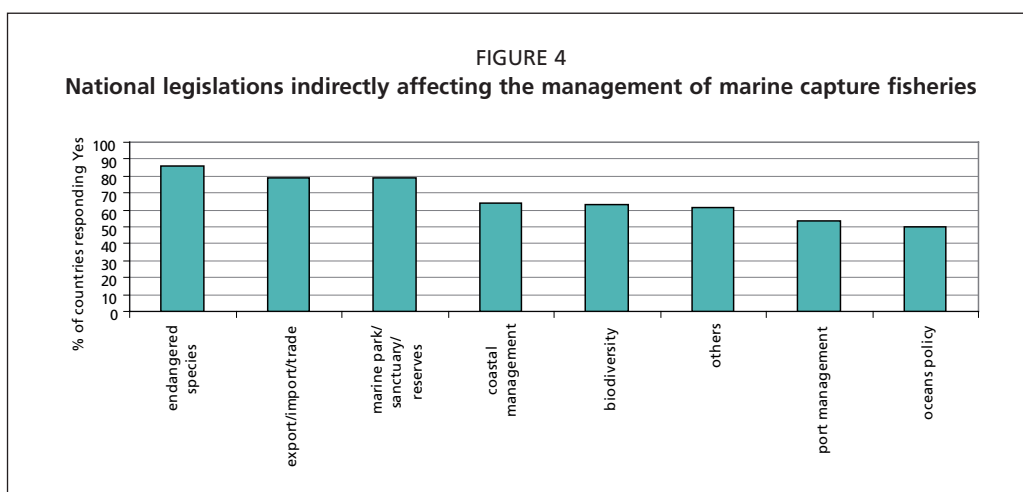
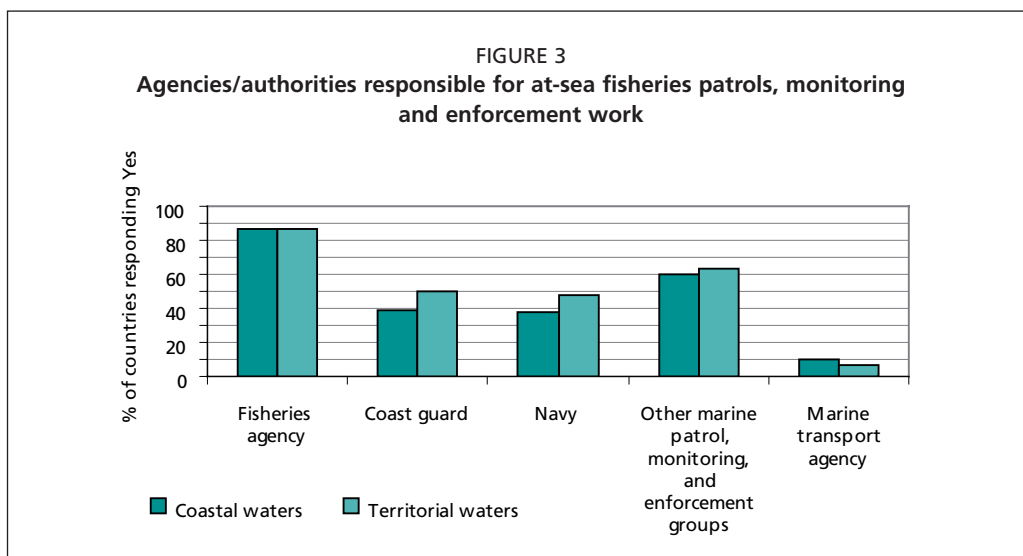
- printed materials, such as brochures or information packages (93 percent)
- direct mail (79 percent)
- fax (68 percent)
- e-mail (68 percent)
- internet website (67 percent)
- radio announcements or talk shows (63 percent)
- other media, such as community/town hall meetings (61 percent)
- television broadcasts (54 percent)

When it came to decision making, the advice provided through the participatory mechanisms mentioned above was often received by the fisheries management agency where the management decision was often made (Figure 2). Interestingly, in over 50 percent of the countries, it was possible for management decisions to be made by participants in the fishery or other parts of government; however, the decision-making powers of other stakeholders remained limited.

