

## Guidelines for PICES Temporary Expert Groups

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### 1. Introduction

The purpose of this document is to provide guidelines for the creation of PICES Working Groups, Study Groups, Sections, Task Teams and Advisory Panels, and to describe the duties and responsibilities of the Chairman (or Co-Chairmen) and the members of these groups. It outlines necessary tasks and working procedures and provides advice on the organization and completion of tasks in order to facilitate the work of the North Pacific Marine Science Organization (PICES). Many of these guidelines were adapted from three documents published by PICES or the International Council for the Exploration of the Sea (ICES): "North Pacific Marine Science Organization – Rules of Procedure", "Matters of practical interest to Chairmen of PICES Groups and Session Convenors" and "Guidelines for Chairs of ICES Committees and Expert Groups".

### 2. Group Definitions

A *Working Group* is a group of scientists, generally established by a Scientific Committee, with the endorsement of the Science Board and approval of the Council, for a period of typically three years, to undertake specific terms of reference and to report to the Organization on their findings. A *Working Group*:

- (a) shall consist of members appointed by the Contracting Parties, after considering any recommendations concerning membership by the Science Board;
- (b) shall establish Co-Chairmen, according to Rule 17 in the PICES Rules of Procedure;
- (c) shall be disbanded either after preparing their final report, or, as determined by the Science Board, for inadequate progress in achieving their tasks.

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A **Study Group** is established by the PICES Council, or an Executive Committee, with the approval of the Council, for a period not normally exceeding one year. It has specific terms of reference to consider any scientific, policy, advisory and/or financial issue of interest to the Organization and to provide recommendations thereon. A **Study Group**:

- (a) shall normally consist of members appointed by the Contracting Parties, and by the Council;
- (b) shall establish one Chairman according to Rule 17 in the PICES Rules of Procedure;
- (c) shall be disbanded after submitting their final report and recommendations.

A **Section** is an ongoing sub-committee established by a Scientific Committee, with the endorsement of the Science Board and approval by the Council, to consider in greater detail, topics of sufficient general importance to the Organization to warrant ongoing attention, but only when sufficient expertise is lacking on a Scientific Committee. A **Section**:

- (a) shall consist of members appointed by the Contracting Parties, after considering any recommendations concerning membership by the Science Board;
- (b) shall establish Co-Chairmen according to Rule 17 in the PICES Rules of Procedure;
- (c) be responsible to, and be reviewed regularly by the parent Scientific Committee.

A **Task Team** is a group of scientists established with the endorsement of the Science Board and approval by the Council with a specific focus to conduct the work of a Scientific Program. A **Task Team**:

- (a) shall consist of members, appointed by the Contracting Parties;
- (b) shall establish Co-Chairmen according to Rule 17 in the PICES Rules of Procedure.

An **Advisory Panel** is a group of scientists established with the endorsement of the Science Board and approval by the Council to coordinate and provide scientific advice on a field or experimental activities of a Scientific Committee or Scientific Program. An **Advisory Panel**:

- (a) shall consist of members appointed by the Contracting Parties, after considering any recommendations concerning membership proposed by the Science Board;
- (b) may, with the endorsement of the Science Board and approval of the Council, include *ex officio* members from other organizations and/or non-Contracting Parties;
- (c) shall establish Co-Chairmen according to Rule 17 in the PICES Rules of Procedure;
- (d) shall be disbanded after the work is complete.

### 3. Group Creation

The first step in creating any of these groups is drafting the terms of reference (TOR) and there are several ways that this can be done. Three successful approaches are:

- (a) organizing a special session or workshop at a PICES Annual Meeting wherein the problem(s) of study is discussed and the TOR are drafted;
- (b) having an individual draft the TOR and post them on the PICES website for comment;
- (c) having an individual draft the TOR and present them to the supporting committee for modification and approval.

In each case, the outcome needs to be the TOR that have been approved by at least one supporting committee. Once this is done, the proposal can be forwarded to the Science Board for their endorsement.

