APEC Transboundary Marine Spatial Management Project

Final Report

(MRC-WG 01/2009A)





APEC

Asia-Pacific Economic Cooperation

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Acronyms

APEC	Asia-Pacific Economic Cooperation
BPA	Bali Plan of Action
COTS	Commercial-off-the-shelf
EAF	Ecosystem Approach to Fisheries
EBM	Ecosystem-Based Management
ICT	Information & Communication Technology
MEAM	Marine Ecosystems and Management
MPA	Marine Protected Area
MRCWG	Marine Resources Conservation Working Group
MSP	Marine Spatial Planning
NGO	Non-Governmental Organisation
SOD	Seoul Oceans Declaration
SOW	Scope of Work
SRM	Sea Resources Management
TMSM	Transboundary Marine Spatial Management

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1 Project Management Summary

The Transboundary Marine Spatial Management (TMSM) Project „Final Report' has been prepared by Sea Resources Management (SRM) Sdn Bhd on behalf of the APEC Marine Resources Conservation Working Group (MRCWG). This report is the tenth project deliverable, and meets the fifth milestone of the APEC-TMSM Project Scope of Work (SOW).

The purpose of this Final Report is to apprise the Project Overseer of project implementation efforts and achievements.

1.1 Background

The APEC MRCWG initiated a project (APEC MRCWG 2009/1A) to prepare a framework of guiding principles (a „How-to' Guide) for the development, implementation, management and enforcement of transboundary marine spatial management (TMSM) strategies. The Project also established requisite mechanisms to support this framework into the future. In July 2010, a private consulting firm was engaged to assist with this task, and a draft version of the TMSM Guidelines was submitted for discussion at the Third Meeting of APEC Ocean-related Ministers (AOMM3) in Peru in October 2010.

Objectives

The objectives of the project were to:

1. Increase uptake of transboundary marine spatial management (TMSM) approaches among APEC member Economies through the provision of a „how to' framework that sets out guiding principles (as „TMSM Guidelines') for the design, implementation, management and enforcement of TMSM;
2. Improve information exchange between Economies on marine-related issues including TMSM, marine threats and stresses, and key economic drivers such as transport, tourism and sustainable resource use, by providing on-going discussion opportunities between relevant stakeholder groups;
3. Deliver improved efficiencies and cost savings to APEC Economies through the establishment of centralized, web-based data sources and discussion forums; and
4. Develop a gap-analysis on governance and institutional arrangements relating to TMSM to identify areas for further development.

1.2 Project Summary

1.2.1 Project Details

Project start date:	01June 2010
Project end date:	31 December 2010
Duration:	Seven (7) months
Consultant:	Sea Resources Management Sdn Bhd

1.2.2 Milestones

Five milestones were defined for the project, as described in the table below:

Table 1: List of Milestones

No.	Milestone
1	Project Kick-off
2	Progress Report 1
3	Progress Report 2
4	Draft Final Report
5	Final report

1.2.3 List of deliverables

Table 2: List of deliverables

No.	Deliverable	Description	Final Deadline
1	**Progress report 1**	Description of the advancement and achievements of the project during Phase One	31/07/2010 Revised:16/08/2010
2	**Progress Report 2**	Description of the advancement and achievements of the project during Phase Two.	18/09/2010 Revised initially to end Sep, submitted 10/10/2010
3	**E-workshops**	Organisation of four thematic e-workshops (webinars) gathering APEC Economies stakeholders.	31/09/2010 Revised to occur throughout October
4	**E-library**	Database gathering links to relevant sources of information related to TMSM.	01/10/2010 Done
5	**Draft Final Report**	Draft version of the project Final Report, gathering studies, findings and results of the project. Draft PowerPoint.	08/10/2010 Propose revised to 27/12/2010
6	**'How to' Guidelines**	Step-by-step guide presenting guidelines for the design, planning and implementation of TMSM.	26/11/2010 Draft submitted early at 07/10/2010 for discussion at Peru AOMM3. Revised as a result of Webinar feedback. Draft Final included as Annex to DFR.

7	**Project outputs**	Software and electronic copies of the outputs of the project.	26/11/2010. To be submitted electronically by project conclusion
8	**E-sharing network**	A TMSM Working Group was established on the „Linked-in' Network.	17/12/2010
9	**Project presentation**	PowerPoint presentation of the project.	As requested by the client if necessary (delivered March 2011)
10	**Final Report**	Project Final Report, gathering studies, findings and results of the project.	Submitted 16 March 2011

1.2.4 Budget

A budget of **USD73,500** was provided for the development of the APEC-TMSM Project, of which USD72,000 was allocated for professional fees and USD1,500 for office, reproduction and printing expenses.

1.2.5 Schedule

The original schedule of the project is presented **in Annex 1** of this report.

1.2.6 Scope of Work

The scope of work (SOW) for the Project was to:

1. Compile relevant TMSM information from around the globe;
2. Identify and compile a list of relevant stakeholders within the Asia Pacific region, along with international experts, who can be drawn upon during the consultation phase and help to shape the framework;
3. Develop an e-library, i.e. a centralized data source of relevant TMSM information, including literature records, a case study inventory, and links to pertinent data sources;
4. Analyse and interpret collected information with a view to developing a draft „how-to' guide that captures current best practice understanding in the facilitation, design, development, implementation, management and enforcement phases of TMSM strategies;
5. Design and deliver a comprehensive stakeholder consultation phase throughout the life of the project to provide additional information and validation of project outputs;
6. Establish and implement an on-going e-sharing network, drawing on the networks formed during the consultation phase, facilitated by a web-based discussion portal;
7. Publish and circulate (consistent with APEC publication policy) electronic and hard-copy compilations of project outputs in the form of a DVD and professional project folders; and
8. Design and deliver a project presentation for the project launch and future outreach program.

Links were established with the MRCWG (through the MRCWG Secretariat), the Project Overseer and Steering Committee, and marine stakeholders, including but not limited to APEC Economy

representatives, academic and research institutions, industry, TMSM experts and non-government organizations. Liaison with these groups and individuals helped to identify relevant stakeholders in the area of TMSM, and built on information gathered during the desk-top study. Analysis of collated information, in conjunction with further stakeholder consultation, led to development of the guiding principles framework.

1.3 Risk Management

Two main risks were identified:

- First, the possibility that the due date for the deliverables of the project will need to be adapted and be as flexible as possible, taking into consideration the tight timeframe for report submissions, additional time needed for report review and the need to modify the workshop dates depending on the attendees' availability.

To mitigate these risks, the following contingency strategies were adopted:

- Internal deadlines were tightened to take into account a longer revision and reviewing phase of the deliverables before submission. For example, an early draft of the Guidelines book was submitted in October to allow plenty of time for discussion and review before the document needs to be finalised by the end of December. Frequent progress discussions among the consultants took place to follow up on progress, ensure as close as possible adherence to the schedule and provide assistance whenever needed. Nevertheless, the task of finalizing the content of the TMSM Guide proved to be exacting with consultants and reviewers based in different countries with no opportunity to meet in person for intensive discussion. This challenge cause a delay of over three weeks in completion of the Draft Final version of the Guide book.

2 Progress & Achievements

This section describes the activities undertaken in the project. In the main, emphasis in the final phase of the project was given to completion of a draft final version of the TMSM Guide in time for submission before 31 December 2010.

2.1 Task Description Summary

This section briefly describes the advancement and achievements for each specific activity, as of 10th March 2011.

Table 3: Summary of Tasks

Action No.	Description	Outcome	Status
1	Compile and analyse relevant TMSM examples from around the globe. To the extent possible, the selected examples will amplify the different lessons learnt and factors considered for effective TMSM	TMSM examples and case-studies references were compiled in a **reference list** which is included in the TMSM Guide. This list was used as input to guide compilation of references for inclusion in the e-library.	**Compilation of examples** has been **completed**. A description and analysis of TMSM examples is shown in the TMSM Guide.
2	Identify and generate a working contact list of relevant stakeholders in the area of TMSM within the APEC region, including government officials involved in marine resource management and policy development, specific industry representatives, e.g. fisheries, shipping and transportation, tourism, conservation organizations, community councils and other leaders.	**Listing of relevant contacts** in APEC economies, covering several thematic of TMSM.	A list of stakeholders from around the world has been **completed**. The list comprises 251 individuals from various Intergovernmental Organizations (IGOs), Non-Governmental Organizations (NGOs), Regional Fisheries Management Organization (RFMO), Research Institutions and APEC Working Groups.

3	Identify and generate a list of TMSM experts. This list will be compiled through recommendation of lead consultants and the initial expert group.		A total of 35 experts from 15 countries **were identified** as TMSM experts. Emails were sent to these individuals to seek their consent to be included in the list of experts in the project database for future reference/correspondence.
4	Design and host series of stakeholder discussions (drawing from a list of relevant stakeholders) through a web-based forum (4 events) to contribute further information and validate existing understanding. This forum also facilitated an iterative edit process for development of the guiding principles framework.	Consultation with a select group of APEC Economy stakeholders to help identify issues and priorities for TMSM throughout APEC economies. Discussion was captured in **workshop transcripts.**	**Completed.** Two out of the four proposed webinars were conducted on 27th October (2 events) and 3rd November 2010. The third and fourth webinars were unable to proceed due to a poor response from invited participants. Webinar participants were also provided with a questionnaire, and an analysis of those responses received is included in section 2.4.
5	Compile and publish (consistent with APEC publication policy) a peer reviewed, professionally edited guiding principles framework around the facilitation, design, development, implementation and enforcement of TMSM in the APEC region.	A „How To' guideline book that presents general principles of TMSM, and, most importantly, a step-by-step approach to TMSM.	**Completed**. Attached as an Annex to this Final Report.
6	Develop and implement an e-library in consultation with the Project Overseer and Steering Committee to facilitate the efficient dissemination of all information gathered during the project, including literature records, a case study inventory and links to pertinent data sources. This web product will be embedded, where appropriate, within existing APEC web infrastructure.	A **database** accessible through a dedicated APEC website. This database will gather links to different types of sources (journal, articles, regulatory texts, etc.) of TMSM information.	**Completed.** The database has been designed and developed. The feeding of the database is complete. This has involved a two-stage process requiring development of an .csv file data sheet with fields that were then able to be imported easily into the database. The APEC Secretariat did not provide feedback on queries submitted by the consultants relating to hosting of the database, therefore the intention is to submit the e-library file in electronic form for easy adaptation as required to the APEC database.

7	Establish an e-sharing network supported through a web-based discussion portal to facilitate enhanced information exchange between member economies on all marine issues including TMSM. It is expected that this network will progress naturally from the cessation of the stakeholder consultation phase. However, the consultant may need to pay particular attention to ensure mechanisms are in place to deliver on-going longevity to the forum including the maintenance of an accurate contact list.	A **discussion portal or social and business networking tool** that encompasses several discussion forums to gather experts and stakeholders of TMSM among the APEC Economies. This e-sharing network will be a platform to exchange news, information, share and discuss experiences.	**Completed**. A LinkedIn Group named „Transboundary Marine Spatial Management' has been created. As of 10 March 2011, 28 members had joined the group.
8	Distribute project outputs (in person, by airmail and/or courier) to the dedicated groups.	Electronic (soft) and hardcopies of the project outputs.	This deliverable will be subject to acceptance of the Final Report of the TMSM Guide.
9	Ensure project outputs are lodged via the APEC and MRCWG Websites for further dissemination. Ideally this will be in conjunction with the e-library and web discussion portal.	An **APEC-hosted website** that will gather the project outputs and will be a reference source for TMSM.	The project outputs will be lodged with the APEC Secretariat for hosting on the APEC website as required. Pending notification of acceptance of the DFR TMSM Guide, E-Library references and contact lists.
10	Undertake preparatory work for the project launch including but not limited to organising logistics and the design of a generic presentation capturing the key project outputs. Travel within the Asia Pacific region may be necessary as determined by the Project Overseer.	A **PowerPoint presentation** describing the project and its major outputs.	Pending advice from the Project Overseer and Client whether a presentation to the MRCWG is required.
11	Undertake a post-project review of project outputs, a year after finalisation, through a web-based discussion forum.	A separate budget item to be undertaken under direction of the APEC MRCWG.	**To be undertaken a year after project's end.**

2.2 Task 1: Compile and analyse relevant TMSM examples from around the globe

An initial desktop study and review of relevant marine spatial management information from around the world was undertaken. Definitions of TMSM were investigated and a suitable wording developed for inclusion in the draft TMSM Guide. Various case studies were also identified and included in the draft TMSM Guide. Each case study was highlighted in a stand-alone text box for ready reference as required.

The following case studies were selected for inclusion in the TMSM Guide:

- Case-Study 1: Benefits and challenges for TMSM - the TransMaSP project
- Case-Study 2: Specific governance for the Baltic Sea
- Case-Study 3: Two-level governance for the Barents Sea
- Case-Study 4: The modelling causal framework DPSIR
- Case-Study 5: The Arafura and Timor Seas Expert Forum (ATSEF)
- Case-Study 6: The Arctic Cooperation Agreement: Overcoming legal disputes
- Case-Study 7: Action plan for the European Union Strategy for the Baltic Sea Region; example of TMSM goals and objectives
- Case-Study 8: Goals and issues for the Barents Sea management
- Case-Study 9: Consultative Mechanism for the Torres Strait Agreement
- Case-Study 10: The Torres Strait Treaty: a specific arrangement to manage a transboundary area
- Case-Study 11: The Agreement on Fishery Cooperation in the Tonkin Gulf between the Government of the People's Republic of China and the Government of the Socialist Republic of Vietnam
- Case-Study 12: The Northern Dimension (ND) Policy Framework

2.3 Tasks 2 & 3: Identify and generate a working contact list

The identification and compilation of a list of relevant stakeholders within the Asia Pacific region, and international experts, who can be drawn upon during the consultation phase has been completed. Experts in managing marine and coastal habitats were contacted, along with government officials who can act as focal points for spatial management in the region.

A list was prepared drawing on liaison contacts of the following past projects:

- Survey of Implementation of the Seoul Oceans Declaration (SEO) among APEC Economies;
- Survey of Implementation of the Bali Plan of Action (BPA) among APEC Economies;
- Survey of the adoption of Ecosystem-Based Management (EBM) and Ecosystem Approach to Fisheries (EAF) among APEC Economies.

List of Stakeholders

A list of stakeholders that comprises 251 individuals from various Intergovernmental Organizations (IGOs), Non-Governmental Organizations (NGOs), Regional Fisheries Management Organization (RFMO), Research Institutions and APEC Working Groups has been drawn up. The list (attached as **Annex 2**) provides essential information on the stakeholders such as name, designation,

department/organization, email address, telephone and fax number, and area of responsibility. The list has been taken as close to completion as possible given publicly available information. Missing details are most likely to be furnished by the stakeholders themselves during on-going liaison on the subject of TMSM through the web-based discussion group.

List of Experts

The list of experts currently comprises 35 specialists from various Economies (see **Annex 3**). The experts were identified through liaison contacts from past APEC projects, and through referrals. Emails have been sent to these individuals to seek their consent to be included in the experts database for future reference/correspondence. Almost all of the experts have responded agreeing to participate in the list. The remaining few will be confirmed or removed prior to final lodgement of the list for posting on the APEC website.

2.4 Task 4: E-workshops

Numerous teleconferences were held between the KL office of Sea Resources Management and the Marine Spatial Planning and Management Consultant in Melbourne, Australia. The aim of these discussions was to decide on the themes and format of the web-based forums, and discuss the participants list.

Two web-based workshops („webinars') were held to contribute further information and validate existing understanding. These workshops also served as a tool to facilitate an iterative edit process for the draft TMSM Guide book. The objectives of the workshops were to:

- Raise awareness/educate people about TMSM and its benefits, and to help instigate discussion on the subject that will continue after completion of the project; and
- Obtain information from participants to contribute to development of a „How To' guide that will meet the specific needs of APEC economies.

E-workshop preparation

The aim of the e-workshops (Webinars) was to brief participants about the project and draft TMSM Guide book, and initiate discussion between stakeholders from various Economies. Participants were sent an invitation three weeks prior to the workshop (see **Annex 4**). They were each sent at least one follow-up reminder that asked them to confirm their attendance.

Before each Webinar meeting, participants were provided with an outline agenda (see **Annex 5**) to help guide the discussions. In order to facilitate understanding and prevent overly pedantic semantic discussions, for each topic, discussion threads were produced together with basic definitions, terminology and concepts of relevance to TMSM.

A very short questionnaire (comprising five questions) was also sent to participants before each workshop to obtain background on occupations, sectorial responsibility, and information on TMSM and marine activities in their respective Economies (see **Annex 6**).

The webinar solution utilized for the workshops was „DimDim Pro', which is an open-source web meeting (webinar) application. The advantages of DimDim Pro were:

- It is an open-source software, therefore it does not use proprietary software or file formats;
- There is no need to install a program or software to attend the session: this is all the more important as the policies of some organizations and companies prevent them from installing any software on their computers;
- The website managers offered to provide a record of the webinar which could either be published in the form of a web-link on a website, or be downloaded in .FLV format (Flash), that can be read by RealPlayer; and
- Low cost.

In theory, DimDim Pro allows a webinar to be recorded directly from a button within the live session. Both the recording and the chat transcript are made available shortly after the webinar is over. Users can also request that their webinar sessions be customized to show organisation logos, messaging and entrance and exit pages if requested. Other features include two-way video support, annotation of shared documents, private messages within the meeting and email support if needed.

Each participant was sent an E-Workshop manual to help them get acquainted with the webinar tool. In order to participate in the webinar, the participants needed a web browser and internet connection, speakers/headset and microphone to hear the discussion and participate in interventions. If participants did not have a microphone, they could participate through the chat window.

In practice, Dimdim Pro did not perform as well as hoped. In the main, participants could hear the moderator, but several had difficulty participating by voice in the webinar. In such instances, the „text chat' function was used to make contributions.

Outcome of Webinars

The first two webinars were conducted on 27th October (one in the morning Kuala Lumpur time for participants in the western Pacific, and one in the very late evening to cater to the needs of participants based in the eastern Pacific). A third webinar was conducted on 3rd November 2010. The other proposed Webinars were unable to proceed due to unavailability of the invited participants. Six individuals participated in the first webinar and three in the second and third webinars (refer **Annex 7** for list of participants).

Discussion in the first two webinars focused on marine living resources, while the third webinar revolved around maritime transport. Each webinar commenced with introduction of the participants, followed by an overview of the draft TMSM Guide by the moderator. A free discussion was then started in order to scour suggestions on good examples of TMSM that might be included in the guide. Participants were asked to describe an example and provide relevant lessons from its implementation. The discussion then moved to identification of experts in TMSM. Participants were requested to provide names, positions and contact details of any such experts in order for the project team to invite them to participate in future Webinars, and request that they agree to be cited as a resource person for APEC Economies. The discussion ended with comments and queries on the TMSM Guide by the Webinar participants (see **Annex 8** for chat transcript for two of the webinars).

Problems encountered

Participants reported to have encountered sound problems while using the DimDim web conference software. In Webinar 2, one participant left midway as he was not able to hear nor be heard in the chat room.

„Skype' may be a better option for web-conferencing considering the technical difficulties encountered with „DimDim'. Webinar also may only practical and useful for those who are already familiar with each other and who can be called upon for a web-conference in support of a well-understood, common organisation/project. The task of inviting total strangers from far-flung APEC Economies is an uphill battle as there is little incentive for them to participate. Also, their response time is very long, sometimes two weeks to get confirmation of their participation in the webinar. On balance, although meeting in person at a single location adds cost to a project, the quality of interaction is assessed to be superior to web-based conferences.

Questionnaire Analysis

Representatives from a total of ten Economies completed and returned the questionnaire. Analysis of the questionnaire responses reveals that TMSM is carried out across the responding Economies to a certain extent. Some Economies seem to place more emphasis on TMSM than others. All the responding participants reported that their Economy has more than one marine activity that is managed cooperatively across jurisdictional boundaries (**Figure 1**).

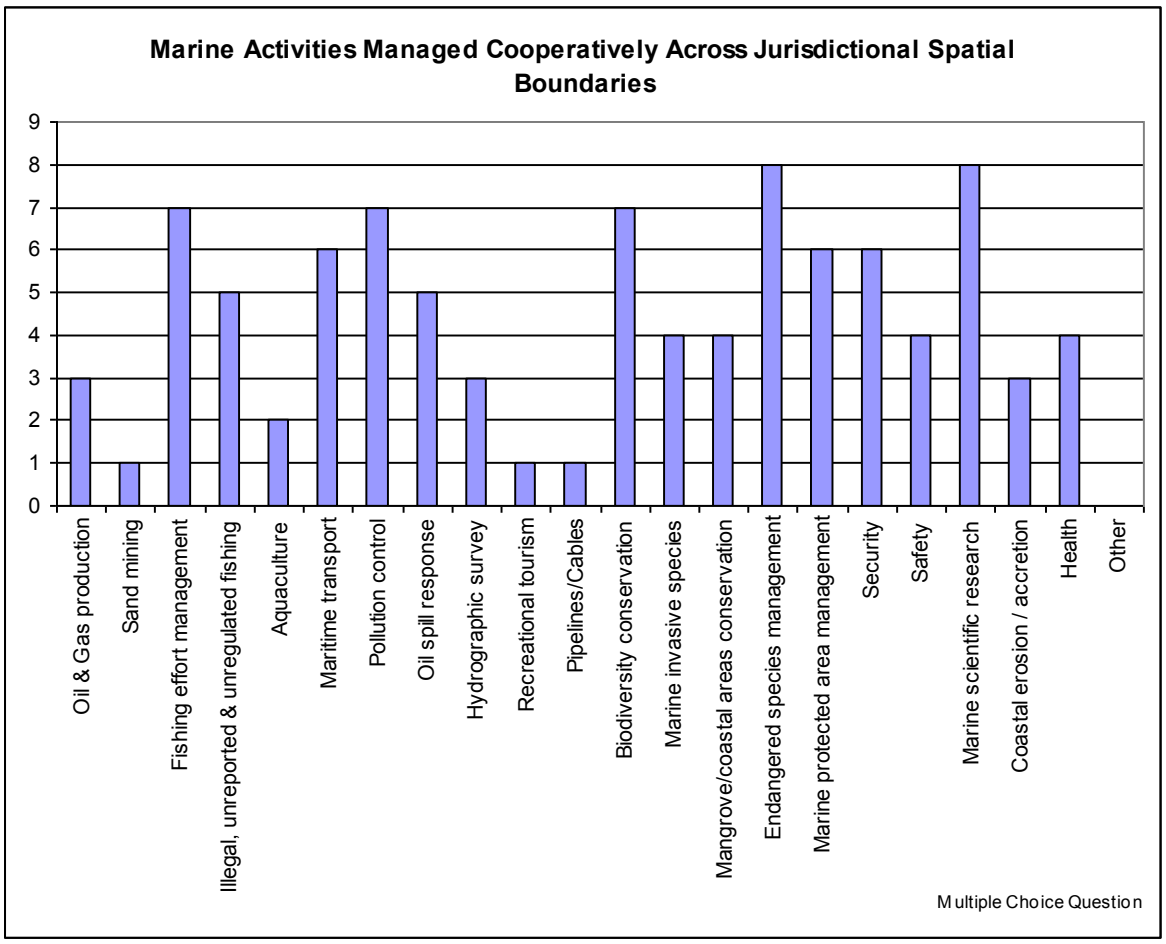
A majority of the Economies (80% of responses) chose both endangered species management and marine scientific research as the main activities that are managed cooperatively across jurisdictional spatial boundaries. With regard to marine scientific research, one participant elaborated that the Arafura and Timor Seas Experts Forum (ASTEF) Memorandum of Understanding, of which their

Economy is a signatory, agrees upon the following five priority foci to which the Forum directs research: i) preventing, deterring and eliminating illegal, unreported and unregulated fishing in the Arafura and Timor Seas; ii) sustaining fish stocks, marine habitats, and coastal and marine biodiversity; iii) understanding the marine, coastal, and catchment system dynamics of the seas; iv) assisting sustainable and/or alternative livelihoods for coastal, traditional and indigenous communities; and v) improving capacity for data management and sharing between littoral nations.

More than 50% of the respondents reported that their Economies undertake transboundary management of activities such as fishing; pollution control; biodiversity conservation; maritime transport; security; and marine protected area management. Very few Economies (less than 30%) were reported to manage actions related to sand mining; aquaculture; recreational tourism; and pipelines and cables across jurisdictional borders.

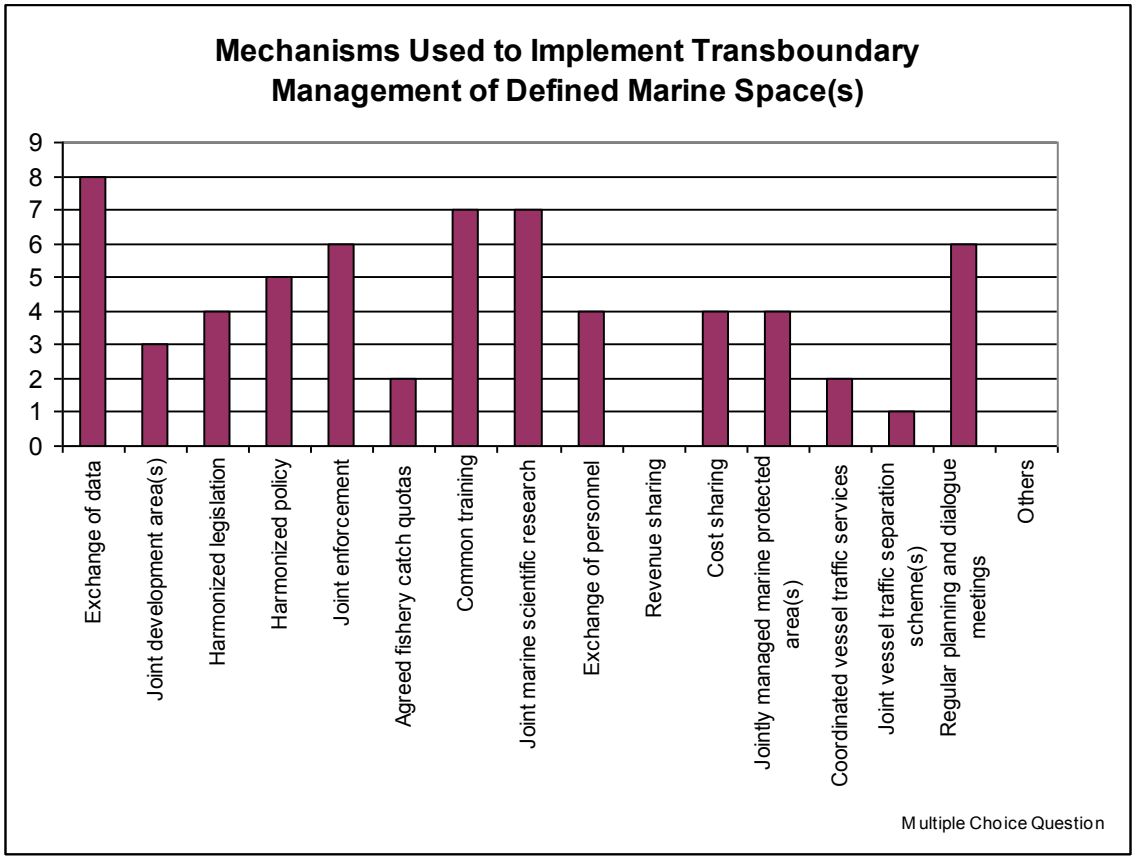
One Economy was reported to be a supporter of transboundary initiatives conducted through the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI) and used the Working Group on Marine Affairs and Fisheries (WGMAF) together with another neighbouring Economy to discuss and share information on transboundary issues such as: illegal fishing cooperation; regional outreach; maritime jurisdictional boundary security and management; marine reserve management; seafood safety and quarantine; and RFMO engagement.

Figure 1: Marine Activities Reported to be Managed Cooperatively Across Jurisdictional Spatial Boundaries



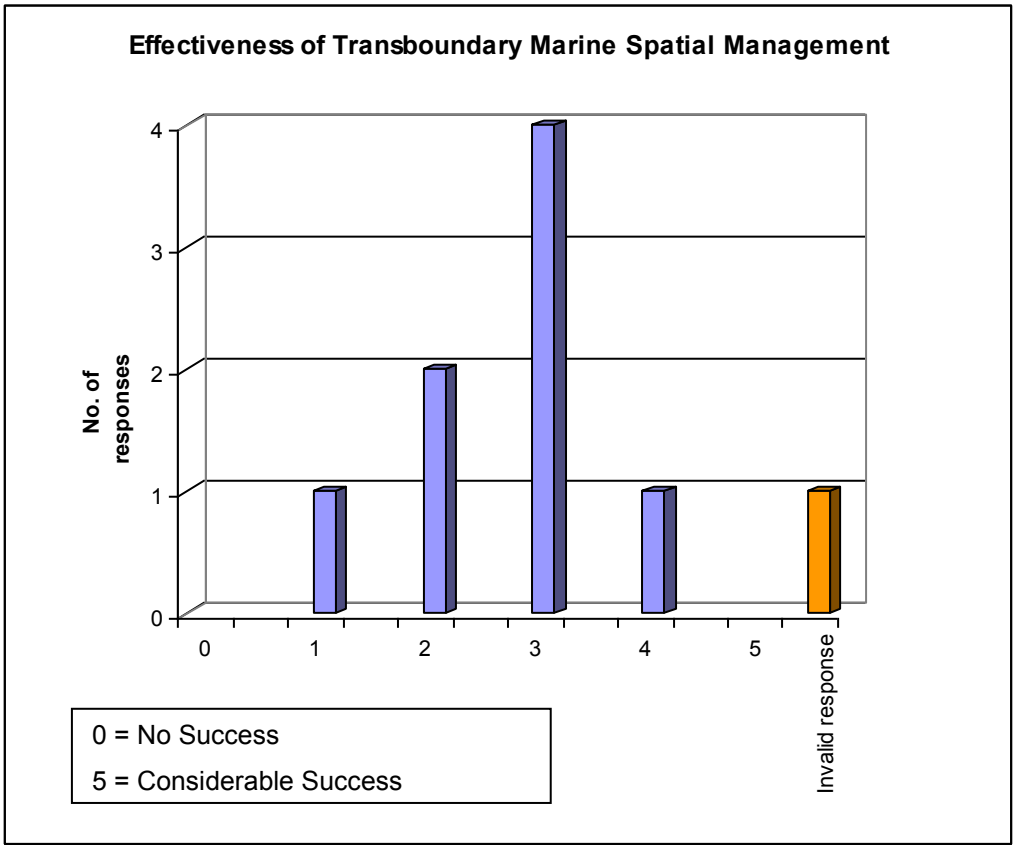
More than half of the respondents stated that mechanisms such as the exchange of data; common training; joint marine scientific research; joint enforcement; and regular planning and dialogue meetings are used to implement transboundary management of designated marine spaces (**Figure 2**). Although nobody provided any elaboration, this short questionnaire revealed that most of the cited Economies contribute to transboundary management through the exchange of data, and this might be due to the comparative simplicity of that mechanism. Notably, only one respondent cited „joint vessel traffic separation scheme' as a mechanism to implement TMSM, and none cited „revenue sharing'.

Figure 2: Mechanisms Used to Implement Transboundary Management of Marine Spaces



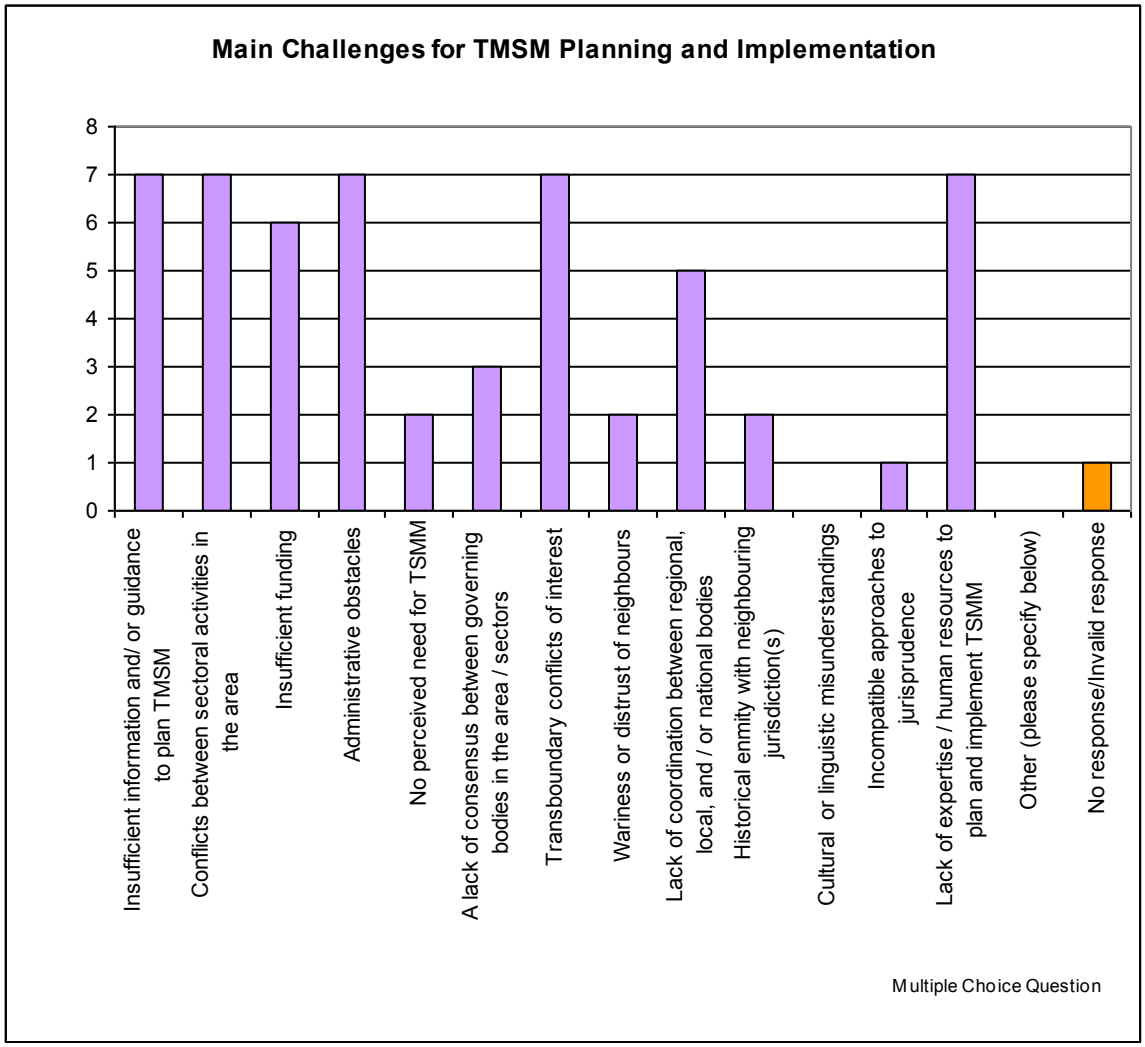
Nearly half of the respondents (40%) noted that TMSM in their Economy is moderately successful (**Figure 3**). One commented that the effectiveness of TMSM depends on the formal mechanisms in place, e.g. good cooperation prevails for pollution control, oil spill response, and transport, whereas there are no binding agreements as yet and consultation remains in progress for initiatives related to invasive and endangered species management. Another respondent observed that the effectiveness of TMSM depends on who the coordinating partners might be, and that some Economies work well together while others do not.

Figure 3: Effectiveness of transboundary marine spatial management



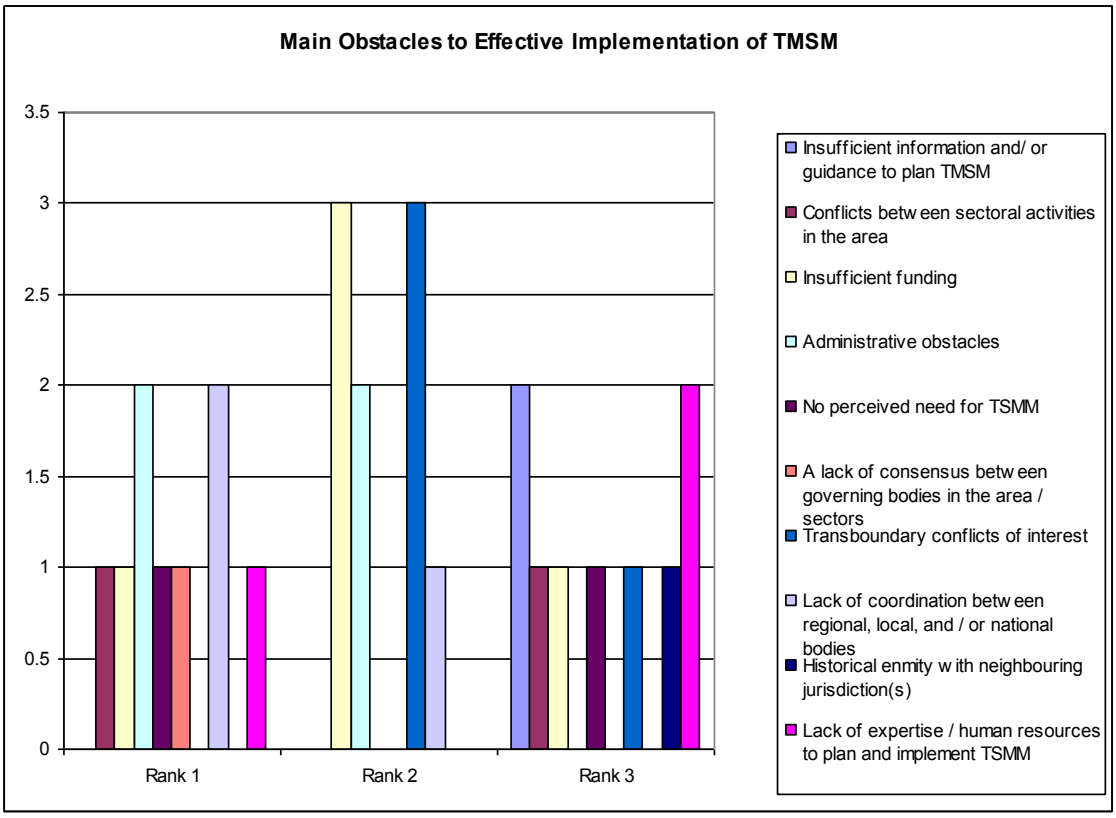
A majority of participants (more than 50%) identified the following as the main challenges to implementation of TMSM: lack of coordination between regional, local, and/or national bodies; insufficient information and/or guidance to plan TMSM; conflicts between sectoral activities in the area; administrative obstacles; trans-boundary conflicts of interest; a lack of expertise / human resources to plan and implement TSMM; and insufficient funding (**Figure 4**).