The legislation in most countries (93 percent) identified a single agency or other authority⁷ with the responsibility for marine capture fisheries management at the national level⁸; however, these agencies/authorities either legally shared management responsibilities with other agencies (56 percent) and/or were further assisted by

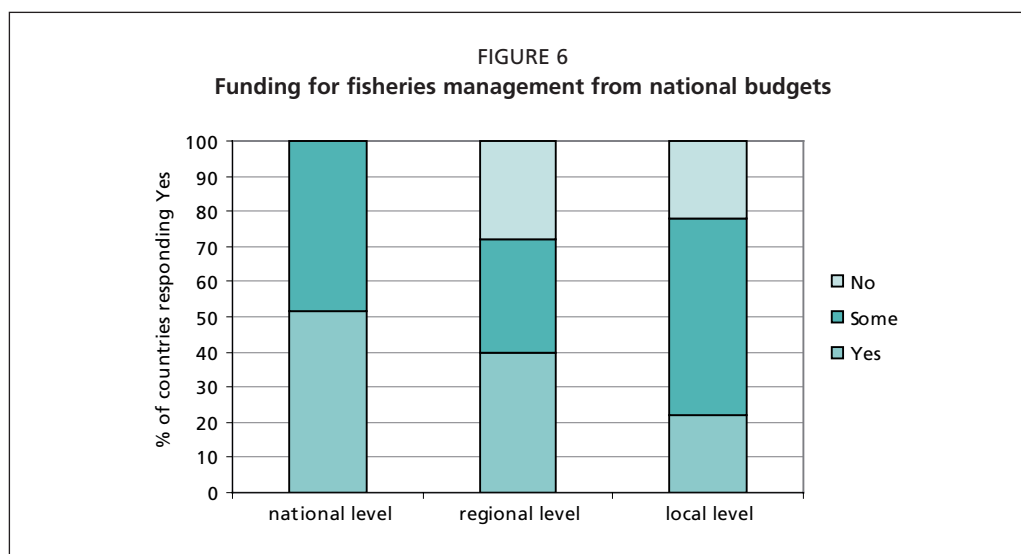
⁷ Occasionally as a stand-alone authority or Fisheries Ministry but often in the form of a Fisheries Department within an Agriculture/Livestock or Environment/Oceans Management Ministry or a combined Agriculture/Fisheries Ministry.

⁸ Note that formal designation of a single agency or other authority responsible for fisheries management at the sub-regional level within country or at the local level was less common: 64 percent and 52 percent, respectively.



government or quasi-government agencies for their fisheries research (63 percent), to be further supported by universities. In many cases (67 percent), the national fisheries agencies/authorities were also supported by at least one other agency (e.g. navy or coast guard) for the monitoring and control of fisheries laws (Figure 3).

In recent years, the policy frameworks in place within the region have moved toward sustainability (socio-economic and biological/ecosystem) objectives rather than purely



on production objectives. This is in part due to the recognition of stock effects of historic over-fishing and impacts on the fisheries ecosystems from within the fisheries sector as well as from other users of the aquatic environments. When specific fisheries management objectives were provided for in the legislation (76 percent), sustainability and optimal use of the resources was often listed as the principal objective. In addition, in almost all countries, fisheries management was affected by at least one other national legislation based on sustainability concepts (Figure 4). And, importantly, the national fisheries legislation gave the fisheries management authorities the legal power to meet the priorities and obligations of international and regional agreements/conventions (86 percent).