### 4. Terms of Reference

The TOR should either be linked to the PICES Strategic Plan and/or the supporting Committee's Action Plan, or identify and fill a gap in one of those plans. These TOR need to be clear, focused, and achievable within the lifetime of the group. See links within [http://www.pices.int/members/working\\_groups/default.aspx](http://www.pices.int/members/working_groups/default.aspx) for some TOR examples. The expert group life span, often three years, should be specified as part of the TOR. The TOR must be approved by the Science Board.

## **5. Membership and Chairmen or Co-Chairmen**

Potential expert group members are usually, but not always, suggested by the group organizers. There should be at least one member from each of the PICES Contracting Parties, and in cases when the organizers have not suggested members from a country, the respective national delegates are requested to do so. All members need to be approved by their respective national delegates, and these delegates are not bound to follow the suggestions of the group organizers. However, the Contracting Parties are obliged to ensure that:

- a) the members they approve are committed to working toward the goals of the group, and
- b) there is funding for the members to attend group meetings and workshops. The number of members in an expert group typically ranges between fifteen and twenty-four.

A Chairman or Co-Chairmen is/are recommended by the Science Board for approval by the Council and shall assume office when group membership has been confirmed by the Executive Secretary. They are often, but not always, the organizers of the group. With the exception of Sections, a Chairman or Co-Chairmen usually serve(s) for the lifetime of the group. As is the practice with most PICES bodies, it is recommended that if there are two Co-Chairmen, they be from opposite sides of the Pacific. If group members need to be replaced, either by their own choosing or if the Chairman/Co-Chairmen feel they are not contributing to the group activities, the Chairman/Co-Chairmen must notify the respective national delegates and the PICES Secretariat, and if possible recommend replacements.

## **6. Group Activities**

Groups are free to set their own schedule for activities. They usually have meetings or workshops at the time of the PICES Annual Meeting (as most members will be attending) and often schedule at least one other meeting between these sessions. The PICES Secretariat can provide support to help organize these activities. Expenses for group members to attend PICES Annual Meetings have to come from national sources. Requests to provide partial funding to support the travel costs of invited speakers to meetings/workshops (either annual or inter-sessional) should be made annually through the supporting PICES Committee and must be approved by the Science Board. Additional funds to cover inter-sessional meeting/workshop expenses and to carry out the research specified in the TOR need to be raised by the group members, either by submitting proposals to national or international agencies, or from available resources at their home institutions.

Regular electronic communication among members is a key for the group to be effective. The PICES website maintains e-mail address lists for each expert group and has created a facility for sending correspondence to all group members. In addition, a password-protected web page can be created to facilitate the exchange of opinions, files and data.

## **7. Deliverables**

Expert groups must submit annual reports that will be included in the PICES Annual Report. If they hold inter-sessional meetings or workshops, it is also recommended that they submit an article for the PICES Press newsletter and consider publication of a report in the PICES Scientific Report series. A final report must also be submitted at the end of the expert group's lifetime and this is usually reviewed and published as a formal PICES publication (Annual or Scientific Report, book, or brochure).

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### 8. Financial Support for Research

Though PICES can provide funding to support some travel to, and infrastructure to help organize, workshops, it does not provide funding to carry out the research itself. If such funding is needed, it must be found from international or national organizations, usually through a proposal process.

### 9. Responsibilities and Functions of the Chairman or Co-Chairmen

The Chairman or Co-Chairmen of Working Groups, Study Groups, Sections, Task Teams and Advisory Panels should:

- preside over meetings of the group concerned and regulate their procedure, and assign an appointment to draft minutes;
- prepare an agenda for each meeting of the group, and circulate to all members before the meeting;
- ensure the successful completion of the TOR of the group within the timeframe approved by the Governing Council;
- maintain good communication among members;
- maintain good communication with the parent Committee(s) by:
  - preparing written progress reports for their parent Committee (at most twice annually),
  - attending meetings of the parent committee(s), as required;
- plan and implement activities of the group;
- provide a final draft agenda to the Secretariat at least one month before the meeting;
- Prepare final reports to the parent Committee(s) for review at the end of the assignment. Typically, these are published as a PICES Scientific Report.