Figure 4: Challenges for TMSM planning and implementation



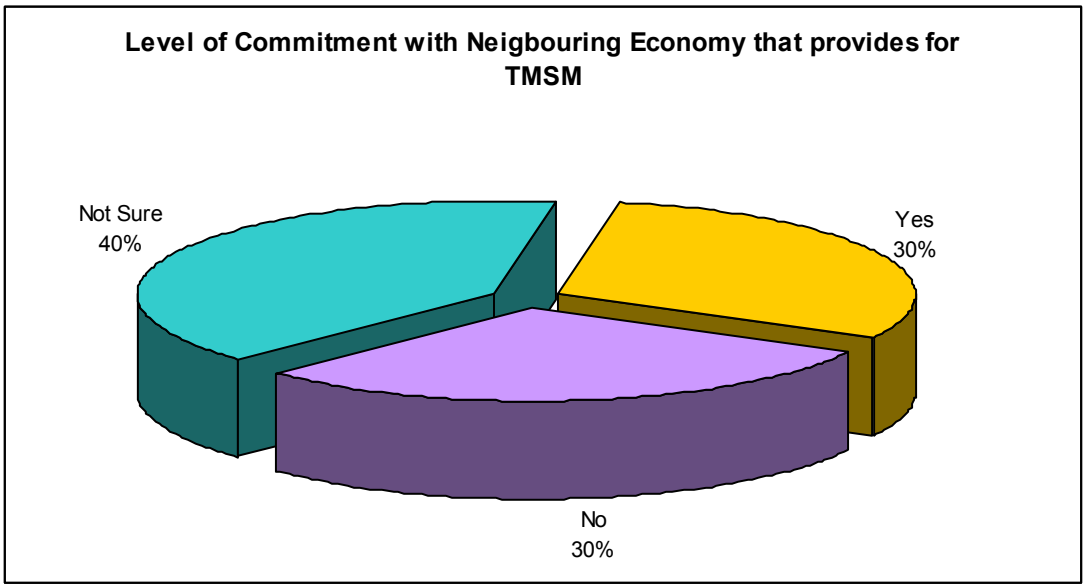
Of these challenges, respondents ranked the following as the greatest obstacles to TMSM implementation: administrative obstacles; a lack of coordination between regional, local, and/or national bodies; insufficient funding; the absence of a perceived need for TMSM and transboundary conflicts of interest (**Figure 5**).

Figure 5: Obstacles to effective TMSM implementation



Of the ten respondents, three reported that their Economy has committed to some form of agreement or understanding with neighbouring Economies that provides for TSMM, three reported that there is no such commitment and four others advised that they are unsure (**Figure 6**). One participant elaborated that their Economy has various treaties with its neighbours concerning marine resources, shipping, and transnational marine protected area management. Another cited membership of APEC, ATSEA, the Coordinating Body on the Seas of East Asia (COBSEA), a Migratory Bird Agreement with two other Economies, the New Caledonia Agreement and participation in numerous international Conventions to which neighbouring countries are also a Party.

Figure 6: Level of commitment with neighbouring Economy that provides for TMSM



In general, it can be concluded that TMSM is prevalent in most of the responding APEC Economies, but none so far have admitted to have successfully implemented it. Challenges that that hinder TMSM implementation have to be ratified first in order to ensure success of its adoption.

2.5 Task 5: 'How To' Guidelines

A comprehensive „Guide to Transboundary Marine Spatial Management' has been prepared and is attached at **Annex 10**. An earlier version of the draft was submitted to the client for review in Progress Report Two and the Draft Final Report. Subsequently, the draft text was discussed with stakeholders during the webinars and reviewed informally by a number of relevant specialists. This process of review resulted in some substantial amendments, including a re-ordering of the recommended steps in the planning phase for TMSM. Otherwise, the language of the text was polished and a number of additional Case Study examples included.

2.6 Task 6: E-library

Available literature (internet documents, books, etc.) of relevance to TMSM have been listed as an e-library reference source. Data on the cited references include: author, publisher, year of publication, links to the data sources, and synopsis of the literature. The e-library, together with the lists of stakeholders and experts will be included in the general APEC TMSM database once posted.

2.7 Task 7: E-sharing Network

A web-based discussion portal has been created to facilitate enhanced information exchange between the members on TMSM. After evaluating the efficiency and effectiveness of several existing business and social networks, a „LinkedIn Group' was chosen as the best option based on features such as:

- **General Features**

- LinkedIn discussions are generally focused and business-like;
- LinkedIn members are more thorough and willing to discuss business opportunities; and
- There is *only one* networking feature of this type within LinkedIn but many at other social networks (community pages, business pages, groups, etc.). This makes LinkedIn clearer and clutter-free.

- **Privacy Options, Moderation and Managing Setting**

A newly-added LinkedIn feature allows for efficient moderation and management tools whereby:

- Managers and moderators can delete inappropriate posts and comments right from their email box;
- Members can flag items as inappropriate;
- The moderation queue allows group managers to decide how many member flags can delete a thread or a comment; and
- Very-low-connection users can be flagged as such in the „request-to-join' queues.

- **Promotion Tools**

- LinkedIn allows adding of members in bunches (per 10 or 20) but can only add up to 50 participants per day. Members to be invited can be selected by industry and / or by location.

- **Networking and Communication Tool**

- Members (by default) receive email digest of updated discussions;

- Members receive instant updates of new replies to any threads to which they are subscribed (i.e. they previously commented on); and
- Members can follow the most influential people in the group by checking the Top Influencers board or clicking their profile image to see all of their group activity.

The LinkedIn Group was created on 24th November 2010, under the name „Transboundary Marine Spatial Management Group'. Invitations to join the Group were sent to prospective members through email. Once an invitation email is received, the member simply has to click on the link given to join the group. New LinkedIn users need to register and create a profile, while existing users can proceed directly to joining the group.

As of 10 March 2011, a total of 28 members had joined the TMSM Group. Existing members can also recommend other relevant members to join the group. **The TMSM Group already appears in the top three internet search results using keywords such as 'transboundary' and 'marine spatial'.**

2.8 Task 8: Distribution of project outputs

This task will start as directed by the client following decision on the posting of the TMSM Guide on the APEC website.

2.9 Task 9: Ensure dissemination of project outputs.

The accessibility of project outputs and the dissemination of results are essential to ensure that Project work undertaken will be useful even after the end of the project, and will have a positive impact for stakeholders.

The integration of the project outputs, the e-library and links to different discussion groups of the e-sharing network in a single website appears to be the most efficient solution. Such a website would be a comprehensive and centralized point of TMSM information, and would improve public awareness of the project.

APEC leads an APEC website hosting program[1] that provides a hosting platform for approved websites developed through APEC projects. The APEC Secretariat provides the web-hosting infrastructure and gives access to the monthly statistics. The MRCWG will be the owner of the Project website, and will be required to re-endorse the website every two years. Although the longevity of such a hosting solution is only guaranteed during a limited period of time (one to two years), it is the

[1]Please refer to the document "APEC Web Hosting - Service Level Agreement (SLA)" published in November 2009.

most cost-efficient solution for such projects. Hosting and maintenance of this website on an external site would require a specific budget, which would have to be provisioned after the deadline of the project.

The initial plan is to have a four-page website, as described below:

- The home page will provide a general introduction to TMSM and to the project, explain the purpose of the website and furnish other information about the MRCWG;
- A second page will allow access to the e-library: it will encompass a search engine to query the database and provide a list of links matching criteria and their description. The e-library will also allow users to search for TMSM experts;
- A third page would gather e-workshops and e-sharing network information: links to the records of e-Workshops and e-Sharing Network discussions; and
- Finally, a fourth page will be dedicated to the maintenance of the database (insertion, modification, deleting of records).

SRM has liaised with APEC Information and Communication Technology (ICT) team, in order to investigate the possibility of developing a simple APEC website for the TMSM-project. An official request has been submitted to the MRCWG Lead Shepherd, Dr Ulises Munaylla, in order to obtain approval for the website. Upon approval, we will further develop the design and the specifications of the website. As of March 2011, APEC had not responded to the request for approval to host the website, but this is a matter that can be pursued further independently of the production of website content.

2.10 Task 10: Project Presentation

This task will be subject to guidance and funding availability by the client.

2.11 Task 11: Post-project review

This task will be undertaken one year after completion of the project subject to client advice and availability of funding.

3 Conclusion

This MRCWG project sought to prepare a „Guide to Transboundary Marine Spatial Management' and establish: supporting reference material as an e-Library; an e-Sharing Network; and stakeholder / experts Group. A very tight timeline of only seven months was available for the project, which was to conclude by December 2010. The project fell approximately three weeks behind schedule, but all of the deliverables were completed in draft form by the scheduled conclusion date. The project has been executed within budget.

The „Guide to Transboundary Marine Spatial Management' is the only publication of its kind on this specialist topic. Also, the e-Sharing Network that has been established using the internationally successful LinkedIn website appears to have filled a gap in on-line interaction mechanisms relating to marine spatial management. After only one month, the TMSM e-Sharing Network site already registered within the first few entries of internet search engines.

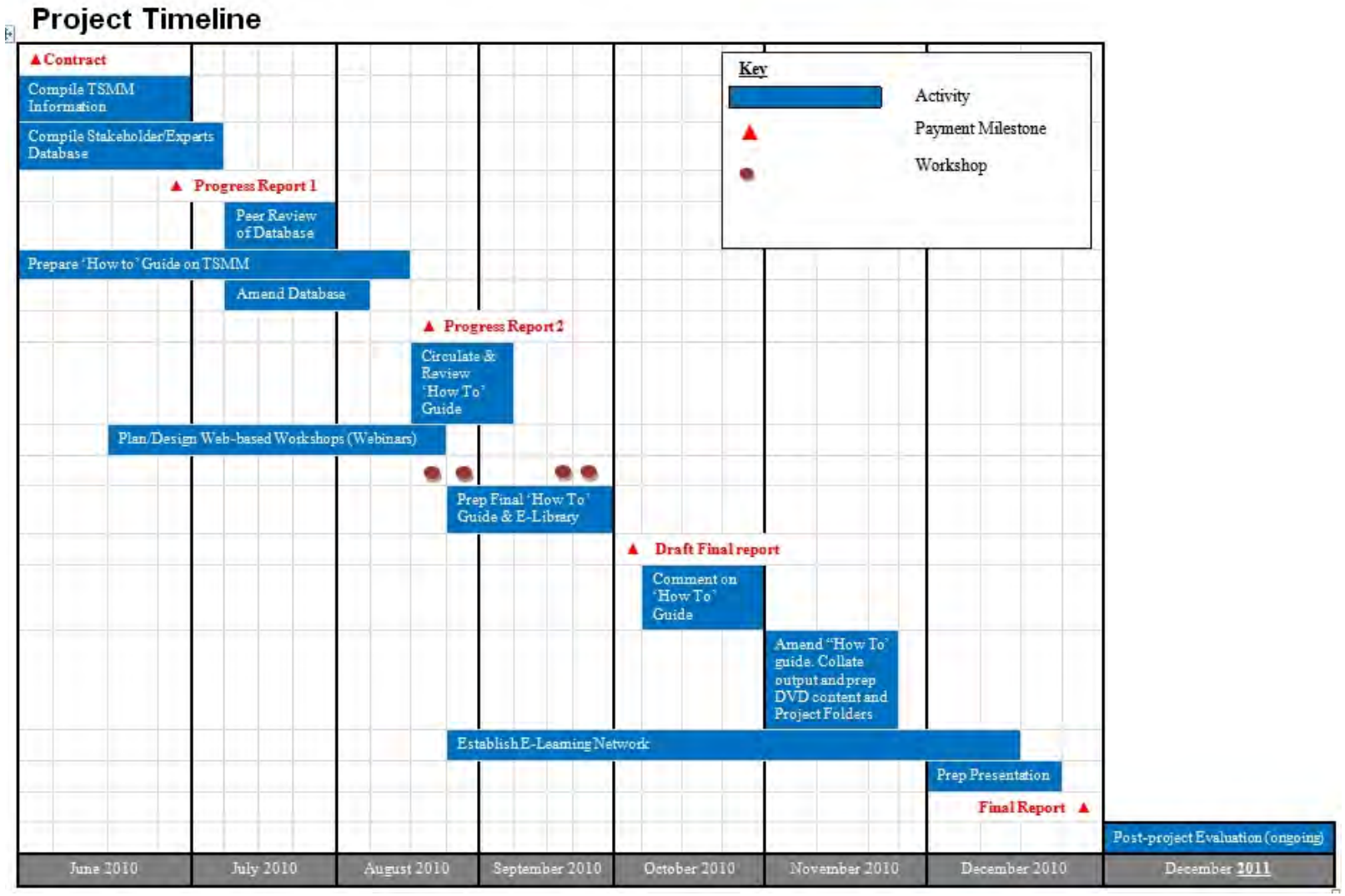
On balance, and especially taking into consideration the limited time and resources available, the MRC01/2009A project would appear to have delivered the envisioned outcomes and been a success. Final conclusion of the project is subject now only to APEC approval to host the website and general distribution of the TMSM guidelines text.

Annexes:

1. Original project schedule
2. List of stakeholders
3. List of TMSM experts
4. Sample of webinar invitation, including follow-up and webinar manual
5. Webinar agenda
6. Sample questionnaire
7. Webinar participants list
8. Webinar chat transcript
9. LinkedIn TMSM Group members list
10. Draft Final Version of the „Guide to Transboundary Marine Spatial Management' Book

ANNEX 1

Original Project Schedule


Project Timeline
Contract
Compile TSMM Information
Compile Stakeholder/Experts Database
Progress Report 1
Peer Review of Database
Prepare 'How to' Guide on TSMM
Amend Database
Progress Report 2
Circulate & Review 'How To' Guide
Plan/Design Web-based Workshops (Webinars)
Prep Final 'How To' Guide & E-Library
Draft Final report
Comment on 'How To' Guide
Amend "How To" guide. Collate output and prep DVD content and Project Folders
Establish E-Learning Network
Prep Presentation
Final Report
Post-project Evaluation (ongoing)
Key
Activity
Payment Milestone
Workshop
June 2010
July 2010
August 2010
September 2010
October 2010
November 2010
December 2010
December 2011

ANNEX 2

List of Stakeholders

Asia-Pacific Economic Cooperation

APEC-TSMM Project: Stakeholders contact list (APEC Working Group)

APEC Working Groups										
Economy	**No**	**First Name**	**Surname**	**Email**	**Department**	**Phone**	**Fax**	**Notes**	**Source**	**Area of resp.**
Australia	1	Madeleine	BALDWIN	madeleine.baldwin@daff.gov.au	Executive Officer, Multilateral Policy, Trade and Market Access Division, Department of Agriculture, Fisheries & Forestry	61 (0) 2 6272 4339	-	-	EAF/EBM survey	
Australia	2	Barbara	Smith	barbara.smith@daff.gov.au	Department of Agriculture, Fisheries and Forestry	612 6272 4391	612 6272 4215	-	DFO/BPA workshop	Fisheries
Australia	3	Jim	Fitzgerald	jim.fitzgerald@daff.gov.au	Department of Agriculture, Fisheries and Forestry	612 6272 5273	612 6272 4215	-	DFO/BPA workshop	Fisheries
Australia	4	Andrew	McNee	andrew.mcnee@environment.gov.au	Department of the Environment and Water Resources	61 3 6274 1897	-	-	DFO/BPA workshop & EAF/EBM survey	Environment - Heritage
Australia	5	John	Kalish	john.kalish@daff.gov.au	Department of Agriculture, Fisheries and Forestry	612 6272 4045	612 6272 4215	-	DFO/BPA workshop	Fisheries
Australia	6	Robyn	Bromley	robyn.bromley@environment.gov.au	Department of the Environment and Water Resources	61 2 6274 1906	61 2 6274 2286	-	DFO/BPA workshop	Environment - water
Australia	7	Angela	Williamson	angela.williamson@environment.gov.au	Department of Environment and Heritage	61 3 6221 5008	-	-	DFO/BPA workshop	Environment - Heritage

Australia	8	Noah	Poole	Noah.Poole@environment.gov.au	Department of the Environment and Water Resources	-	-	-	DFO/BPA workshop	Environment - water
Australia	9	John	Adams	John.Adams@environment.gov.au	Department of the Environment and Water Resources	-	-	-	DFO/BPA workshop	Environment - water
Australia	10	Frances	Murray	Frances.Murray@environment.gov.au	-	-	-	-	EAF/EBM survey	
Brunei Darussalam	11	Hasnah	Ibrahim	hasnah_ibrahim@fisheries.gov.bn	Department of Fisheries, Ministry of Industry and Primary Resources	-	-	-	DFO/BPA workshop	Fisheries
Brunei Darussalam	12	Mariani	Hj Sabtu	mariani_sabtu@fisheries.gov.bn	Department of Fisheries, Ministry of Industry and Primary Resources	673 2772 788 / 2770 066	673 2770 065	-	DFO/BPA workshop	Fisheries
Brunei Darussalam	13	Siti	Amin	sitiamin_mahali@fisheries.gov.bn	Department of Fisheries, Ministry of Industry and Primary Resources	2383 067	2382 069	-	DFO/BPA workshop	Fisheries
Brunei Darussalam	14	Noorizan	Abd Karim	noorizan_karim@fisheries.gov.bn	Department of Fisheries	6732771206	-	-	EAF/EBM survey	
Brunei Darussalam	15	Ms. Joharia	WAHAB	johariah.wahab@mfa.gov.bn	Department of International Trade, Ministry of Foreign Affairs and Trade	673 2 384092; 673 2 383874 ext 1882	-	-	EAF/EBM survey	
Brunei Darussalam	16	Abdul Halidi	MohdSalleh	halidi_salleh@fisheries.gov.bn	Department of Fisheries, Ministry of Industry and Primary Resources	-	-	-	DFO/BPA workshop	Fisheries
Canada	17	Angela	Bexten	BextenA@dfo-mpo.gc.ca	Fisheries and Oceans Canada	1 613 990 0264	1 613 990 9574	-	DFO/BPA workshop	Fisheries
Canada	18	Robert	Day	DayR@dfo-mpo.gc.ca	Fisheries and Oceans Canada	1 613 990 0264	1 613 990 9574	-	DFO/BPA workshop	Fisheries
Canada	19	Jonathan	Terkel	TerkelJ@dfo-mpo.gc.ca	Fisheries and Oceans Canada	2 613 990 0264	2 613 990 9574	-	DFO/BPA workshop	Fisheries

Canada	20	Renée	Sauvé	SauveR@DFO-MPO.GC.CA	Fisheries and Oceans Canada	613 991 6740	613 990 9574	-	DFO/BPA workshop	Fisheries
Canada	21	Jennifer	Shortall	ShortallJ@DFO-MPO.GC.CA	Fisheries and Oceans Canada	613 993 3268	613 990 9574	-	DFO/BPA workshop	Fisheries
Canada	22	Mr. Hani	NASSER	Hani.Nasser@international.gc.ca	Economic Policy Officer, APEC, Foreign Affairs and International Trade Canada	(1) 613 944 0930	-	-	EAF/EBM survey	
Canada	23	Dale	Marsden	Dale.Marsden@dfo-mpo.gc.ca	Fisheries and Oceans Canada	-	-	-	EAF/EBM survey	
Chile	24	Italo	Campodonic o	icampodo@subpesca.cl	Department of Fisheries - Undersecretariat for Fisheries	56 32 250 2763	56 32 502 756	-	DFO/BPA workshop	Fisheries
Chile	25	Alex	Brown	abrown@subpesca.cl	Undersecretariat for Fisheries	56 32 507 765	56 32 502 740	-	DFO/BPA workshop	Fisheries
Chile	26	Myriam	DURAN	mduran@direcon.cl	APEC Department, General Directorate for International Economic Affairs, Ministry of Foreign Affairs, Republic of Chile	(56 2) 565 9060 / 9350	-	-	From Jon List Aug 09	
Chile	27	Ms. Kareen	GARRIDO	kgarrido@direcon.cl	APEC Department, General Directorate for International Economic Affairs, Ministry of Foreign Affairs, Republic of Chile	(56 2) 565 9255 / 9350	-	-	From Jon List Aug 09	
China	28	-	Liu	inter-coop@agri.gov.cn	Ministry of Agriculture	-	-	-	DFO/BPA workshop	agriculture
China	29	Dongmei	Tang	tdm@soa.gov.cn / dongmei_tang@263.net	State Oceanic Administration	-	-	-	DFO/BPA workshop EAF/EBM survey	Ocean
China	30	Fangli	Qiao	qiaofl@fio.org.cn	First Institute of Oceanography	-	-	-	DFO/BPA workshop	Ocean

China	31	Chen	Yue	zzh@soa.gov.cn	Department of International Cooperation, State Oceanic Administration	86 10 6801 9791	86 10 6802 0283	-	DFO/BPA workshop& EAF/EBM survey	Ocean
China	32	Liang	Fengkui	fkliang@soa.gov.cn	Department of International Cooperation, State Oceanic Administration	-	-	-	DFO/BPA workshop &EAF/EBM survey	Ocean
China	33	Shang	Meng	mengshang@nmefc.gov.cn	Natural Marine Environmental Forecasting Centre	-	-	-	DFO/BPA workshop&EAF/EBM survey	Environment
China	34	Mr. WANG	Kaiyuan	kaiyuan@agri.gov.cn	Deputy Director, Div. of Foreign Trade, Dept of Development Planning, Ministry of Agriculture	86 10 6419 2588	-	FWG	EAF/EBM survey	
China	35	Shengzhi	Sun	inter-coop@agri.gov.cn	Deputy Division Director of International Affairs, Bureau of Fisheries, Ministry of Agriculture	86 10 64192985	-	FWG	EAF/EBM survey	
Chinese Taipei	36	Chung-Hai	Kwo	chunghai@ms1.fa.gov.tw	Fisheries Agency	-	-	-	DFO/BPA workshop	Fisheries
Chinese Taipei	37	David	Chang	david@ofdc.org.tw	Overseas Fisheries Development Council	886 2 2738 1522-110	886 2 2738 4329	-	DFO/BPA workshop & EAF/EBM survey	Fisheries
Chinese Taipei	38	Ding-Rong	Lin	dingrong@ms1.fa.gov.tw	Fisheries Agency	886 2 3343 6125	886 2 3343 6268	-	DFO/BPA workshop & EAF/EBM survey	Fisheries
Chinese Taipei	39	James	Sha	chihi@ms1.fa.gov.tw	Fisheries Agency	-	-	-	DFO/BPA workshop	Fisheries
Chinese Taipei	40	Yiong-Shing	Sheu	yssheu@sun.epa.gov.tw	Environmental Protection Administration	-	-	-	DFO/BPA workshop	Environment

Chinese Taipei	41	Cho-Teng	Liu	ctliu@ntu.edu.tw	National Taiwan University	-	-	-	DFO/BPA workshop	Research
Chinese Taipei	42	Shiuan-Wu	Chang	shiuan@sun.epa.gov.tw	Environmental Protection Administration	886 22 311 7722 ext 2203	886 22 311 8718	-	DFO/BPA workshop & EAF/EBM survey	Environment
Chinese Taipei	43	Chia Chuen	Kao	kaoshih@mail.ncku.edu.tw	National Cheng Kung University	-	-	-	DFO/BPA workshop	Research
Chinese Taipei	44	Wen-Yan	Chiau	chiau@mail.ntou.edu.tw	National Taiwan Ocean University	-	-	-	DFO/BPA workshop & EAF/EBM survey	Research - marine envt
Chinese Taipei	45	Gwo-Dong	Roam	gdroam@sun.epa.gov.tw	Environmental Protection Administration	886 2 2382 2841	886 2 2311 5486	-	DFO/BPA workshop	Science-Technology
Chinese Taipei	46	Lien-Siang	Chou	chouls@ntu.edu.tw	National Taiwan University	-	-	-	DFO/BPA workshop	Research
Chinese Taipei	47	Tzu Yaw	Tsay	tzuyaw@ms1.fa.gov.tw	Fisheries Agency	886 7 8239827	-	-	EAF/EBM survey	
Chinese Taipei	48	Mr. HUANG	Hong-Yen	hangyen@ms1.fa.gov.tw	Director, Deep Sea Fisheries Division, Fisheries Agency	886-7-8239828	-	-	EAF/EBM survey	
Chinese Taipei	49	Tien Hsiang Tsai	Ted	ted@ms1.fa.gov.tw	Fisheries Agency of Chinese Taipei	-	-	-	EAF/EBM survey	
Chinese Taipei	50	Heidi	Chen	naiwei@ms1.fa.gov.tw	Fisheries Agency	-	-	-		
Hong Kong, China	51	-	Chan	hkcapec@tid.gov.hk	Trade and Industry Department	-	-	-	DFO/BPA workshop	Trade - Industry
Hong Kong, China	52	Lai-koon alan	Chan	alan_lk_chan@afcd.gov.hk	Agriculture, Fisheries & Conservation Department	-	-	-	DFO/BPA workshop & EAF/EBM survey	Fisheries
Hong Kong, China	53	Priscilla	Liu	hkcapec@tid.gov.hk	Trade and Industry Department	852 2398 5669	852 2787 7799	-	DFO/BPA workshop	Trade-Industry

Hong Kong, China	54	Hung Yiu	Yeung	hyyeung@epd.gov.hk	Environmental Protection Department	852 2594 6321	852 2827 8040	-	DFO/BPA workshop	Environment
Hong Kong, China	55	Patsy	Wong	patsy_ps_wong@afcd.gov.hk	Agriculture, Fisheries & Conservation Department	852 2150 7080	852 2814 0018	-	DFO/BPA workshop	Fisheries
Hong Kong, China	56	Mee Yee Greta	Tam	gretam@epd.gov.hk	Environmental Protection Department	852 2835 1420	852 2934 9960	-	DFO/BPA workshop & EAF/EBM survey	Environment - water
Hong Kong, China	57	Ms. Adonis	YUEN	hkcapec@tid.gov.hk	Trade and Industry Department	-	-	-	EAF/EBM survey	
Hong Kong, China	58	Albert Wy	Leung	albert_wy_leung@afcd.gov.hk	Agriculture, Fisheries & Conservation Department	852 28738326	-	-	EAF/EBM survey	
Hong Kong, China	59	Patrick	Lei	patlei@epd.gov.hk	Principal Environmental Protection OfficerWater Policy and Science GroupEnvironmental Protection Department The Government of the HKSAR 48/F, Revenue Tower 5, Gloucester Road, Wan Chai	(852) 2594 6161	(852) 2877 6370	MRCWG	EAF/EBM survey	
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Indonesia	61	Anang	Nugroho	anoegroho@dkp.go.id	Ministry of Marine Affairs and Fisheries	-	-	-	DFO/BPA workshop & EAF/EBM survey	Fisheries
Indonesia	62	Subhat	Nurhakim	subhat_prpt@indo.net.id	Ministry of Marine Affairs and Fisheries	62 21 6451 260	62 21 3520 337	-	DFO/BPA workshop & EAF/EBM survey	Fisheries

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Indonesia	64	Asep D.	Muhammad	admdelp@yahoo.com	Ministry of Marine Affairs and Fisheries	-	-	-	DFO/BPA workshop	Fisheries
Indonesia	65	Mian Sahala	Sitanggang	miansahala@yahoo.com	Ministry of Marine Affairs and Fisheries	62 21 3520 337		-	DFO/BPA workshop & EAF/EBM survey	Fisheries
Indonesia	66	Indroyono	Soesilo	soesilo@rad.net.id	Ministry of Marine Affairs and Fisheries	-	-	-	DFO/BPA workshop & EAF/EBM survey	Fisheries
Indonesia	67	Tonny	Wagey	t.wagey@fisheries.ubc.ca	Ministry of Marine Affairs and Fisheries	-	-	-	DFO/BPA workshop & EAF/EBM survey	Fisheries
Indonesia	68	Elvi	Wijayanti	ksp_brkp@yahoo.com	-	-	-	-	DFO/BPA workshop	Fisheries
Indonesia	69	Wahyu	Indraningsih	windraningsih@yahoo.com	-	-	-	-	DFO/BPA workshop	
Indonesia	70	Gellwynn	Jusuf	gjusuf@cbn.net.id	FWG Lead Sheppard	-	-	-	EAF/EBM survey	
Indonesia	71	Saut P. Hutagalung	-	-	Director, Foreign Market Development, Ministry of Marine Affairs and Fisheries	+62 21 352 1977	Fax +62 21 352 1977	-	EAF/EBM survey	
Indonesia	72	Jaya	Wijaya	jaya_jw@yahoo.com	Deputy Director for Market Access Development, Ministry of Marine Affairs and Fisheries	+62 21 352 1977	-	-	EAF/EBM survey	

Indonesia	73	Nilanto	Perbowo	perbowon@cbn.net.id	Director of Fisheries Resource Management, Ministry of Marine Affairs and Fisheries	-	-	-	EAF/EBM survey	
Japan	74	Takahiro	Ara	takahiro_ara@nm.maff.go.jp	Ministry of Agriculture, Forestry and Fisheries	-	-	-	DFO/BPA workshop	Fisheries
Japan	75	Mr. TOMINAGA	Haruo	haruo_tominaga@nm.maff.go.jp	International Affairs Division, Fisheries Agency of Japan	-	-	-	EAF/EBM survey	-
Japan	76	Mr. TANIMOTO	Takuya	takuya.tanimoto@mofa.go.jp	Fisheries Division, Economic Affairs Bureau, Ministry of Foreign Affairs	-	-	-	EAF/EBM survey	-
Japan	77	Yasuo	Kitano	yasuo.kitano@mofa.go.jp	Fishery Division Ministry of Foreign Affairs Kasumigaseki2-2-1, Minato-ku, Tokyo, Japan	81 (0) 3 - 5501-8000 extension 3665	81 (0) 3 - 5501 8332	-	EAF/EBM survey	-
Korea	78	APEC Division Korea MoFaT	-	apeco@mofat.go.kr	Ministry of Foreign Affairs and Trade	-	-	-	EAF/EBM survey	-
Korea	79	Chang-Hee	Lee	lch5011@momaf.go.kr	Ministry of Maritime Affairs and Fisheries	82 2 3674 6992	82 2 3674 6996	-	DFO/BPA workshop	Fisheries
Korea	80	Do Hyung	Koo	marekoo@momaf.go.kr	Ministry of Maritime Affairs and Fisheries	-	-	-	DFO/BPA workshop	Fisheries
Korea	81	Narayanan	Kannan	nkannan@gmail.com	-	-	-	-	DFO/BPA workshop & EAF/EBM survey	
Korea	82	Keon-Soo	Sohn	bestsea@chollian.net	Ministry of Marine Affairs and Fisheries	82 2 3674 6540	82 2 3674 6546	-	DFO/BPA workshop	fisheries
Korea	83	Woo	Dong-Sik	dwoo0047@momaf.go.kr	Ministry of Maritime Affairs and Fisheries	82 2 3674 6544	82 2 3674 6546	-	DFO/BPA workshop	fisheries

Korea	84	Won Joon	Shim	wjshim@kordi.re.kr	Korea Polar Research Institute	-	-	-	DFO/BPA workshop & EAF/EBM survey	Research
Korea	85	Mr. CHAE	Jhin Kyoo	jkchae@yahoo.com	Deputy Director, International Cooperation	82 2 3466 2057	-	-	EAF/EBM survey	
Korea	86	Dr. CHO	Jung-Hee	jcho5901@kmi.re.kr	Korea Maritime Institute	97 7 052856	-	-	EAF/EBM survey	
Korea	87	Mr. HA	Jee-Eun	emania@daum.net; jeeha@mifaff.go.kr	Deputy Director at the International Organization Division, Ministry of Food, Agriculture, Forestry and Fisheries	02-3674-6514; +82-2-500-2427	-	-	EAF/EBM survey	
Korea	88	Ms. JUNG	Hyo-Jung	chris@mifaff.go.kr; idletomato@korea.kr	Assistant Deputy Director, Ministry for Food, Agriculture, Forestry and Fisheries	+82-2-500-2427	-	-	EAF/EBM survey	
Malaysia	89	APEC General Address for MITI Malaysia	-	apecmiti@miti.gov.my	-	-	-	FWG	EAF/EBM survey	-
Malaysia	90	Ahmad Hazizi	Aziz	ahmazi01@dof.moa.my	Department of Fisheries	03 2617 5620	03 2694 2984	-	DFO/BPA workshop	Fisheries
Malaysia	91	Sumathi	Balakrishnan	sumathi@miti.gov.my	Ministry of Internal Trade and Industry	03 6203 3159	03 6203 1305	-	DFO/BPA workshop	Trade-Industry
Malaysia	92	Shukrie	Mohamed Daud	shukrie@miti.gov.my	Ministry of Internal Trade and Industry	03 6203 3152	03 6203 1305	-	DFO/BPA workshop	Trade-Industry
Malaysia	93	Mohamad Shaupi bin	Derahman	shaupi@dof.gov.my	Director, Planning and International Division, Department of Fisheries Malaysia	6-03-88704212	-	-	EAF/EBM survey	-

Malaysia	94	Mr. Adrian F.	VIJIARUNGAM	adrian@dof.gov.my	Head of International Section, Department of Fisheries, Ministry of Agriculture and Agro-Based Industries	(603) 8870 4210	-	-	EAF/EBM survey	-
Mexico	95	-	Belmontes	rbelmontesa@conapesca.sagarpa.gob.mx	National Commission for Fisheries	-	-	-	DFO/BPA workshop	Fisheries
Mexico	96	-	Martinez Guillermo	gluevanom@conapesca.sagarpa.gob.mx	National Commission for Fisheries	-	-	-	DFO/BPA workshop	Fisheries
Mexico	97	Porfirio Alvarez	Torres	Porfirio.alvarez@semarnat.gob.mx	Ministry of Environment and National Resource	-	-	-	DFO/BPA workshop & EAF/EBM survey	Environment
Mexico	98	Manuel	Medina	manolo.medina@semarnat.gob.mx	Ministry of Environment and National Resource	52 55 5490 2118	52 55 5490 5194	-	DFO/BPA workshop & EAF/EBM survey	foreign
Mexico	99	Elena Porras	Calderón	Elena.porras@semarnat.gob.mx	Ministry for the Environment	52 55 5490 2157	52 55 5490 2194	-	DFO/BPA workshop	Trade-Industry
Mexico	100	Mr. AGUILAR	Mario	maguilars@conapesca.sagarpa.gob.mx; mariogaguilars@aol.com	Representative of CONAPESCA in Washington	2022938138	-	-	EAF/EBM survey	
Mexico	101	Ms. ESTRADA	Martha	mestradaj@conapesca.sagarpa.gob.mx; ireyesr@conapesca.sagarpa.gob.mx	Assistant Director of Strategic Pursuit, CONAPESCA	5538711000	-	-	EAF/EBM survey	
Mexico	102	Ms. REYES	Isabel	ireyesr@conapesca.sagarpa.gob.mx	Department of institutional support, CONAPESCA	01-669-915-69-00 Ext. 58113	-	-	EAF/EBM survey	
Mexico	103	Mr. RODRÍGUEZ	Mariano	mrodriguez@sagarpa.gob.mx	General Coordinator of the Institutional Operation and Strategy, CONAPESCA	6699156905	-	-	EAF/EBM survey	
Mexico	104	Maria	Rojas	maria.rojas@semarnat.gob.mx	Ministry for the Environment	-	-	-	EAF/EBM survey	