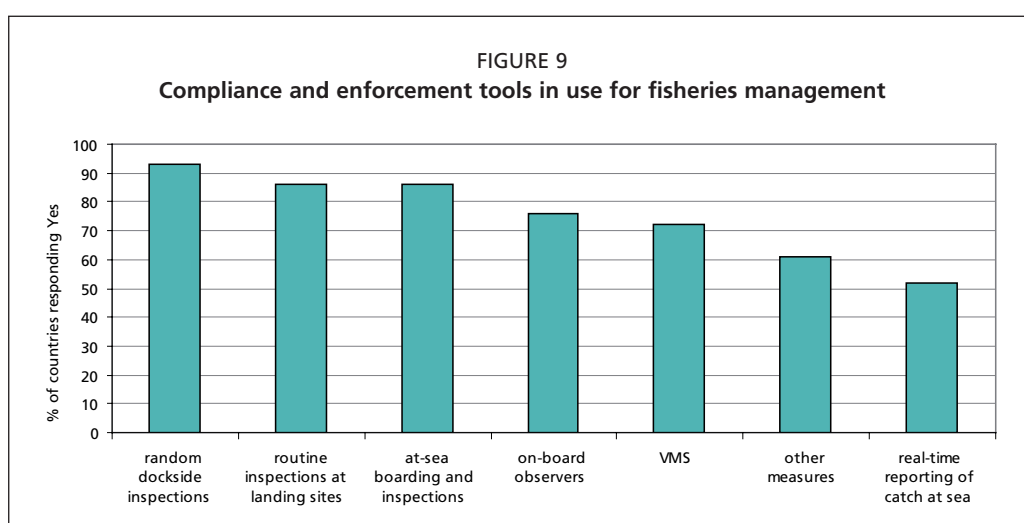
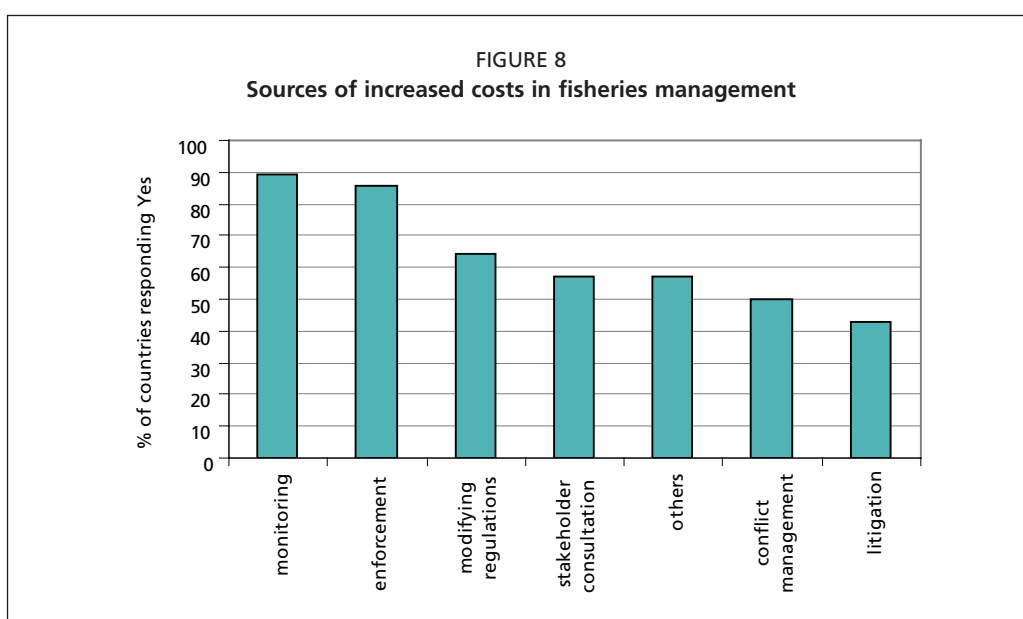
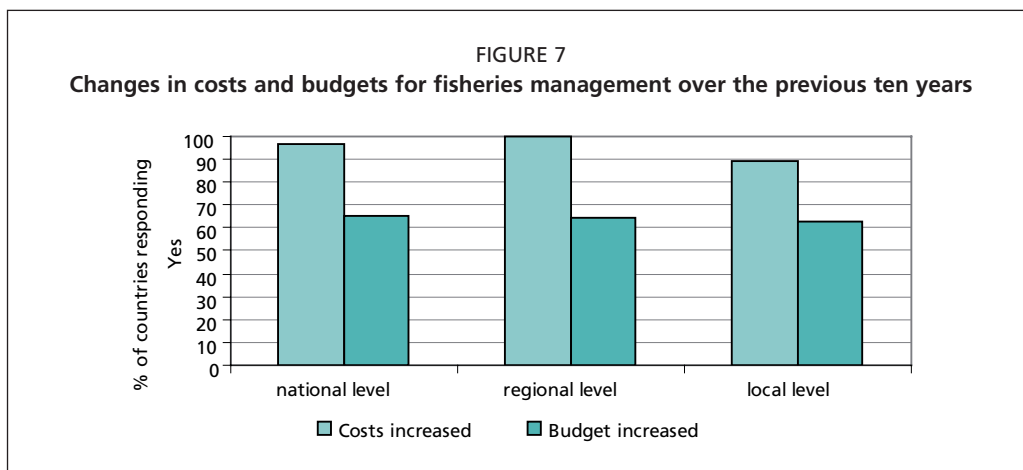
In approximately 70 percent of the countries were more than 67 percent of the marine capture fisheries considered “managed in some way”⁹ at the national level (Figure 5); with this number decreasing toward 50 percent of the countries at the sub-regional and local levels. For those fisheries considered managed, the fisheries were as likely as not to be lacking formal documented management plans; albeit framed by published regulations or rules. The perception within the countries was that the number of fisheries managed in some way had increased at all levels of management over the past ten years and that, generally, all major fisheries (in terms of weight of landings) were managed.