### 10. Collaboration with Outside Organizations

Though not necessary, collaboration with organizations outside PICES is encouraged. This provides a wider perspective for the research, the opportunity for joint activities, and in some cases the opportunity to access additional resources.

### 11. Key Ingredients to a Successful Expert Group

At the inter-sessional PICES Science Board Meeting in April 2005, Dr. Michael Foreman was asked to prepare an assessment report of previous PICES expert groups. Letters were sent to all past and present Chairmen or Co-Chairmen (Appendices 1 and 2) asking them to address the following issues: i) specific successes, failures and impacts of the group; ii) the overall expert group concept, processes, procedures and how they could be improved; iii) the influence of the expert group on the direction of the science that was its focus; iv) the key ingredients for a successful expert group; and v) other relevant comments. A summary of the results was presented at the Science Board Meeting at PICES XIV and is given in Appendix 3. For comparative purposes, Bjorn Sundby's evaluation of SCOR Working Groups is included as Appendix 4.

In particular, the key ingredients for a successful working group were found to be:

- a) *A clear mandate,*
- b) *Resources (funding and time),*
- c) *Collaboration with other organizations outside PICES,*
- d) *Leadership,*
- e) *Enthusiasm,*
- f) *Active and dedicated members,*
- g) *Frequent communications.*

## Appendix 1: Expert Group Survey Recipients

		Position	E-mail address
1	Lynne D. Talley	WG 1 Chairman	ltalley@ucsd.edu
2	Richard Addison	WG 2 Chairman	rfaddison@saltspring.com
3	Tokio Wada	WG 3 Co-Chairman, WG 16 Co-Chairman, REX Co-Chairman	wadat@affrc.go.jp
4	John R. Hunter	WG 3 Co-Chairman	John.Hunter@noaa.gov
5	Stewart McKinnell	WG 4 Co-Chairman	mckinnell@pices.int
6	Al. Tyler	WG 5 Chairman	tyler@sfos.uaf.edu
7	Brent Hargreaves	WG 6 Co-Chairman	hargreavesb@dfo-mpo.gc.ca
8	Takashige Sugimoto	WG 6 Co-Chairman	sugimoto@ori.u-tokyo.ac.jp
9	Paul H. LeBlond	WG 7 Co-Chairman	leblond@gulfislands.com
10	Masahiro Endoh	WG 7 Co-Chairman	endoh@ccsr.u-tokyo.ac.jp
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12	John Stein	WG 8 Co-Chairman	John.E.Stein@noaa.gov
13	Kimio Hanawa	WG 9 Co-Chairman	hanawa@pol.geophys.tohoku.ac.jp
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17	Hidehiro. Kato	WG 11 Co-Chairman, MBM-AP Co-Chairman	katohide@affrc.go.jp
18	George.L. Hunt, Jr.	WG 11 Co-Chairman	glhunt@uci.edu
19	Vitaly E. Rodin	WG 12 Co-Chairman	root@tinro.marine.su
20	Robert S. Otto	WG 12 Co-Chairman	Robert.S.Otto@noaa.gov
21	Yukihiro Nojiri	WG 13 Co-Chairman WG 17 Co-Chairman	nojiri@nies.go.jp
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30	Ik-Kyo Chung	WG 18 Co-Chairman	ikchung@pusan.ac.kr
31	Carolyn S. Friedman	WG 18 Co-Chairman	carolynf@u.washington.edu
32	Glen Jamieson	SG & WG 19 Co-Chairman	JamiesonG@pac.dfo-mpo.gc.ca
33	Chang-Ik Zhang	SG & WG 19 Co-Chairman	cizhang@pknu.ac.kr
34	Ian Perry	NP Ecosystem Status Report, MODEL Co-Chairman, Science Board Chairman	perryi@pac.dfo-mpo.gc.ca
35	Jacquelynne R. King	FERRRS Chairman	KingJac@pac.dfo-mpo.gc.ca
36	Patricia Livingston	Science Board Chairman	Pat.Livingston@noaa.gov
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		<b>Position</b>	<b>E-mail address</b>
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49	Anne B. Hollowed	REX Co-Chairman	Anne.Hollowed@noaa.gov
50	William T. Peterson	REX Co-Chairman	Bill.Peterson@noaa.gov
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52	Kaouru Nakata	MONITOR Co-Chairman	may31@affrc.go.jp
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54	Yasunori Sakurai	MONITOR Chairman	sakurai@fish.hokudai.ac.jp
55	Phillip R. Mundy	MONITOR Co-Chairman	mundy@gci.net
56	Charles B. Miller	CPR-AP Chairman	cmiller@coas.oregonstate.edu
57	C.S. Wong	IFEP Co-Chairman	WongCS@pac.dfo-mpo.gc.ca
58	Shigenobu Takeda	IFEP Co-Chairman	atakeda@mail.ecc.u-tokyo.ac.jp
59	William J. Sydeman	MBM Co-Chairman	wjsydeman@prbo.org
60	Evgeny Pakhomov	MIE Co-Chairman	epakhomov@eos.ubc.ca
61	Orio Yamamura	MIE Co-Chairman	orioy@fra.affrc.go.jp
62	Harold Batchelder	CCCC Co-Chairman	hbatchelder@coas.oregonstate.edu
63	Suam Kim	CCCC Co-Chairman	suamkim@pknu.ac.kr