New Zealand	105	Angela	Parker	Angela.Parker@fish.govt.nz	Ministry of Fisheries	-	-	-	DFO/BPA workshop	Fisheries
New Zealand	106	Jane	Willing	Jane.Willing@fish.govt.nz	Ministry of Fisheries	04 819 4639	04 819 4644	-	DFO/BPA workshop & EAF/EBM survey	Fisheries
New Zealand	107	Maria	Cassidy	Maria.Cassidy@maf.govt.nz	Ministry of Agriculture and Forestry	64 4474 4154	64 4474 4111	-	DFO/BPA workshop & EAF/EBM survey	agriculture
New Zealand	108	Chad	Hewitt	Chad.Hewitt@maf.govt.nz	Ministry of Agriculture and Forestry	64 4474 4191	64 4474 4111	-	DFO/BPA workshop	agriculture
New Zealand	109	Naomi	Parker	naomi.parker@maf.govt.nz	Ministry of Agriculture and Forestry	-	-	-	DFO/BPA workshop & EAF/EBM survey	agriculture
New Zealand	110	Jennifer	Ms. Wilton	Jennifer.Wilton@mfat.govt.nz	APEC Unit, Asia Division, New Zealand Ministry of Foreign Affairs and Trade	+64 4 439 8482	-	FWG	EAF/EBM survey	
New Zealand	111	Ingrid	Jamieson	Ingrid.Jamieson@fish.govt.nz	Ministry of Fisheries	6448194581	-	FWG	EAF/EBM survey	
New Zealand	112	Lesley	Woudberg	lesley.woudberg@mfe.govt.nz	Ministry for the Environment	-	-	MRCWG	EAF/EBM survey	
Papua New Guinea	113	Sylvester	Pokajam	Spokajam@fisheries.gov.pg	National Fisheries Authority	675 3090 444	675 3202 061	-	DFO/BPA workshop & EAF/EBM survey	Fisheries
Papua New Guinea	114	Luke	Tanikrey	odir@daltron.com.png / tanikrey@hotmail.com	Department of Environment and Conservation	675 325 0194	675 325 0182	-	DFO/BPA workshop	Environment
Papua New Guinea	115	Augustine	Mobiha	amobiha@fisheries.gov.pg	National Fisheries Authority	-	-	-	DFO/BPA workshop & EAF/EBM survey	Fisheries

Papua New Guinea	116	Mr. ABEL	Ernest M.	eabel@fisheries.gov.pg	Executive Manager, Policy and Projects Management, National Fisheries Authority	(675) 309 0434	-	-	EAF/EBM survey	
Papua New Guinea	117	Mr. LOUMA	Leonard	iru@pmnec.gov.pg	Deputy Secretary (Policy), Department of Foreign Affairs and Trade	675 601 4179	-	-	EAF/EBM survey	
Peru	118		Miranda	amiranda@produce.gob.pe	Ministry of the Production	-	-	-	DFO/BPA workshop	Trade - Industry
Peru	119	Paola	Cavero Cerrato	pcavero@produce.gob.pe	Ministry of the Production	-	-	-	DFO/BPA workshop	Trade - Industry
Peru	120	Leoncio Alvarez	Vasquez	lalvarez@inrena.gob.pe / jefatura@inrena.gob.pe	National Natural Resources Institute	511 205 2113	511 224 3218	-	DFO/BPA workshop	Natural resources
Peru	121	Rafael	Rey	rrey@produce.gob.pe	Ministry of the Production	511 2243 334 / 511 616 2208	511 616 2222 anex. 703	-	DFO/BPA workshop	Trade - Industry
Peru	122	Liliana	Gomez	lgomez@rree.gob.pe	Ministry of Foreign Affairs	-	-	-	DFO/BPA workshop & EAF/EBM survey	Foreign - Maritime
Peru	123	Admiral Hector	Soldi	presidencia@imarpe.gob.pe	Instituto del Mar	-	-	-	DFO/BPA workshop & EAF/EBM survey	Research
Peru	124	Alfonso	Miranda	amiranda@produce.gob.pe	Vice Minister of Fisheries, Ministry of Production	511 224 3334	-	-	EAF/EBM survey	
Peru	125	Mr. CANNOCK	Peter Camino	pcamino@rree.gob.pe	Ministry of Foreign Affairs, APEC Department	51 1 311 2757	-	-	EAF/EBM survey	
Peru	126	Mr. DIAZ	Walter	wdiaz@produce.gob.pe	-		-	-	EAF/EBM survey	
Peru	127	Mr. PAZ SOLDAN	Alfonso	apazsoldan@rree.gob.pe	Ministry of Foreign Affairs, APEC Department	511-6232400 ext. 3327	-	-	EAF/EBM survey	

Peru	128	Daphne Kalen	Su Pucheu	dsu@produce.gob.pe	Ministry of Production, Vice Ministry of Fisheries	511 6162224 (526)	-	-	EAF/EBM survey	
Peru	129	Jorge	Zuzunaga	jzuzunaga@produce.gob.pe	Ministry of Production, Vice Ministry of Fisheries	511 6162223 (720)	-	-	EAF/EBM survey	
Peru	130	Rocio	Basauri	rbasauri@imarpe.gob.pe	Instituto del Mar	511 4531933	-	-	EAF/EBM survey	
Peru	131	Alejandro	Jimenez	ajimenez@produce.gob.pe	Ministry of Production	511 2243 334 / 511 616 2208	511 616 2222 anex. 703	-	EAF/EBM survey	
Philippines	132	APEC General Address for the Philippines		apecphil@yahoo.com	-	-	-	FWG	EAF/EBM survey	
Philippines	133	Annie	Vitug	annievitug@yahoo.com	-	-	-	-	DFO/BPA workshop & EAF/EBM survey	
Philippines	134	Edwyn	Alesna	edwyn_alesna@yahoo.com	-	-	-	-	DFO/BPA workshop & EAF/EBM survey	
Philippines	135	Daniel R.	Espiritu	apecphil@yahoo.com / ouier@dfa.gov.ph	Department of Foreign Affairs	63 2834 3058	63 2834 1451	-	DFO/BPA workshop	Foerign - APEC
Philippines	136	Alberto A.	Encomienda	aencomienda@yahoo.com or moac@dfa.gov.ph	Department of Foreign Affairs	-	-	-	DFO/BPA workshop & EAF/EBM survey	Foreign
Philippines	137	Ms. Munoz	Jessica	jmunoz@bfar.da.gov.ph trisha975@yahoo.com	Department of Agriculture; Bureau of Fisheries & Aquatic Resources	-	-	-	EAF/EBM survey	

Russia	138	Gennady	Boltenko	boltenko@fishcom.ru	Federal Agency for Fisheries, Ministry of Agriculture of the Russian Federation	7 495 6246 093	7 495 6287 644	-	DFO/BPA workshop	Fisheries
Russia	139	Mr. TAIROV	Temur T	Rusfish@ns.sympatico.ca	Representative of the Russian Federation on Fisheries in Canada	1 (902) 832 9225	1(902) 832 9608	FWG	EAF/EBM survey	-
Russia	140	Olga	Sedykh	so@fishcom.ru	Deputy Head of International Law International Cooperation Department Federal Agency for Fisheries, Russian Fedration	-	-	FWG	EAF/EBM survey	-
Singapore	141	Sim Huat	Koay	koay_sim_huat@ava.gov.sg	Agri-Food & Veterinary Authority	-	-	-	DFO/BPA workshop	Food - Health
Singapore	142	Kiat Yeng	Ong	MTI_APEC@mti.gov.sg	Ministry of Trade and Industry	65 6332 8858	65 6334 8135	-	DFO/BPA workshop	Trade-Industry
Singapore	143	Siu Ling	Fok	MTI_APEC@mti.gov.sg	Ministry of Trade and Industry	65 6332 8973	65 6334 8135	-	DFO/BPA workshop	Trade-Industry
Singapore	144	Azizah	Abas	aa@apec.org	APEC Secretariat	65 6775 6012	65 6775 6013	-	DFO/BPA workshop	
Singapore	145	Mr. KOAY	Sim Huat	koay_sim_huat@ava.gov.sg	Assistant Director, International Affairs Agri-Food & Veterinary Authority Ministry of National Development	6563257638	-	-	EAF/EBM survey	
Singapore	146	Ms. KARYEO	Rubinah	rubinah_karyeo@ava.gov.sg	Assistant Director, Planning, Agri-Food & Veterinary Authority, Ministry of National Development	65 6325 7690	-	-	EAF/EBM survey	
Singapore	147	CHAN	Lena	lena_chan@nparks.gov.sg	National Parks	-	-	-	EAF/EBM survey	
Singapore	148	GOH	Linda	linda_goh@nparks.gov.sg	National Parks	-	-	-	EAF/EBM survey	

Singapore	149	GOH	Nigel	nigel_goh@nparks.gov.sg	National Parks	-	-	-	EAF/EBM survey	
Thailand	150	Thummachua	Smith	thuma98105@yahoo.com	Overseas Fisheries Management and Economic Cooperation Group, Department of Fisheries	662 579 6216	662 5797 947	-	DFO/BPA workshop	Fisheries
Thailand	151	Cherdchinda	Chotiyaputta	cherdchc@dmcr.go.th	Department of Marine and Coastal Resources	662 2298 2167	-	-	DFO/BPA workshop & EAF/EBM survey	Marine coastal mgt
Thailand	152	Chinnavaso	Kasemsasn	chinnava@onep.go.th / neric@onep.go.th	Environmental Policy and Planning	662 270 1661	662 279 8086	-	DFO/BPA workshop & EAF/EBM survey	Environment
Thailand	153	Nisakorn	Kositratna	nisakorn@dmcr.go.th	Department of Marine and Coastal Resources	-	-	-	DFO/BPA workshop & EAF/EBM survey	Natural Resources
USA	154	Nicole	Ricci	RicciNM@state.gov	Department of State	-	-	-	DFO/BPA workshop & EAF/EBM survey	
USA	155	Gregory	Schneider	Greg.Schneider@noaa.gov	National Marine Fisheries Service	301 713 2276	301 713 2313	-	DFO/BPA workshop & EAF/EBM survey	Fisheries
USA	156	Jared	Ragland	RaglandJW@state.gov	Department of State	-	-	-	DFO/BPA workshop	
USA	157	Patrick E.	Moran	Pat.Moran@noaa.gov	National Oceanic and Atmospheric Administration	-	-	-	DFO/BPA workshop & EAF/EBM survey	Ocean
USA	158	Justin	Grubich	GrubichJR@state.gov	Department of State	-	-	-	DFO/BPA workshop	

USA	159	Elaine	Denning	Elaine.J.Denning@noaa.gov	National Oceanic and Atmospheric Administration	202 482 2652	202 482 4307	-	DFO/BPA workshop	Ocean
USA	160	Jennifer	Christenson	christensonjl@state.gov	Department of State	-	-	-	DFO/BPA workshop & EAF/EBM survey	Foreign
USA	161	Dr. CAPSON	Todd	CapsonTL@state.gov	Bureau of Oceans & International Environmental & Scientific Affiars, Office of Marine Conservation, Office of Oceans Affairs	202-647-5808	-	-	EAF/EBM survey	
USA	162	Dr. HANNEMANN	Diane	HannemannDE@state.gov	Science & Foreign Affairs Officer, Bureau of East Asian Pacific Affairs, Office of Economic Policy	202-647-3487	-	-	EAF/EBM survey	
USA	163	Patrick E.	Moran	Pat.Moran@noaa.gov	National Oceanic and Atmospheric Administration	-	-	-	EAF/EBM survey	
USA	164	Jennifer	Christenson	christensonjl@state.gov	Department of State	-	-	-	EAF/EBM survey	
Viet Nam	165	Dinh Thi Thanh	Huyen	dinhthithanhhuyen@mofi.gov.vn	International Cooperation Department, Ministry of Fisheries	84 4 8317 693	84 4 7710 209	-	DFO/BPA workshop & EAF/EBM survey	Fisheries
Viet Nam	166	Do Van	Khuong	dokhuong@hn.vnn.vn / Nhduc@netnam.org.vn	Institute of Marine Product Research	84 31 836 135	84 31 836 812	-	DFO/BPA workshop & EAF/EBM survey	Research - Marine
Viet Nam	167	Phan Hong	Dung	phdung@rimf.org.vn	Research Institute for Marine Fisheries	-	-	-	DFO/BPA workshop & EAF/EBM survey	Research
Viet Nam	168	Dang Van	Thi	dangthi@rimf.org.vn	Research Institute for Marine Fisheries	-	-	-	DFO/BPA workshop	Research

Viet Nam	169	Le Tran Nguyen	Hung	lenguyenhung@mfi.gov.vn	Ministry of Fisheries	84 4 7710 0799	84 4 7710 294	-	DFO/BPA workshop	Fisheries
Viet Nam	170	Mr. HAI	Cao Tran Quoc	apec@mofa.gov.vn	Head of APEC Section, Department of Multilateral Economic Cooperation, Ministry of Foreign Affairs	84 4 199 3700	-	-	EAF/EBM survey	
Viet Nam	171	Mr. HUONG	Vu Lien	huongvl@moit.gov.vn; apec@moit.gov.vn	Officer, Multilateral Trade Policy Department, Ministry of Industry and Trade	84-4-220 5418	-	-	EAF/EBM survey	
Viet Nam	172	Nguyen Viet	Manh	manhnv.htqt@mard.gov.vn	Deputy Director, International Cooperation Department, Ministry of Agriculture and Rural Development	0084 47337081	-	-	EAF/EBM survey	

Asia-Pacific Economic Cooperation

APEC-TSMM Project: Stakeholders contact list (IGO)

Intergovernmental Organization (IGO)

Economy / Base Country	No.	Organization	Name	Designation / Program	Email	Phone	Fax	Notes	Source	Area of resp.
ASEAN	1	Asean Secretariat	Emir Rio Krishna	Asean Sub-committee on Marine Science	emir@aseansec.org	-	+62 (21) 739-8234	-	DFO/BPA workshop	Ocean
ASEAN	2	Asean Secretariat	Nguyen Chu Hoi	Chairman, ASEAN Working Group on Coastal and Marine Environment	chuhoi.ifep@netnam.vn	(844) 771-8451	(844) 7716054	-	DFO/BPA workshop	Coastal
Asia	3	Asian Development Bank (ADB)	Wouter T. Lincklaen Arriens	Lead Water Resources Specialist	wlincklaenarriens@adb.org	(632) 632-6754	632 636 2444	-	DFO/BPA workshop	Water
-	4	CPPS Secretariat	Ulises Munaylla Alarcon	Director of Scientific Affairs	cpps_pse@cpps-int.org	593 4 222 1200 / 593 4 222 1202	593 4 222 1201	-	DFO/BPA workshop	Research
-	5	FAO Committee on Fisheries (COFI)	N'Diaga Gueye	Chief, FIEL and Secretary of COFI	ndiaga.gueye@fao.org	39 06 57052847	39 06 57056500	-	DFO/BPA workshop	Fisheries
-	6	FAO Fisheries and Aquaculture Information and Statistics Service	Marc Taconet	Senior Fisheries Officer	marc.taconet@fao.org	39 065 705 3799	39 065 705 2476	-	DFO/BPA workshop	Fisheries
-	7	FAO Fisheries Tsunami Task Force	George Kourous	Information Officer	george.kourous@fao.org	-	-	-	DFO/BPA workshop	Fisheries
-	8	Forum Fisheries Agency (FFA)	-	-	info@ffa.int	677 21124	677 23995	-	DFO/BPA workshop	Fisheries
-	9	Global Environment Facility (GEF)	Peter Bjornsen	Senior Policy Officer, Operations and Business Strategy	pbjornsen@thegef.org	(202) 473 4884	(202) 522 3240/3245	-	DFO/BPA workshop	Environment

-	10	Global Marine Programme, Conservation International	Sylvia Earle	Executive Director	Searle@literati.net	1 800 429 5660 or 1 703 341 2400		-	DFO/BPA workshop	Environment
Worldwide	11	Intergovernmental Oceanographic Commission (IOC)	-	-	ioc.secretariat@unesco.org	(33) 1 45 68 39 84	(33) 1 45 68 58 12/10	-	DFO/BPA workshop	Ocean
Worldwide	12	Intergovernmental Panel on Climate Change (IPCC)	-	IPCC Secretariat	IPCC-Sec@wmo.int	41-22-730-8208	41-22-730-8025	-	DFO/BPA workshop	Climate change
Worldwide	13	International Institute for Sustainable Development (IISD)	László Pintér	Director - Measurement & Assessment	lpinter@iisd.ca	(204) 958 7715	(204) 958 7710	-	DFO/BPA workshop	Sustainable Dvpt
Worldwide	14	International Maritime Organization (IMO)	Efthimias E. Mitropoulus	Secretary-General	info@imo.org	-	-	-	DFO/BPA workshop	Maritime
Worldwide	15	International Water Management Institute (IWMI)	-	Secretary-general	iwmi@cgiar.org	+94-11 2787404, 2784080	+94-11 2786854	-	DFO/BPA workshop	Water
-	16	Intertanko	Tim Wilkins,	Environmental Manager	tim.wilkins@intertanko.com	-	+65 6333 4007	-	DFO/BPA workshop	Environment
Asia-Pacific	17	Nature Conservancy, Asia-Pacific Region, Australia	Michael Looker	-	mlooker@tnc.org	61 (3) 8346-8600	+61 3 8346 8620	-	DFO/BPA workshop	Environment
Asia-Pacific	18	Network of Aquaculture Centers in Asia-Pacific	Michael Phillips	-	mjphillips@mozart.inet.co.th naca@mozart.inet.co.th	66 2 561 1728 66 2 561 1729	66 2 561 1727	-	DFO/BPA workshop	Fisheries
Japan	19	Nippon Foundation, Japan	Takashi Ito	Director Maritime Affairs	cc@ps.nippon-foundation.or.jp	81-3-6229-5111	-	-	DFO/BPA workshop	Maritime
Asia-Pacific	20	Pacific Islands Forum Secretariat (PIF)	Jaindra Kumar	Director, Trade & Investment Division	jaindrak@forumsec.org.fj	679 312 600	679 312 226	-	DFO/BPA workshop	Trade - Industry
-	21	PECC International Secretariat	Eduardo Pedrosa	Secretary-General	peccsec@pecc.net	65 737 9822/23	65 737 9824	-	DFO/BPA workshop	
-	22	PEMSEA	Adrian Ross	Regional Program Director	saross@pemsea.org	632 426 3849	632 926 9712	-	DFO/BPA workshop	
-	23	PICES	-	-	secretariat@PICES.int	-	-	-	DFO/BPA workshop	

Asia-Pacific	24	Secretariat of the Pacific Community (SPC)	-	SPEC HQ, 95 Promenade Roger Laroque, Anse Vata, New Caledonia	spc@spc.int	687 26.20.00	687 26.38.18	-	DFO/BPA workshop	
Asia-Pacific	25	South Pacific Applied Geoscience Commission (SOPAC) Fiji	Cristelle Pratt	Director	Cristelle@sopac.org	+679 338 1377	-	-	DFO/BPA workshop	
Asia-Pacific	26	South Pacific Regional Environment Programme (SPREP)	-	Secretariat, Apia, Samoa	sprep@sprep.org	685 219 29 or 685 21305	685 20231	-	DFO/BPA workshop	Environment
Asia-Pacific	27	Southeast Asian Fisheries Development Centre (SEAFDEC)	Siri Ekmaharaj	Secretary-General	sg@seafdec.org	66 (0) 2940 6326	-	-	DFO/BPA workshop	Fisheries
	28	UNEP Regional Seas Programme	Veerle Vandeweerd	Head, Regional Seas	veerle.rs@unep.nl	31703114460	31703456648	-	DFO/BPA workshop	
Indian Ocean	29	Western Indian Ocean Marine Science Association, Tanzania (WIOMSA)	Julius Francis	Executive Secretary	julius@wiomsa.org	255-24- 2233472 / 2234597	-	-	DFO/BPA workshop	Ocean
Worldwide	30	World Bank	Warren Evans	Sector Director of the World Bank Environment Department	wevans@worldbank.org	(202) 473-1000	(202) 477-6391	-	DFO/BPA workshop	Bank
Worldwide	31	World Bank	Mara K. Warwick	Senior Urban Environment Specialist, World Bank Urban Development Sector	mwarwick@worldbankorg	-	-	-	DFO/BPA workshop	Bank
Worldwide	32	World Conservation Union (IUCN)	Carl Gustaf Lindin	Head, Global Marine Programme	carl.lundin@iucn.org	-	-	-	DFO/BPA workshop	Bank

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APEC-TSMM Project: Stakeholders contact list (RGO)

RFMO (Regional Fisheries Management Organization)										
Economy / Base Country	**No.**	**Organization**	**Name**	**Designation / Program**	**Email**	**Phone**	**Fax**	**Notes**	**Source**	**Area of resp.**
-	1	Commission for the Conservation of Southern Bluefin Tuna (CCSBT)	Neil Hermes	Executive Secretary	nhermes@ccsbt.org	-	61 2 6282 8396		DFO/BPA workshop	Fisheries
Indian Ocean	2	Indian Ocean Tuna Commission (IOTC)	Alejandro Anganuzzi	Secretary	iotc.secretary@iotc.org	-	248 224 364		DFO/BPA workshop	Fisheries
-	3	INFOFISH	-	INFOFISH Secretariat	infish@po.jaring.my	603-26914466	603-26916804		DFO/BPA workshop	Fisheries
Inter-America	4	Inter-American Tropical Tuna Commission (IATTC)	-	-	Webmaster@iattc.org	(858) 546 7100	(858) 546 7133		DFO/BPA workshop	Fisheries
-	5	International Coalition of Fisheries Associations (ICFA)	-	-	contact@icfa.net	-	-		DFO/BPA workshop	Fisheries
Asia-Pacific	6	Western and Central Pacific Fisheries Commission (WCPFC)	-	-	wcpfc@mail.fm	-	-		DFO/BPA workshop	Fisheries

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APEC-TSMM Project: Stakeholders contact list (NGO)

NGO (Non-governmental Organisation)										
Economy / Base Country	**No.**	**Organization**	**Name**	**Designation / Program**	**Email**	**Phone**	**Fax**	**Notes**	**Source**	**Area of resp.**
-	1	Conservation International	Arlo Hemphill	-	inquiry@conservation.org	-	-	-	DFO/BPA workshop	NGO - Environment
-	2	Global Coral Reef Monitoring Network	Clive Wilkinson	Coordinator	C.Wilkinson@aims.gov.au or C.Wilkinson@impac.org.au	617 4729 8452	61 7 4729 8449	-	DFO/BPA workshop	NGO- Reef
-	3	International Coral Reef Action Network (ICRAN)	Richard Kenchington	-	richard.kenchington@netspeed.com.au	61 2 6251 5597	61 2 6251 5597	-	DFO/BPA workshop	NGO- Reef
-	4	International Coral Reef Initiative	Emily Corcoran	Designated Administrative Representative	icri@unep-wcmc.org	44 (0) 1223 227314	44 (0) 1223 227136	-	DFO/BPA workshop	NGO- Reef
Australia	5	International Ocean Institute (IOI) - Australia	Robin G. South	Director	robin.south@impac.org.au	61 7 4729 8460	61 7 4729 8449	-	DFO/BPA workshop	NGO - Ocean
Indonesia	6	International Red Cross	-	-	djakarta.dja@icrc.org bangkok.ban@icrc.org	-	-	-	DFO/BPA workshop	NGO
Canada	7	IOI-Canada	Micheal J. A. Butler	Director	micheal.butler@dal.ca	1 (902) 494 1977	1 (902) 494 1334	-	DFO/BPA workshop	NGO - Ocean

China	8	IOI-China	Hou Wenfeng	Director	qinli608@yahoo.com.cn or ioi@mail.nmdis.gov.cn	86 (22) 2401 0859	86 (22) 2401 0859	-	DFO/BPA workshop	NGO - Ocean
Fiji	9	IOI-Fiji	Joeli Veitayaki	Director	veitayaki_j@usp.ac.fj	679 (-) 323 2960	679 (-) 323 1526	-	DFO/BPA workshop	NGO - Ocean
India	10	IOI-India	S. P. Subramanian	Director	ioi@vsnl.com	91 (44) 2257 4808/4931	91 (44) 2257 0540/4810	-	DFO/BPA workshop	NGO - Ocean
Japan	11	IOI-Japan	Masako Bannai Otsuka	Director	ioijapan@qb3.so-net.ne.jp	81 (3) 5775 0181	81 (3) 5775 0180	-	DFO/BPA workshop	NGO - Ocean
Malta	12	IOI-Malta	Aldo Drago	Director IOI-Malta	aldo.drago@um.edu.mt	356 (-) 21 440 972	356 (-) 21 440 972	-	DFO/BPA workshop	NGO - Ocean
Thailand	13	IOI-Thailand	Cherdsak Virapat	Director	cvirapat@hotmail.com	66 (2) 589 2497 ext 17	66 (2) 589 6008	-	DFO/BPA workshop	NGO - Ocean
Malaysia	14	Malaysian Nature Society (MNS)			mns@mns.org.my	03 2287 9422	03 2287 8773	-	DFO/BPA workshop	NGO - Environment
-	15	Marine Stewardship Council (MSC)	Duncan Leadbitter	Regional Director	Duncan.Leadbitter@msc.org	61 2 9524 8400	61 2 9524 8900	-	DFO/BPA workshop	NGO- Ocean
-	16	Nature Conservancy	Lynne Zeitlin Hale	Director Marine Initiative	lhale@tnc.org	1 401 874 6872	+1 410 459 3383	-	DFO/BPA workshop	NGO - Environment
Seychelles	17	Nature Seychelles	Nirmal Jivan Shah,	Chief Exec	wildlife@email.sc or nature@seychelles.net	248 60 1100	+248 601102	-	DFO/BPA workshop	NGO - Environment
Asia-Pacific	18	Project Aware Asia Pacific			information@projectaware.org	+1 866 80 (US and Canada) or +1 949 858 7657	+1 949 267 1221	-	DFO/BPA workshop	NGO - Environment

-	19	Reef Check	Gregor Hodgson	Director	rcdata@reefcheck.org or california@reefcheck.org	1 310 230 2371	+1 310 230 2376	-	DFO/BPA workshop	NGO - Reef
-	20	STREAM Initiative	Graham Haylor	Director STREAM Initiative, Regional Office, NACA	ghaylor@loxinfo.co.th / reby@enaca.org, stream@enaca.org	+66 2 940 5457 (DL) / +66 2 5611 728	+66 2 561 1727	-	DFO/BPA workshop	NGO
Worldwide	21	World Fish Centre	Stephen John Hall	Director General	worldfish-naga@cgiar.org	0 4 626 1606	+60 4 626 5530	-	DFO/BPA workshop	NGO -Fish
Worldwide	22	World Wildlife Fund (WWF) - International	Simon Cripps	HQ	scripps@wwf.org	(202) 293-4800	-	-	DFO/BPA workshop	NGO - wildlife
Canada	23	WWF Canada	Michele Patterson		mpatterson@wwfcanada.org		-	-	DFO/BPA workshop	NGO - wildlife
Indonesia	24	WWF-Indonesia	Mubariq Ahmad	Director	wwf-indonesia@wwf.or.id	62 21 576 1070	62 21 576 1080	-	DFO/BPA workshop	NGO - wildlife
Malaysia	25	WWF-Malaysia	Kevin Hiew Wai Phang	Director, Govt & Aid Agency, Partnerships	khiew77@gmail.com	603 7803 3772; +60 12 335-0683	603 7803 5157	-	DFO/BPA workshop	NGO - wildlife
New Zealand	26	WWF-New Zealand	Denise Church	Chairman	info@wwf.org.nz	64 4 499 2930	64 4 499 2954	-	DFO/BPA workshop	NGO - wildlife
Singapore	27	WWF-Singapore	-	-	info@wwf.sg	65 6323 0100	65 6323 0179	-	DFO/BPA workshop	NGO - wildlife
Thailand	28	WWF-Thailand	Duangduen Eagan	Manager-Communications	Duangduene@wwfgreatermekong.org	66 2 5246745 ext 111	-	-	DFO/BPA workshop	NGO - wildlife

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APEC-TSMM Project: Stakeholders contact list (Research)

Research Institution										
Economy / Base Country	**No.**	**Organization**	**Name**	**Designation / Program**	**Email**	**Phone**	**Fax**	**Notes**	**Source**	**Area of resp.**
Australia	1	CSIRO Marine Research Castray ESP	Keith Sainsbury	-	Keith.Sainsbury@csiro.au	61 3 6232 5401	61 3 6232 5199	-	DFO/BPA workshop	Research
China	2	China Institute for Marine Affairs	Zhiguo Gao	Executive Director	zgao@cima.gov.cnz zgao@public.bta.net.cn	86 10 6802 2137 86 10 6804 7756	86 10 6803 0767	-	DFO/BPA workshop	Research
Chinese Taipei	3	National Museum of Marine Biology & Aquarium	Fang Lee-Shing	President	lsfang@nmmba.gov.tw	886 8 882 5001	886 8 882 4488	-	DFO/BPA workshop	Research
Japan	4	Ocean Policy Research Foundation	Hiroshi Terashima	Executive Director	info@sof.or.jp	-	+81 3 3502 2033	-	DFO/BPA workshop	Research
Malaysia	5	Maritime Institute of Malaysia (MIMA)	Mohd Ibrahim Hj Mohamed	Director of Research	drmihm8@mima.gov.my	03 2161-2960	03 2161-4035	-	DFO/BPA workshop	Research
New Zealand	6	Cawthron Institute	Danette Olsen	Research Strategy Manager	danette.olsen@cawthron.org.nz	64 3546 9464	-	-	DFO/BPA workshop	Research
Peru	7	Aquatic Bio-Technology Laboratory	Carla Aguillar	-	caguialr@imarpe.gop.pe	511-429-7630 Ext. 241	511-429-2134	-	DFO/BPA workshop	Research

PNG	8	National Research Institute, The	John Sowei	Research Fellow, Social & Environmental Studies Division	sowei@nri.org.pg	675 326 0300	675 326 0213	-	DFO/BPA workshop	Research
ROK	9	Korea Maritime Institute	Shin Young-Tae	Director of Fisheries and Fishing Community Research Center	ytshin@kmi.re.kr	82 2 2105 2843	82 2 2105 2859	-	DFO/BPA workshop	Research
Russia	10	Russian Federal Institute of Fishery and Oceanography	A.A. Elizarov	Director	-	7095 264 9387	7095 264 9187	-	DFO/BPA workshop	Research
Switzerland	11	International Institute for Sustainable Development (IISD)	Anne Hammill	Project Manager, Climate Change, Natural Resources Management, Security	ahammill@iisd.ca	41 22 917 8637	41 22 917 8054	-	DFO/BPA workshop	Research
Thailand	12	Andaman Sea Fisheries Research and Development Center, Department of Fisheries	Tassapon Krajangdara	Senior Fisheries Biologist	tassapon@hotmail.com	66 7 639 1138	66 7 639 1139	-	DFO/BPA workshop	Research
USA	13	Ocean Conservancy, The	Sonja Fordham	International Fish Conservation	sfordham@oceanconservancy.org	1 202-429-5609	1 202-872-0619	-	DFO/BPA workshop	Research

ANNEX 3

List of Experts

Asia-Pacific Economic Cooperation

APEC-TSMM Project: List of Experts/Resource Persons in TMSM

Economy	No	First Name	Surname	Title	Email	Department	Phone	Fax	Area of expertise
Netherlands	1	Alfred	H.A. Soons	Professor	A.Soons@law.uu.nl	Institute of Public International Law	31-(0)30-253 7056 2286	31-(0)30-253 7073	Marine scientific research and the law of the sea
United Kingdom	2	Angela	Williams	Dr.	A.J.Williams@sussex.ac.uk	Lecturer in Law, University of Sussex, Brighton, United Kingdom	+44 1273 876553	-	International Environmental Law
Indonesia	3	Antonio (Tonny)	Wagey	Dr.	t.wagey@fisheries.ubc.ca; twagey@atsef.org	ATSEF REGIONAL SECRETARIAT, Agency for Marine and Fisheries Research, Ministry of Marine Affairs and Fisheries, Republic of Indonesia, Jl. Pasir Putih I, Ancol Timur, Jakarta Utara 14430	0815 9643 289; +62 (21) 64714126	+62 (21) 64714126	Ecosystem-based modelling
Netherlands	4	C.J. Kees	Bastmeijer	Professor	c.j.bastmeijer@uvt.nl	Professor of Nature Conservation and Water Law, Tilburg University, Tilburg, The Netherlands	+31 13 466 2006/+31 13 466 2302	+31 13 466 8347	International and domestic environmental law, EIA
Korea	5	Cho	Jung-Hee	Dr.	jcho5901@kmi.re.kr	Korea Maritime Institute	+82-2 2105-2856	82-2-2105-2859.	Transboundary Marine Ecosystems

Hong Kong	6	Chow	Wing-kuen	Dr.	wk_chow@afcd.gov.hk	Agriculture, Fisheries & Conservation Department	+85 2 21 50 71 04	+85 2 23 11 37 31	Senior Marine Conservation Officer
USA	7	Daniel	O. Suman	Professor	dsuman@rsmas.miami.edu	Professor, Division of Marine Affairs and Policy, Rosenstiel School of Marine and Atmospheric Science, University of Miami, Florida, United States	305.421.4685	305.421.4675	Marine pollution regulation, coastal zone management, marine and environmental law, management of marine protected areas, science and technology in Latin America)
Canada	8	David	VanderZwaag	Professor	David.VanderZwaag@Dal.Ca	Canada Research Chair in Ocean Law and Governance, Marine and Environmental Law Institute, Dalhousie University, Nova Scotia, Halifax, Canada	+1 902 494 1045	-	Law of the Sea, International Environmental Law, Sustainable Development Law, Ocean Development and Management, Protection of the Marine Environment, Regional Cooperation, U.S. - Canada Relations, Legal Regimes of Polar Areas, Biodiversity Protection and Global Forests,

									and Fisheries Law and Policy.
Australia	9	Donald	Rothwell	Professor	RothwellD@law.anu.edu.au	International Law at the ANU College of Law, Australian National University	61258948;0414546830	-	Law of the sea, law of the polar regions, use of force, and implementation of international law within Australia
Netherlands	10	Erik	Jaap Molenaar	Professor	E.J.Molenaar@uu.nl	Senior Research Associate, Netherlands Institute for the Law of the Sea (NILOS), Utrecht University & Adjunct Professor Law of the Sea, Faculty of Law, University of Tromsø.	+31 (0) 30 253 7066	+31 (0) 30 253 7073	Law of the sea
Belgium	11	Frank	Maes	Professor	frank.maes@ugent.be	Public International Law in the Faculty of Law, Maritime Institute, Ghent University, Belgium	+32 9 2646895	+32 9 2646989	Public international law , specialized in international environmental law, law of the sea, marine spatial planning
Indonesia	12	Hasjim	Djalal	Professor	hdh@cbn.net.id	Senior Diplomat and Professor of International Law (Centre for South East Asia Studies, CSEAS), Indonesia, President of the International Seabed Authority, and member of the Indonesian National	-	-	Ambassador at Large for Law of the Sea and Marine Affairs of Indonesia

						Maritime Council, Jakarta.			
Malaysia	13	Hiew	Wai Phang, Kevin	Mr.	khiew77@gmail.com	University of Utriecht (Netherlands Institute for the Law of the Sea)	+60 3 7876-6434		Coral Triangle Initiative Regional Plan of Action Malaysia
Australia	14	Hugh	Kirkman	Dr.	hughkirkman@ozemail.com.au	Director, Marine Science and Ecology	+61 (0) 393150576	-	Seagrass ecology. Marine underwater mapping, monitoring marine ecosystems, multilateral environmental agreements, managing marine ecosystems
China	15	Liu	Zhenghua	Professor	Lzh_xm@126.com	Third Institute of Oceanography, State Oceanic Administration, Xiamen, China	86-592-2195975	86-592-2191929	Marine living/non-living resources
Singapore	16	Loke-Ming	Chou	Professor	dbsclm@nus.edu.sg	Department of Biological Sciences, National University of Singapore	65-6516 2696(DID	65-6779 2486	Reef biology, coastal management, and reef restoration

Canada	17	Lorraine (Lori)	Ridgeway	Ms.	RidgewayL@dfo-mpo.gc.ca	Exec. Dir., Arctic Strategies, Fisheries and Oceans Canada	613-998-4680 (BB 613-796-3889)	-	Development and implementation of the International Fisheries and Oceans Governance Strategy
USA	18	Manoj	P. Shivlani	Mr.	mshivlani@rsmas.miami.edu	Senior Research Associate, Division of Marine Biology and Fisheries, Rosenstiel School of Marine and Atmospheric Science, University of Miami, Florida, United States	+1 305.421.4608	-	Fishery management and policy, marine protected area management, coastal zone management, coastal and marine tourism, with an emphasis on coral reef areas.
Australia	19	Martin	Tsamenyi	Professor	martin_tsamenyi@uow.edu.au	Australian National Centre for Ocean Resources and Security (ANCORS), University of Wollongong, NSW Building 67 University of Wollongong NSW 2522 Australia	+61 2 4221 3224	+61 2 4221 3188	Fisheries law; fisheries monitoring, control and surveillance; shipping law; marine environmental law and ocean policy.

Malaysia	20	Maxwell	Herriman	Mr	max@searesources.biz	CEO, Sea Resources Management Sdn Bhd	+603.7955.8963/+603.7956.0494	+603.7958.8033	Marine project design and management, maritime policy and strategy, international law of the sea, international marine project consulting
Malaysia	21	Nor Aieni Binti Haji Mokhtar	-	Professor Dr.	noraieni@mosti.gov.my	Under Secretary/Director,National Oceanography Directorate, Ministry of Science Technology and Innovation	019-6690355 or 012-3905953 or 603-88858201/2	603-88893008	Ocean Policy-coastal and marine resource management
Korea	22	Park	Seong K.	Professor	skpark@pknu.ac.kr	Pukyong National University/Faculty of Ocean Industry Policy	51-620-6511	51-621-8168	Transboundary Marine Ecosystem and Living Resource
United Kingdom	23	Patricia	Wouters	Professor	p.k.wouters@dundee.ac.uk	Professor, Director of the UNESCO Centre for Water Law, Policy and Science, University of Dundee, Scotland	+44 (0)1382 384456	-	Rule of law (in international law) and how it influences regional peace and security through its normative framework governing the world's transboundary waters.