Costs and funding of fisheries management

Budget outlays for fisheries management included, *inter alia*, funding for research and development, monitoring and enforcement, and daily administrative management. Only in approximately 17 percent of the countries were daily management costs not covered at least in part by national government funding.

In all the countries, the costs of fisheries management were provided for wholly (52 percent) or at least in part (48 percent) by national government funding; however, national funding sources tended to decrease as management moved toward sub-regional and local levels (Figure 6). In practically all countries and at most management levels, management costs rose over the preceding ten-year period. Increased budgets for fisheries management, on the other hand, occurred in fewer countries, and decreased in about one third (Figure 7).

⁹ According to the questionnaires, the concept of ‘managed’ was mostly inferred to mean, in decreasing order, 1) interventions/actions to support specific management objectives, 2) published regulations or rules for specific fisheries, and 3) management plans for specific fisheries.



Compliance and enforcement

In most cases, the above-mentioned increases in management costs were associated with increased monitoring and enforcement activities but were also due to modifying regulations and stakeholder consultations (Figure 8).

Compliance and enforcement tools within the region focused on inspections, whether on-land or at-sea. The use of additional tools, such as on-board observers or vessel monitoring systems (VMS) was also widespread within the region (Figure 9).

When faced with infractions, most countries relied on the revocation of fishing licenses or fines as deterrents; however, the perception within the vast majority of the region's countries was that the funding provided was not sufficient to enforce all fisheries regulations. In addition, in at least half of the countries, the penalties for non-compliance were not severe or high enough to act as deterrents and the risk of detection was too low to promote adherence with fisheries regulations.

REVIEW OF FISHERIES MANAGEMENT TOOLS IN USE WITHIN THE LARGEST MARINE CAPTURE FISHERIES

Within the 29 countries surveyed, 81 large-scale, 70 small-scale, and 45 recreational fisheries were identified as the top three largest fisheries by volume in each sub-sector (Appendix 1).¹⁰ As the definitions for each sub-sector as well as whether a fishery was defined by gear or by species were left open to allow for relative definitions within each country, the resulting aggregated data should be interpreted loosely. However, the resulting trends have been grouped by sub-sector as they reflect common management issues across the countries and provide up-dated data at levels which are usually not collected within national and international data collection systems. Fisheries analysed within the questionnaires were limited to national fisheries within continental and jurisdictional waters; they excluded high-seas fishing and foreign fishing in EEZ under access agreements.

Basic data

When matched up with global comparisons of large-scale versus small-scale fisheries (e.g. Thomson, 1980; Berkes *et al.*, 2001; Hart and Reynolds, 2002), the relative sizes between the sub-sectors differed (Table 1). As was the case in the global estimates, the small-scale fisheries involved over 2.5 times more participants (employed part-time or full-time or as subsistence) than the large-scale fisheries. However, unlike the global comparison, total landings from the top fisheries in the large-scale sub-sector were substantially (3.6 times) higher than those in the small-scale fisheries.