## Appendix 2: Sample Letter Sent to Chairmen/Co-Chairmen of Expert Groups

North Pacific

June 13, 2005

Marine Science

Prof. Paul H. LeBlond  
leblond@gulfislands.com

Organization



Dear Paul:

The Science Board of the North Pacific Marine Science Organization (PICES) is in the process of evaluating the performance of its working groups, study groups, and task teams. As you were the Co-Chairman of WG 7 on the **Modeling of the subarctic North Pacific circulation**, we welcome your comments on the successes, failures, and impacts of that group, as well as the overall working group concept and processes.

We are also interested in your opinions on the influence that WG 7 had on the direction of the science that was its focus. In other words, what were the less tangible results of the groups' activities and publications, such as the opening of new areas of research, or the development of new research collaborations, specific new research programs, or related publications by other groups? Please consider any international and/or national results of which you are aware. Your response does not need to be long (e.g., one page or shorter), but please be specific. This information will be used to help PICES examine how its working groups have influenced different disciplines of oceanography and should help us plan for the success of future working groups. In this latter regard, we are also interested in your thoughts on how the working group processes and procedures could be improved and what you feel are the key ingredients for a successful working group.

I will be providing a summary of your responses, along with those from other working group leaders, to the PICES Science Board at our next annual meeting in Vladivostok in early October. In order to allow sufficient time to compile and organize the survey results, I would appreciate a response (via mail, fax, or email) by **August 1, 2005**. Please cc this response to Julia Yazvenko at the PICES secretariat.

PICES thanks you for previous and continuing contributions to North Pacific marine science and in particular, for assistance in this survey.

Sincerely,

Michael Foreman  
Chair, Physical Oceanography and Climate Committee  
North Pacific Marine Science Organization  
foremanm@pac.dfo-mpo.gc.ca  
Fax: 250-363-6746

### Secretariat

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### Chairman

Vera Alexander

### Vice-Chairman

Tokio Wada

### Executive Secretary

Alexander S. Bychkov

**Appendix 3: PICES Expert Group Assessment Report, September 8, 2005**

On June 13, 2005, sixty-three letters were sent out to past and present Chairmen or Co-Chairmen of PICES Working Groups, Study Groups, Task Teams, and Advisory Panels. A sample letter and the complete list of the recipients are included as Appendices 1 and 2. As of August 15, 2005 twelve replies were received. They have not been included here as one participant requested confidentiality. A summary of the responses, with reference to the specific questions that were posed, follows.