Vietnam	24	Pham	 g Luong	Prof. Dr.	luongptitdr@yahoo.com	International Cooperation Department, Viet Nam National Administration of Tourism (VNAT)	(844) 942 7625	(844) 942 4115	Tourism
Australia	25	R.J.	West	Associate Professor	ron_west@uow.edu.au	School of Biological Sciences (Building 35), University of Wollongong NSW, Australia 2522	(61-2) 4221 4648	(61-2) 4221 4135	Aquatic ecology; fisheries, fish ecology and life history; seagrass and algal ecology; estuarine wetlands, biology and ecology; fisheries, estuarine and coastal policy.
Ecuador	26	Robert	Bensted-Smith	Dr.		Fauna and Flora International Ecuador			Management, conservation
Singapore	27	Robert	Beckman	Professor	cildir@nus.edu.sg	Director of the Centre for International Law (CIL) and the head of its programme in Ocean Law and Policy, National University of Singapore	(65) 6516 8215	65-6469-2312	Law-Enforcement-transboundary cooperation: Submarine Cables and Law of the Sea and on International Maritime Crimes

Indonesia	28	Sahattua	P. Simatupang, MM	Capt. (Ship) SAHATTUA P. SIMATUPANG, MM	sahattuasimatupang@yahoo.com	Deputy Director, Directorate of Marine Safety, Directorate General of Sea Transportation, Ministry of Transportation	-	-	Expert (maritime transport)
Australia/ Singapore	29	Sam	Bateman	Professor Senior Research Fellow	sbateman@uow.edu.au, issambateman@ntu.edu.sg	Professorial fellow, Australian National Centre for Ocean Resources and Security (ANCORS), University of Wollongong, Senior Fellow and Advisor, S. Rajaratnam School of International Studies (Institute of Defence and Strategic Studies (IDSS), Nanyang Technological University, Singapore	+61 7 5478 1069	+65 6793 2991	Regional maritime security, piracy and maritime terrorism, the strategic and political implications of the Law of the Sea, and maritime cooperation and confidence-building
Thailand	30	Smith	Thummachua	Dr.	thuma98105@yahoo.com	Senior Fisheries Biologist, Overseas Fisheries Management and Economic Cooperation Group, Department of Fisheries	662 579 6216	662 5797 947	Fish biology
Australia	31	Stuart	Kaye	Professor	ye@unimelb.edu.au ; stuart.kaye@uwa.edu.au	Chair in Law, Melbourne Law School, University of Melbourne	+61 3 +61 8 / 08 6488 8520	+61 8 / 08 6488 1045	Maritime boundaries

USA	32	Todd	CAPSON	Dr.	capsont@gmail.com	Bureau of Oceans & International Environmental & Scientific Affiars, Office of Marine Conservation, Office of Oceans Affairs	-	-	Strengthening marine protected areas; fisheries and ocean policy
Canada	33	Tony	J. Pitcher	Professor	t.pitcher@fisheries.ubc.ca	Professor of Fisheries, University of British Columbia, Vancouver, Canada (from 1993)	604 822-2731	604 822- 8934	Fisheries, fish biology
Vietnam	34	Tran	Van Cong	Mr.	congt.htqt@mard.gov.vn	International Cooperaton of the Ministry of Agriculture and Rural Development	-	-	Marine living/non-living resources
Vietnam	35	Vo	Si Tuan	Asst. Prof. Dr.	vosituan@gmail.com	Vice Director, Institute of Oceanography, Vietnam	84-58-3590035, 3590036	84-58-3590034	Marine Ecology- Coral reefs and marine resources management
Vietnam	36	Pham	Trong Yen	Mr.	ptrongyen@yahoo.com	Deputy Director of Department of Capture and Fisheries Resources Protection			
Vietnam	38	Nguyen Thi	Trang Nhung	Mr.	Nguyen Thi	Expert of Science, Technology and International Cooperation Department			

ANNEX 4

Webinar Invitations

SAMPLE INVITATION LETTER FOR WEBINAR PARTICIPANTS – FORMAT 1 (used for original webinar scheduled on 20 September 2010)

Dear _____,

Good day to you. My name is Dr. Savinder Kaur Gill and I am the project coordinator for an APEC project initiated by the Marine Resource Conservation Working group (MRCWG). I am writing to invite you to participate in a web-based discussion (webinar) on **"Marine Living Resources (fisheries and aquaculture, seaweed, seagrass, coral reefs and wetland)**. We have carefully selected you as a representative from **Singapore**, in view of your expertise in marine living resources to participate in the webinar scheduled on:

Date: **29 September 2010 (Wednesday)**

Time: **1000hrs (Singapore)**

Duration: **Not exceeding two hours**

The project we are in charge of covers 'Transboundary Spatial Marine Management' (TSMM) issues for APEC Economies. Within the frame of this project, we are drawing guidelines, which can be used as a reference for APEC Economies that wish to define, design, and implement TSMM in their region. These guidelines will also compile case-studies from all over the world.

In order to ensure the adequacy of the guidelines with the specificities of each APEC Economy, we are developing a consultation phase to gather essential information from each APEC Economy.

The consultation phase will be implemented through the organisation of web-based discussions (webinars). As such, we would be much obliged to have your invaluable contribution in the webinar, in view of your expertise in marine living resources.

We will send you the draft guidelines and more details on how to participate in the webinar at least one week before the webinar. At this point, we seek your kind cooperation in confirming your availability for the webinar and to block your diary for the webinar. We would be very grateful if you could extend us your full support to help make the webinar a success.

Thank you for your time and kind cooperation.

Yours faithfully,

Dr. Savinder Kaur Gill

Sea Resources Management (SRM) Sdn Bhd
Suite F803 Phileo Damansara 1
Off Jalan Damansara
46350 Petaling Jaya, Selangor Malaysia

tel: +603 7956 0494
tel2: +603 7955 8963
fax: +603 7958 8033
SkypeIn #: savinder.gill

Sample Invitation Letter for Group 1 (Webinar 1)- Format 2

Dear colleague,

Good day to you. This is a follow-up to my webinar invitation last month. To recap, my name is Dr. Savinder Kaur Gill and I am the project coordinator for an APEC project initiated by the Marine Resource Conservation Working group (MRCWG). I am writing to invite you to participate in a web-based discussion (webinar) on **"Marine Living Resources (fisheries and aquaculture, seaweed, seagrass, coral reefs and wetland)** schedule for Wednesday, **27 October 2010.** Kindly refer to the table below to note your country's timing:

ECONOMY	**TIME**	**UTC time**
Australia,	1200	
Brunei Darussalam,	1000	UTC+8
China	1000	UTC+ 8
Chinese Taipei	1000	UTC+ 8
Hong Kong,	1000	UTC+ 8
Indonesia, Jakarta	0900	UTC+7
Japan,	1100	UTC+9
Korea,	1100	UTC+9
Malaysia,	**1000**	**UTC+ 8**
New Zealand (Wellington/Auckland),	1400	UTC+12
Papua New Guinea	1200	UTC+10
Philippines,	1000	UTC+ 8
Singapore,	1000	UTC+ 8
Thailand	0900	UTC+ 7
Viet Nam	0900	UTC+ 7
Canada (Toronto/Montreal)	1900	UTC-4

Chile	2200	UTC-4
Mexico	2000	UTC-5
Peru	2100	UTC-5
Russia (Moscow/Vladivostok)	1200 (Vladivostok)	UTC+4/ UTC+11
United States	1800 (West coast/ East Coast)	UTC-7/UTC-4

For your information, the project we are in charge of covers 'Transboundary Spatial Marine Management' (TSMM) issues for APEC Economies. Within the frame of this project, we are drawing guidelines, which can be used as a reference for APEC Economies that wish to define, design, and implement TSMM in their region. These guidelines will also compile case-studies from all over the world.

In order to ensure the adequacy of the guidelines with the specificities of each APEC Economy, we are developing a consultation phase to gather essential information from each APEC Economy.

The consultation phase will be implemented through the organisation of web-based discussions (webinars). As such, we would be much obliged to have your invaluable contribution in the webinar, in view of your expertise in marine living resources.

We seek your kind cooperation in **confirming your availability** for the webinar and to block your diary for the webinar. We will email you the draft guidelines upon receiving your confirmation for the webinar. We would be very grateful if you could extend us your full support to help make the webinar a success.

Thank you for your time and kind cooperation.

Warm regards,

Dr. Savinder Kaur Gill

Sea Resources Management (SRM) Sdn Bhd
Suite F803, Phileo Damansara 1
Off Jalan Damansara
46350 Petaling Jaya, Selangor Malaysia

tel: +603 7956 0494
tel2: +603 7955 8963
fax: +603 7958 8033
SkypeIn #: savinder.gill

Sample Invitation Letter for Group 1 (Webinar 1)- Format 3

Dear colleague,

Good day to you. My name is Dr. Savinder Kaur Gill and I am the project coordinator for an APEC project initiated by the Marine Resource Conservation Working group (MRCWG). I am writing to invite you to participate in one or more web-based discussions (webinars) on the following themes. The webinar themes are as follows:

Webinar	Theme	Date
1	Marine living resources (fisheries and aquaculture, seaweed, seagrass, coral reefs, and wetlands);	27 October 2010
2	Maritime transport (shipping, dredging, port facilities, shipbuilding, ports and harbours management);	3 November 2010
3	Tourism and recreation (noting especially the importance of coastal aesthetics and coastal communities);	10 November 2010
4	Non-living resources (sand mining, oil & gas, de-salination, renewable energy) etc.	11 November 2010

Kindly refer to the table below to note your country's timing:

ECONOMY	TIME	UTC time
Malaysia,	**2300**	**UTC+ 8**
Canada (Toronto/Montreal)	1100	UTC-4
Chile	1100	UTC-4
Mexico	1000	UTC-5
Peru	1000	UTC-5
Russia (Moscow/Vladivostok)	1900 (Vladivostok)	UTC+4/ UTC+11
United States	0800/1100hrs (US West Coast/East Coast)	UTC-7/UTC-4

For your information, the project we are in charge of covers 'Transboundary Marine Spatial Management' (TMSM) issues for APEC Economies. Within the framework of this project, we are drawing guidelines, which can be used as a reference for APEC Economies that wish to define, design, and implement TMSM in their

region. These guidelines will also compile case-studies from all over the world.In order to ensure the adequacy of the guidelines with the specificities of each APEC Economy, we are developing a consultation phase to gather essential information from each APEC Economy.

The consultation phase will be implemented through the organisation of web-based discussions (webinars). As such, we would be much obliged to have your invaluable contribution in **one or more** of the webinars, according to your level of expertise.We seek your kind cooperation in **confirming your availability** for any (one or more) of these webinars and to block your diary for the webinars. Please find attached the **draft guidelines** for your comments and suggestions. We would be very grateful if you could **fill up the attached questionnaire** and email it back to us by 26 October 2010. We thank you in advance for your full support in helping to make these webinars a success.

Thank you for your time and kind cooperation.

Warm regards,

Dr. Savinder Kaur Gill

Sample follow-up/reminder to webinar invitation- Format 1

Dear _____,

Good day to you. I am writing once again to seek confirmation on your availability to participate in the webinar scheduled for **Wednesday, 27 October 2010 (1900hrs-Russia)**. I really look forward to hearing from you soon. Thank you so much for your kind cooperation.

ECONOMY	**TIME**	**UTC time**
Malaysia	**2300**	**UTC+ 8**
Canada (Toronto/Montreal)	1100	UTC-4
Chile	1100	UTC-4
Mexico	1000	UTC-5
Peru	1000	UTC-5
Russia (Moscow/Vladivostok)	1900 (Vladivostok)	UTC+4/ UTC+11
United States	0800/1100hrs (US West Coast/East Coast)	UTC-7/UTC-4

Warm regards,

Dr. Savinder Kaur Gill

Sea Resources Management (SRM) Sdn Bhd
Suite F803, Phileo Damansara 1
Off Jalan Damansara
46350 Petaling Jaya, Selangor Malaysia

Sample reply to those unable to participate

Dear _____,

Thank you very much for your response to my invitation for the webinar. Your unavailability for the webinar on 27 October 2010 is noted.

Will you be able to participate in either of the remaining three webinars scheduled at the same time on 3, 10 and 11 November?

If you are unable to participate in any of the webinars, I would be very obliged if you could provide feedback on the draft TMSM guidelines which I sent you in my webinar invitation email. Your input is much appreciated.

I look forward to your response. Thank you for your time and support.

Warm regards,
Savinder

Sample of letter of confirmation / instructions for the webinar.

Dear _____,

Thank you for your time and effort in filling up the questionnaire.

We will be using a software called DimDim for the webinar. Please do read the participant manual (attached in my first invitation email) to get acquainted with the webinar process. If you need more info on DimDim, please visit the DimDim website at www.dimdim.com or you could send your queries to me. I would recommend that you try to access the DimDim webpage as some countries have restrictions and the software may not work in your country.

Thank you so much for your support. I look forward to your active participation in the webinar. Thank you.

Warm regards,

Savinder

ANNEX 5

Examples of Webinar Agenda

APEC-TMSM e-Workshop

Webinar 1 (GROUP 1)

e-workshop:	*Marine Living Resources*
e-workshop date & time:	*27 October 2010, 1000-1200hrs (Malaysia Time GMT+8)*
Moderator (s):	*Max Herriman (assisted by Dr. Hugh Kirkman)*

Objectives of the workshop

- Review the structure of the Draft TMSM Guide and discuss options for improvement;
- Raise awareness of TMSM and its benefits, and create a network of contacts to facilitate discussion on the subject after completion of the project;
- Obtain information from participants that can contribute to examples for use in the TMSM Guide

Attendees

1	Mr. WK Chow	Hong Kong	wk_chow@afcd.gov.hk	Agriculture, Fisheries & Conservation Department
2	Ms. Sitti Hamdiyah (a.k.a. Diyah)	Indonesia	sh.diyah@gmail.com	the MRCWG focal point of Indonesia
3	Glen Ewers	Australia	Glen.Ewers@environment.gov.au	Marine Division, Department of Sustainability, Environment, Water, Population and Communities
4	Dr. Janet KW LEE	Hong Kong	janet_kw_lee@afcd.gov.hk	Fisheries Officer/ Mariculture Development
5	Dr. Vo Si Tuan	Vietnam	vosituan@gmail.com	Institute of Oceanography, Vietnam
6	Dr. Hugh Kirkman	Australia	hughkirkman@ozemail.com.au	Marine Science & Ecology
7	Prof. Liu Zhenghua	China	Lzh_xm@126.com	-

Agenda

Item 1: Introduction of webinar participants

- Please tell us how you would like us to refer to you during the discussion
- Provide a brief description of your current position and responsibilities
- If any, please give us a 2-minute summary of any Transboundary Marine Spatial Management Experience

Item 2: Presentation - A Quick Overview of the Draft Transboundary Marine Spatial Management Guide

Item 3: Free Discussion - Suggestions of other good examples of TMSM that might be included in the guide

- Describe the example
- Relevant lessons (positive or negative) learnt from the example?

Item 4: Identification of Experts in Transboundary Marine Spatial Planning and Management

- Please type in the name, position and if possible the email contact details of any such experts.
- We will contact them individually to invite them to participate in future Webinars, and request that they allow us to cite them as a possible resource person for APEC Economies who might be seeking assistance in the future

Item 5: Clarification and Queries / Comments on the TMSM Guide

- Is there anything in the Draft Guide that seems unclear to you?
- Do you have any suggestions on how the draft Guide might be improved?

Notes

This is the first of our Webinars using the Dimdim software. As such, although we have had several trial runs, there no doubt will be a few technical glitches along the way. Please be patient with everyone as we collectively grapple with the technology.

Thank you.

APEC-TMSM e-Workshop

Webinar 2 (GROUP 1)

e-workshop:	*Maritime Transport*
e-workshop date & time:	*3 November 2010, 1000-1200hrs (Malaysia Time GMT+8)*
Moderator (s):	*Max Herriman (assisted by Dr. Hugh Kirkman)*

Objectives of the workshop

- Review the structure of the Draft TMSM Guide and discuss options for improvement;
- Raise awareness of TMSM and its benefits, and create a network of contacts to facilitate discussion on the subject after completion of the project;
- Obtain information from participants that can contribute to examples for use in the TMSM Guide

Attendees

1	Capt. K. Subramaniam	Malaysia	subra@pka.gov.my	Marine Operations Manager, Port Klang Authority PO Box 202 Port Klang, Selangor, Malaysia Tel: +603 31688211 Ext: 3025, +603 3166 8205 (DL) Fax: +603 3168 9117
2	En. Zakuan	Malaysia	zakuan@mot.gov.my	Ministry of Transport
3	Gibbons Charlie	Australia	Charlie.Gibbons@infrastructure.gov.au	-

Agenda

Item 1: Introduction of webinar participants

- Please tell us how you would like us to refer to you during the discussion
- Provide a brief description of your current position and responsibilities
- If any, please give us a 2-minute summary of any Transboundary Marine Spatial Management Experience

Item 2: Presentation - A Quick Overview of the Draft Transboundary Marine Spatial Management Guide

Item 3: Free Discussion - Suggestions of other good examples of TMSM that might be included in the guide

- Describe the example
- Relevant lessons (positive or negative) learnt from the example?

Item 4: Identification of Experts in Transboundary Marine Spatial Planning and Management

- Please type in the name, position and if possible the email contact details of any such experts.
- We will contact them individually to invite them to participate in future Webinars, and request that they allow us to cite them as a possible resource person for APEC Economies who might be seeking assistance in the future

Item 5: Clarification and Queries / Comments on the TMSM Guide

- Is there anything in the Draft Guide that seems unclear to you?
- Do you have any suggestions on how the draft Guide might be improved?

Notes

This is the first of our Webinars using the Dimdim software. As such, although we have had several trial runs, there no doubt will be a few technical glitches along the way. Please be patient with everyone as we collectively grapple with the technology.

Thank you.

ANNEX 6

Webinar Questionnaire

APEC Transboundary Marine Spatial Management Project

Participation in web-based discussions (Group 1)

Dear Participant,

A series of four e-workshops (Webinar) on Transboundary Marine Spatial Management (TMSM) will be held to discuss the challenges of transboundary marine spatial management. These workshops are key activities of Project 01/2009A of the APEC Marine Resources Conservation Working Group.

We would be honoured if you would join us as a participant in one or more of the webinars to share your experience and expert opinion. You will be sent details on how to log into the Webinar via separate correspondence. The themes of the webinars are as follows:

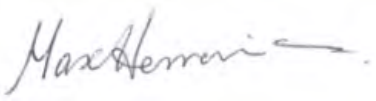
Webinar	Theme	Date
1	Marine living resources (fisheries and aquaculture, seaweed, seagrass, coral reefs, and wetlands);	27 October 2010
2	Maritime transport (shipping, dredging, port facilities, shipbuilding, ports and harbours management);	3 November 2010
3	Tourism and recreation (noting especially the importance of coastal aesthetics and coastal communities);	10 November 2010
4	Non-living resources (sand mining, oil & gas, de-salination, renewable energy) etc.	11 November 2010

The timings for your respective countries (economies) are as follows:

ECONOMY	TIME	UTC time
Australia	1200	
Brunei Darussalam	1000	UTC+8
China	1000	UTC+ 8
Chinese Taipei	1000	UTC+ 8
Hong Kong	1000	UTC+ 8
Indonesia, Jakarta	0900	UTC+7
Japan	1100	UTC+9
Korea	1100	UTC+9
Malaysia,	**1000**	**UTC+ 8**
New Zealand (Wellington/Auckland),	1400	UTC+12
Papua New Guinea	1200	UTC+10
Philippines,	1000	UTC+ 8
Singapore,	1000	UTC+ 8
Thailand	0900	UTC+ 7
Viet Nam	0900	UTC+ 7

Meanwhile, in order to help prepare for the workshop(s) and to ensure that we gain maximum benefit from your participation, I would be grateful if you would kindly take a few minutes to answer the following very short questionnaire. Please return the completed document at your earliest convenience to the Consultant Project Coordinator, Dr. Savinder Kaur Gill, at: savinder@searesources.biz

Thank you in advance for your cooperation.



Max Herriman
CEO Sea Resources Management
APEC MRCWG 2009/A Consultant Project Manager

APEC-TSMM Project background

The APEC Marine Resource Conservation Working Group (MRCWG) has initiated a project (APEC MRCWG 2009/1A) to prepare a framework of guiding principles (a 'How-to' Guide) for the development, implementation, management and enforcement of transboundary spatial marine management (TMSM) strategies. The Project will also establish requisite mechanisms to support this framework into the future. An extensive consultation phase involving stakeholders from APEC Economies will help to identify the priorities, issues and goals for TMSM.

Questionnaire

Information on Participant[2]

APEC Economy: **Yes, I agree to participate in the Webinar** ☐

Given Name: Surname:

Organisation: Position:

Area of expertise:

Webinar theme which you intend to participate in (choose from 1-4 or more):

[2]If you wish to answer the questionnaire anonymously, please only mention the APEC Economy to which you belong and your area of expertise.

TSMM –Sectors of Activity

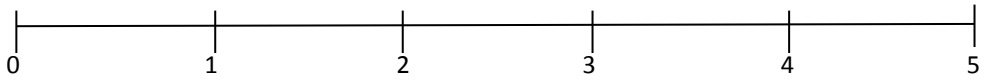
Question One: In your Economy, which, if any, marine activities are managed cooperatively across jurisdictional spatial boundaries (e.g. enforcement cooperation, data sharing, joint funding / revenue sharing, harmonized legislation or incentives, common training, etc.)?

- ☐ Oil & Gas Production
- ☐ Sand mining
- ☐ Fishing effort management
- ☐ Illegal, unreported & unregulated fishing
- ☐ Aquaculture
- ☐ Maritime Transport
- ☐ Pollution Control
- ☐ Oil Spill Response
- ☐ Hydrographic Survey
- ☐ Recreational tourism
- ☐ Pipelines / Cables
- ☐ Biodiversity conservation
- ☐ Marine invasive species
- ☐ Mangrove/coastal areas conservation
- ☐ Endangered species management
- ☐ Marine protected area management
- ☐ Security
- ☐ Safety
- ☐ Marine Scientific Research
- ☐ Coastal erosion / accretion
- ☐ Health
- ☐ Other (please specify below)

Please elaborate:

TSMM - Effectiveness

Question Two: On balance, how would you rate the effectiveness of transboundary spatial marine management by your Economy?



0 = No genuine success; lack coordination across boundaries; cooperation with neighbours is limited or non-existent

5 = Considerable success; strong coordination across boundaries; cooperation with neighbours is extensive

Please elaborate:

TSMM – Implementation Methods

Question Three: Which mechanisms have been used by your Economy to implement transboundary management of defined marine space(s)?

- ☐ Exchange of data
- ☐ Joint development area(s)
- ☐ Harmonized legislation
- ☐ Harmonized policy
- ☐ Joint enforcement
- ☐ Agreed fishery catch quotas
- ☐ Common training
- ☐ Joint marine scientific research
- ☐ Exchange of personnel
- ☐ Revenue sharing
- ☐ Cost sharing
- ☐ Jointly managed marine protected area(s)
- ☐ Coordinated vessel traffic services
- ☐ Joint vessel traffic separation scheme(s)
- ☐ Regular planning and dialogue meetings
- ☐ Other (please specify below)

TSMM - Challenges

Question Four: a) What have been the main challenges for TSMM planning and implementation in your Economy?

- ☐ Insufficient information and/ or guidance to plan TSMM
- ☐ Conflicts between sectoral activities in the area
- ☐ Insufficient funding
- ☐ Administrative obstacles
- ☐ No perceived need for TSMM
- ☐ A lack of consensus between governing bodies in the area / sectors
- ☐ Transboundary conflicts of interest
- ☐ Wariness or distrust of neighbours
- ☐ Lack of coordination between regional, local, and / or national bodies
- ☐ Historical enmity with neighbouring jurisdiction(s)
- ☐ Cultural or linguistic misunderstandings
- ☐ Incompatible approaches to jurisprudence
- ☐ Lack of expertise / human resources to plan and implement TSMM
- ☐ Other (please specify below)

b) In your opinion, in order of importance, which three factors of those mentioned above are the greatest obstacle to effective implementation of TSMM by your Economy?

1. **2.** **3.**

TSMM - Challenges

Question Five: **Has your Economy ratified any treaty, or otherwise signed or committed to any other Agreement or Understanding with a neighbouring Economy that provides for TSMM?**

☐ Yes ☐ No ☐ Not Sure

Please elaborate:

ANNEX 7

Webinar Participants List

Asia-Pacific Economic Cooperation

APEC-TSMM Project: e-workshop attendee list

Will attend:	**7**
Will not attend:	2
No answer:	77
Email bounced/out of town response:	26

Economy	No	Organization	Name	Title	Email	Phone	Fax	Area of expertise	Comments	Workshop invitation sent on (dd/mm/yyy)
Asia-Pacific	1	Western and Central Pacific Fisheries Commission (WCPFC)	-	-	wcpfc@mail.fm	-	-	-	Email bounced	21-Oct-10
-	2	FAO Committee on Fisheries (COFI)	Mr. N'Diaga Gueye	Chief, FIEL and Secretary of COFI	ndiaga.gueye@fao.org	39 06 57052847	39 06 57056500	-	No reply	21-Oct-10
Australia	3	Marine Science & Ecology	Dr. Hugh Kirkman	Consultant	hughkirkman@ozemail.com.au	61 3 9350576	-	seagrass	Replied	14-Oct-10

Australia	4	Marine Division, Department of Sustainability, Environment, Water, Population and Communities	Mr. Glen Ewers	Assistant Director	Glen.Ewers@environment.gov.au	+61 2 6274 2575	-	-	Replied	14-Oct-10
Australia	5	CSIRO Marine Research Castray ESP	Mr.Keith Sainsbury	-	Keith.Sainsbury@csiro.au	61 3 6232 5401	61 3 6232 5199	-	No reply	21-Oct-10
Australia	6	-	Dr. Derek Staples	Fisheries Consultant	derekstap@gmail.com	61 408076746	-	fisheries	No reply	21-Oct-10
Australia	7	Global Coral Reef Monitoring Network (GCRMN)	Mr. Clive Wilkinson	-	clive.wilkinson@rrrc.org.au	-	-	coral reef	No reply	21-Oct-10
Australia	8	Department of Agriculture, Fisheries and Forestry	Mr. Simon Veitch	-	Simon.Veitch@daff.gov.au	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Australia	9	Multilateral Policy, Trade and Market Access Division, Department of Agriculture, Fisheries & Forestry	Ms. Madeleine BALDWIN	Executive Officer	madeleine.baldwin@daff.gov.au	61 (0) 2 6272 4339	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Australia	10	Department of Environment and Heritage	Ms. Angela Williamson	-	angela.williamson@environment.gov.au	61 3 6221 5008	-	-	Email bounced	21-Oct-10
Brunei Darussalam	11	Department of International Trade, Ministry of Foreign Affairs and Trade	Ms. Joharia WAHAB	-	johariah.wahab@mfa.gov.bn	673 2 384092; 673 2 383874 ext 1882	-	FWG	No reply	21-Oct-10

Brunei Darussalam	12	Department of Fisheries, Ministry of Industry and Primary Resources	En. Abdul Halidi Mohd Salleh	-	halidi_salleh@fisheries.gov.bn	-	-	-	Email bounced	21-Oct-10
Brunei Darussalam	13	Department of Fisheries, Ministry of Industry and Primary Resources	Hasnah Ibrahim (Hajah)	-	hasnah_ibrahim@fisheries.gov.bn	-	-	-	Email bounced	14 Oct 2010 (reminder on 19&22 October 2010)
Canada	14	International Policy, Planning and Coordination Bureau - Affairs Directorate Fisheries and Oceans Canada Ottawa, Canada K1A 0E6	Mr. Dale Marsden	-	dale.marsden@dfo-mpo.gc.ca	Téléphone +1-613-993-0675	Télécopieur +1-613-990-9574	-	Replied	14-Oct-10
Canada	15	Fisheries and Oceans Canada	Ms. Renée Sauvé	-	SauveR@DFO-MPO.GC.CA	613 991 6740	613 990 9574	-	Email bounced	21-Oct-10
Canada	16	APEC, Foreign Affairs and International Trade Canada	Mr. Hani NASSER	Economic Policy Officer	Hani.Nasser@international.gc.ca	(1) 613 944 0930	-	-	No reply	21-Oct-10
Chile	17	Undersecretariat for Fisheries	Mr. Alex Brown	-	abrown@subpesca.cl	56 32 507 765	56 32 502 740	-	No reply	21-Oct-10
Chile	18	APEC Department, General Directorate for International Economic Affairs, Ministry of Foreign Affairs, Republic of Chile	Ms. Myriam DURAN	-	mduran@direcon.cl	(56 2) 565 9060 / 9350	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)

Chile	19	National delegate for Fisheries Working Group	Mr. Italo Campodonico	-	icampodo@subpesca.cl	-	-	-	Email bounced	14 Oct 2010 (reminder on 19&22 October 2010)
Chile	20	Collaborator of the MRCWG and official of the Aquaculture Department	Mr. Felipe Zepeda	-	fzepeda@subpesca.cl	-	-	-	Email bounced	14 Oct 2010 (reminder on 19&22 October 2010)
Chile	21	Flor Uribe, official of the Aquaculture Department	Ms. Flor Uribe	-	furibe@subpesca.cl	-	-	-	Email bounced	14 Oct 2010 (reminder on 19&22 October 2010)
China	22	Department of International Cooperation, State Oceanic Administration	Chen Yue	-	zzh@soa.gov.cn	86 10 6801 9791	86 10 6802 0283	-	Email bounced	21-Oct-10
China	23	Div. of Foreign Trade, Dept of Development Planning, Ministry of Agriculture	Mr. WANG Kaiyuan	Deputy Director	kaiyuan@agri.gov.cn	86 10 6419 2588	-	FWG	No reply	21-Oct-10
China	24	China Institute for Marine Affairs	Mr. Zhiguo Gao	Executive Director	zgao@cima.gov.cnz zgao@public.bta.net.cn	86 10 6802 2137 86 10 6804 7756	86 10 6803 0767	-	Email bounced	21-Oct-10
China	25	Third Institute of Oceanography State Oceanic Administration, Xiamen, China	Prof. Liu Zhenghua	-	Lzh_xm@126.com	-	-	Marine living resources expert	Replied	14 Oct 2010 (reminder on 19&22 October 2010)

Chinese Taipeh	26	Director, Deep Sea Fisheries Division, Fisheries Agency	Mr. Huang Hon-Yen	-	hangyen@ms1.fa.gov.tw	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Chinese Taipei	27	National Museum of Marine Biology & Aquarium	Fang Lee-Shing	President	lsfang@nmmba.gov.tw	886 8 882 5001	886 8 882 4488	-	No reply	21-Oct-10
Chinese Taipei	28	Taiwanese Coral Reef Society	Chang-feng Dai	-	corallab@ntu.edu.tw	-	-	coral reef	No reply	21-Oct-10
Chinese Taipei	29	Fisheries Agency	Chung-Hai Kwo	-	chunghai@ms1.fa.gov.tw	-	-	-	No reply	21-Oct-10
Chinese Taipei	30	Environmental Protection Administration	Yiong-Shing Sheu	yssheu@sun.epa.gov.tw	yssheu@sun.epa.gov.tw	-	-	-	No reply	21-Oct-10
Hong Kong	31	Fisheries Officer/ Mariculture Development	Dr. Janet KW LEE	Dr.	janet_kw_lee@afcd.gov.hk	-	-	-	Replied	22-Oct-10
Hong Kong	32	Senior Marine Conservation Officer	Mr. CHOW Wing-kuen	Mr.	wk_chow@afcd.gov.hk	-	-	-	Replied	14 Oct 2010 (reminder on 19&22 October 2010)
Hong Kong (China)	33	Agriculture, Fisheries & Conservation Department	Mr. Alan Chan Lai-Koon	Mr.	alan_lk_chan@afcd.gov.hk	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Hong Kong, China	34	Trade and Industry Department	Ms. Priscilla Liu	-	hkcapec@tid.gov.hk	852 2398 5669	852 2787 7799	-	No reply	21-Oct-10
Hong Kong, China	35	Agriculture, Fisheries & Conservation Department	Mr. Albert Wy Leung	-	albert_wy_leung@afcd.gov.hk	852 28738326	-	-	Email bounced	21-Oct-10

Indonesia	36	Ministry of Marine Affairs & Fisheries Agency fo Mar. and Fish. Res.	Dr. Ir. Aryo Hanggono	-	arfahan@geologist.com	62 21 64711672 mob 62 811 197587	-	fisheries	Email bounced	21-Oct-10
Indonesia	37	Ministry of Marine Affairs and Fisheries	Mr. Tony Wagey	-	t.wagey@fisheries.ubc.ca	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Indonesia	38	Ministry of Marine Affairs and Fisheries	Ms. Sitti Hamdiyah	-	sh.diyah@gmail.com or sh_diyah@yahoo.com	-	-	-	Replied	14 Oct 2010 (reminder on 19&22 October 2010)
Indonesia	39	FWG Lead Sheppard	Mr. Gellwynn Jusuf	-	gjusuf@cbn.net.id	-	-	-	No reply	21-Oct-10
Japan	40	Ocean Division Ministry of Foreign Affairs of Japan	Yuko WATANABE	-	aytokayuko@alpha.ocn.ne.jp	-	-	-	No reply	21-Oct-10
Japan	41	Ocean Policy Research Foundation	Mr. Hiroshi Terashima	Executive Director	info@sof.or.jp	-	+81 3 3502 2033	-	No reply	21-Oct-10
Japan	42	Japan (Ministry of the Environment)	Mr. Marisa Aramaki	-	MARISA_ARAMAKI@env.go.jp	-	-	coral reef	No reply	21-Oct-10
Japan	43	International Affairs Division, Fisheries Agency of Japan	Mr. Haruo TOMINAGA	-	haruo_tominaga@nm.maff.go.jp	-	-	-	No reply	14 Oct 2010 (reminder on 19 October 2010)
Japan	44	Fisheries Division, Economic Affairs Bureau, Ministry of Foreign Affairs	Mr. TANIMOTO Takuya	-	takuya.tanimoto@mofa.go.jp	-	-	-	No reply	21-Oct-10

Korea	45	Assistant Deputy Director, Ministry for Food, Agriculture, Forestry and Fisheries	Mr. Jung Hyo-Jung	-	chris@mifaff.go.kr; idletomato@korea.kr	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Korea	46	Pukyong National University/Faculty of Ocean Industry Policy	Mr. Seong K. Park	-	skpark@pknu.ac.kr	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Korea	47	Ministry of Marine Affairs and Fisheries	Mr. Keon-Soo Sohn	-	bestsea@chollian.net	82 2 3674 6540	82 2 3674 6546	-	Email bounced	21-Oct-10
Korea	48	Deputy Director, International Cooperation	Mr. CHAE Jhin Kyoo	-	jkchae@yahoo.com	82 2 3466 2057	-	-	Email bounced	21-Oct-10
Malaysia	49	Maritime Institute of Malaysia (MIMA)	En. Mohd Ibrahim Hj Mohamed	Director of Research	drmihm8@mima.gov.my	03 2161-2960	03 2161-4035	-	Email bounced	21-Oct-10
Malaysia	50	University Putra Malaysia	Assoc. Prof. Dr. Japar Sidik Bujang	-	japar@btu.upm.edu.my	6086855201 2312318085 0	-	seagrass	No reply	21-Oct-10
Malaysia	51	Johor National Parks Corporation	Mr. Harban Singh	Ramsar Site Manager	sharban@pd.jaring.my jnpc@johorparks.com	72337471	-	mangroves	Email bounced	21-Oct-10
Malaysia	52	Planning and International Division, Department of Fisheries Malaysia	En. Mohamad Shaupi bin Derahman	Director	shaupi@dof.gov.my	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Malaysia	53	Ministry of Internal Trade and Industry	Ms. Sumathi Balakrishnan	-	sumathi@miti.gov.my	03 6203 3159	03 6203 1305	-	No reply	21-Oct-10

Malaysia	54	Department of Fisheries, Ministry of Agriculture and Agro-Based Industries	Mr. Adrian F. VIJIARUNGAM	Head of International Section,	adrian@dof.gov.my	(603) 8870 4210	-	-	No reply	21-Oct-10
Mexico	55	Ministry of Environment and National Resource	Mr. Porfirio Alvarez Torres	-	Porfirio.alvarez@semarnat.gob.mx	-	-	-	Email bounced	21-Oct-10
Mexico	56	Representative of CONAPESCA in Washington	Mr. AGUILAR Mario	-	maguilars@conapesca.sagarpa.gob.mx; mariogaguilars@aol.com	-	-	-	Email bounced	21-Oct-10
New Zealand	57	Ministry of Fisheries	Ms. Angela Parker	-	Angela.Parker@fish.govt.nz	-	-	-	Email bounced	21-Oct-10
New Zealand	58	Ministry for the Environment	Lesley Woudberg	-	lesley.woudberg@mfe.govt.nz	-	-	MRCWG	No reply	21-Oct-10
New Zealand	59	Cawthron Institute	Danette Olsen	Research Strategy Manager	danette.olsen@cawthron.org.nz	64 3546 9464	-	-	No reply	21-Oct-10
New Zealand	60	Ministry of Fisheries	Dr. Jane Willing	-	Jane.Willing@fish.govt.nz	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Papua New Guinea	61	National Fisheries Authority	Mr. Sylvester Pokajam	-	Spokajam@fisheries.gov.pg	675 3090 444	675 3202 061		No reply	21-Oct-10
Papua New Guinea	62	Department of Environment and Conservation	Mr. Luke Tanikrey	-	odir@daltron.com.png / tanikrey@hotmail.com	675 325 0194	675 325 0182		Email bounced	21-Oct-10
Papua New Guinea	63	Executive Manager, Policy and Projects Management, National	Mr. Ernest M. Abel	-	eabel@fisheries.gov.pg	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)