The number of participants had increased over the previous ten-year period in most small-scale and recreational fisheries (79 and 64 percent of the fisheries, respectively) and had decreased in a small number of these fisheries (10 and 8 percent, respectively).

TABLE 1
Basic data on the largest Indian Ocean fisheries by sub-sector

	Large-scale ¹	Small-scale ²	Recreational
Number of participants	1.3 million	3.5 million	5.3 million ³
Total landings (tonnes)	32 million	8.8 million	2.3 million ⁴
Number of vessels	30 000	218 000	n.a.

Notes: n.a. = not available.

Data are for the top three (by volume) fisheries for each sub-sector within 29 Pacific Ocean countries.

Guatemala, Indonesia, Malaysia and Panama include data from all bordering ocean/sea fisheries.

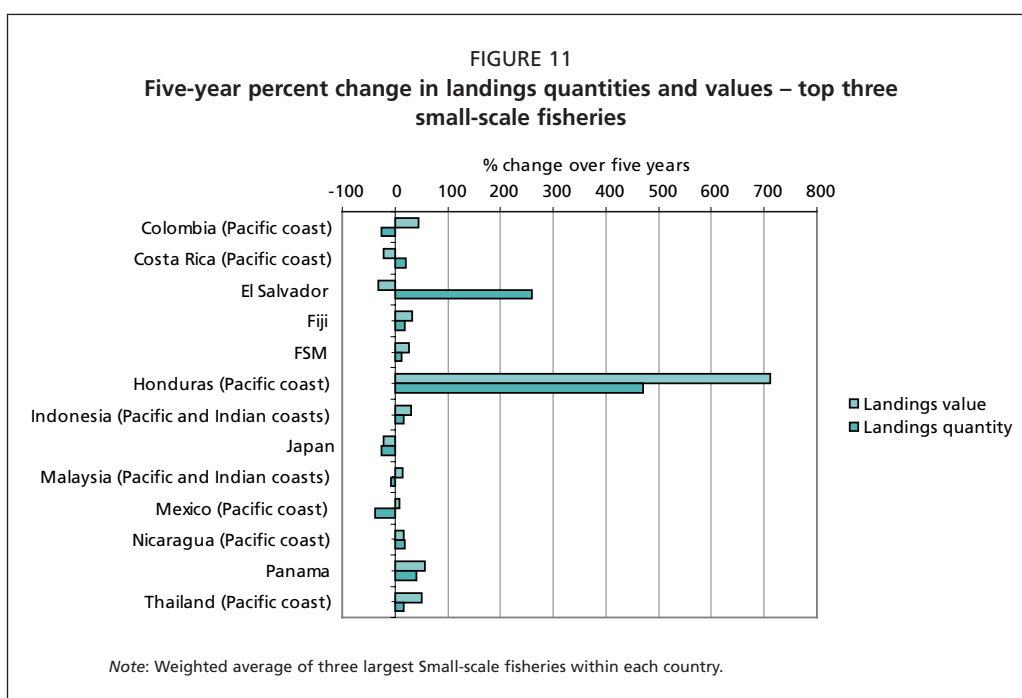
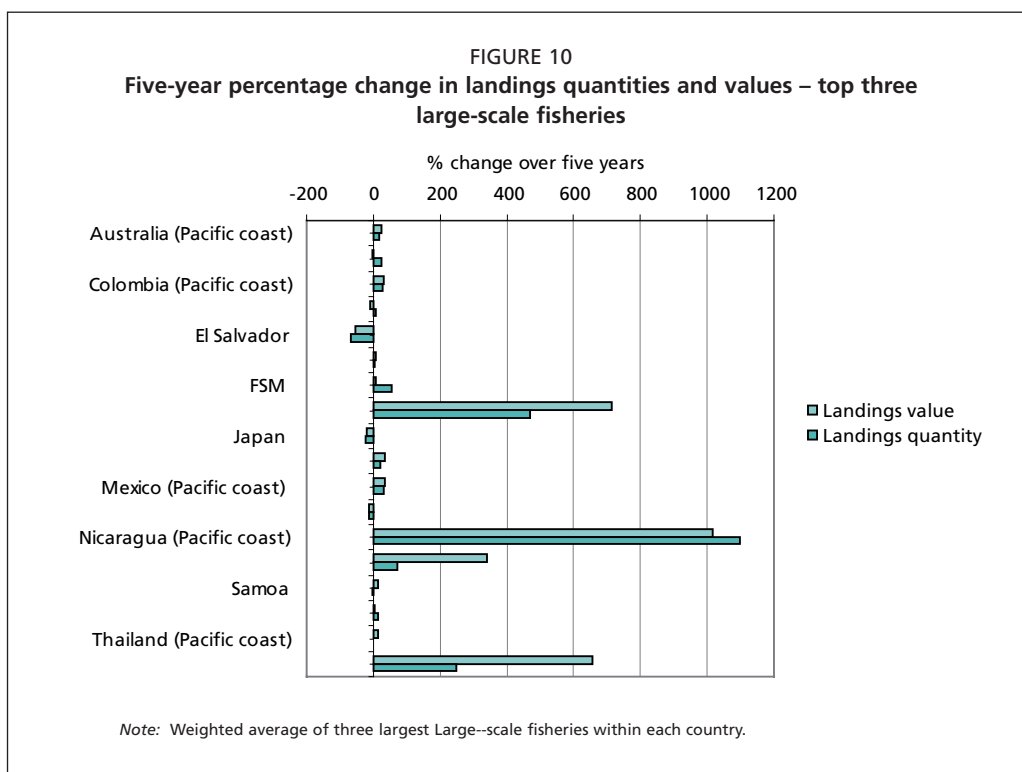
1. Participants data missing for 33; landings data missing for 3; number of vessels data missing for 26 out of 81 fisheries