**1. Specific successes, failures, and impacts of expert Groups**

1. Symposia, workshops, reports, books: Almost all responses listed one or more of these as a notable success. Workshops enhanced continuing collaboration among participants (WG2, Addison).
2. The Batchelder letter listed numerous successes for each of the four CCCC task teams: REX, BASS, MONITOR, and MODEL.
3. Not all of the PICES member nations were actively involved in all group activities. The non-participation in the early stages of CCCC will probably mean that an education, outreach and training effort will be needed in the future (Batchelder).
4. The most notable success of WG14 was the spinoff of the Micronekton Intercalibration Advisory Panel which conducted a successful international cruise and is planning another. In collaboration with other groups, two Symposia were held and proceedings published.
5. WG14 brought in some people who had not previously been involved with PICES and now they are active members of the organization.
6. The most valuable success of the MODEL Task Team is the NEMURO model (Ito). This includes NEMURO.FISH (with REX), a version coupled to ECOPATH/ECOSYM (with BASS, and another coupled with a population dynamics model to provide biomass estimates. A failure might be the lack of strong contributions from several PICES countries until the last year. This failure is mainly caused by the different interests within PICES countries; U.S., Canada and Japan are interested in the open ocean, but other countries are more interested in their marginal seas.
7. The WG 7 report was a realistic summary of the state of the art in numerical modeling of the North Pacific at that time and set realistic constraints to the ecological modeling dreams of the CCCC Program. The Working Group participants developed lasting contacts and learned from each other in the process of exchanging information and preparing a report (LeBlond).
8. WG 4 recommended that its objectives were more clearly suited to an ongoing organizational entity within PICES, and GC/SB established the first Technical Committee on Data Exchange (TCODE).
9. PICES distributed a publication (Department of Fisheries and Oceans (Canada) Technical Report) containing previously unpublished, detailed Station Papa zooplankton data (WG 4, McKinnell).
10. The Science Board and the North Pacific Ecosystem Status Report Working Group were very successful – the former for collectively providing a scientific leadership role and perhaps a sense of direction, forward momentum, and a shared goal for PICES science, and the latter for building a group of talented and capable scientists also with a shared goal and the enthusiasm to develop something new (Perry).
11. The successful aspect of the MODEL Task Team is that it made a substantial progress in defining a lower trophic model structure and developing codes. The lower trophic model has been named “NEMURO”, which includes a maximum of 15 compartments. The NEMURO model is gaining visibility among researchers interested in ecosystem responses to climate forcing as well as in the modeling community (Yoo).
12. The unsuccessful side of MODEL is that it did not catch up with the CCCC timeline. CCCC will be 10 years old in 2006 and is now in its concluding phase. The methods to couple the LTL and



HTL have been studied for the past years by the Task Team. Although there was some progress but the results are not yet fully applicable (Yoo).

13. Participation at the last WG19 meeting in 2004 was not so satisfactory; only a few members attended. No members participated from three countries (Zhang).

## **2. Overall expert group concept, processes, procedures and how they could be improved**

1. *Active Participation of all Members:* The overall Working Group concept is good but PICES and the member nations need to ensure that all members of the Working Group come to the meetings and actively participate in activities, including reports (Brodeur).
2. *Continued Participation:* Many in WG 5 felt that there was no direct place for them in organized activities of PICES after the Working Group dissolved. Most continued to attend PICES meetings when they could get funding, and they contributed research papers. But the Bering Sea ceased to be a focus of any group within PICES (Tyler).