		Fisheries Authority								
Peru	64	Ministry of Foreign Affairs	Ms. Liliana Gomez	-	lgomez@rree.gob.pe	-	-	-	No reply	21-Oct-10
Peru	65	Ministry of Foreign Affairs, APEC Department	Mr. Peter Camino Cannock	-	pcamino@rree.gob.pe	51 1 311 2757	-	-	No reply	21-Oct-10
Peru	66	Aquatic Bio-Technology Laboratory	Ms. Carla Aguillar	-	caguialr@imarpe.gop.pe	511-429-7630 Ext. 241	511-429-2134	-	Email bounced	21-Oct-10
Peru	67	Ministry of Production, Vice Ministry of Fisheries	Ms. Daphne Kalen	-	dsu@produce.gob.pe	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Philippines	68	Department of Agriculture; Bureau of Fisheries & Aquatic Resources	Ms. Jessica Munoz	-	jmunoz@bfar.da.gov.ph trisha975@yahoo.com	-	-	-	Replied	21-Oct-10
Philippines	69	Department of Foreign Affairs	Mr. Alberto A. Encomienda	-	aencomienda@yahoo.com or moac@dfa.gov.ph	-	-	-	Email bounced	21-Oct-10
PNG	70	National Research Institute, The	Mr. John Sowei	Research Fellow, Social & Environmental Studies Division	sowei@nri.org.pg	675 326 0300	675 326 0213		Email bounced	21-Oct-10
Region	71	FAO	Dr. Chris O'Brien	Regional Coordinator	chris.obrien@fao.org	-	-	fisheries	No reply	21-Oct-10

Region	72	SEAFDEC	Dr. Magnus Torrell	-	magnus@seafdec.org	66 02 9406336 66 09 962 1819	-	aquaculture	No reply	21-Oct-10
Region	73	Marine Science Institute CS University of the Philippines	Dr. Mike Fortes	-	migueldfortes@gmail.com fortesm@upmsi.ph	632 9223958(59)	632 924 7678	seagrass	Email bounced	21-Oct-10
Region	74	Conservation International	Mr. Romeo B. Trono	Country Exec Officer	rtrono@conservation.org	6.39178E+11	6324356446	coral reef	No reply	21-Oct-10
Region	75	-	Dr. Alan White	-	alan_white@tnc.org	-	-	coral reef	Replied	21-Oct-10
Region	76	Mangrove Action Project	Mr. Jim Enright	Asian Coordinator	mapasia@loxinfo.co.th	-	-	mangrove restn	No reply	21-Oct-10
Region	77	Mangrove Action Project	Mr. Alfredo Quarto	-	Mangrove_Action_Project@mail.vresp.com	-	-	mangroves	Email bounced	21-Oct-10
Region	78	Mangroves for the Future (MFF)	Mr. Don Macintosh	Coordinator	don.iucnt.org www.mangrovesforthefuture.org	66 2 6624029 ext144	66 2 6624388	habitat conservn	No reply	21-Oct-10
Region	79	UNEP COBSEA	Dr. Ellik Adler	-	ellik.adler@unep.org	-	-	enviro protectn	No reply	21-Oct-10
Region	80	ASEAN Centre for Biodiversity (ACB)	Dr. Sheila Vergara	-	sgvergara@aseanbiodiversity.org	-	-	biodiversity	No reply	21-Oct-10
Region	81	PEMSEA	Dr. Chua Thia-Eng	-	chuate@imo.org.ph	-	-	management	Email bounced	21-Oct-10
Region	82	Fauna & Flora International	Mr. Robert Bensted-Smith	FFI Regional Director, Americas & Caribbean	Robert.Bensted-Smith@fauna-flora.org	-	-	-	No reply	21-Oct-10

Region	83	National University of Singapore	Dr. Durairaju Kumaran Raju	-	tmsdkr@nus.edu.sg www.tmsi.nus.edu.sg	-	-	-	No reply	21-Oct-10
ROK	84	Korea Maritime Institute	Shin Young-Tae	Director of Fisheries and Fishing Community Research Center	ytshin@kmi.re.kr	82 2 2105 2843	82 2 2105 2859	-	No reply	21-Oct-10
Russia	85	International Cooperation Department Federal Agency for Fisheries, Russian Fedration	Ms. Olga Sedykh	Deputy Head of International Law	so@fishcom.ru	-	-	FWG	No reply	14 Oct 2010 (reminder on 19 October 2010)
Singapore	86	Assistant Director, Planning, Agri-Food & Veterinary Authority, Ministry of National Development	Ms. Rubinah Karyeo	-	rubinah_karyeo@ava.gov.sg	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Singapore	87	Department of Biological Sciences, National University of Singapore	Prof. Dr. Chou Loke Ming	Professor	dbsclm@nus.edu.sg	65-6516 2696(DID	65-6779 2486	Habitats	Replied	21-Oct-10
Singapore	88	Ministry of Trade and Industry	Mr. Ong Kiat Yeng	-	MTI_APEC@mti.gov.sg	65 6332 8858	65 6334 8135	-	No reply	21-Oct-10

Singapore	89	Assistant Director, International Affairs Agri-Food & Veterinary Authority Ministry of National Development	Mr. KOAY Sim Huat	-	koay_sim_huat@ava.gov.sg	6563257638	-	-	Auto-reply: Out of town	21-Oct-10
Switzerland	90	International Institute for Sustainable Development (IISD)	Anne Hammill	Project Manager, Climate Change, Natural Resources Management, Security	ahammill@iisd.ca	41 22 917 8637	41 22 917 8054	-	No reply	21-Oct-10
Thailand	91	Overseas Fisheries Management and Economic Cooperation Group, Department of Fisheries	Mr. Smith Thummachua	-	thuma98105@yahoo.com	662 579 6216	662 5797 947	-	No reply	21-Oct-10
Thailand	92	Department of Marine and Coastal Resources	Mr. Cherdchinda Chotiyaputta	cherdchc@dmcr.go.th	cherdchc@dmcr.go.th	662 2298 2167	-	-	No reply	21-Oct-10
Thailand	93	Environmental Policy and Planning	Mr. Chinnavaso Kasemsasn	-	chinnava@onep.go.th / neric@onep.go.th	662 270 1661	662 279 8086	-	No reply	21-Oct-10

Thailand	94	Andaman Sea Fisheries Research and Development Center, Department of Fisheries	Ms. Tassapon Krajangdara	Senior Fisheries Biologist	tassapon@hotmail.com	66 7 639 1138	66 7 639 1139	-	No reply	21-Oct-10
Thailand	95	FAO	-	-	-	-	-	fisheries	No reply	21-Oct-10
Thailand	96	Faculty of Environment & Resource Studies Mahidol University	Assoc. Prof. Dr. Suvaluck Satumanatpan	-	ensnt@mahidol.ac.th	02-441-5000 Mb 081-7007512	02-441-9510	seagrass	No reply	21-Oct-10
Thailand	97	Ramkhamhaeng University	Dr. Thamasak Yeemin	-	thamasakyeemin@yahoo.com	-	-	coral reef	No reply	21-Oct-10
Thailand	98	Mangroves for the Future (MFF)	Siriporn Sriaram	-	siriporn.sriaram@iucn.org	-	-	mangroves	No reply	21-Oct-10
Thailand	99	Thailand (Department of Marine and Coastal Resources, DMCR)	Dr. Hansa Chansang	-	hansa_chansang@hotmail.com	-	-	habitat conservn and coral reefs	No reply	21-Oct-10
USA	100	Bureau of Oceans & International Environmental & Scientific Affiars, Office of Marine Conservation, Office of Oceans Affairs	Dr. Kathryn Matthews	-	MatthewsKA@state.gov	-	-	-	Replied	14-Oct-10
USA	101	Ocean Conservancy,	Sonja Fordham	International Fish Conservation	sfordham@oceanconservancy.org	1 202-429-5609	1 202-872-0619	-	No reply	21-Oct-10

USA	102	National Oceanic and Atmospheric Administration	Ms. Elaine Denning	-	Elaine.J.Denning@noaa.gov	202 482 2652	202 482 4307	-	No reply	21-Oct-10
USA	103	Bureau of Oceans & International Environmental & Scientific Affiars, Office of Marine Conservation, Office of Oceans Affairs	Dr. Todd CAPSON	-	CapsonTL@state.gov	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Viet Nam	104	Institute of Oceanography, Vietnam	Dr. Vo Si Tuan	-	vosituan@gmail.com	-	-	coral reef	Replied	21-Oct-10
Viet Nam	106	Institute of Marine Product Research	Do Van Khuong	-	dokhuong@hn.vnn.vn / Nhduc@netnam.org.vn	84 31 836 135	84 31 836 812	-	No reply	21-Oct-10
Viet Nam	107	Ministry of Agriculture & Rural Development	Dr. Giang Thu Nguyen	-	thung.khcn@mard.gov.vn	-	-	habitat conservn	No reply	21-Oct-10
Vietnam	108	International Cooperation Department, Ministry of Fisheries	Mr. Huyen Dinh Thi Thanh	-	dinhthithanhhuyen@mofi.gov.vn	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Vietnam	109	Ministry of Fisheries	Mr. Le Tran Nguyen Hung	-	lenguyenhung@mfi.gov.vn	-	-	-	No reply	14 Oct 2010 (reminder on 19&22 October 2010)
Worldwide	110	World Fish Centre	Mr. Stephen John Hall	Director General	worldfish-naga@cgiar.org	0 4 626 1606	+60 4 626 5530	-	No reply	21-Oct-10

ANNEX 8

Chat Transcripts of WEBINAR Meetings

Welcome to your Web Meeting.

me: Good morning everyone. Welcome to the first TMSM Webinar. We will wait a few more minutes for all the participants to log in. (Now is a good time to make your cup of tea!).

Liu-China: Good moring,every one.

Siti Hamdiyah: Good morning everyone, this is diyah from Indonesia

me: PLease be patient while we attempt to set up the comms

me: Dr Hugh Kirkman, can you hear my voice?

me: Diyah, are you able to hear my voice?

CHOW: Good morning. Due to some technical problem, my apology that I could not use web-cam for communication. Nevetheless, I can access to the chat room for the web meeting.

me: Glen, welcome. Are you able to hear me speaking?

Glen - Australia: Hello everyone. I'm unable to hear you speaking Max. Is there something I need to do to hear the meeting?

me: HAve you clicked on the microphone icon to turn off the ,mute, button?

Siti Hamdiyah has left the meeting.

Glen - Australia: There is no microphone icon (in the bottom left corner?) that I can see but my PC has audio on

me: There is no configuration change that I can make to enable voice to your respective computers.

Savinder: Good morning all participants.I am Savinder. I cannot access my microphone because I am in another meeting. I will participate via public chat. I am here to observe the webinar process for today. Please proceed.

me: The connection with China is very clear and Professor Liu and I are able to talk freely

me: At present the microphone is enabled for Glen in Australia, Mr Chow in Hong Kong, and Hugh Kirkman in Australia.

me: Please do check that your microphone is not still set to Mute mode

Liu-China: yes

Savinder: yes, i hear you loud & clear.

hugh: ugh can hear you but can't talk to you

Diyah-Indonesia: i am very sorry for very bad connection i have here

CHOW: Sorry that I cannot hear your voice but can see all of your communication in the caht room. Please proceed.

Diyah-Indonesia: i can hear your voice now

Hugh: I tried another computer

Glen - Australia has left the meeting.

Diyah-Indonesia: ok i ll send chat for any comments

me: Prof Liu - is with SOA Institute of Oceanograpahy in Xiamen

Hugh: Hugh I'm on

me: Been there for 10 years

me: DR Hugh is a co-author of the Guide

me: Based in Australia a specialist in sea grasses and marine management

Diyah-Indonesia: good but i cnnot speak

Hugh: Step 6 is now step 3 and step 3 is now step 4 step 4 is 5 and step 5 is 6 the rest is ok

hugh has left the meeting.

Diyah-Indonesia has left the meeting.

Hugh: Hugh has not left the meeting. I'm listening to all of this.

Hugh: on the diagram on P19

Diyah-Indonesia: yeah hello

Hugh: yes

Diyah-Indonesia: actually Indonesia, Australia and Timor Leste have been doing this transboundaruy activities

Liu-China: yes

Glen - Australia: I have audio but no clear means of a microphone.

Diyah-Indonesia: I dont know whether Dr. Hugh involved in this ATSEF, the forum we called

Hugh: No i am not involved

Hugh: I'm same as Glen

Glen - Australia: Yes thank you Diyah. ATSEF is a good example we highlighted in our questionnaire response.

Diyah-Indonesia: yes, and under step 6, we've done such Transboundary Diagnostic Analysisi to identify the issues

Hugh: no

Hugh: no

Diyah-Indonesia: I am very sorry for bad connection

Diyah-Indonesia: and yes ATSEF is very good example, while here we have Australia for developed country, Indonesia as developing country and Timor Leste as Least developing country

Diyah-Indonesia: so we have to make such a common perception on this transboundary issues

Diyah-Indonesia: from the Transboundary Diagnostic Analysis made by the three countries, we made such priorities issues among the three countries and start to work on that

Hugh: I've just completed the TDA for the GEF LME in the Bay of Bengalfor FAO. My work was corals, seagrass and mangrove. Identified transboundary problems. TMSM will come in later once the project is underway.

Diyah-Indonesia: But I believe that TMSM is very good project to make it easier in mapping the issues

Glen - Australia: The Arafura and Timor Seas Ecosystem Action (ATSEF) program that Diyah is referring to aims develop a framework for integrated, cooperative, sustainable and ecosystem-based management and use of the living coastal and marine resources of the Arafura and Timor Seas (ATS), particularly in support of livelihoods. The Transboundary Diagnostic Analysis is the first in a multiple phases of the project. Thanks for raising Diyah!

Diyah-Indonesia: your welome Glen

Hugh: Yes, I get on to this straight away. Thank you Glen and Diyah

Savinder: Dear participants, I see that the webinar is proceeding well. I have to extend my apologies as I have to excuse myself from this meeting. I thank you all for your active participation in the webinar. I hope you will be able to contribute in subsequent webinars. Thank you and we will communicate again via email. Thank you.

Glen - Australia: Happy to liaise with you Hugh.

Liu-China: We do a plan to protect the marine enviroment between two provinces.the challenge is the polictical will and the information sharing,and also the authority in higher level.

Diyah-Indonesia: For step 7, ATSEA stand for Arafura and Timor Seas Ecosystem Action, project under ATSEF forum has just finished in doing joint research

Diyah-Indonesia: so, we collect data from the transboundary area for existing condition, including bio-physics, socio economic and oceanography

Glen - Australia: Hugh - if you could also speak with Diyah regarding ATSEA because she is a very valuable perspective!

Hugh: Yes, of course

Diyah-Indonesia: Yes Dr. Hugh, very sorry that i cannot speak in this forum, I just can year you all, and i have very bad connection today since Jakarta has been hard raining for this past three days

Diyah-Indonesia: flood is everywhere

Diyah-Indonesia: so back to the topic

Diyah-Indonesia: for step 7, it would be better if we could have like time series data, so not only cross section because maybe it cannot describe exactly the existing condition compare to the time series data

Liu-China: I think it would be better if we add a step of the data gap analyse in the plan

Hugh: Diyah, do you mean that a time series set is better tahn a static one-off data set from which we cannot determine changes?

Savinder has left the meeting.

Diyah-Indonesia: yes, i think if every country involved in this transboundary activity has good time series data for every aspect (bio-phisysc, oceanography and etc) it would be better to describe the existing condition

Diyah-Indonesia: yap that's what i mean, not just a snap shot

Glen - Australia: Yes thank you Max. Marine Bioregional Planning is an example of TSMM to improve regulation and information in the marine environment establish marine protected areas at a Federal scale. It has benefitted from a broadscale data gathering phase and threat analysis. A decision-making program called MARXAN has then been very important in taking information layers such as fisheries pressures and ecological values and identifying ways that these layers can combine to inform deciding on zoning. A difficulty is that MARXAN is dependant upon the information gathered to inform it.

Glen - Australia: Further information on the data that was gathered in marine bioregional planning and what the TMSM steps for this project is available at http://www.environment.gov.au/coasts/mbp/index.html

Hugh: I too am working with MARXAN in South Australia as a member of the MPA Scientific working Group. This group takes into considerationn Federal requirements and is following the Convention on Biological Diversity under the Federal govt

Glen - Australia: You're very kind for raising this Max. Also very happy to discuss further offline with Liu or others.

Diyah-Indonesia: just for information, that specifically in the south asia countries, we still have many problems in boundary line between the countries. This could be like challenge for us how to solve this before we make further cooperation such as transboundary activities

Hugh: The South China Sea Project funded by GEF had 6 countries all with Transboundary issues. GEF wanted a legal agreement but that was never achieved. Other objectives were achieved.

Hugh: It took 5 years or more to get agreement between the countries because of teh islands in the SCS.Eventually then project agreed not to work on coral atolls and all countries signed up.

Liu-China: I am sorry I can not see the messages you mentioned just now.

Diyah-Indonesia: yes hugh, that's right

Hugh: Liu, can you read this?

Diyah-Indonesia: clear boundaries between the countries would be better, i dont know whether we could use this TSMS as one solution to solve this boundary problems

Liu-China: i am sorry that it seems some wrong about my web, i can not see anything now

Diyah-Indonesia: because we have many transboundary cooperation, others initiative for example asre SSME (Sulu Sulawesi marine Ecoregion) with Phillipne and the Coral Triangle Initiative involving 6 countries (indonesia, malaysia, papua new guinea, timor leste, solomon island and phillipine)

Diyah-Indonesia: we also have MoU Box with australia for Ashmore Reef area

Diyah-Indonesia: your welcome

Hugh: Try this for comparisons of the coral triangle.at: http://www.fauna-flora.org/docs/Management-of-Large-Marine-Areas.pdforhttp://www.conservation.org/documents/CI_FFI_Management_of_Large_Marine_Areas.pdf

Powered By Dimdim

Welcome to your Web Meeting.

me: Hello Katie

Katie Matthews: Hi!

me: Welcome to the first APEC TMSM Webinar (Part Two!)

Katie Matthews: I don't have a mic, but I can participate via this chat function, right? And I have sound, b/c I hear you typing I think.

me: Have you made your cup of tea / coffee?

Katie Matthews: Tall skim latte in front of me.

Katie Matthews: Kyle Hathawau is with me in the office.

Katie Matthews: Neither of us know anything about this topic. We are both new to the State Dept and are tasked with APEC issue.

Katie Matthews: So please humor us!

Katie Matthews: No - can you send!

Katie Matthews: Yup

Katie Matthews: Hold on, I'll try

Katie Matthews: If I hide the chat box it is a little bigger but still hard to read.

Katie Matthews: Kyle says "cheers"

Katie Matthews: Got the agenda

Katie Matthews: Katie: PhD in chemical oceanography, some science policy background but new to fisheries

Katie Matthews: Kyle: PhD in chemical engineering and cancer research, did do transboundary disease surveillance, now handles lots of APEC issues

Katie Matthews: not just marine work

Katie Matthews: Kyle went to Melbourne Uni

Katie Matthews: and Katie did a semester at Adelaide Uni

Katie Matthews: Chinese li??

Katie Matthews: yes pls send the link

Katie Matthews: pls send!

Katie Matthews: who would be calling?? (been there, done that)

Hugh: My server was off, I'm here now

Katie Matthews: what is the primary international legal framework used in this process? or does it depend on the region?

Hugh: Many conventions, protocols and agreements come into the TMSM Max is correct, some countries sign but do not honor thier agreements

Katie Matthews: who are these disparities usually reconciled within TMSM regimes?

Katie Matthews: if you email me the slides I can open them up in adobe or powerpoitn, etc.

Hugh: That pointer and zoom box is not there now

Katie Matthews: I can open the pdf...

Katie Matthews: no worries, we understood your explaination of the figure!

Katie Matthews: matthewska@state.gov

Hugh: Sent to you but Guidelines is at end of this Progress Report.

Katie Matthews: Got the report - thanks. Also FYI Kyle needs leave at 12:15.

Katie Matthews: We are wondering about the evaluation of the programs efficacy AFTER that implementation of the plan?

Katie Matthews: What does that involve?

Katie Matthews: Yes

Hugh: e.g. transboundary MPAs are an example of a plan that can be readily monitored, and adapted

Katie Matthews: Yes - thanks. Another quesiton: Once your document is finalized, what is the plan for distributing to the various APEC economies and your outreach to those who might want to use these guidelines?

Hugh: Take note of the inner circle in the diagramm on the screenPre-planning, planning and implementation and monitoring for a good way to cluster the 12 steps.

Hugh: I can't talk to you.

Katie Matthews: Is that the February meeting in DC?

Katie Matthews: When do you believe the guidebook would be ready for distribution?

Hugh: Katie, please note that the TMSM plans do not necessarily have to have all Economies involved. Transboundary may just be two countries or more.

Hugh: 3-4 weeks after these webinars have been included and the questionnaires used.

Katie Matthews: Is there any intention of advertising this at the upcoming WCPFC7 meeting in December in Honolulu?

Katie Matthews: Only becuase there will be a collection of marine folks from different governemtns all in one place.

Hugh: Bioregional plans that were agreed on by states and the states declared MPAs withing their 3 mile limits. The MPAs were not the same in each state but the states have to comply with the Eds because of the Conv Biol Diversity.

Hugh: Feds not Eds

Katie Matthews: will do - we'll send you some names.

Hugh: We are after people who are involved in the other three themes for the webinars but people for theme 1 (this one) would be useful.

Katie Matthews: Probably someone from NOAA - we'll try to hook you up with the right person(s).

Katie Matthews: We talk with him often.

Katie Matthews: Kyle says thanks for staying up late!

Katie Matthews: Kyle is good for now, he'll be in touch with names shortly. Please send on a draft of the guidelines if possible. Thanks!

Hugh: Its in the report I sent

Hugh: Yes

Katie Matthews: Oh, the progress reoprt *is* the working draft. Got it.

Katie Matthews: This was helpful. I just started at State last month and it is good to get up to speed.

Hugh: Katie, What is your part in this?

Katie Matthews: I am a AAAS science fellow in the office of marine conservation, which handles fisheries.

Katie Matthews: Not to peru - I was in Micronesia for WCPFC TTC6

Hugh: AAAS American Academy XX Science??

Katie Matthews: So I am the FWG rep. Robert Domaingue at State is the MRCWG point person at State. But I'm the scientist and interested in this stuff!

Katie Matthews: American Association for the Advancement of Science - they publish the journal "Science"

Katie Matthews: They are supposed to merge - maybe by next summer

Hugh: Sorry!!

Hugh: 3.23

Katie Matthews: Thanks Hugh!

Katie Matthews: Happy to do this! I'll be at the feb meeting in DC, yup!

Hugh: my email hughkirkman@ozemail.com.au

Welcome to your Web Meeting.

Attendee2 has joined the meeting.

Attendee3 has joined the meeting.

me: Good morning.

me: Thank you for joining the APEC TMSM Webinar meeting. Please allow a few minutes for the other participants to log in

has joined the meeting.

Farid has joined the meeting.

Attendee4 has joined the meeting.

subra: am not equipped for voice.. will text

Attendee5 has joined the meeting.

hugh: I'm speaking

subra: i understand that is a hydro survey currently undertaken in the straits of malacca

subra: Besides the MEH there is a straits cooperative mechanism inplace with various projects undertaken by user states

hugh: I cn't zoom

subra: no problem reading

Attendee6 has joined the meeting.

charlie has left the meeting.

hugh: Attendee 6 please tell us who you are and where from.

subra: bilateral or regional treaties will be useful

hugh: chat on lower right hand side of screen Press enter to send

has left the meeting.

subra: there are a number of international maritime conventions dealing with marine environment i.e MARPOL etc. but there is a lack of uniformity in legislations among neighbouring countries

hugh: and enforcement and commitment

hugh: CITES CBD, are also marine conventions

subra: Planning for future port infrastucture is an ongoing process.. several guides on related issues eg social, environment and economical factors are referred to.. while also adopting new approaches in environmental conservation

hugh: Is there an organisation that brings together Port Authorities thruout the world or regions?

hugh has joined the meeting.

me: there is the IALA group

subra: the international association of Ports and harbours IAPH

me: yes, that's right. And the question is whether these instruments contribute to set the parameters for what you can or indeed must do within your area

subra: will there be a specific target activity under

subra: will there be a specific target activity under the proposed TMSM or various activities will be covered

Farid has joined the meeting.

hugh has joined the meeting.

hugh: We've got the NW Passage in our e-library examples

hugh: I'm not talking too much because my voice comes thru about 5 secs later and interferes with what i'm saying.

subra: the e library will be great assistance in future.. addition to formal treaties, regional projects are also useful to provide guidance on local maritime activities, though not necessarily addressing transboundary issues.. eg pemsea

subra: i'll provide the MEH M'sian focal point i.e the Marine dept later by email

hugh: Bay of Bengal Large Marine Ecosystem Project is transboundary.UNEP/GEFSouth China Sea Project. This valuation was also done in the SCS project

hugh: Sorry Max you just dropped out

subra: its possible that the MEH is bogged down with administrative issues as it deals with 3 different countries.. but i think its moving fwd now

ANNEX 9

TMSM e-Sharing Network:

Members as of 10 March 2011

Transboundary Marine Spatial Management Group

Members (28)

Max Herriman
CEO at Sea Resources Management Sdn Bhd, Malaysia

Sophie Costes
Project Manager, Malaysia

Frank Maes
doctor at Ghent University, Gent Area, Belgium

Carl Lundin
Head of Global Marine Program at IUCN, Geneva Area, Switzerland

Shaun Clark
International Aquaculture Consultant, United Kingdom

Todd Capson
Consultant, Washington D.C. Metro Area

Pratap Chandran Gopi
Principal at CG Consult, Malaysia

Richard Kenchington
OOO, Canberra Area, Australia

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Representative at Myriax Software Pty Ltd, Japan

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Director at Fish Matter, Sydney Area, Australia

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Shipping and Aviation Lawyer, Malaysia

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Mary Ann Palma
Research Fellow, Sydney Area, Australia

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Stuart Kaye
Professor at University of Western Australia, Perth Area, Australia

Loke-Ming Chou
Professor at National University of Singapore, Singapore

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ANNEX 10

Text of the

‘Guide to Transboundary Marine Spatial Management’

A Guide to Transboundary Spatial Marine Management

Asia-Pacific Economic Cooperation

December 2010

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Acronyms

AC	Arctic Council
AGP	Arctic Governance Project
APEC	Asia–Pacific Economic Cooperation
APIA	Australian Pipeline Industry Association
AQIS	Australian Quarantine Inspection Service
BEAC	Barents Euro-Arctic Council
BEAR	Barents Euro-Arctic Region
BPA	Bali Plan of Action
BRC	Barents Regional Council
BVM	Biological Valuation Mapping
CBO	Community-based organisations
CBSS	Council of the Baltic Sea States
CCA	Carrying Capacity Assessment
CFP	Common Fisheries Policy
COBSEA	Coordinating Body of the Seas of East Asia
COTS	Commercial-off-the-shelf
DIAC	Department of Immigration and Citizenship
DPSIR	Driving forces, Pressures, State, Impact, Response
EAF	Ecosystem Approach to Fisheries
EBM	Ecosystem-based Management
EEA	European Environment Agency
EIA	Environmental Impact Assessment
EU	European Union
GEF	Global Environment Facility
GIS	Geographic Information System
IADB	Inter-America Development Bank
ICOM	Integrated Coastal and Ocean Management
ICZM	Integrated Coastal Zone Management
IMP	Integrated Maritime Policy
IOC	International Oceanography Commission
JAC	Joint Advisory Council
JFC	The Joint Fishery Committee
KPI	Key Performance Indicators
LME	Large Marine Ecosystem
MEAM	Marine Ecosystems and Management
MPA	Marine Protected Area
MRCWG	Marine Resources Conservation Working Group
MSUZP	Marine Space Use Zonation Plan
MSP	Marine Spatial Planning
NCM	Nordic Council of Ministers
ND	Northern Dimension
NGO	Non-Government Organisation
NOWPAP	Northwest Pacific Action Plan
NSC	North Sea Commission
PHES	Physical, ecological and social
PNG	Papua New Guinea
SEA	Strategic Environmental Assessment
SOD	Seoul Oceans Declaration
TBCAs	Transboundary conservation areas

Acronyms (continued)

TBPs	Transboundary parks
TIM	Traditional Inhabitants' Meeting
TLM	Treaty Liaison Meeting
TRANSMASP	Transboundary Maritime Spatial Planning
TMSM	Transboundary Marine Spatial Management
TSPZ	Torres Strait Protected Zone
TSRA	Torres Strait Regional Authority
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WG	Working Group
WMO	World Meteorological Organisation

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Foreword

With advances in technology and pressing demands for natural resources, the interests of States at sea have extended ever further from the shoreline. As a result, the potential for negative, unintended and unwanted outcomes arising from disjointed and uncoordinated policies, laws and practices has grown. Indeed, in the modern world, any unilateral pursuit of interests at sea will often raise the very real spectre of conflicts, which ultimately undermine the full potential benefit of ocean use for all concerned.

Moreover, as our knowledge of the marine environment has improved, we have increasingly come to realise that ecosystems need to be managed holistically with full consideration of the function and interaction of their component elements. However, ecosystems frequently do not lie conveniently within a single jurisdictional boundary.

Therefore, States and other discrete jurisdictional bodies have increasingly discovered that their interests are served best by cooperating in the management of certain areas of the ocean. Nevertheless, decision-makers and designated officials have discovered that the challenges of such transboundary marine spatial management (TMSM) are many and varied. This TMSM Guide has been developed to provide a systematic approach to help identify and overcome these challenges.

Acknowledgements

This Guide was made possible through the allocation of project funding by the APEC Marine Resources Conservation Working Group (MRCWG). The project was proposed by representatives to the MRCWG from the Commonwealth of Australia, who also acted as Project Overseers.

Our sincere thanks to all of the MRCWG representatives and other stakeholders who kindly gave their time to review early draft text and offer suggestions. Thanks also to the panel of experts for their guidance with regard to content and case studies.

The Authors:

Mr Max Herriman

Dr Hugh Kirkman

Ms Sophie Costes

1 Overview

Introduction

Throughout the APEC region and elsewhere, increasing demands on marine resources and the ever expanding nature of activities at sea are compromising options for future use of the ocean and the health of the marine environment. There is a need to pursue new approaches for the sustainable use of marine resources. Amongst these, Marine Spatial Planning (MSP) has become a widely accepted practice especially over the past fifteen years. Recently, the need for MSP to be applied across jurisdiction of administrative boundaries, i.e. Transboundary Marine Spatial Management (TMSM) has also been recognized.

APEC countries that rim the Pacific Ocean have coastal and marine responsibilities that extend to: their economies, people and the environment. However, the vast Pacific Ocean lies in two hemispheres and has climates ranging from tundra and sub-Arctic in Russia and the USA to tropical in South-East Asia. Along its coast also lie three of the most industrialized countries in the world and some developing countries with high poverty levels. Habitats include coral reefs, seagrass beds, mangrove forests, mudflats, rocky reefs, open ocean and sand. All these habitats have fisheries and all APEC Economies have a fisheries component in their economies.

Activities at sea inevitably have the potential to impact on marine ecosystems, habitats and biodiversity. However, as noted in the Preamble‘ to the *United Nations Convention on the Law of the Sea*, 1982, —... the problems of ocean space are closely interrelated and need to be considered as a whole”. Accordingly, the management of marine spaces must often extend across administrative, jurisdictional and even sovereign State borders.

The need for an essential guide to TMSM emerged in view of the differences between APEC Economies (many of whom are near neighbours), whether political, cultural, economic or environmental.

There is no universal solution to TMSM. While this guide will help in the design and execution of Transboundary Marine Spatial Management, it

does not offer definitive solutions. Case-studies highlighted in this publication serve to illustrate the different parts of the Guide, and provide hints of possible solutions, suited to different Economies and specific issues.

Who are the targeted users of this guide?

This guide is primarily intended for public officials of APEC Economies who are responsible for TMSM at international, national and regional levels. However, stakeholders outside of APEC Economies who are responsible for, or who are looking to develop a TMSM area may also find this Guide a useful information resource.

Other users might include private-sector or NGO officials who are tasked to assist with, or take primary responsibility for marine management in a transboundary area under public-private partnership arrangements.

Finally, teaching staff for public servants, along with university lecturers may find the text and case studies useful as a guide to marine spatial planning and management in general.

Why should this guide be used?

The challenges in implementation of TMSM can be bewildering. They encompass: the complexity of the marine environment, much of which is hidden beneath the waves; possibly cultural and linguistic differences; possibly differing political and legal systems; often an in adequate availability of data and scientific understanding; potentially different aspirations; and possibly unequal personnel, technology, financial and institutional capacity. Many decision-makers have found such challenges overly daunting and abandoned hope of effective transboundary cooperation and management for marine areas. Others have persevered to develop instruments and practices largely in isolation of experiences elsewhere, each of which has its own strengths and weaknesses.

This TMSM Guide draws on efforts that have been made by marine spatial managers from around the world to confront and overcome the challenges of managing marine activities across boundaries. In doing so, and presenting case studies on lessons learnt, the Guide endeavours to assist planners and managers to avoid past mistakes and improve the efficiency and effectiveness of their efforts.

If the step-by-step approach of this Guide is followed, the likelihood of a major consideration being overlooked will be reduced. However, no two marine spaces are the same and the framework outlined here recognises that there remains a need for flexibility and adaptation. Hopefully, wise consideration of the extent to which the approach described in this Guide can be applied in any particular instance will ease the tasks and improve the outcome for TMSM throughout the APEC region and elsewhere.

Methodology for the design of this guide

These guidelines draw upon the lessons learnt from TMSM initiatives across the globe. TMSM case-studies were carefully selected and analysed to extract the main steps of TMSM implementation. The case-studies do not always take place in the APEC region; however, they do reflect general practices and trends with regard to TMSM.

The initial draft of the Guide was circulated among several APEC Working Groups (WG) to elicit comments and feedback, identify gaps and needs, and refine the text to reflect the varying perspectives of APEC economies. A questionnaire was distributed to selected representatives to the WGs to help determine the needs within the APEC region for TMSM. In addition, three e-workshops or webinars were held, involving representation from a range of APEC Economies. The e-workshops were based on the following themes:

- Marine living resources - Fisheries and aquaculture, seaweed culture, seagrass, coral reefs, wetlands, mangroves, mudflats, rocky reefs, etc.; and,
- Shipping - ship-building, transport, ports and harbours, channel dredging, etc.,

This Guide was designed specifically for APEC economies; therefore, members of APEC Economies were included in the process of developing the guidelines as much as possible (given Project time and resource constraints). Incorporation of their specific questions and concerns was essential to ensure that the Guide fulfils their needs, and addresses the actual issues faced by member Economies. Therefore, in line with the participatory approach to ecosystem management, these guidelines are a result of extensive consultation with experts and stakeholders from across APEC Economies.

2 Introduction to Transboundary Marine Spatial Management

Marine issues become global

Marine waters link populations of different countries and support the incomes and livelihoods of hundreds of millions of people worldwide. They create environmental, social and economic interdependencies between Economies. While there always remains the potential for conflict at sea, the oceans also provide opportunities for cooperation and promotion of regional peace, security and economic growth.

As natural resources become more depleted, and technology extends the interests of States further to sea, and especially noting the macro effect of climate change, the need for a transboundary approach to sea-use planning is now greater than ever. The impacts of marine activities often cross administrative and national boundaries, and decisions and actions taken at a local or regional level can have consequences on a wider scale.

Increased development pressures on the marine environment and the potential for multiple-use conflicts, arising as a result of activities such as the expansion of offshore wind energy, fishing and aquaculture, coastal reclamation and dredging, minerals extraction, shipping activities, tourism and biodiversity conservation, etc. have led to increased interest in sea-use planning (marine spatial planning) and ocean zoning as new tools for management.

Climate change, in particular the rise of sea levels, acidification, increasing water temperatures, and the frequency of extreme weather events, is also likely to cause a shift in economic activities in some marine areas and to alter marine ecosystems. Therefore, innovative tools are required to manage the marine environment and its uses.

Marine Spatial Planning (MSP)

Marine spatial planning (MSP) is a promising tool for the effective management of marine areas, offering an integrated approach to managing multiple and potentially conflicting uses of the sea[1].

[1] Blæsbjerg *et al.*,2009

MSP uses spatial data[2] as a tool to assist in the understanding of human impacts on the marine environment. The marine environment is increasingly described, analysed, and managed via layers of information representing a wide range of spatial phenomena across a variety of scales. Geographic Information Systems (GIS) and other technologies have become important implements for assessment, planning, and decision-making with regard to competing uses of the marine environment. For example, ecosystem-based approaches for either fisheries management or MSP are frequently paired with GIS data to improve decision making. GIS is a useful tool that enables marine spatial data to be aggregated, planning options visualized, impact analyses enhanced, and regulatory zones mapped[3].