2. Participants data missing for 29; landing data missing for 18; number of vessels data missing for 25 out of 70 fisheries

3. Includes information for only 9 out of 18 countries identified having recreational fisheries

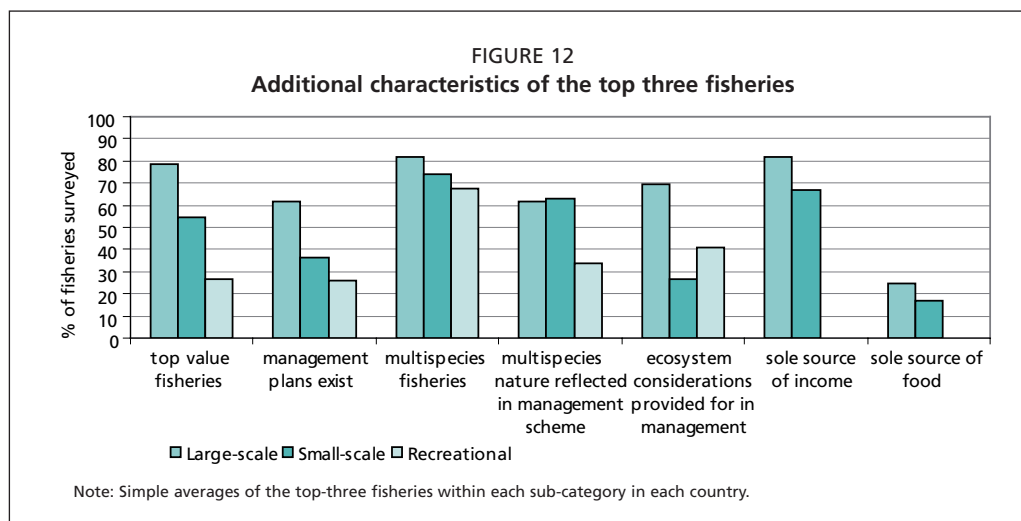
4. Includes information for only 6 out of 18 countries identified having recreational fisheries

¹⁰ For those countries bordering multiple oceans/seas, only Pacific Ocean fisheries are included. However, the information for Guatemala, Indonesia, Malaysia and Panama includes data from all bordering ocean/sea fisheries.



The number of participants in large-scale fisheries had increased in fewer countries (47 percent) and had decreased in more countries (37 percent) with respect to the other two fisheries sub-sectors.