## **3. Influence of the expert group on the direction of the science that was its focus**

1. Discussions and collaborations stimulated interest in topics that otherwise would not have been viewed as a high priority by some member countries (Addison).
2. Though not all the original CCCC proposals were achieved, CCCC has significantly advanced, either directly or indirectly, our understanding of the impacts of climate variability on marine organisms and productivity of the North Pacific, and some of the mechanisms involved (Batchelder).
3. Most PICES Working Groups spend their time consolidating information from various countries on a topic of interest and do not make significant advances in science direction. It is important for Working Groups to spend their initial time together because it helps them have a common frame of reference with regard to what is presently known or not known about their topic of interest. If Working Groups had more time to work beyond this initial phase of inquiry, they could have more scientific influence. Working Groups take a while to get established, form working relationships, and get common ideas for future work together. Working Group members have been known to express regret that their Working Group was being disbanded in order to make way for another Working Group (Livingston).
4. In terms of broader influences, the scientific fields opened by Science Board (and coming from the scientists of PICES themselves with perhaps some steering by Science Board) will prove to be important to PICES and are at the forefront of scientific themes developing worldwide. These include ecosystem-based approaches, harmful algal blooms, climate variability and climate change impacts to living resources and the provision of concise scientific advice on this topic, and the characteristics and comparisons of recent marine ecosystem conditions throughout the North Pacific (Perry).
5. Most of the scientists of WG 5 have continued to carry out research on the Bering Sea, and the Working Group was very important in shaping the work of these individuals. The contacts made during workshop meetings continued to be very valuable. The book that resulted (*Dynamics of the Bering Sea*) has continued to be an enormous source of information for those involved in research programs (Tyler).
6. Typical ecosystem modeling activities involve physics and the lower trophic level. There have not been many attempts that aimed at physics-LTL-HTL modeling as a whole. The most important impact that the MODEL Task Team has had on the community is that it specifically aimed at those links with some novel approaches. The NEMURO model-related papers have been published in good journals including "*Ecological Modelling*" and a special issue covering the outputs from the Task Team activities is now underway (Yoo).

### 4. What are the key ingredients for a successful expert group?

#### 1. *Focus, clear mandate:*

- i. The Working Group needs a well-defined focus that is truly relevant for all member countries. The WG 2 Chairman stated that “the real problem for this Group was that there is no urgent trans-Pacific (“quasi-hemispheric”) issue that demanded a co-ordinated international response in the way that (perhaps) there are fisheries management or large-scale oceanographic process issues. The closest we had to a trans-Pacific MEQ issue is that of long- range transport of certain pollutants, and I suppose that if I had to do it all over again I’d push for a focus on that.” Due the large geographic expanse of the North Pacific, issues in one sub-region may not be relevant in others. Consequently, most governments (and their scientists) see environmental issues as being mainly (but not exclusively) “regional” rather than “quasi-hemispheric” and so see no real need for harmonisation over a large geographic scale (Addison).
- ii. The initial terms of reference for WG 4 were far too general and their scope too broad to be effective as an assignment of 2–3 years duration (McKinnell).
- iii. A clear mandate, with clear terms of reference, goals, and deliverables are necessary for Working Group success. It is preferable that this comes initially (at least) from the scientists rather than being dictated by “the hierarchy”, although some refinement and direction from “the hierarchy” will likely be needed (Perry).