MSP can play an important role in the mitigation of impacts on ecosystems by promoting the efficient use of marine space and the avoidance of harmful activities, including the unintentional cumulative impacts of discrete, single-sector actions. Climate change will affect ecosystems in many ways, for example in the redistribution of species, in the use of marine resources and in coastal development. Adaptive MSP systems will need to monitor such changes and revise management accordingly.

MSP offers Economies an operational framework to maintain the value of marine biodiversity while at the same time allowing sustainable use of the oceans. Thus, MSP is an integral element of TMSM.

[2] Spatial data is data pertaining to geographical entities.
[3] St Martin and Arber, 2008.

Case-Study 1: Benefits and challenges for TMSM — the TransMaSP project

The TransMaSP Project explores 'the impact of legal and natural boundaries in the implementation of Marine Spatial Planning' (MSP) in a transboundary area. This project studies the French-Belgian marine and coastal zone boundary. Both countries share important human activities and biodiversity in this area. The TransMaSP Project investigates opportunities to apply MSP consistently with Integrated Coastal Zone Management (ICZM) and the Ecosystem Approach, in a transboundary context.

The project analyses the impact of natural borders (land/sea) and the political border (French/Belgian) on the implementation of MSP through:

- exploration of the added value and **constraints of cooperation in MSP between the two States**;
- analysis of the **correct articulation between MSP and its potential link with ICZM** in a **transboundary context**;
- analysis of how MSP might facilitate **improved management of existing and new uses of the sea,** e.g. wind farms, aquaculture, coastal fisheries management; and
- understanding of how MSP can contribute to the **prevention or management of user conflicts**, analysing how public participation works in a transboundary MSP context.

Transboundary Marine Spatial Management (TMSM)

For the purpose of this Guide, Transboundary Marine Spatial Management (TMSM) is defined as: **a collaborative public process of harmonising the spatial and temporal distribution of human activities in marine areas that extend across an administrative or jurisdictional boundary to achieve agreed ecological, economic and social objectives that are usually specified through a negotiated, political process.**

TMSM takes the MSP stage a step further **to recognise that planning and implementation of sea use in a transboundary context can only be effective if harmonised across borders**.

TMSM is applied across boundaries to monitor and control human activities that either have an impact on the environment, an impact on other users of the sea in the area, or impact beyond the area in which they take place. A key objective of TMSM is to balance sectoral interests and achieve sustainable use of marine resources[4].

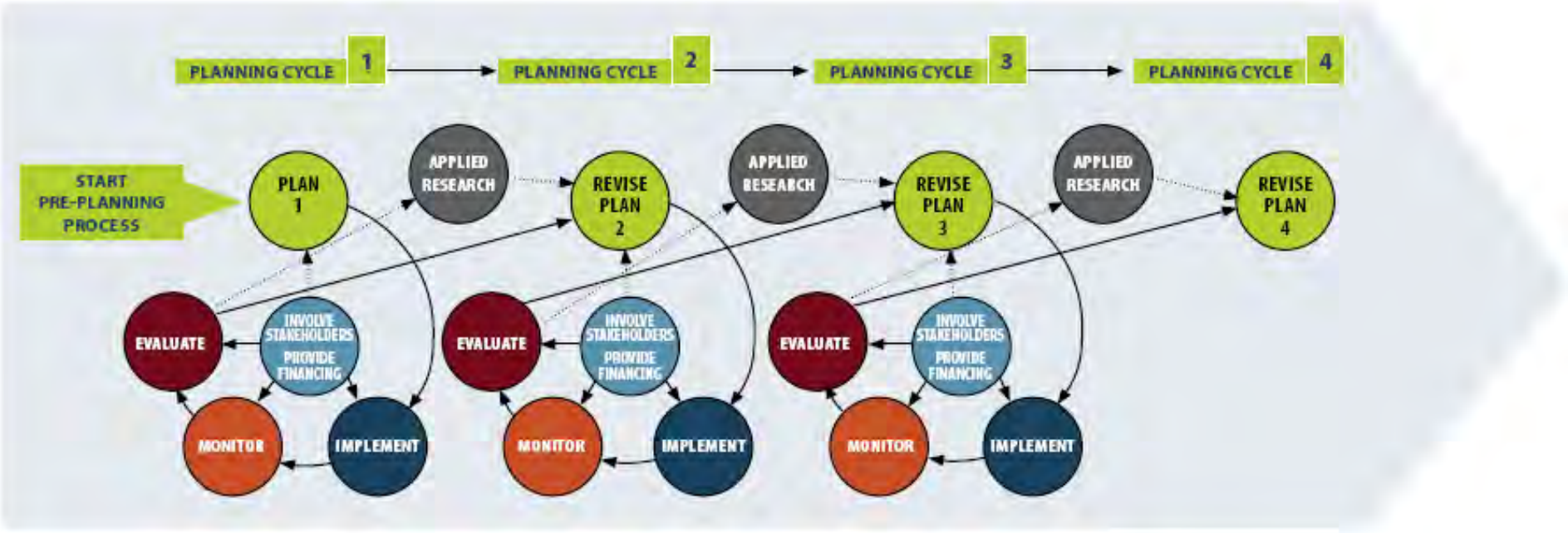
Human activities can be harmonised in a specific marine area by objectives, e.g. development or preservation areas, or by specific uses, e.g. wind farms, aquaculture, fishing, seaweed culture, sand and gravel mining, oil and gas, tourism and maritime transport etc. Ultimately, activities at sea are controlled through regulation and enforcement, incentives (positive and negative), education, and awareness building. Typically, a combination of all these tools is required, but in each instance the goal is to control the behaviour of humans, not to manage the environment *per se*. An exception might be argued with regard to habitat restoration / creation, or species replenishment programs to counter past depletion. However, even initiatives such as these involve the purposeful actions of humans at sea or on the coast, which need to be managed.

Effective TMSM entails **integrated management**, encompassing both *marine spatial planning* and *ecosystem-based management* (EBM) in a practical way to achieve rational use of marine space.[5] TMSM balances the need for development with a necessity to protect marine ecosystems, along with the desire to achieve social and economic objectives in an open and inclusive way.

Remember!

We can only plan and manage human activities, not marine ecosystems themselves nor components of ecosystems. We can allocate human activities to specific marine areas or times by objective and/or category of use.

[5] Ecosystem-Based Management (EBM) entails a broad approach to the management of human activities that impact on living resources and the habitats on which they depend. EBM represents a shift from a focus on single-species to a more holistic perspective that considers interactions and linkages within an ecosystem, along with its structure and function. EBM recognises that humans and ecosystems are interdependent, and considers ecological, social and cultural aspirations.



This diagram was developed by Charles Ehler and Fanny Douvere, and is sourced from *Marine Spatial Planning—A step-by-step approach to EBM*. IOC Manual and Guides No.53 *op.cit*.

Therefore, TMSM necessarily takes a **cross-sectoral** perspective. Traditionally, sectoral approaches in the use of marine space and resources have resulted in fragmented policy and decision-making. Whilst different activities at sea, such as oil and gas, maritime transport and fisheries etc., are often controlled to take place in designated areas or at certain times, the rules governing the activities are usually made independently by single-sector decision-makers. In other words, the approach has been to conduct discrete activity management that has not adequately addressed the cumulative impact of many different types of activity, nor the potential for these activities to work detrimentally at crossed purposes or even conflict.[6] With TMSM, these factors are

[6] —These conflicts weaken the ability of the ocean to provide the necessary ecosystem services upon which humans and all other life on Earth depend. Ecosystem services include 'provisioning services' such as food, fresh water, fiber, biochemicals, genetic resources; 'regulating services' such as climate regulation, water purification, pollination; 'cultural services' such as recreation and tourism, as well as spiritual and religious, aesthetic, inspirational, and educational benefits; and 'supporting services' such as soil formation, nutrient cycling, and primary production." Ehler, Charles, and Fanny Douvere. *Marine Spatial Planning: a step-by-step approach toward ecosystem-based management*. Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guides No. 53, ICAM Dossier No. 6. Paris: UNESCO, 2009 (English).

considered for effective management of a marine space rather than individual types of activity.

Transboundary issues are those that are common or shared across two or more administrative or jurisdictional areas, e.g. different countries, States or provinces. A *common* transboundary issue is one that two or more neighbouring Economies have but is not shared across a common boundary. A *shared* transboundary issue straddles a common boundary or has effects that are felt across any such boundary.

Effective marine spatial management needs to be **adaptive to changing conditions and interests**. Therefore, TMSM should be seen as a **continuous and adaptive process** that is carefully organized to generate information, assess interactions, the environmental state, and the effects of previously implemented measures, and make adaptations when needed.

TMSM is also **participative**. A key aspect is timely and direct stakeholder engagement. If issues and opportunities are to be identified and understood, broad stakeholder participation is essential. Such participation requires open information sharing and transparent, inclusive decision making.

TMSM provides a means for understanding trends, visualising future outcomes and demands, and developing a framework to respond to these. A primary purpose of TMSM is to help envision and create a desirable future, and enable proactive decision-making to move in the desired direction. Consequently, TMSM planning is not limited to defining and analysing only existing conditions and maintaining the *status quo*, but reveals possible alternative futures of how the area could look, e.g. in another 10, 15 or 20 years.

Defining and analysing future conditions involve the following tasks:

- Projecting current trends in the spatial and temporal needs of existing human uses;
- Estimating the spatial and temporal requirements for new demands on ocean space;
- Identifying possible alternative future scenarios for the planning area; and
- Selecting the preferred spatial sea-use scenario.

Essential points about TMSM:

- TMSM entails an **integrated approach** to the management of marine resources and uses;
- TMSM **covers specified geographical areas**, defined regardless of international and national boundaries;
- TMSM entails a **cross-sectoral** approach;
- TMSM is **long-term** management, and pro-active rather than reactive; and
- TMSM is an **iterative** and adaptive process.

Developing alternative spatial sea-use scenarios is a crucial activity in the TMSM process because it sets the stage for choosing directions in which the area is to develop during the selected timeframe. There are various ways that spatial sea-use scenarios can be developed. For example, they may include scenarios for economic development or different types of technological innovation, but climate change is an essential consideration for all scenarios.

In line with its forward-looking nature, TMSM is a means of ensuring the continued availability of coastal and marine resources for future use. Conservation needs should be considered at par with other sea uses and given spatial priority where necessary, e.g. through the creation of a coherent network of protected sites at a national and international level.

TMSM can also be used actively to promote disadvantaged areas and ensure more equitable access to marine resources and the benefits arising from their use.

Expected benefits of TMSM

TMSM results in the harmonised use of marine space and resources across administrative or jurisdictional boundaries to maximise sustainable benefit from activities at sea whilst preserving ecosystem elements and services.

Transboundary Marine Spatial Management endeavours to:

- Provide better visibility of existing and proposed uses;
- Improve understanding of environmental impacts, thus enabling potential conflicts to be identified and avoided;
- Ensure best possible coexistence of use by taking into account direct and cumulative impacts, and synergies of uses;
- Facilitate equitable access to marine resources;
- Take into account the demands of new and as yet unplanned forms of use through the development of scenarios;
- Secure greater acceptance of resource allocations amongst stakeholders through transparency and education;
- Achieve conservation and sustainable growth;
- Provide greater security for investors by allocating acceptable locations for different types of development, and
- Minimise the risk of conflict.

3 Guidelines

Keeping in Mind the General Approach to TMSM

The approach to planning and implementation for any exercise in marine spatial management must fit the specific characteristics of the area, taking into consideration a range of environmental, political, economic, social and cultural circumstances. However, for TMSM, each of these elements potentially also has challenging differences on either side of the relevant borders.

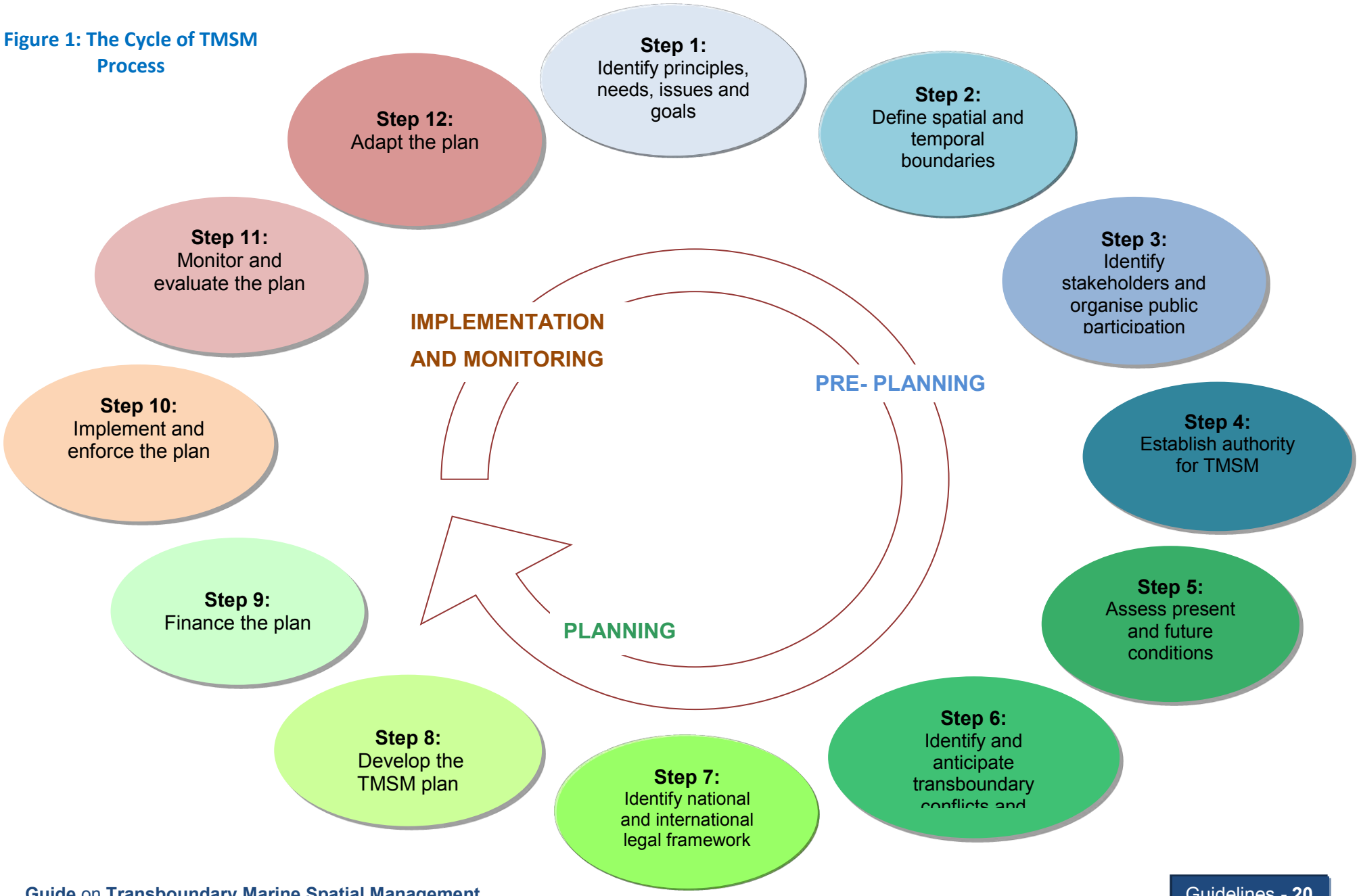
The conception, planning and execution of TMSM are elements of a complex process, and there is no single solution. The step-by-step approach outlined in this Guide may be suitable for some areas but needs to be adapted into a different sequence for others. Nevertheless, regardless of the order in which the steps are taken, they are all essential to properly planned and executed TMSM.

The TMSM process consists of the following steps:

- Identify the principles, needs, issues, and goals;
- Define the spatial and temporal boundaries;
- Identify stakeholders and organise public participation;
- Establish authority for TMSM;
- Assess present and future conditions;
- Identify and anticipate transboundary conflicts and opportunities;
- Identify national and international legal frameworks;
- Develop the management plan;
- Finance the plan;
- Implement and enforce the plan;
- Monitor and evaluate the plan; and
- Adapt the plan.

Although there is a logical sequence to the steps presented in this Guide**, TMSM is not necessarily a linear process**. Some stages may need to be done out of sequence or repeatedly, and different stages of TMSM may well occur in parallel. Do not expect a sleek and tidy process, and be prepared for TMSM to be time-consuming.

Figure 1: The Cycle of TMSM Process



Importantly, **TMSM should not be a top-down, theoretical process.** Future sea use is a matter of continuous choice and setting of priorities. This requires dialogue between all relevant stakeholders, including those who may indirectly impact on the marine space. It also requires participative means of decision-making, in particular in the context of equitable access to resources. For countries without a tradition of land-use planning, these challenges may be considerable and perhaps even daunting. However, stakeholder participation, involvement of the public, and the development of participative processes are particularly important and can lead to a whole new way of perceiving and using marine and coastal space.

Another important prerequisite for successful TMSM is genuine political will and commitment from all levels of government. Potential transboundary impacts and conflicting interests can best be solved by cooperation, adequate legal and institutional frameworks, joint approaches to planning and the sharing of benefits and related costs.

The policy foundation underpinning TMSM must also be coordinated with the policies for management of specific natural resources and sectoral uses. Many existing transboundary cooperation arrangements are sectoral, and address specific activities or use of marine resources. TMSM should aim to maximise an integrated approach through the explicit adoption of strategies such as Integrated Coastal Zone Management (ICZM), Ecosystem-based Management (EBM), Ecosystem-Approach to Fisheries (EAF), etc. Sectoral bodies and stakeholders share the building blocks of this integrated approach. Discussions between sectors should achieve a consensus on targets and indicators[7] to be used for TMSM. Moreover, a holistic approach to TMSM should endeavour to maximise economic contribution and social welfare, without compromising ecosystem sustainability.

Although there is no definitive process or set solutions for TMSM, the process will be influenced by the following drivers:

- TMSM is implemented as an equally legally-binding process throughout the designated marine space with the purpose of minimising conflict and inefficiencies in sustainable development;
- It improves international and cross-boundary coherence;
- It improves coherence between terrestrial and sea planning;
- TMSM plans for the long term and is a cross-sectoral approach;
- TMSM requires agreed criteria for measuring and evaluating the spatial impacts of uses (i.e. targets and indicators);

[7] Indicators are quantitative/qualitative statements or measures/observed parameters that can be used to describe existing situations and measure changes or trends over time. Their three main functions are simplification, quantification and communication.

- It requires agreed criteria for the setting of priorities for future use, with flexibility to incorporate changes in technology and economics;
- Public participation is integral to the TMSM process;
- It provides for equitable distribution of benefits and cost-sharing;
- TMSM requires appropriate tools and processes for impact and risk assessment, implementation, and monitoring.

Effective TMSM will:

- Ensure that the environment throughout the designated marine space has the capacity to support social and economic benefits (including those benefits derived directly from ecosystems);
- Provide a strategic, integrated and forward-looking framework for all uses of the sea to help achieve sustainable development, taking into account the environmental, social and economic objectives of all parties;
- Identify, conserve, or where necessary and appropriate, restore coastal and marine ecosystems, including heritage and nature conservation resources; and
- Allocate space in a rational manner to lessen the risk of conflicts of interest and, where possible, maximize synergy between sectors.

Step 1: Identify the principles, needs, issues and goals

The first step in development of TMSM is to identify the transboundary needs and issues to be addressed in the considered area. What factors suggest that a management area needs to cross an administrative or jurisdictional boundary? For example, has habitat mapping identified an ecosystem that extends into more than one administrative or jurisdictional area? Alternatively, perhaps the nature of a sectoral activity demands cross-boundary cooperation to achieve effective management, e.g. fishing from a shared species stock?

If no transboundary needs or issues are identified, there may not be a need for TMSM; rather, domestic marine spatial planning and management might be all that is required.

Determine the principles for TMSM

The *principles* represent the core values that underpin TMSM. As such, considerable discussion should take place with cross-border collaborators to ensure that all concerned agree on the philosophical foundations underlying the initiative. Failure to agree on the fundamental principles that will govern the TMSM program almost certainly will undermine complete success, and could even lead to conflicts and failure.

Example 1: Principles for TMSM

TMSM will usually recall the principles endorsed by the international community at the 1992 United Nations Conference on Environment and Development (UNCED), such as:

- the right to develop;
- intergenerational equity;
- environmental assessments;
- precautionary approach;
- polluter-pays principle; and
- openness and transparency in decision-making.

At a minimum, a TMSM program would be expected to reflect the following principles:

- **Sustainability**: marine and coastal resources will be used to meet present needs without compromising the ability of future generations to meet their own needs.

- **Equitable benefit**: The developmental and environmental needs of present and future generations will be met equitably, and poverty reduction will be supported.

- **Ecosystem Approach**: Management regimes that transcend political boundaries will be used to conserve ecosystems and natural habitats, and for the maintenance and recovery of viable populations of species in their natural surroundings. Appropriate scientific methodologies focused on levels of biological organisation, which encompass the essential structure, processes, functions and interactions among organisms and their environment will be used.

- **Conservation of Biological Diversity**: Measures will be undertaken to conserve and, where appropriate, restore biological diversity and the productivity of marine and coastal species and habitats, with particular recognition of the uniqueness, fragility and vulnerability of island ecosystems.

- **Informed Decision-making**: Decisions concerning marine and coastal management and environmental protection will be based upon best available science. Continuous effort will be made to improve capacity to collect, analyse, assess and apply information for sustainable use of marine resources and conservation of biological diversity. Concrete, quantitative goals will be established that are measurable and linked to specific and realistic timetables for achievement. Specific milestones will be adopted to define progress toward achieving these goals.

- **Precautionary approach**: When there are reasonable grounds for concern that any activity may increase the potential hazards to human health, harm living resources or ecosystems, damage amenities, or interfere with other legitimate uses of the region, measures shall be taken even when there is no conclusive evidence of a causal relationship between the activity and the effects; and by virtue of which, greater caution is required when information, including scientific information, is uncertain, unreliable or inadequate.

- **Respect for Culture and Indigenous Heritage**: Indigenous people and their communities and other local communities have a vital role to play in marine and coastal management and development because of their knowledge and traditional

practices. The identity, culture and interests of indigenous people and other local communities will be respected, and they will be afforded opportunities for effective participation in the achievement of sustainable marine and coastal development.

- **Polluter-pays/Beneficiary Pays**: Full consideration of resource use and environmental costs will be promoted, taking into account the approach that:
  - ✓ the polluter should, in principle, bear the cost of the pollution, and
  - ✓ the beneficiary should pay for the use of natural resources, with due regard to the public interest.

- **Openness and transparency in decision-making:** All stakeholders, including communities, individuals and concerned organisations shall be given the opportunity to participate, at the appropriate level, in decision-making and management processes that affect the region. This includes providing access to information concerning the environment that is held by public authorities, together with effective access to judicial and administrative proceedings to enable all stakeholders to exercise their rights effectively. Public authorities shall widely disseminate information on the work proposed and undertaken to monitor, protect and improve the state of the region.

- **Avoidance**: Avoid activities that cause irreparable or excessive harm to the environment.

- **Translocation**: Translocate activities that are harmful to the area of interest to areas where they will cause less environmental impact.

- **Compensation**: Where possible, compensation will be sought for displacement of activities that cannot be avoided and for activities that have harmed the marine or coastal environment using the economic goods and services value of the damage as a datum for compensation.

Determine the needs

Needs are not problems, they relate to desirable properties that characterise the marine space; i.e. they can be economic, social, environmental, organisational, technological, processes, capacity, etc. Generally, needs relate to perceived gaps that need to be filled, i.e. improvements in the marine space, new developments that are required for these improvements, the creation of new opportunities to sustain economic development in the region or increase of the well-being of communities, improvement in the conservation of marine resources, etc.

Example 2: Needs identified for cooperation in the Black Sea

- Regional cooperation towards oil pollution prevention, preparedness and response;
- Prevention of the transfer of invasive species through ballast water;
- A regional strategy for port reception facilities to cater to ship-generated wastes;
- Ship surveillance and monitoring for oil spill detection and prevention (and for improving navigation safety);
- Guidelines for the Use of Dispersants;
- A Contingency Plan for Response to Harmful Substances other than Oil.

Once each party has identified the needs to be met through TMSM on either side of the boundary or boundaries, specific dialogue is necessary to ensure that these are understood by all who will be involved in TMSM planning and execution. Such dialogue will also enable the parties to find common aspirations that will help to synergise effort.

Identify issues

Issues relate to problems and difficulties that are encountered in the marine and coastal space. Issues may relate to safety, degradation of environmental conditions, unsatisfactory economic development in the region, organisational or institutional conflicts, etc.

Examples of Issues:

- Illegal, unregulated and unreported fishing;
- Overfishing;
- Pollution of marine waters;
- Disturbance of bird migration routes or resting and breeding grounds;
- Activities negatively impacting already endangered or threatened species;
- Degradation of marine habitats, including from outside influences such as transboundary pollution;

- Over-exploitation of marine resources;
- Ecosystem imbalance as evidenced by phenomena such as red tides, jellyfish blooms, invasive species, etc.;
- Coastal erosion or accretion; and
- Conflicts between single-sector users.

Before discussing the issues with transboundary partners, effort should be made to understand and describe each issue fully and correctly. A useful tool in this regard is the ‗Drivers-Pressures-State-Impact-Response' (DPSIR) model that helps to develop deeper understanding of the nature, causes and consequences of the issue, along with the possible interventions to overcome or at least mitigate its negative impacts (see Box Example in Step 3).

Transboundary partners should also be encouraged to identify and analyse issues affecting the marine space from their perspective, and all parties share this information in documented form. Please note that in certain jurisdictions there might be reluctance to reveal too much detail about negative issues in the marine space. In such cases, benchmarking study of similar phenomena elsewhere could help to improve understanding of the likely causes and impacts of perceived issues.

Face-to-face dialogue sessions with transboundary partners are important to tease out and agree on the final description of the issues and identify shared concerns and opinions. Such discussion also helps to lay a foundation of trust and understanding.

Define goals and objectives

TMSM goals are derived from the needs and issues. Goals are generally broad and not measurable; they describe the general intention of TMSM. Goals are defined in objectives, which are mostly measurable (quantitative) and more focused.

The goals and objectives may each have a different timeline, e.g. some may be realised within five years, whereas others are to be achieved in ten or twenty years.

Examples of goals:

- Provide economically effective use of marine resources;
- Prevent fragmentation and promote the efficient use of space, while giving private parties the scope to develop their own initiatives;
- Balance conservation, energy and resource needs;
- Reduce pollution;
- Improve safety of navigation;

- Conserve marine and coastal habitats;
- Reduce overfishing, and prevent fish stock depletion;
- Conserve biodiversity, ecosystem services, and natural and cultural values across boundaries;
- Build peace and lay the foundations for collaboration (trust, reconciliation and cooperation);
- Increase the benefits of conservation to communities on both sides of the borders;
- Develop the local and national economies;
- Achieve effective cross-border cooperation to control natural disasters, introduced plants and animals, and illegal activities, e.g. poaching, pollution and smuggling etc.; and
- Recover and rehabilitate coastal and marine environments that have been degraded and still have the potential for such a recovery.

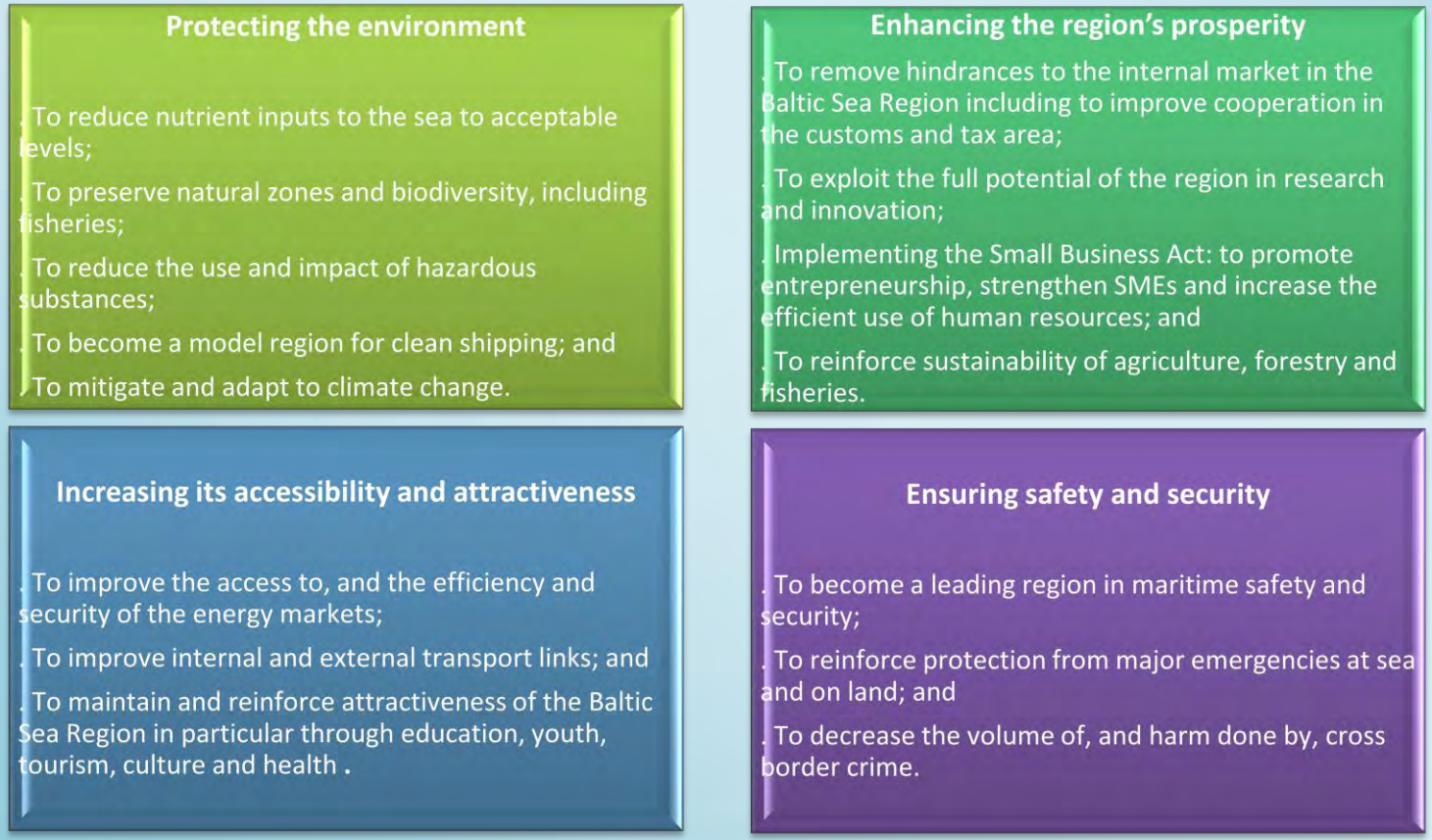
Once the goals have been determined, they are best **organised by themes, and priority areas**. All transboundary partners should then meet to share and discuss their respective goals with a view to defining and prioritising common goals and agreeing on supporting objectives.

Do not set objectives that are too ambitious. Overly ambitious objectives may be subdivided into smaller objectives that are easier to achieve, and that will, in the end, contribute to realisation of the final goals.

Case-Study 2: Action plan for the European Union Strategy for the Baltic Sea Region; example of TMSM goals and objectives

The European strategy for the Baltic Sea Region has been defined as –An integrated framework that allows the European Union and Member States to identify needs and match them to the available resources through co-ordination of appropriate policies, thus enabling the Baltic Sea Region to enjoy a sustainable environment and optimal economic and social development".

The EU Strategy was accompanied by an Action Plan officially published in June 2009. This Action Plan comprises 15 priority areas (or goals) that represent the main areas where the EU Strategy for the Baltic Sea Region can achieve improvements. The coordination of each priority area is allocated to a Member State which, in close contact with the Commission, will work with all stakeholders on implementation (especially other Member States, Regional and Local Authorities, Inter-Governmental and Non-Governmental Bodies). Four main themes have been defined for the region, and priority areas identified for those themes as described below:



Case-Study 3: Goals and issues for management of the Barents Sea management

The Barents Sea is covered by several agreements and cooperation strategies.

Norway/Russia Joint Statement

The Joint Statement on maritime delimitation and cooperation in the Barents Sea and the Arctic Ocean, which was signed by the Russian Federation and Norway in 2010, defined a delimitation line for the Parties in the Barents Sea and the Arctic Ocean. It also affirmed the importance of cooperation with regard to fisheries and management of hydrocarbon resources. The Statement acknowledged that Norway and the Russian Federation bear a responsibility for the conservation and rational management of the living resources of the Barents Sea. Moreover, that they need to adopt detailed rules and procedures to ensure efficient and responsible management of hydrocarbon resources in cases where any single oil or gas deposit should extend across the delimitation line.

The Barents Euro-Arctic Region

A program of cooperation in the Barents Euro-Arctic Region was launched in 1993 on two levels: intergovernmental (Barents Euro-Arctic Council, BEAC); and interregional (Barents Regional Council, BRC). The region was an area of military confrontation during the Cold War. It is rich in natural resources (fish, timber, minerals, oil and gas), and has important processing and engineering industries, as well as high-quality universities, research institutions and science centres. The primary goal of BEAC is to promote sustainable economic and social development, and increase the region's competitiveness in Europe. Cohesion, good governance and sustainable growth of the region are issues regularly discussed at the political level and they are promoted through sectoral projects and activities usually conducted under specific working groups.

The goals of the Barents Euro-Arctic region cooperation are to:

- ensure a peaceful and stable development of the region;
- consolidate and further develop cultural ties between the peoples of the region;
- encourage the establishment of new (and expansion of existing) bilateral and multilateral relations in the region;
- lay the foundation for environmentally sustainable economic and social development with emphasis on an active and goal-oriented management of natural resources;
- contribute to development that takes into consideration the interests of the indigenous peoples with their participation; and
- define the joint vision and objectives on how cooperation should take place.

Step 2: Define the spatial and temporal boundaries

The next step in the TMSM cycle will most likely be to define the spatial and temporal boundaries. Complementary to the identification of issues, challenges and opportunities, the questions of –where and when?" must be answered.

Marine areas are diverse and encompass issues of different nature, i.e. ecological, economic, and/or social. An area of ecological importance is an area where habitats sustain biological diversity; where breeding, feeding or nursery areas exist that maintains natural populations and may provide sustainable livelihood to humans. An area of economic importance is an area where marine activities can generate economic benefits, such as areas with natural resources that support the oil and gas industry, sand and gravel mining, fishing etc. An area of social importance is an area that contributes to the livelihood or culture of local communities. For example, areas where fishing represents the main occupation and earnings of local populations, and their primary source of food has a social value; coral reefs (apart from their ecological value) also have a social value as they provide opportunities for recreation, and may even hold cultural value for nearby communities. Thus, the development of tourism in such areas should directly benefit local communities and avoid harming existing value. Nevertheless, the ecological, economic and social importance of an area may vary with time, and this should be taken into consideration.

Define spatial boundaries

While initially the idea of marine spatial planning and ocean zoning was stimulated by international and national interests in developing marine protected areas, e.g. the Great Barrier Reef Marine Park, more recent attention has been placed on managing the multiple use of marine space, particularly in areas where use conflicts are already clear.

Therefore, sensible boundaries for a designated marine space will encompass logical groupings of activities, e.g. the fishing activities of a particular local stock or by identified communities, or non-living resource extraction of a certain nature. Poorly considered boundaries risk creation of a marine space that leaves relevant stakeholders or influences out of consideration and management. Of equal importance is the need to preserve ecosystem integrity as much as possible. Instead, the realisation that marine ecosystems often straddle jurisdictional or administrative boundaries has been an important impetus to TMSM. The need to consider ecosystem integrity as well as the activities of any particular marine space will probably require some effort at improving knowledge and understanding of the area, e.g. through habitat mapping or stock tracking, etc. Such efforts are iterative and may well give rise to information that suggests an amendment to the initial boundaries of the designated area over time.

When defining the spatial boundaries for TMSM, it is important to differentiate:

- **Management boundaries**: management boundaries define the geographic zone over which the management will be undertaken. It can gather several ecosystems, economic activities, communities, etc.
- **Assessment boundaries**: they define the zones where natural and economic processes occur, and within which they will be analysed and assessed. Assessment boundaries may be partly overlapped by the management boundaries, without coinciding with them. The assessment boundaries can be very wide, and encompass both the zone where an issue is studied, and the zone(s) of influence of the issue.

Define spatial boundaries

Spatial zoning for TMSM must be completed within a timeframe that defines the time to access the current situation, and the temporal span for which the TMSM plan will be developed. Indeed, in some circumstances, TMSM may be employed primarily to manage and minimise undesirable impacts of a particular activity. When such is the case, the timeframe for TMSM will likely reflect the expected duration of the activity.

Step 3: Identify the stakeholders and organise public participation

Identify the stakeholders

The identification and involvement of stakeholders[8] is an essential step in the design of TMSM. Public officials assume responsibility for the formulation of plans and rules that will guide TMSM but they are not the only stakeholders involved in implementation.

Private sector entities make investments and undertake operations that are essentials to the achievement of TMSM goals; community groups articulate local expectations and can influence the degree of local support or opposition to TMSM initiatives; NGOs can undertake research, provide information, help to raise awareness of issue and promote acceptance of TMSM; and universities and institutes provide data, analysis and expert human capacity, all of which are essentials to effective TMSM.