In the 48 large-scale fisheries in the 18 countries where comparative data were available for both landings values and quantities, on average fewer than 40 percent experienced negative changes in either values or quantities (Figure 10). In 70 percent of the countries, the trends in quantities and values followed the same directions. However, in two countries there was positive growth in quantities but negative growth in values and in two other countries, the opposite was witnessed.



In 28 small-scale fisheries in the 13 countries where data were available for both values and quantities, on average 30 percent experienced negative growth rates in values and 44 percent in quantities. In three countries, increased values were experienced in the face of decreased quantities; while in two countries, values went down while quantities went up.

The majority of largest large-scale fisheries presented were also considered to be top value fisheries in the countries. This was less so the case in the small-scale fisheries but still representing over half of the fisheries investigated. It is interesting to note that almost one-third of the recreational fisheries were considered top value fisheries (Figure 12).

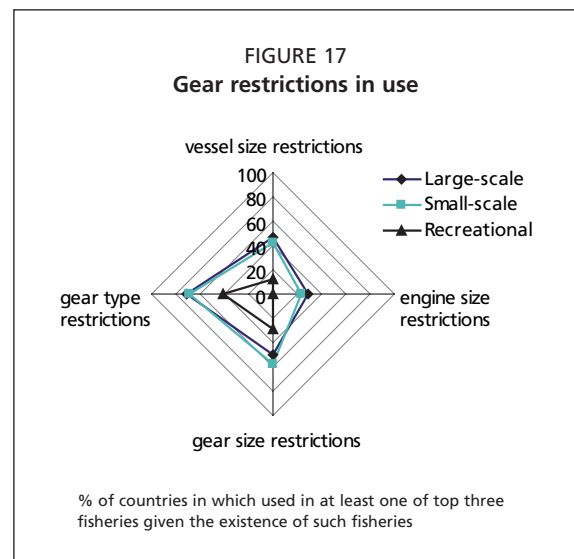
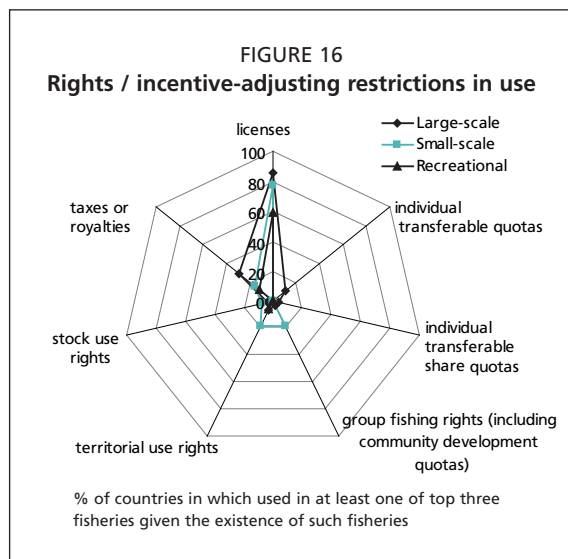
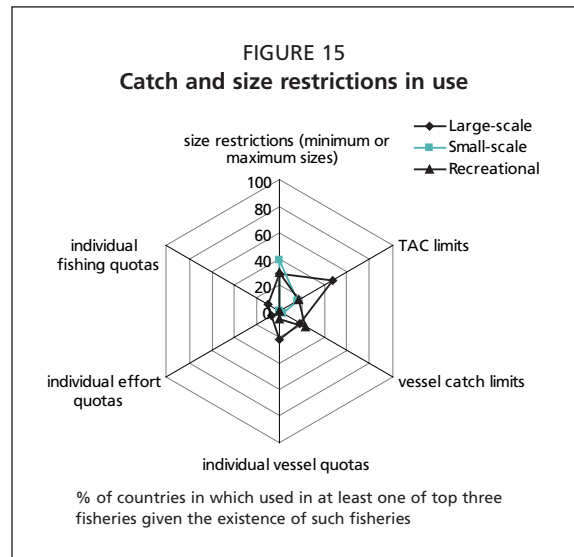
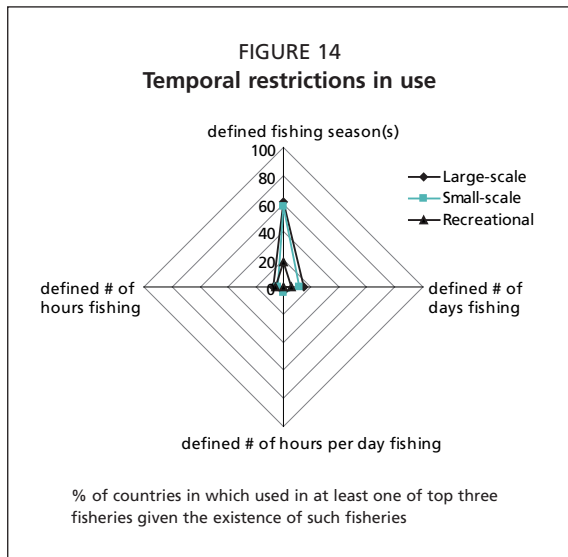
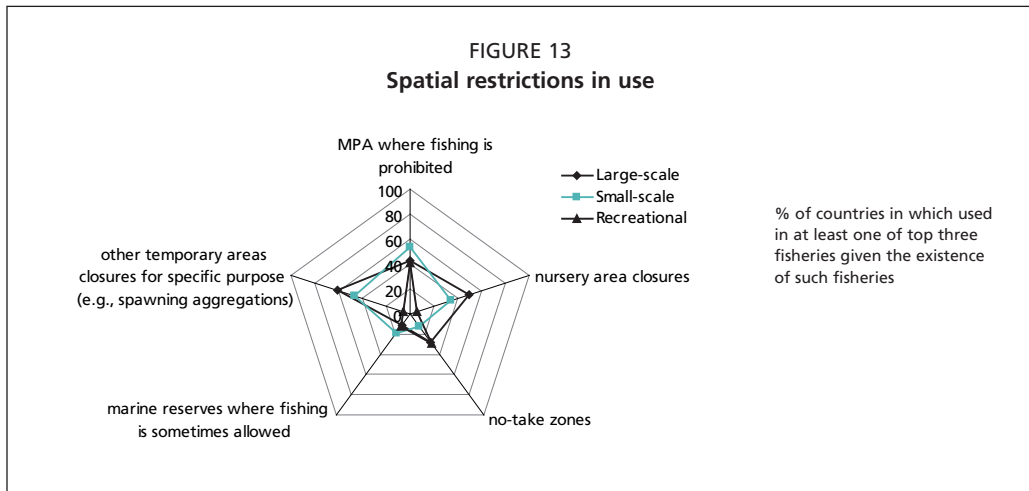
Other trends across the sub-sectors included: fisheries-specific management plans were common in the large-scale fisheries but not in the other sub-sectors; most fisheries were multi-species but this aspect was not always accounted for within the management schemes; and explicit inclusion of ecosystem considerations was beginning to common in these fisheries. In