#### 2. *Resources (funding and time):*

- i. PICES provides a structure for international co-operation but ultimately its activities depend largely on the “volunteer” efforts of its members. These are generally either government scientists, or university professors who are funded through government grants. If governments do not see the Working Group issue as being a high priority, then any initiative to address that issue is unlikely to attract government funding. The bottom line is that if PICES wants to focus on a trans-Pacific issue it must find appropriate funding (Addison)!
- ii. A key factor for the success of the MODEL task team was funding support (Ito).
- iii. Governments appointed their representatives then failed to provide funds to attend Working Group meetings (whether they were inter-sessional or during the Annual Meeting) (McKinnell).
- iv. Funding from the Gulf Ecosystem Monitoring (Exxon Valdez Oil Spill Trust Fund) for the Continuous Plankton Recorder Program is likely to disappear after 2007. Funding is also available from the North Pacific Research Board but its long term viability “remains to be tested”. PICES support has helped, and will continue to be needed, to sustain the program (Miller, CPR-AP).
- v. Without sufficient money, the members of the Group never get a chance to meet as a full group. Without sufficient time on the part of the participants, they never get anything done – this is partly connected to the participants’ enthusiasm for the work of the Group, and whether they have been “appointed” or actively “requested” to join (Perry).
- vi. The key factor for a successful Working Group is the active participation of all countries. We need to look for some ways to promote participation by, for example, supporting travel money for key members from each country (Zhang).

#### 3. *Collaboration with other organizations outside PICES:*

- i. Cross fertilization between the CCCCs Program and the U.S. GLOBEC Northeast Pacific Program benefited both groups (Batchelder).
- ii. PICES interactions with ICES, NPAFC, and the international (IGBP/SCOR/IOC) GLOBEC program were particularly noteworthy in the success of the Ecosystem Status Report Working Group (Perry).

4. *Leadership:*

- i. The energy, creativity, interest, and time-devotion of the leaders of each of the CCCC Task Teams were keys to their productivity. Vested, proactive leadership led to the success of the Task Team activities and to that of the CCCC group overall (Batchelder).
- ii. Strong leadership is perhaps the most important ingredient for a successful Working Group. A strong leader needs to inspire enthusiasm and provide a vision or goal for the Group, but also should not overly dominate the Group – *i.e.*, the participants need to “buy into” the vision provided by the leader(s). A strong leader to some extent can overcome the drawbacks of not having a clear mandate (Perry).

5. *Enthusiasm:*

- i. Scientists should be enthusiastic and the Working Groups should promote not only scientific activity but also introduce techniques and educate new scientists (Ito).
- ii. Enthusiasm for the topic, preferably from more than one scientist from more than one member nation, is needed. Again, this usually comes from the scientists, but not exclusively: all of us recognize and can get excited about a stimulating idea (Perry).

6. *Active and dedicated members:*

- i. Probably most important is a Chairman who is able to divide the tasks up in a meaningful way. The biggest problem are members who are not committed to the Working Group or too busy to do the assigned tasks. A solution might be changing the way members are nominated. Having national delegates actively screening the interest and ability of nominated Working Group members might help. The delegates could poll prospective Working Group members regarding their ability to meet the time commitments involved. Working Groups could also focus their work more at mini-workshops where most of the work is done, instead of expecting members to work on tasks. National delegates need to verify that there will be financial support from the member’s country to pay for their travel to these Working Group meetings (Livingston).
- ii. The Working Groups not only need a strong leader but also cooperative members. The Working Group membership recommendation from each PICES country is important (Ito).

7. *Frequent communications*, both amongst the members of the group, but also with its parent group: The former is needed to develop the shared vision and goal, and to keep activity at some continuous level for the duration of the group; the latter is necessary to ensure the group is on-track with the objectives initially established by the parent group, and to be plugged into the “larger picture” (Perry).

5. **Other relevant comments:**

1. Richard Addison listed the following notable differences between PICES and ICES that has led to PICES needing to operate in quite a different way.
  - i. ICES has a *formal* role to provide scientific advice to its members especially on issues which cross international boundaries; PICES has no such role (yet);
  - ii. ICES deals generally and mostly with the NE Atlantic–North Sea–Baltic area (even though Canada and the U.S.A. are members); in practice this means that ICES’ interests are focused on “regional scale” issues (in contrast to the focus of PICES which is on the North Pacific — almost a hemispheric focus; well, a much larger scale than ICES’ focus, anyway);
  - iii. ICES has a much larger membership than PICES, but ICES’ membership is much more culturally homogenous (all essentially northern European) and probably at a much more similar level of economic and scientific development (though that latter statement may not be quite true now that the Baltic states have joined ...)