Stakeholders of relevant to TMSM have one or more of the following characteristics:

- They rely on marine resources for their living;
- They are affected by TMSM decisions;
- They are involved in marine activities or undertake research that may impact on management of the designated space;
- They have specific interests in the area (NGOs, environmental/cultural groups and associations); and
- They contribute funds, prepare human resource or otherwise contribute indirectly to management of the area.

Not all stakeholders have the same importance or relevance to execution of the TMSM plan.

The ‗priority stakeholders' group will likely include representatives of economic, political, environmental, and sociological interests, to ensure that the plan is fair to everyone and well-balanced.

Stakeholders:

- rely on marine resources for their living;
- are affected by TMSM decisions;
- are involved in marine activities or research that may impact management of the area;
- have specific interests in the area; and
- contribute indirectly to TMSM management.

[8] In this case, the stakeholders are the people and their activities that use natural marine resources, or who will be affected by TMSM decisions.

Table 1: Examples of stakeholders

Main categories of stakeholders	Examples
Governmental/national/regional authorities	Government officials
	Local government officials
	Marine strategy developers
	Customs officials
	Regulation enforcement officials
	Navy/ Coast Guards/ Marine Police
Industry/ Private Sector • **Fisher folk and fishing companies** • **R & D companies**	Marine yacht sailors
	Maritime transport operators
	Cruise liner operators
	Marine strategy developers
	Tourism and recreation industry operators
	Oil and gas companies
	Seabed cable layers
	Industry representatives: councils, associations
Academics/Scientists	Research scientists
	Education teachers
General Public	Coastal communities; Indigenous populations
NGOs	Conservation and human welfare NGOs; Heritage Groups
International treaty operators	IMO ballast water, dumping, navigation safety
	CITES Convention on International Trade in Endangered Species
	MARPOL Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter
	CBD Convention on Biological Diversity
	GPA Global Plan of Action for land based pollution sources.
	OPRC International Convention on Oil Pollution Preparedness, Response and Cooperation

Organise public participation

Stakeholder involvement is also linked with the 'fair and equitable sharing of benefits', the social pillar of sustainable development that seeks to ensure that those who live within an area are able to share in the benefits (economic, social and environmental) that result from the use of its resources[9].

The earlier that stakeholders are involved in the design of TMSM, the more likely that any TMSM plan will be successful and accepted. Public participation is fundamental to maximise agreement, enhance the transparency of decision-making, create a sense of ownership and facilitate the acceptance and enforcement of decisions. Public participation also improves dialogue and understanding between stakeholders, thus helping to prevent conflicts.

Some important questions to consider include:

- Which stakeholders are to be involved?
- At which stage are they to be involved?
- What aspects of TMSM will be relevant to them?
- How will they be involved?

When to involve stakeholders?

In general, stakeholders are best involved from the pre-planning and planning stage of TMSM. Indeed, their contribution will help to ensure that all needs and issues have been identified at the initial stage, and that the TMSM design takes into account the largest number of interests that are represented in the area.

Stakeholders may also be involved in the following:

- Implementation of TMSM, especially when they see advantages in the plan. Their participation in the implementation phase may also ease the task of enforcement.
- Evaluation of TMSM, which allows them to prepare better for the re-planning and adaptation phases.
- Re-planning and adaptation strategies.

[9] Principle 10 of the Rio Declaration on Environment and Development (United Nations Conference on Environment and Development, Rio de Janeiro, 1992) notes the need for public involvement by stating that environmental issues are best handled with the participation of all concerned citizens, at the relevant level.

Public participation procedures

Public participation procedures must be transparent, and involve all relevant groups (e.g. local residents, government representatives, the research community, fisherfolk, industries, the private sector, women and minority groups, transboundary communities, local and regional authorities, NGOs).

Public participation may take several forms:

- Communication: communication allows the TMSM proponents to explain TMSM to the general public, and listen to criticism and suggestion. TMSM officials should describe the goals and anticipated outcomes. Importantly, communication needs to be a two-way flow of information with mechanism in place for stakeholders to provide feedback.
- Information: information is provided to targeted groups, to improve their involvement in the process, and explain the goals and objectives pursued,
- Consultation: The consultation phase allows gathering opinions and reactions from stakeholders that will help to improve the TMSM design. The collected opinions may not always be accepted and acted upon, but at least will be known to the TMSM planners. To the extent possible, a consensus should be sought from stakeholder groups, some of which may have divergent interests.

Example 3: Public participation in the Arctic Governance Project

The Arctic Governance Project (AGP) is an interesting case of the participatory approach to TMSM, used to define the best approaches to governance in the Arctic.

This unofficial initiative gathers researchers, indigenous leaders, and members of the policy community, to discuss, propose and evaluate innovative governance systems for the Arctic region, to 'ensure a sustainable and just future for the region'.

The AGP has set-up an electronic Arctic Governance Compendium, through which it assembles and evaluates proposals from the Indigenous peoples from the eight nations bordering the Arctic region. It consists of a website, where questions from the project leaders are posted, and where anyone can post their contributions.

- Dialogue: dialogue is instigated between stakeholder groups to reach a better understanding of mutual concerns, issues, needs and expectations from TMSM.
- Negotiation: negotiation is held between TMSM authorities and stakeholders to further reach a consensus on specified topics.

There are numerous challenges to effective TMSM public participation; for instance, differing legislation and public participation systems, as well as priorities in neighbouring countries. Jurisdictional frontiers frequently also represent a linguistic, cultural and socio-economic boundary. In addition, mechanisms of public participation are not well developed in many Economies, and the public can be insufficiently aware of how to take part in decision-making processes.

Case-Study 4: Consultative Mechanism for the Torres Strait Agreement

There are a number of consultative mechanisms in place to progress implementation of the Torres Strait Treaty between Papua New Guinea and Australia. These are the:

Traditional Inhabitants' Meeting (TIM): As part of the liaison arrangements under the Torres Strait Treaty, Article 18: 2(a), 3(a)+(b), and the Government's obligation to keep Traditional Inhabitants informed of relevant developments in (and in the vicinity of) the Protected Zone, the Traditional Inhabitants Meeting (TIM) was formed. This is a forum for traditional inhabitants from both countries to discuss issues and activity in the region, and report concerns to government through their Treaty Liaison Officer.

Treaty Liaison Meeting (TLM): Treaty Liaison Meetings, chaired by the Torres Strait Treaty Liaison Officer and PNG Border Liaison Officer, are also conducted and attended by Australian agencies involved in implementation of the Treaty (Commonwealth, State and Local) represented in the region, together with a PNG delegation. Meetings are held alternately in Australia and PNG and their main purpose is to address issues raised at the TIM and other Treaty related matters such as 'free movement' implementation, illegal activity, customs and police matters, health, environment, quarantine and fisheries.

Joint Advisory Council (JAC): The JAC was established under Article 19 of the Treaty as an advisory body of Australian and PNG officials, together with traditional inhabitant representatives. Meetings are held alternately in Australia and PNG. The functions of the JAC are to:

- seek solutions to problems arising at the local level that are not resolved by the Torres Strait Treaty Liaison Officer and the Papua New Guinea Border Officer located on Thursday Island and Daru respectively;
- consider and make recommendations to the Parties on any developments or proposals which might affect the protection of the traditional way of life and livelihood of the traditional inhabitants, their free movement, performance of traditional activities and exercise of traditional customary rights; and
- review from time to time as necessary, and report and make recommendations to the Parties on any matters relevant to the effective implementation of this Treaty, including the provisions relating to the protection and preservation of the marine environment, and fauna and flora in and in the vicinity of the Protected Zone.

In the exercise of its functions, the Council is required to ensure that the traditional inhabitants are consulted and given full and timely opportunity to comment on matters of concern to them, and that their views are conveyed in the Council's reports and recommendations. The Council is required to transmit its report and recommendations to the Foreign Ministers of Australia and Papua New Guinea.

Step 4: Establish authority for TMSM

The transboundary dimension of TMSM means that there is the possibility for parties not to understand the locus and extent of authority for implementation with regard to the cross-border partner. Therefore, all parties must **clearly define the authority** or authorities which will be **in charge of**:

- **Planning** TMSM;
- **Implementing** TMSM.

and share this information in documented form with each other.

Effective international TMSM starts at the national level. Coordination and cooperation between different government agencies and other marine-related institutions is essential, as are sufficient financing and political commitment. Common obstacles, such as conflicting mandates, fragmented authority and limited capacity of national institutions, may be overcome by a **strong political will to develop and implement the laws and agreements** needed to coordinate marine uses within the various sectors and manage resources in an integrated manner.

Care must be taken to ensure that communication with cross-border partners is actually conducted with the correct parties. An important aspect of preparation for TMSM is to ensure that transboundary partners share a commitment to TMSM.

Who, on the other side of the boundary, has the jurisdiction, authority and mandate to enter into an agreement and lead implementation? The answer to this question is often very complex and relates to administrative structures, the system of law, the political system, informal power structures, and the culture of the people. Language can also be a problem in understanding the aspirations and intentions of a TMSM partner. Therefore, an early action for TMSM is the need for systematic, thorough and prosaic analysis of the strengths and weaknesses of all parties involved in the TMSM planning exercise in order to evaluate the likelihood of success for the exercise. If commitment and capacity are insufficient, there is little to be gained from attempting to proceed with the initiative.

Leadership and Authority

An important aspect of preparation for TMSM is to ensure that transboundary partners share a commitment to TMSM. Often, bureaucratic organisations (including government agencies, corporations, community committees, political parties, unions, NGOs etc.) may be reluctant to embrace new or different TMSM commitments

with necessary vigour to affect good outcomes. There are many causes of institutional inertia and conservatism, such as: organisational rigidity and strong sectoral segmentation; lack of legislative flexibility and mandate; lack of knowledge and understanding; inadequate capacity; poorly developed communication channels; vested interests, including of powerful individuals or agencies; corruption; a lack of incentives for innovation or additional effort; and more. With so many potential institutional obstacles to overcome, marine spatial planning and management will often be efficient only if the initiative is supported by one or more powerful individuals (e.g. politician, senior public servant, influential industry leader, high-profile public figure.) or agency. Such a ‗champion' needs genuinely to be committed to the beneficial outcomes of the initiative, and have good knowledge of relevant issues and strategies. For TMSM, such decisive leadership must exist in all participating administrative or jurisdictional areas. Important questions to ask in the early planning phase include whether transboundary partners have been successful in identifying a guiding champion or champions, and if not, whether they will be able to fulfill their responsibilities in executing the plan.

Legal Context

Within domestic jurisdictions, the legislative framework must be able to accommodate the degree of inter-agency coordination and cooperation necessary for marine spatial management. For example, wide disparity in penalties for infringements of a similar scale or nature, unclear jurisdictional boundaries or ambiguous wording of the law may confuse or even confound enforcement efforts. Such issues are challenging enough within a single jurisdiction, but become even more so when considered in a transboundary context.

The relative importance of a harmonised legal system may be considered differently by cross-boundary proponents or interested parties. For example, a country that has signed the International Convention for the Control and Management of Ships Ballast Water and Sediments may wish to introduce aspects of control over ballast water discharge that would apply equally to ships from countries that are not parties to the Convention. In such an instance, there may be resistance and confusion over the necessity for consistent regulations throughout the managed marine space by transboundary collaborators who are not Parties to the Convention.

An early activity that might help to bring together cross-boundary parties would be to identify common obligations under treaties that already have been ratified by relevant parties. This activity is done formally in more depth at Step 7 but such an initial review can be a good starting point and remind all concerned that they have already agreed and made commitments that need to be applied in the area in question.

Importantly, gaps and incompatibilities between transboundary legal arrangements need to be identified and if possible mechanisms developed to overcome them. Aspects that may warrant attention

include: extradition laws; cultural differences in legal frameworks; and disparity in the ability of countries to uphold and enforce the necessary laws.

A Cautionary Note

Potentially, there are many challenges to overcome in order to succeed in TMSM. Some have been discussed above, such as finding hidden agendas or not having a ‗champion'. As much as possible, conflicts of interest and management problems should be resolved at the earlier stages of transboundary discussions. A useful exercise to encourage mutual accommodation of **concerns is to describe in writing the likely negative consequences for all parties of a failure to succeed in TMSM**.

Establish specific authority for TMSM planning

New forms of governance are required. Appropriate rules of procedure and terms of reference for TMSM organisations that take into account specific local conditions are also crucial.

Marine spatial planning over a transboundary area needs to be led and coordinated by a duly authorised body or committee representing the interests of all participating administrative zones and jurisdictions. The terms of reference for this planning body must empower it to develop a plan that will be binding on all parties, with clear commitments given by the parties to develop necessary regulations and incentives to control undesired activities, minimise harmful impacts and fulfil agreed programs to meet specified goals.

The formation of a joint body with strong enforcement capacity, such as a Commission, is often relevant and fundamental to ensuring cooperation between the various governmental entities and good management of shared resources. Enforcement of TMSM can only be achieved if bodies possess strong mandates and political support from the various governments. When other authorities operate in the same area but with different scopes of work, institutional and administrative structures should be developed to facilitate cooperation. Cooperation between joint bodies with similar TMSM responsibilities but in different areas will also open opportunities for more effective implementation of TMSM.

Providing the TMSM authority (ies) with appropriate human resource capacity is also essential. The authority should gather staff with broad competence and skills that bridge disciplines. The capacity of managers, especially at the local level, should be strengthened to raise understanding of the complexities of managing shared water resources and to derive the benefits possible through cooperation.

Finally, appropriate rules of procedure and terms of reference for TMSM organisations that take into account specific local conditions are also crucial. These rules should recommend the structure, responsibilities,

rights, and financial status of such organisations, and ways and means to ensure public participation.

Establish a specific authority for TMSM implementation

To manage transboundary issues, one (or more) authorities must be designated clearly to bear the following responsibilities:

- Develop the management plan;
- Monitor the processes for TMSM;
- Coordinate and advise in support of TMSM, e.g. collect and exchange hydrological data and forecasts, identify pollution sources and hot spots, serve as a forum for the exchange of information on emerging issues, existing and planned uses of water and related installations, and conduct studies on climate change impacts;
- Develop joint monitoring programmes;
- Establish warning and alarm procedures; and
- Settle differences and disputes.

A clear mandate for the different national and transboundary organisations is an important prerequisite for the formation of strong governing bodies.

A common practice is to draw upon existing organisations to form a new authority for TMSM planning and implementation. The rationale for such an approach is that, although the planning for TMSM is an integrated and cross-sectoral activity in practice, implementation of the plan through specialist sectoral nodes will be inevitable to a certain extent. Existing authorities may already have a sectoral portfolio and responsibilities over a defined area and sector. Therefore, they may be best placed to implement the plan. Such authorities are likely to know stakeholders well; have an appreciation of the background, issues and practices of their sector; and have in place established governance structures.

However, the use of single-sector implementation bodies leaves open the risk of inadequate integration. Mechanisms might need to be developed to avoid this. Also, presumably, the identified issues came about under the current management bodies and there may well be merit in restructuring management arrangements in order to achieve TMSM goals. Furthermore, existing agencies may resist change or simply lack the capacity to manage the marine space well enough. Care must be taken in deciding on the best institutional approach for TMSM implementation. If single-sector agencies are to remain responsible for TMSM implementation, a multi-sectoral coordinating authority will probably be necessary to oversee the program. Such an authority must be given a clear mandate and powers to access information and make interventions compulsory.

Example 4: The North Sea Commission

The North Sea Commission was founded in 1989 to facilitate and enhance partnerships between regions that manage the challenges and opportunities presented by the North Sea. The NSC consists of eight countries (Sweden, Denmark, Germany, The Netherlands, France, England, Scotland, Norway), representing 35 Member regions.

The NSC also promotes the North Sea Basin as a major economic entity within Europe, by encouraging joint development initiatives and through political lobbying at the level of the European Union.

The NSC has determined that its activities must be action-orientated, and involve co-operation programmes, research activities, funding applications, and joint policy statements aimed at delivering positive benefits to the people of the North Sea Basin.

Case-Study 5: Specific governance for the Baltic Sea

The Baltic Sea region is heterogeneous in economic, environmental and cultural terms, yet its bordering countries share many common resources and demonstrate considerable interdependence. The Baltic Sea region includes numerous administrative zones, but with sufficient issues in common to justify a single strategic approach. It also has an established history of networking and cooperation in many policy areas. Therefore, the Baltic Sea region was chosen as a pilot site to explore regional co-operation and develop best-practice examples.

On 26th October 2009, the EU countries adopted a common strategy for the Baltic Sea region that aims particularly at better coordination of resources and funds. This strategy was the first attempt in Europe to create a complex common development strategy for a cross-border 'macro-region' with common development goals and problems. Due to the existence of a number of cooperative structures in the Baltic Sea, no new management institution was created. The consensus opinion was that such a body would add administrative burden with no likelihood of greater efficiency.

The following governance structure was proposed by the Strategy:

- Policy development is left as a responsibility of the Member States, which come together to cooperate on concrete measures. The European Commission acts as an overseer, and makes recommendations to the European Council;
- The European Commission is responsible for co-ordinating, monitoring, reporting and facilitating implementation and follow-up of the Strategy, proposing adaptations whenever needed;
- The European Commission will work with other institutions, Member States and regions, international financing institutions, transnational programming bodies and governmental organisations such as HELCOM to identify co-ordinating bodies at the level of priority areas and lead partners for flagship projects; and
- Stakeholders are to be brought together in a yearly forum to review and discuss progress of the strategy and recommend implementation actions.

Case-Study 6: Two-level governance for the Barents Sea

Implementation of the Barents Euro-Arctic Council (BEAC) and Barents Regional Council (BRC) policies is supported by 16 working groups and task-forces, with national and/or regional representation. The working groups are categorised along four main themes: economic development, environmental protection, human and social resources and parliamentary cooperation. BEAC is also encouraged to collaborate with three neighbouring multilateral councils: the Arctic Council (AC), the Council of Baltic Sea States (CBSS) and the Nordic Council of Ministers (NCM).

A number of sectoral programmes take place in the Barents Euro-Arctic Region (BEAR). The Operative Sector Programmes are Tourism, Oil and Gas, and East-West logistics-Barents Link. Planned Sector Programmes include Mining and Minerals, Education and ICT.

The **Barents Euro-Arctic Council (BEAC)** was established in 1993 and its members are Denmark, Finland, Iceland, Norway, Russia, Sweden, the European Commission, and a representative of the indigenous peoples in the northernmost parts of Finland, Norway and Sweden and north-west Russia. The BEAC is the forum for *intergovernmental cooperation* in the Barents Region, and all its decisions are made by consensus.

The **Barents Regional Council (BRC)**, responsible for *interregional cooperation*, gathers together thirteen countries or similar sub-national entities (Finnmark, Nordland, Troms, Norrbotten, Västerbotten, Arkhangelsk, Republics of Karelia and Komi, Murmansk, Nenets, Autonomous Okrug, Kainuu, Lapland and Oulu). The BRC was created to acknowledge the importance of local knowledge, along with the ability of local populations to identify the most urgent priorities and their capacity to carry out implementation in the Region. It adds political guidance to multilateral cooperation, by defining joint visions and views on how cooperation should be carried out. The Barents Regional Committee has overall responsibility for implementation of decisions taken by the Regional Council.

Step 5: Assess present and future conditions

TMSM calls for **well-informed decision-making processes**, and requires assessment, analysis and interpretation of various sets of data covering the area(s) of interest. A tangible TMSM plan must rely on accurate data and information. Information based on well-organised measurement networks and monitoring programmes is a prerequisite for accurate assessments of marine resources, related issues and problems.

> Assessment is essential for making informed decisions and formulating policy at the local, national and transboundary levels.

In the marine context, data are difficult and expensive to obtain. Marine data and information can be collated to form a comprehensive database and information management system to serve as a repository of relevant data, and serve as a source of information and education for specialists, administrators, and others throughout the region.

Assessment is essential for making informed decisions and formulating policy at the local, national and transboundary levels. The assessment of environmental, economic and social conditions relies on accurate and reliable data and information. The assessment of current conditions allows a better understanding of the ecological and socio-economic state of the area, and of the interactions between human activities and the marine environment (pressures, impacts, etc.). The assessment of future conditions is based in-part on the possible uses of the marine space, and will therefore necessitate consideration of economic and technology trends. Likely changes in the physical environment, especially from climate change, will also be relevant.

The data and information on current and proposed marine environmental and economic conditions, including development, are used to report on the state of the environment, the use of marine and coastal resources and to assist in preparing scenarios for future sustainable use and spatial management. These data are also used to plan monitoring and evaluation activities for resource use.

Assessment processes involve the collection, evaluation, and synthesis of information from scientific and engineering research to address policy-relevant questions. They may be conducted by panels of scientists, engineers, socio-economists, and diverse groups of stakeholders as in the use of citizen advisory panels. The integration of science in decision-making processes is crucial for effective TMSM. Assessment processes should provide clear, understandable information about marine interactions to planners and managers, for them to make well-informed decisions. Technology and science may also influence TMSM by

developing solutions to TMSM problems, and improving the efficiency and effectiveness of environmental assessment.

Collect data and information

Decide on the type of data needed.

Not all of the information available may be necessary for TMSM. Therefore, an initial step is to decide which data will be needed. The nature of data needed can be:

- Hydrographic;
- Ecological;
- Oceanographic (chemical and physical);
- Economic (activities at sea and their revenue);
- Demographic (e.g. number of fishermen, population groups.)
- Socio-economic (e.g. livelihoods, dependency on marine resources.)

Identify the data holders.

In most cases, the data and information required to assess conditions in the area already exist, but a lack of clear and systematic cataloguing and poor communication between agencies hinders its access. The exercise of identifying the data holders and sources may be difficult and time-consuming.

Data can be collected from many sources including: (1) scientific literature; (2) expert scientific opinion or advice; (3) government sources; (4) local knowledge; and (5) direct field measurement'[10].

Usually, a substantial portion of the time and budget in a TMSM effort is spent on gathering and managing existing data and information. Thus the successful and timely delivery of a management plan is highly affected by decisions on data collection, storage and management. Project managers are well advised to focus on this commitment from the outset, and should make clear and consistent decisions about what kinds of data will be needed and accepted. At national and transboundary levels, the early creation of a system for the storage, access, and management of data for TMSM could dramatically improve efficiency, and cut costs.

Establish an independent panel of scientific experts to develop and approve TMSM scientific practices and to adjudicate questions on data, methods, and findings.

TMSM requires complex analysis grounded in high-quality science. Throughout the TMSM process, many decisions must be made about scientific practices and findings. The creation of an independent science advisory panel that informs decision-makers on issues of data and

[10]UNESCO, Marine Spatial Planning- A Step-by-Step Approach Towards Ecosystem-Based Management, p50.

science can speed decisions and ensure that planning outcomes are scientifically valid, credible, and unbiased.

Manage the data.

Ocean data management covers the aspects of data collection, storage, archival, access, sharing, exchange and dissemination. Data management must be carefully planned and controlled at different levels of government, and by public and private bodies, in order to ensure the quality, comparability and sustainability of relevant datasets.

Data can be used analytically or illustratively in planning. Recognition of the different uses and an increased use of data can also enhance stakeholder participation. Therefore, the managers of a TMSM database need to establish firm criteria for accepting datasets for analysis, such as minimum geographic coverage, and communicate these criteria to partners and stakeholders early in the process.

For example, if the issue is a loss of marine habitat, the scale of the topographical map on which the habitat is to be mapped should be one that allows the outlines of the habitat to be shown rather than small lines or dots. These outlines can then be used as an overlay on bathymetry maps, e.g. to show seagrass depth limits or areas of coral bleaching, mangrove nursery areas.

The archival of data is also an important issue. The development of catalogues that gather information on existing datasets (called ‚metadata') is important for efficient data archival.

Record Metadata

Metadata are data about data; they contain information on all aspects of the data except the data itself. Metadata are useful because they tell people where data are, by whom and when they were collected, frequency, quality and availability. Then, if the data itself are required, the interested party can buy or obtain the data. All data should have metadata attached as part of the production process.

Peer-review the quality of all datasets (even large and commonly used datasets) and accept only reliable data.

The data suitable for assessment must be up-to-date, objective, reliable, relevant and comparable.

To accomplish ecological objectives for TMSM, focus primarily on obtaining explicit, observed habitat data. However, marine data can be difficult and expensive to obtain.

Sometimes, there will be a need to model habitat proxies and to augment data with expert and/or traditional knowledge. Importantly,

managers should keep a strong focus on the data set itself, independent of tools and technology.

Authoritative databases are needed for certain data types.

Data on jurisdictional boundaries, other management boundaries, and human uses of the ocean are essential for TMSM. Data describing these features are often available from multiple sources; however, these are not always authoritative or consistent. In such circumstances, care must be exercised to ensure that only accurate data produced by authoritative sources are used.

Table 2: Example of socio-economic data that may be relevant for TMSM

DATA/GIS Layers	Possible Use
Protected Areas, Reserve Areas with restricted use	Fishery restrictions, safety zones, conservation of biodiversity
Military Areas	Closed areas for exercises, prohibited access areas
Cultural/Natural heritage sites	Sensitive use areas, zones with restricted visitor numbers or times
Shipping lanes and boating routes	Important areas for navigational activities, areas with potential disturbance by traffic
Harbours, marinas, piers and jetties	Identifying the positions for shoreline use
Shoreline buildings, including detailed attribute data	Identifying exploitation and the positions for shoreline use
Categorised data on local enterprises	Socio-economic value of marine areas, identification of possible environmental impact
Demographic data, Population density	Analyse geographical referenced population abundance and structure data. Define pressure indicators of urban and settlement sprawl
Abundance of leisure boats	Identify areas of potential disturbance, access adequacy of support facilities
Tourism density	Disturbance and value of marine areas
Fishing grounds including real trawl lines Areas important for commercial fishing	Catch rate of effort in a certain area, access adequacy of enforcement infrastructure
Fishing activity	Amount of fishing in a certain area
Mariculture (fish farms, mussel cultivation) pollution	Space demand harvesting activities, Habitat disturbance

DATA/GIS Layers	Possible Use
Sand and gravel extraction	Habitat disturbance, resource availability
Oil and gas extraction	Space demand, safety areas, socio-economic value, habitat disturbance, risk planning
Cables and pipelines, dredging, dumping, drilling/exploration activities	Identify threats and status quo, space demand, habitat disturbance
Wind farm sites	Space demand, safety areas, socio-economic value
Research and reference sites	Important areas for science, reference baseline

Exchange data and information

As the collection and maintenance of data are expensive, the cooperation between parties may allow the sharing of costs, increased efficiency of monitoring networks, the avoidance of redundancies, and the filling of data gaps.

TMSM by two or more countries calls for the exchange of comparable information across jurisdictional boundaries. A common basis for decision-making requires harmonised (if not standardised), compatible assessment methods and data management systems and uniform reporting procedures. However, there may be some nationalistic sensitivity to the release of data to foreigners. Should such prove to be the case, a compromise that allows partial access to data might be possible.

The exchange of information (e.g. pollution caused by accidents, extreme events (floods and droughts) and operations such as mining or navigation) is vital to building trust and a shared vision among coastal countries. This has been recognized internationally and WMO and UNESCO are currently promoting a number of key policies on the ‗free and unrestricted' exchange of hydrological data and products.

Moreover, many Economies are developing National Oceanography Data Centres and their role in fostering an exchange of data on the marine environment is recognized by the Inter-governmental Oceanography Commission (IOC).

Use and develop appropriate assessment tools

The growing complexity of environmental problems requires the use of integrated spatial information systems and models cutting across

application fields and across the gap between environmental and social sciences. The joint efforts of computer scientists, ecologists, marine biologists, oceanographers, hydrologists, planners and transport engineers are needed to develop intelligent, highly integrated spatial information and modelling systems to answer questions and help to educate and inform politicians, administrators and the general public.

Geospatial Databases

Geospatial databases are used for the storage and access of geographic information and spatial data.

Use Geographic information Systems

There is a need for **information sharing, enhanced mapping of marine areas and human activities**, and the development of common tools to use this information in spatial management. User-friendly tools are needed to relate habitat and species distribution to human uses to support priority-setting and decision-making. Poorly designed maps can convey misinformation.

Geographic information systems (GIS) are hardware and software systems that allow the manipulation and display of geographically referenced data and information. GIS allow users to view, understand, question, interpret, and visualize data in many ways that reveal relationships, patterns, and trends in the form of maps, reports, and charts.

GIS is a very useful tool to draw maps, and superimpose layers of geospatial information[11].

Build inventories

The creation of the following two inventories will be helpful to TMSM decision-makers:

- an inventory of the main ecological, environmental and oceanographic conditions; and
- an inventory of human activities and socio-economic conditions.

Build maps

The data gathered in the inventories will help prepare useful maps and efficient tools to evaluate the situation in the area of interest. GIS can be used under different considerations to compare scenarios for future planning. The following maps will complement the inventories:

- Maps of the main ecological, environmental and oceanographic conditions;
- Maps of human activities and socio-economic parameters.

Moreover, maps are an efficient way to convey clear and understandable information to decision-makers. Decision makers may be discouraged by endless tables of data, but maps and graphic representations of

[11] Geospatial information: Information about objects or phenomena that are associated with a location relative to the surface of the Earth.

information, e.g. diagrams, may help them quickly understand the data. The use of risk indicators is also an efficient tool to improve understanding of the criticality of a situation.

Example 5: The European Atlas of the Seas

The European Commission has launched a European Atlas of the Seas, based on available spatial information and building on the work of a European Marine Observation and Data Network. It is a comprehensive atlas of marine spaces in Europe, and covers the themes of: geography, environment, economy, society, transport, fisheries, fishing quotas, aquaculture, and fishing fleets.

This atlas highlights the holistic nature of maritime environment and heritage, and should improve awareness of the need for an integrated approach to maritime policy. The European Commission has stated that "The development of an EU Atlas of the Seas will demonstrate the relevance of setting up an integrated data network, and the importance of the cross-sectoral accessibility of such data". The atlas is available at:http://ec.europa.eu/maritimeaffairs/atlas/maritime_atlas/

Models

The development and use of models, such as the Drivers-Pressures-State-Impact-Response (DPSIR) modelling framework, can help to reveal the interactions between human activities and the environment. They also assist in understanding all aspects of the problem rather than focusing overly on the current physical conditions of an area. By highlighting causal relationships and consequences, the full range of potential responses becomes clearer.

Also, the incorporation of constructive ideas into ecological analysis[12] such as the physical–ecological–social system (PHES) concept tested in a catchment and fjord in Chile can elucidate management options.[13].

Managing Conflict and Competition with Participatory–GIS (P-GIS)

Participatory GIS (P-GIS) endeavours to capture the input of stakeholders and the outcome of decision and negotiation between potentially conflicting users of marine space and resources. The outputs are applied to delineating boundaries (not necessarily clean lines) between competing groups, or, initiating negotiation efforts between competing groups through mutually acceptable ‗mapping' of actual or dormant spatial conflicts (competition) over resources. There is also

[12]Marin and Delgado, 2005
[13]Marin *et al*., 2008

potential to reduce conflicts through mediation or negotiation by using GIS. In this way, P-GIS becomes real-time, interactive P-GIS[14].

Assess present conditions

An important activity for good TMSM decision-making is to define and analyse the initial situations, i.e. existing conditions. An assessment of present conditions provides knowledge on environmental and biological resources, the uses of the sea and distribution of ecological and economic assets.

A distinction needs to be made between the following with regard to the TMSM designated space:

- The Core Area: the Core Area for marine and coastal ecosystems.
- The Immediate Impact Area: The Immediate Impact Area is the area, potentially inside and outside the core area, where human or natural activities are likely to impact directly or be impacted on by activities in the Core Area
- The Area of Influence: The Area of Influence includes all areas likely to have indirect relationships and impacts with the core area.

The assessment of current conditions should allow TMSM designers and planners to:

- Better understand the interactions between ecological phenomena and human activities;
- Identify compatible or incompatible uses of the sea; and
- Identify conflicts between ecological conditions and human activities.

TMSM calls for a better understanding of the interactions between marine habitats, environment, species and human activities taking place at sea or along the coast.

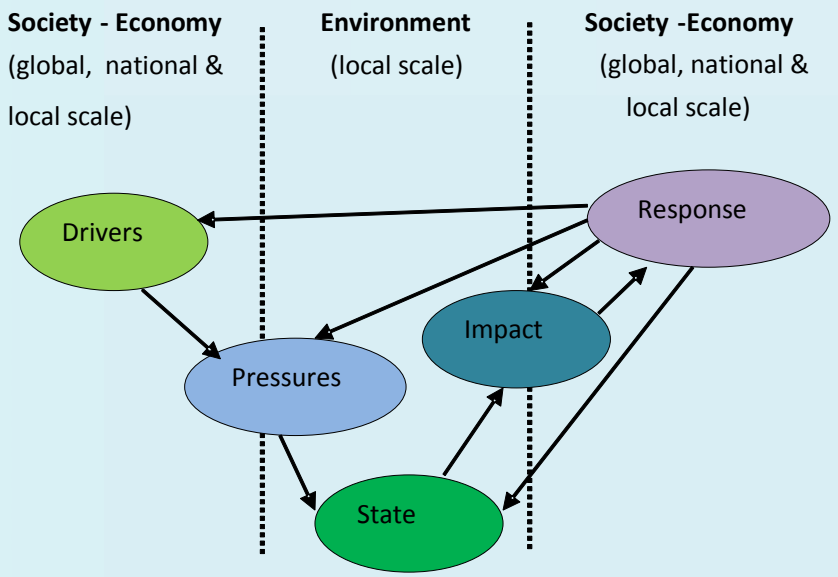
[12]McCall, 2003

Case-Study 7: The modelling causal framework DPSIR

DPSIR is a modelling causal framework adopted by the European Environment Agency (EEA), used to describe the interactions between society and the environment. It relies on the following components:

Driving Forces
Impact
Pressures
Response
State

DPSIR is an extension of the PSR model developed by OECD.



Case-Study 8: The Arafura and Timor Seas Expert Forum (ATSEF)

The Arafura and Timor Seas Expert Forum (ATSEF) is a non-binding forum, established by a Memorandum of Understanding (MOU) between Australia, Indonesia and Timor Leste. It promotes collaborative research and information-sharing between government, non-government organisations and experts from the littoral nations of the Arafura and Timor Seas (ATS). The purpose of the initiative is to assist those who depend upon the ATS to improve their livelihood through sustainable development.

ATSEF remains primarily an informal, non-government forum; however, the governments of Indonesia, Timor Leste and Australia take a leading role in direction setting and decision-making to ensure alignment with existing agreements and government policy. The ATSEF Regional Secretariat has been supported by each participating country.

An ATSEF Regional Steering bid-for-funding under the United Nations Global Environment Facility (GEF) was approved in April 2008. This funding will go some way to supporting the operations of ATSEF, but is primarily for the Arafura and Timor Seas Ecosystem Action (ATSEA) Project, which has been allocated approximately US$3 million over a four year period. Co-contributions of cash and in-kind resources from other project participants have also been committed.

The objective of the ATSEA Project is to develop a framework for integrated, cooperative, sustainable and ecosystem-based management and use of the living coastal and marine resources of the ATS. A Transboundary Diagnostic Analysis (TDA) will be undertaken to assess the current state of the environment and resources in the ATS, including pressures and threats. The TDA will lay the basis for the development of a multi-lateral Regional Strategic Action Program (SAP) and its implementation through pilot projects. Importantly, the SAP is likely to focus on complementary national-scale management actions, rather than attempting transboundary management *per se*.

The Timor Leste Ministry of Agriculture and Fisheries (MAF) and the Indonesian Agency of Marine and Fisheries Research (AMFR) are partners with United Nations Development Programme (UNDP) in implementing the ATSEA project. Australia participates and supports the project, but is not a recipient of GEF funding.

Identify areas of conflict

An important step is to identify areas of possible conflict, including within each discrete area of jurisdiction (i.e. not only transboundary conflict), and whether identified activities use resources sustainably (see also Step 4).

By superposing GIS maps (or layers) of important ecological areas with the maps of human activities, identification of the following zones is possible:

- Incompatible zones: zones where current human activities are in conflict or that have a negative impact on the ecological condition of the zone;
- Potential incompatible zones: zones where the current human activities may be in conflict or that may have a negative impact on the ecological condition of the zone;
- Compatible zones: zones where human activities may impact on each other or impact the ecological condition of the marine space, but where no major issue is observed.

Assess future conditions

The assessment of future conditions is necessary to evaluate the impact of various possible sea uses that may be defined in the TMSM plan. The assessment of future conditions relies on an initial assessment of the area, and builds on possible scenarios that are applied to the area.

The assessment of future conditions can be divided in two main steps:

- Assess future conditions if the current marine and coastal activities do not change;
- Assess future conditions when applying different scenarios of marine resources and space uses, depending on the envisaged planning measures and controls.

The assessment of future conditions in the context of unchanged sea uses allows a forecast of the marine space over periods of five, 10, 15 or 20 years. This assessment defines a ‚trend' for the marine area.

The assessment of future conditions, when applying different scenarios, allows a forecast of consequences and impact of changing sea uses in the marine space. From the assessment, the evolution of the socio-economic and ecological situation in the area is forecast. One scenario can be run successively with different forecasting timelines. In any case, different scenarios should be compared on the same forecasting timeline.

How to define the possible scenarios?

The scenarios used to assess future conditions rely upon:

- An evaluation of whether there are likely to be changes in future demands for sea use, e.g. a policy that fosters the development

of offshore renewable energy; or fish stock depletion that is likely to induce a decrease in fishing activities; and

- An assessment of the impact of marine-space management as reflected in the TMSM plan, e.g. creation of MPAs, ecological networks, etc.