addition, although large-scale and small-scale fisheries activities provided the sole source of income in the majority of the countries, fish and fish products provided the staple food source in only 25 and 17 percent of the large-scale and small-scale fisheries, respectively.

Management tools in use within the largest fisheries

The toolkit of technical measures for fisheries management may be split into five groupings: 1) spatial restrictions, 2) temporal restrictions, 3) catch and size restrictions, 4) Rights / incentive-adjusting restrictions, and 5) gear restrictions (Figures 13 – 17).

The results of the questionnaires bring to light certain tendencies within the Pacific Ocean countries:

- Countries preferred the use of spatial (especially marine protected areas and temporary spatial closures) and gear restrictions (especially gear type and size) over other technical measures for managing marine capture fisheries;
- When used, temporal restrictions focussed on the definition of fishing seasons;
- Other than the issuance of fishing licences, very few incentive adjusting or rights providing mechanisms were used;
- Management tools across the “tool-box” have seen an increase in their use over the past ten years; and
- Although recreational fisheries were active in at least eighteen countries in the region, few management measures are applied to these fisheries other than the establishment of marine protected areas and reserves and, less frequently, the granting of licences and the adoption of gear type restrictions.



Funding outlays and cost-recovery in fisheries management within the largest fisheries

Management costs within the top three fisheries included, *inter alia*, research and development (R&D), monitoring and enforcement, and daily management. Aside from