The spatial sea-use scenarios will primarily indicate:

- Places of concentration in the management area resulting from the choice of objectives;
- Areas for special protection;
- Areas for development;
- Spatial relations between different areas; and
- Spatial networks, e.g., maritime transport routes or networks of marine protected areas.

Define the best scenario

After applying the different scenarios in the management area, there will be many results. These should be compared with the objectives of the TMSM plan.

The scenario that gives the closest results to the TMSM objectives will be judged as ‗the best scenario'. This scenario can be built on to refine the planning measures for TMSM. There is no universal ‗best case' scenario. The closest to best scenario will depend on perceptions of the relative importance of the social, economic and ecological criteria in the TMSM objectives.

Step 6: Identify and anticipate transboundary conflicts and opportunities

One of the major challenges of TMSM in APEC Economies is that Member Economies are at different stages of development; therefore, priorities in shared marine spaces vary from one economy to the other. Less importance is accorded to marine and coastal environments in some Economies than in others where special-interest groups and conservationists have a larger influence on environmental issues.

Conflicts may also arise between TMSM partners over sea boundary delimitation and sovereignty.

Identify existing transboundary conflicts

Existing *transboundary* conflicts need to be identified in particular at the earliest stage, so that TMSM may take them into account, and be adapted to resolve them as much as possible.

Highly mobile marine resources and pollutants, e.g. fish and oil spills, cannot be confined within administrative or jurisdictional boundaries. Therefore, these resources and impacts often have a transboundary dimension. Also, multiple interests in the use of a designated marine space may give rise to conflicts, which may be political, economic, environmental, social, or related to sovereignty protection. Differences

Example 6: Conflicts in the Caspian Sea

The demarcation of sea boundaries in the Caspian Sea has been the subject of disputes for nearly a decade among neighbouring States (i.e. Azerbaijan, Russia, Kazakhstan, Turkmenistan and Iran).

The status of the Caspian Sea itself is a key problem: is it a sea or a lake? If it is considered to be a sea, there are precedents and international treaty law obliging respect for a right of navigation by foreign vessels. If it is considered as a lake, there are no such obligations. Environmental concerns are also somewhat connected to the status and border questions. There are three major issues influenced by the defined status of the Caspian Sea: access to mineral resources (oil and natural gas); access for fishing; and access to international waters. Russia has adopted a median line of delineation and signed treaties accordingly with Kazakhstan and Azerbaijan. The Kazakhstan sector, although not fully defined, is not disputed. However, the sectors of Azerbaijan, Turkmenistan and Iran are not fully defined. Unresolved disputes mostly relate to use rights and exploitation of oil and gas resources.

between coastal APEC Economies in terms of socio-economic development, capacity to manage marine resources, infrastructure, political orientation, institutional and legal contexts represent challenges to coordinated development and joint management of transboundary marine and coastal resources.

Identify potential transboundary conflicts and opportunities

An important exercise is to foresee conflicts and opportunities that may arise during implementation of TMSM. Good anticipation of these issues will allow faster future adaptation of the TMSM plan, and the development of contingency plans and measures to mitigate any conflicts or problems.

Another inconsistency among APEC economies is in the application of internationally agreed standards, conventions and agreements. This can lead to discrepancies, especially during the implementation phase, when some countries may already be acquainted with such instruments and have integrated them into national laws and practices, while others might not be a Party to certain instruments or are still encountering obstacles in meeting their obligations.

Of the many conflicting uses of coastal and marine resources in the APEC region, perhaps the most difficult issue is over fishing and fishing down the food chain. Sustainable fisheries require regulations that permit fish to be caught in quantities that take into account yearly and natural variation in recruitment, and allow breeding stock and juveniles to sustain the populations. The conservation of fish habitats is also difficult because of damage done by pollution, removal and climate change. The most damaging form of marine pollution, affecting widespread areas, is land-based nutrient discharge causing blooms of phytoplankton, epiphytes on seagrass, excess macro algae on coral reefs and nuisance seaweed in coastal areas. Other negative outcomes from nutrient additions include: red tides, jellyfish blooms, fish kills, seagrass degradation and anaerobic sediments causing bottom-dwelling fauna to die.

However, differences in circumstances and capacities between Economies might also offer a tremendous source of opportunity for capacity development and technical, social, legal and economic cooperation. When addressing transboundary conflicts, such advantages must be kept in mind and turned into strengths. Opportunities may balance conflicts, helping to smooth dialogue and relations between economies. **Good levels of cooperation, and technology and knowledge transfer help to improve bilateral relations.**

Evaluate benefits and cost-sharing

An important focus of TMSM must be to optimise the benefits of marine resource use, and to share those benefits in a manner that is agreed as fair. The *use* of marine resources, rather than an allocation of marine

resources ownership, provides by far the best scope for the identification of mutually beneficial cooperative actions.

Cooperation will be motivated and sustained if all TMSM parties agree that the plan maximizes overall benefits, and is ~~"f~~air". Therefore, the need to achieve consensus over basic entitlements and costs is important. In some cases, such consensus may involve very difficult trade-offs and choices.

An interesting example of how conflict can be overcome by TMSM is the ‗Arctic Cooperation Agreement' that was signed between Canada and the USA (please refer to case-study 6).

Possible areas of cooperation may offset conflicts and maximize synergies. **Cooperation, technology transfer, and the pursuit of common goals may help to overcome and manage conflicts** that initially appeared as obstacles to TMSM.

Transboundary Marine Biodiversity Conservation and Management Zones

Transboundary parks (TBPs) describe wildlife conservation areas with common international boundaries managed as a single unit by a joint authority comprising the representatives of participating countries. This version of transboundary management has been criticised for alienating local communities. It often appeals to traditional park managers and the urban middle classes who use protected areas for recreation and relate to 'parks' as a tool for conservation, without understanding the socio-economic implications.

Transboundary conservation areas (TBCAs) are cross-border regions where the different component areas have varying forms of conservation status, e.g. national parks; reserves allowing limited sustainable use, like recreational fishing and traditional gathering; and community-based natural resource management areas. Collaboration between these areas is not based on the creation of a single entity and is more cooperative than unitary in organisational structure. This type of transboundary collaboration emphasizes the linkage between public-sector managed protected areas and community managed multiple-use areas in a spatial approach that blends conservation and development objectives. The TBCA approach is more appealing to a constituency that feels that conservation and development goals must blend.

Transboundary Marine Protected Areas (MPAs) and MPA Networks

This is another common form of ecosystem-based transboundary cooperation although more frequently, transboundary MPAs have become incorporated as tools into larger, complex frameworks for marine management. MPAs tend to adopt a hard ecosystem-based management approach and usually require previous national or sub-national MPA legislation in order to be implemented (although this is not always the case).

Case-Study 9: The Arctic Cooperation Agreement: Overcoming legal disputes

The Northwest Passage in the Arctic has been the subject of disputes between Canada and other countries, including the United States of America. Canada recognises a section of the Northwest Passage as part of its internal waters, but other countries argue that these waters constitute an international strait.

The Arctic Cooperation Agreement, which was signed between USA and Canada in 1988, does not settle this issue, but acknowledges that such a dispute should not prevent cooperation to advance their shared interests in Arctic development and security. They agree that navigation and resource development in the Arctic should not negatively impact on the unique environment of the region or the well-being of its inhabitants. This agreement shows that operational considerations can overcome legal claims over marine waters, and that the recognition of mutual interests and responsibility may lead to practical cooperation and marine spatial management.

For example, USA and Canada agree to:

- Advance their shared interests in Arctic development and security;
- Promote safe, effective icebreaker navigation off their Arctic coasts; and
- Develop and share research information, in accordance with generally accepted principles of international law, in order to advance their understanding of the marine environment of the area.

Clause 4 of the agreement does not take any position regarding the dispute over Canadian sovereignty in Arctic waters, and calls for “cooperation endeavour”, even though the dispute is not settled:

“Nothing in this agreement of cooperative endeavour between Arctic neighbours and friends nor any practice thereunder affects the respective positions of the Governments of the United States and of Canada on the Law of the Sea in this or other maritime areas or their respective positions regarding third parties”.

Step 7: Identify national and international legal frameworks

International experience shows that although much can be achieved in the absence of a specific legal framework for marine spatial planning, a sound legal framework is essential for stable and reliable transnational cooperation. A comprehensive, harmonised legal basis for TMSM provides a more strategic, integrated and forward-looking foundation for all sea uses. Therefore, the identification of national and international laws, declarations, and agreements that are relevant to the TMSM initiative, is important.

Identify the existing national legislative framework

A good awareness of the existing national legislation for all parties that apply to the management of marine resources, environmental quality and economic activities at sea helps to provide a solid basis for TMSM development and implementation.

When assessing the national legislative framework the following questions should be answered:

- Are all areas of TMSM covered by national legislation?
- Are there any gaps in the national legislation that need to be filled to support TMSM?
- Does the national legislation integrate all principles of international treaties and conventions to which the economy is a Party?
- Are there conflicts between the national legislation of the transboundary parties?

The assessment of national legislation will **identify legislative amendments, changes or adaptations required to support TMSM**.

Identify the existing international legislative framework

At the international level, an extensive legal foundation relevant to marine resources management and sea use is already in place. International treaties and instruments that need to be taken into account for marine spatial planning include:

- United Nations Convention on the Law of the Sea (UNCLOS),1982;
- Chapter 17 of Agenda 21;
- 1995 Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities;
- The FAO Code of Conduct for Responsible Fisheries;

- The United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks;
- World Summit for Sustainable Development 2002;
- Convention on Biological Diversity (CBD) 1994;
- Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, 1986;
- Convention for the Protection of the Marine Environment and Coastal Area of the South-east Pacific 1981;
- Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR), 1980;
- Agreed Measures for the Conservation of Antarctic Fauna and Flora;
- Convention for the Conservation of Antarctic Seals 1972;
- Protocol on Environmental Protection to the Antarctic Treaty
- International Convention for the Regulation of Whaling (ICRW), 1946;
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention), London, 1972, and Protocol;
- International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78), 1973 and 1978;
- International Convention on Civil Liability for Oil Pollution Damage 1969 (1969 CLC), 1969, 1976 and 1984;
- International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1971 Fund Convention, 1971;
- International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea (HNS), 1996;
- International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC), 1990;
- International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties Intervention Convention, 1969;
- Convention on Import of Threatened or Endangered Species, 1963
- Convention of Ballast Water and Sediment, 2004

International requirements, i.e. treaties, to which each Economy is a Party and customary international law, influence national policies, and the legislative framework to be established for TMSM. **International treaties and soft-law instruments, conventions and treaties set a**

grounding for TMSM. However, specific transboundary management agreements need to be concrete and set out institutional arrangements for cooperation, measures for resources and activity management, protection of related ecosystems and enforcement. They should also incorporate dispute resolution mechanisms and identify clear yet flexible means to share the benefits of marine resources. Provision for joint monitoring, and information exchange can also be considered.

Establish a specific legislative framework for TMSM

Ideally, TMSM will be supported by binding legislation, whether existing or newly created, to ensure that management goals are clearly defined, expectations made explicit, responsibilities identified, and specific commitments backed by legal requirements. Should new, specific legislation be needed, the following should be taken into account:

- The national legislative requirements of the transboundary parties;
- The relevant international treaties; and
- The need to fill gaps in legislation to support TMSM.

The legal authority TMSM can be established in several ways:

- Create new legislation;
- Re-interpret existing legislation;
- Create new-provisions for TMSM, i.e. legislative amendment.

The creation of new dedicated legislation provides an opportunity to define a clear management authority and may avoid problems of application through the establishment of new institutional arrangements designated for TMSM. However, the creation of a new legislation can take time, is often inflexible, and may not take advantage of initial political support because of the extended time needed to bring it into force.

A re-interpretation of existing legislation, e.g. provisions for integrated coastal zone management or ecosystem-based management; laws for environmental protection, biodiversity; is less time-consuming as it does not require new legislative process and adoption. Existing laws related to marine use may be combined to provide a foundation for TMSM.

Finally, a TMSM legislative framework might be defined by proposing amendments to legislation currently underway, or legislation that will be considered in the near future. Such provisions must not conflict with existing legislation, nor detrimentally affect sectors and authorities covered by the initial laws.

Specific treaties can be made to effect transboundary management, such as the Torres Strait Treaty, between Australia and Papua New Guinea.

Complementary to legislative instruments, ~~-v~~oluntary implementation of **cooperative agreements**" are programs that usually take the form of

-declarations" or -agreements of intent" between governments. Such instruments are not legally binding and are not enforced, but rely upon political and moral commitment to keep cooperative momentum going. This model is often better fitted for programs where there are significant differences in the policy and legal structures of the cooperating jurisdictions. The success of these cooperation agreements also tends to depend on nurturing a shared sense of an international marine community. Voluntary agreements are more common among newer cooperative programs.

In the APEC Economies existing regional agreements and conventions (such as Regional Seas Programmes—NOWPAP, COBSEA), GEF Large Marine Ecosystem (LME) projects or NGO-driven management projects advance cross-sectoral TMSM, emphasising a closer dialogue between sectors[16]. However, an important challenge is to address larger-scale transboundary planning issues.

[16]Bensted-Smith and Kirkman, 2010

Case-Study 10: The Torres Strait Treaty: a specific legal instrument to manage a transboundary area

The Treaty between Australia and Papua New Guinea (PNG) concerning matters of sovereignty and maritime boundaries in the area known as the Torres Strait, and related matters, is commonly known as the 'Torres Strait Treaty'. The Treaty was signed in December 1978 and entered into force in February 1985. It defines the border between Australia and Papua New Guinea and provides a framework for the management of the common border area. Both Australia and Papua New Guinea have liaison officers, based respectively at Thursday Island and Daru, who consult regularly on implementation of the Treaty at the local level.

As well as defining the maritime boundaries between Papua New Guinea and Australia, the Treaty protects the ways of life of traditional inhabitants in the Torres Strait Protected Zone (TSPZ). Subsidiary management arrangements for commercial fisheries in the Zone have also been put in place under the Treaty. The Treaty is recognised as one of the most creative solutions in international law to a boundary problem touching on the lives of traditional inhabitants.

Traditional inhabitants from Australia and Papua New Guinea, in consultation with their governments, have agreed on the names of 13 PNG villages to have Free Movement privileges under the Treaty. A formal note from Australia acknowledging the full list of PNG villages, which have traditional ties with the Torres Strait Islands in the Protected Zone was exchanged with Papua New Guinea on 28 June 2000. Papua New Guinea exchanged its note with Australia on 25 July 2000, thereby confirming the understanding with effect from that date.

The Treaty also has an environmental protection dimension and was one of the earliest international agreements to reflect a greater environmental awareness. The environmental provisions of the Treaty are important for the well-being of the traditional inhabitants; for the preservation of traditional and commercial fisheries; and for protection of the fragile Torres Strait environment for its own sake. A ten-year prohibition on mining and drilling in the Torres Strait Protected Zone was agreed in the Torres Strait Treaty which entered into force on 15 February 1985. In 2008, Australia and Papua New Guinea Ministers agreed to an indefinite moratorium on mining and drilling in the Protected Zone.

Case-Study 11: The Agreement on Fishery Cooperation in the Tonkin Gulf between the Government of the People's Republic of China and the Government of the Socialist Republic of Vietnam

The Sino-Vietnamese Fisheries Agreement is the first in East Asia that establishes a cooperative fisheries management program within demarcated and permanent maritime zones. The agreement on fishery cooperation was signed in June 2004 between the Government of the People's Republic of China and the Government of the Socialist Republic of Vietnam. This agreement ends years of negotiation and debate over the rights of the respective states to resources in the Gulf. The agreement respects sovereignty within 12 nautical miles of the two parties.

A **Common Fishery Zone** created by the Agreement is located in the area 30.5 nautical miles in the exclusive economic zones either side of the demarcation line. It commits to the 'preservation, management and sustainable use of the living resources in the Common Fishery Zone', acknowledging 'the need for sustainable development and environmental protection, and the impact on the respective fishery activities of the two parties.'

Acknowledging the principle of equality and mutual benefit, the Parties commit to determine annually the number of operating fishing vessels for each party in the Common Fishery Zone, and to apply a permits scheme, determined by the Sino-Vietnamese Joint Committee for Fishery in the Tonkin Gulf. This **Joint Fishery Committee (JFC) for Tonkin Gulf** is the only body entitled to make rules and regulations for the Common Fishery Zone. It is a permanent body with full operational authority, including a dispute settlement mechanism. The competent national authorities are in charge of monitoring and inspecting the fishing vessels of both parties, in accordance with their domestic laws on the preservation and management of fishery resources. Enforcement is carried out by each coastal state within its EEZ boundary delimitation.

The agreement also includes a **buffer zone** for small-sized fishing boats. Many small-sized fishing boats near the China-Vietnam shoreline have limited communications and navigation equipment. Some are not even motorized. Illegal entry by mistake is inevitable and understandable. Hence, Chinese and Vietnamese negotiators decided to establish this buffer zone to avoid unnecessary disputes over unintentional illegal entry.

The agreement by China and Vietnam diminished the traditional fishing grounds for each country and reduced their fishing industry. Consequently, China embarked a program to scrap 30,000 fishing boats and relocate 300,000 fishermen by 2010. Each country has taken the painful steps necessary to shrink fishing grounds, cut back fishing fleets, and recycle redundant labour in order to conserve and manage a vital resource. Similar agreements have been signed between China, Korea and Japan.

Case-Study 12: The Northern Dimension (ND) Policy Framework

The Northern Dimension Policy Framework (NDPF) is a general framework that encompasses the regions of the Baltic Sea, North Sea, Barents Sea, and Arctic. It promotes dialogue and cooperation; strengthens stability and wellbeing; and promotes **economic integration, competitiveness and sustainable development** in Northern Europe. The NDPF also provides a **frame of reference for transatlantic cooperation** of the Northern Dimension partners in matters concerning the northern regions of the world, through the observer status of USA and Canada. It aims at enhancing **regional cooperation and improving synergies** between regional organisations in the North of Europe, maximising the use of available human and financial resources in the region. The NDPF focuses on areas of cooperation where a regional and sub-regional emphasis brings added value.

The **ND Principles are**: good governance, transparency and participation, sustainable development, gender equality, the rights of persons belonging to minorities, cultural diversity, social cohesion, fair working conditions and corporate social responsibility, non-discrimination, the protection of indigenous peoples and support the further strengthening of civil society and democratic institutions.

Cross-border cooperation is the cross-cutting theme of the ND, **Municipal and regional authorities** on both sides of land and sea borders are encouraged to engage in concrete **co-operation projects of mutual benefit**, to produce added value at the sub-regional and transnational level, and ensure sustainable regional development.

The **priority sectors** are: economic cooperation, freedom, security and justice, external security, research, education and culture, environment, nuclear safety, natural resources, social welfare.

The **institutional arrangements** are as follows: Northern Dimension **Ministerial meetings** gather the four partners at the level of Foreign Minister or equivalent every two years. Ministerial meetings provide policy guidance and monitoring to ND implementation. ND **Senior Officials Meetings** are held whenever necessary and may have a special theme for discussion on the agenda. Partners, observers and participants are invited to attend both types of meeting. Finally, a **Steering Group**, composed of representatives of the European Union, Iceland, Norway and the Russian Federation, was established at expert level and meets three times a year.

Step 8: Develop the TMSM plan

Develop the plan

As a precursor to development of a TMSM plan, the parties will need to agree on a vision, goals, objectives and principles for the designated marine space. These elements can be promulgated as a ‗Policy' document to guide subsequent planning. The development of such an initial policy articulation is very important as it classifies the outcomes that are sought and the standards that are to be met in pursuit of these outcomes.

A TMSM plan moves beyond the level of policy to outline: who the implementers will be, what they are expected to do, by when any identified milestones are to be achieved, how they will be measured, how much the activities will cost, and the anticipated challenges and obstacles to implementation. These six elements of the plan are the maximum required and maybe augmented with discussion on the proposed methodology for execution, avenues for cooperation, technology application and much more.

Another element to be described in a comprehensive TMSM plan is the **institutional arrangements** for communication between the parties, and monitoring and control of implementation. Moreover, as part of the implementation plan, the mechanism and procedures for enforcement, particularly across jurisdictional boundaries, are best outlined clearly in writing to avoid later misunderstandings.

The TMSM plan provides guidance for authorities on potential development possibilities and their sustainability. This is achieved especially through scenarios and models that demonstrate sustainable development and resource use. An important complementary instrument to the TMSM Plan is a ‗Marine Space Use Zonation Plan' that outlines where activities can or cannot occur and stipulates conditions and prerequisites for activities in the various zones. The ‗MSUZP' will also document any temporal restrictions to apply in the use zones. The purpose of the MSUZP is to minimise conflict from competitive use of the marine space and to ensure that activities are compatible with the environment in which they are to take place. The MSUZP will clearly designate any Marine Protected Areas and ecologically sensitive sites.

A marine spatial planning system will need to consider the following aspects:

- Biological and physical characteristics of the sea;
- Ecosystems and other natural systems and processes;
- Coastal and marine historical heritage;
- Community and cultural values;

- Current uses, activities and pressures for change;
- Future uses and opportunities for all interests and sectors;
- The nature, potential use and value of marine resources;
- Threats to the natural systems;
- Shared economic, cultural, social and environmental values;
- Existing monitoring management and enforcement arrangements and the extent that they will need to be adapted;
- Methods of assessing performance and consistency with the plan.

Develop incentives to support the plan

In order to support the TMSM plan, and ensure that the measures proposed are widely accepted and implemented, the use of incentives is recommended.

Incentives are of different nature:

- Economic incentives: can be positive, i.e. grants offered to develop certain activities or to finance research projects in a specific area; or negative, i.e. application of fees to enter marine parks, fines for not respecting regulations, permit fees, etc.
- Regulations: e.g. quotas for fishing licenses, permits to conduct diving operations in special areas, access rights to heritage sites.
- Education: e.g. implementation of new education programmes, sponsorship for degrees and training to develop skills and capacities in a priority sector, e.g. renewable energy, ecotourism.

Identify the authorities for implementation

The plan must also specify which authority or groups of authorities will be in charge of the different measures for the implementation of the plan. Some authorities may work jointly on some measures, others will work independently, but in any case, those authorities must be carefully coordinated, to ensure that their actions are coherent with the management plan.

Evaluate the plan

The evaluation mechanisms for a TMSM plan vary from one instance to another. Environmental Impact Assessment (EIA) studies may be required to validate the plan, and ensure that it will achieve the intended objectives without further deteriorating existing economic and environmental conditions. These types of studies help to ensure that environmental considerations are taken into account in the planning process, and are not subordinated to economic considerations, which often have the highest priority.

Approve the plan

Finally, once the plan has been drawn and evaluated, it has to be approved. Ideally, approval will require a formal adoption process, i.e. the approval of:

- The plan, its vision, goals, objectives and principles;
- The related institutional arrangement(s);
- The allocated staff and expertise;
- The budgetary allocations.

Upon formal approval of the plan, the implementation phase can begin.

Step 9: Finance the plan

Effective development and management of transboundary marine resources, increasingly widely understood as an international and common public good, require appropriate financing.

The costs of developing a legal framework and non-binding agreements, establishing institutions, developing capacity, monitoring, data-sharing, and (most costly of all) long-term investment programs that optimise sustainable equitable use of designated area are substantial.

In most cases, investment needs exceed the resources available to the transboundary Economies; therefore, various financing mechanisms need to be considered.

A mixture of financing mechanisms and various sources of financial resources are typically used for TMSM cooperation. These include funds from: national budgets; inter-governmental organisations; international development banks, e.g. World Bank, Asian Development Bank; the United Nations; multilateral funds, e.g. Global Environment Facility); NGOs; and the private-sector, often through public-private partnership.

Other innovative financing schemes, e.g. regional revolving funds, environmental management levies, marine-park access fees, could be considered as options for sustainable financing of transboundary marine space management institutions. However, these require strong political support, good governance and appropriate institutional structures.

Step 10: Implement and enforce the plan

Implement the TMSM plan

The implementation phase turns the measures of the plan into actions and reality. Implementation is undertaken by the relevant participants and authorities designated in the plan.

Although a TMSM plan will provide for an integrated management plan, the existing institutions, and governance model will dictate a continuation of sectoral management to a certain extent. Therefore, coordination mechanisms across boundaries and between institutions are of crucial importance. In this regard, the zoning plan is useful to ensure that sectoral measures and activities are consistent with the overall TMSM Plan.

Enforce the TMSM plan

Enforcement actions can include:

- Field inspections to check that regulations and initiatives defined in the plan are respected, and that planning assumptions actually describe the real situation.
- Legal action, i.e. legal pursuit of parties who do not respect the regulations, with appropriate punishment, including compensation for violations;
- Negotiations with those responsible for the activities to encourage them to comply with laws and regulations, explaining the possible consequences if they do not comply.

The private sector may also participate in enforcement efforts by defining sectoral rules or corporate policies and regulations that are in accordance with the TMSM plan.

Enforcement is an important aspect of successful implementation. TMSM will often require cultural, organisational, and sectoral changes in behaviour and management practices. There is likely to be resistance to change; therefore the good will of parties alone cannot be relied upon to ensure success of implementation.

Step 11: Monitor and evaluate implementation

Throughout the implementation process, the TMSM efforts should be monitored, for compliance with the plan, i.e. collect data and information that will allow assessment of the outcomes and management interventions. Monitoring is a continuous process.

Effective monitoring and evaluation require the following actions:

- **Select indicators that are flexible to conditions in the area** and that match the goals and targets of the management plan. The relationship between indicators needs to be known and they should cover the essential aspects of the plan;
- **Evaluation**: Evaluation reports should be a written document to ensure transparency and allow for future historical benchmarking. The evaluation should include financial accounting calculated in comparison with the approved budget for resources, time and funds. Evaluation reports should state clearly who is responsible for conduct of the evaluation, and who has access to the report. In a transboundary context, there may be reluctance by parties to reveal inadequacies or under performance to foreign or cross-border partners. Extra effort will possibly be needed to assure all participants that the purpose of evaluation is not to pass judgment but to identify areas for improvement and possibly additional resources. Nevertheless, TMSM partners should be aware that there may still be a tendency to exaggerate results or omit potentially embarrassing shortcomings.
- **Assess the management plan**: How well has practical implementation been achieved? Are any deficiencies the result of incorrect planning assumptions or overly ambitious targets? This assessment is conducted so that the results can inform future adaptation planning.

Re-establish the goals of the plan

The assessment of the plan should be made against its vision, goals and objectives. Importantly, the goals used for the evaluation of the outcomes of the TMSM plan must be those outlined in the plan. Should these goals appear dated or no longer relevant, steps must be taken to amend the plan formally rather than allowing an informal consensus on some non-documented goals to drive TMSM activities.

Example 7: ICOM indicators

In the UNESCO *"Handbook for measuring the progress and outcome of integrated coastal and ocean management"* (ICOM), three types of indicators have been defined:

Governance indicators: measure the performance of programme components, e.g., status of ICOM planning and implementation, and the progress and quality of interventions and of the ICOM governance process itself;

Ecological indicators: reflect trends in the state of the environment. They are descriptive in nature if they describe the state of the environment in relation to a particular issue, e.g., eutrophication, loss of biodiversity or over-fishing. They become performance indicators if they compare actual conditions with targeted ecological conditions;

Socio-economic indicators: reflect the state of the human component of coastal and marine ecosystems, e.g., economic activity. They help measure the extent to which ICOM is successful in managing human pressures in a way that results in an improved natural environment, in improved quality of life in coastal areas, and in sustainable socio-economic benefits.

Select the outcomes to evaluate

Evaluation of the outcomes enables identification of those measures in the plans that were successful and unsuccessful. A clear record of success and failure is important to **build transparency and accountability into the management process**.

Develop Key Performance Indicators (KPI)

Indicators are quantitative or qualitative measures of observed parameters that can be used to describe existing situations and measure changes or trends over time. Their three main functions are simplification, quantification and communication[17].

Indicators generally simplify complex phenomena that can be shown to represent the total system being managed. Preferably, they can be used to quantify parameters for monitoring and assessment. Indicators can also be used as simplified means of communicating information to policy-makers and other interested parties, including the general public. They are powerful tools in the feedback loop to an action plan.

Key Performance Indicators (KPI), measure the effectiveness of planning measures against the goals and objectives of the plan. KPI enable monitoring of progress of the plan, the areas where objectives

[17]UNESCO, 2006, *A Handbook for measuring the progress and outcomes of integrated coastal and ocean management,* p88.

are fulfilled, and those where modifications of management measures will be necessary, because the initial measures have failed.

The KPI should be linked explicitly to the goals and objectives identified for TMSM.

The following **characteristics** for TMSM indicators should be considered:

- Readily measurable: On time-scales needed to support management, using existing instruments, monitoring programmes and available analytical tools;
- Cost effective: Indicators should be cost-effective since monitoring resources are usually limited;
- Concrete: Indicators that are directly observable and measurable (rather than those reflecting abstract properties) are desirable because they are more readily interpretable and accepted by diverse stakeholder groups;
- Interpretable: Indicators should reflect properties of concern to stakeholders; their meaning should be understood by as wide a range of stakeholders as possible;
- Objective: The interpretation and measurement of the indicators should follow accepted theories of scientific method;
- Sensitive: Indicators should be sensitive to changes in the properties being monitored, e.g., able to detect trends in properties or impacts;
- Responsive: Indicators should be able to measure the effects of management actions so as to provide rapid and reliable feedback on the consequences of interventions;
- Specific: Indicators should respond to the properties they are intended to measure rather than to other factors;[18]

Determine the current situation: baseline

Good indicators have the following **characteristics**:

- Readily measurable;
- Cost effective;
- Concrete;
- Objective;
- Sensitive;
- Responsive;
- Specific.

The baseline corresponds to the initial state, i.e. the status against which subsequent evaluation of the TMSM plan will be made. The first measurements will provide a baseline from which performance can be assessed as future KPI results are known.

[18] *Ibid.*, p11.

Example 8: Governance indicators for ICOM

Goals	Objectives	Code	Indicators
Ensuring adequate, institutional, policy and legal arrangements	Ensuring the coordination and coherence of administration and policies	G1	Existence and functioning of a representative coordinating mechanism for ICZM
	Supporting integrated management through adequate legislation and regulations	G2	Existence and adequacy of legislation enabling ICZM
	Assessing the environmental impacts of policies, plans, programmes and projects	G3	EIA, SEA and CCA procedures for plans, programmes and projects affecting coastal zones
	Resolving conflicts over coastal space and resources	G4	Existence and function of a conflict resolution mechanism
Ensuring adequate management processes and implementation	Managing the coastline through integrated plans	G5	Existence, status and coverage of ICOM plans
	Implementing and enforcing ICOM plans and actions	G6	Active management in areas covered by ICOM plans
	Routinely monitoring, evaluating and adjusting ICOM efforts	G7	Routine monitoring, evaluation and adjustment of ICOM initiatives
	Supporting ICOM through sustained administrative structures.	G8	Sustained availability and allocation of human, technical and financial resources for ICOM, including the leverage of additional resources
Enhancing information, knowledge, awareness and participation	Ensuring that management decisions are better informed by science	G9	Existence, dissemination and application of ICOM-related scientific research and information
	Ensuring sustained support from engaged stakeholders	G10	Level of stakeholder participation in, and satisfaction with, ICOM decision-making processes
	Ensuring non-governmental organisation (NGO) and community-based organisation (CBO) involvement	G11	Existence and activity level of NGOs and CBOs supportive of ICOM
	Ensuring adequate levels of higher education and professional preparation for ICOM	G12	Incorporation of ICOM into educational and training curricula and formation of ICOM cadres
Mainstreaming ICOM into sustainable development; Economic instruments mainstreaming	Enabling and supporting ICOM through technology, including environmentally friendly technology	G13	Use of technology, including environmentally-friendly technology, to enable and support ICOM
	Incorporating economic instruments into coastal management policies	G14	Use of economic instruments in support of ICOM
	Mainstreaming coastal and ocean management into sustainable development	G15	Incorporation of ICOM into sustainable development strategy

Source: UNESCO-IOC, Handbook for Measuring the progress and outcome of the Integrated Coastal and Ocean Management', p18

Example 9: Ecological indicators for ICOM

Goals	Objectives	Code	Indicator
Organization: Conserve the ecosystem structure — at all levels of biological organization — so as to maintain the biodiversity and natural resilience of the ecosystem	Maintaining biodiversity	E1	Biological diversity
	Maintaining species distribution	E2	Distribution of species
	Maintaining species abundance	E3	Abundance
Vigour: Conserve the function of each component of the ecosystem so that its role in the food web and its contribution to overall productivity are maintained	Maintaining primary production and reproduction	E4	Production and reproduction
	Maintaining trophic interactions	E5	Trophic interactions
	Maintaining moralities below thresholds	E6	Mortality
Quality: Conserve the geological, physical and chemical properties of the ecosystem so as to maintain the overall environmental quality	Maintaining species health	E7	Species health
	Maintaining water and sediment quality	E8	Water quality
	Maintaining habitat quality	E9	Habitat quality

Source: UNESCO-IOC, 2006, _Handbook for measuring the progress and outcome of the Integrated Coastal and Ocean Management', p30.

Example 10: Socio-economic indicators for ICOM

Goals	Objectives	Code	Indicators
A healthy and productive economy	Maximise economic development	SE1	Total economic value
		SE2	Direct investment
	Increase employment	SE3	Total employment
	Foster economic diversification	SE4	Sectoral diversification
A healthy and productive environment	Minimise habitat destruction and alteration from human pressures	SE5	Human pressures on habitats
	Reduce the volume of introduction of all types of pollutants	SE6	Pollutants and introductions
Public health and safety	Protect human life, and public and private property	SE7	Disease and illness
		SE8	Weather and disaster
Social cohesion	Maintain equitable population dynamics	SE9	Population dynamics
		SE10	Marine dependency
		SE11	Public access
Cultural Integrity	Maintain cultural integrity	SE12	Traditional knowledge, innovations and practices / Cultural integrity
		SE13	Protection of cultural heritage resources

Source: UNESCO-IOC „Handbook for Measuring the progress and outcome of the Integrated Coastal and Ocean Management", p39.

Evaluating the progress of TMSM

The evaluation process is a periodic activity that can be conducted at regular intervals using the KPI to assess progress of TMSM implementation against the stipulated goals and objectives.

The KPI may be used to perform three **types of evaluation**:

- **Performance evaluation**, focusing on achievements and efficiency in relation to stated goals and objectives;
- **Management capacity evaluation**, focusing on the adequacy of institutional structures and arrangements; and
- **Outcome evaluation**, focusing on implementation results and effectiveness against planned outcomes.

The evaluation of results will help to answer the following questions:

- **Context:** what is the general position towards the TMSM goals?
- **Planning:** What are the specific objectives to be achieved, and which measures would be the most appropriate?
- **Inputs:** What are the resources (financial, human resources, time) that actually will be needed for TMSM implementation?
- **Process:** Which means are likely to be effective to reach the objectives?
- **Outputs:** What are the most realistic estimates of results of TMSM implementation?

Table 2: Examples of measurements that might be used to assess TMSM performance

Measure	Example
Amount	Number of habitats, species, individuals or complaints over a decision
Area, size	Coverage of habitat or uses in an area, species distribution
Depth	Depth distribution of macro-algae, photic layer
Distance, location	Distance, location of a sensitive feature to MPA, from source of pressure
Duration	Period when a feature is most sensitive, e.g. reproduction, spawning period
Frequency	Frequency of vessels per unit time in an area
Length	Length of developed coastline, of erosion-sensitive shoreline in an area
Magnitude	How much of a given pressure
Overlap	Assessing the vulnerability of a sensitive feature, proportion of target features that are inside a specific zone (protection status)
Volume	Volume of water suitable for aquaculture

Report the results

A TMSM Evaluation Report should contain:

- The results of the evaluation;
- Areas of failure;
- Areas of success;
- Management measures that failed;
- Management measures that succeeded.

The evaluation report will be used for the re-planning process that is described in the next section.

The results of the evaluation should also be communicated, to explain any modifications in the plan.

Step 12: Adapt the plan

The TMSM process is a continuous and adaptive process.

TMSM involves, numerous challenges, such as continuous changes in people‘s demands and values, structural transformation in society and environment, abnormal climatic events and other exogenous shifts.

As the implementation of an initial TMSM plan will induce positive and negative outcomes (positive outcomes achieve or get closer to the stated objectives; negative outcomes do not reach or achieve the objectives) and will generate changes in the conditions of the marine space, the TMSM plan must be constantly evaluated and adapted.

An agreed time should be stipulated for formal adaptation of the original TMSM plan with a view to engendering acceptance and understanding that TMSM is never ‗completed‘. There are always new challenges and opportunities to overcome or pursue respectively. Nevertheless, with iteration of planning and implementation, the relevant institutions, governance structures and foundation, data should become more mature, which will enable gains in efficiency and effectiveness.

Conclusion

As the world shrinks in response to increased demands on marine natural resources, technology advances and global climate change impacts, the need for effective TMSM will grow. Such will especially be the case in the APEC region, which is linked by ocean.

This Guide to TMSM outlines a range of considerations for transboundary marine space managers in the form of twelve ‚Steps'. Nevertheless, each area and instance of TMSM will vary; therefore the sequence and emphasis of the identified measures may differ from that outlined in this Guide. Planners and managers need to remain flexible in their approach and draw upon the examples and advice offered with an open mind and creative disposition.

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