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2. The main focus of PICES should be on essential physical and ecosystem studies rather than fishery management as the fish species in PICES countries do not overlapped exactly. Also, if we only focus on the fishery management, it will restrict the funding resources. Therefore, I consider that “physical and ecosystem response to the climate changes including the global change in the North Pacific” is a preferable theme for PICES in the next decade, although it is not so different from the current CCCC’s objective. Fishery management should be treated as one of the ecosystem problems (Ito).

### Appendix 4: Bjørn Sundby’s Evaluation of SCOR Working Groups

In 2002–2003, the SCOR Secretariat sent letters to former chairs and/or members of SCOR Working Groups 66 to 105. This set of Working Groups was selected because most of the Chairs and members were still living, and because their work was concluded sufficiently long ago that some may have borne fruit beyond their final publications. This group of respondents might produce positively biased information; nevertheless, it seemed like the group most likely to answer.

The groups were queried about (1) the influence of their Working Groups on the direction of the science that was the focus of the group and (2) the less-tangible results of the groups’ activities and publications, such as the opening of new areas of research, or the development of new research collaborations, specific new research programs, or related publications by other groups. SCOR also asked for thoughts about how the Working Group processes and procedures could be improved. Responses were received from members of 25 of the 38 Working Groups considered.

#### Impact of Working Groups

The following are some of the positive comments about SCOR Working Groups.

- WG 59 (Mathematical Models in Biological Oceanography) and WG 73 (Ecological Theory in Relation to Biological Oceanography): *Regarding the less tangible results of our WG activities, I believe that the most important influence was on JGOFS. All four of the Working Group’s books greatly influenced JGOFS in its strategy for sampling the ocean, since they bear on uncertainty of natural systems in the ocean and the need to link physics and biology in a whole systems approach.*
- WG 71 (Particulate Biogeochemical Processes): *The deliberations and recommendations of WG 71 had a very positive influence in contributing to the development of programs on Marine Biogeochemistry.*
- WG 78 (Determination of Photosynthetic Pigments in Seawater): *The book that was published by the WG a number of years ago is now a standard in most laboratories and on the desk of many (most) researchers. The chapters of the book cover practically all aspects of pigment studies that one can imagine. A very useful work, for beginners and experts. It is still up-to-date, which indicates that the Working Group did the best job that could be done.*
- WG 83 (Wave Modelling): *The monograph Dynamics and Modeling of Ocean Waves was widely used as a standard reference work on ocean modeling.*
- WG 91 (Chemical Evolution and Origin of Life in Marine Hydrothermal Systems): *At times I talk about our SCOR Working Group with my fellow co-authors. We still think the report is very up to date and are proud of its contents. We very much appreciate the support we received from SCOR. A month ago I attended the 13<sup>th</sup> International Conference on the Origin of Life and 10<sup>th</sup> ISSOL Meeting in Oaxaca, Mexico. The ‘Hydrothermal Model’ for life’s origin was referred to in every second contribution, both with regard to Earth, Mars as well as Jupiter’s moon Europa. I like to*

*believe that one reason for this ongoing paradigm change is due to the publication of our SCOR report ten years ago.*

- *WG 105 (The Impact of World Fisheries on the Stability and Biodiversity of Marine Ecosystems): It is my impression that the ICES Journal of Marine Science issue on the “ecosystem effects of fishing” is a landmark synthesis of this broad issue. Having essentially all of the most up-to-date information together in a single volume is very timely. The recognition by the global scientific community that marine fishing activities have had a broad range of impacts on ecosystem structure and function is an important first step in changing the conservation objectives of this sector. In addition to having an influence on marine policy issues for fisheries management the activities of the Working Group have contributed to the generation of international teams that are addressing specific research questions.*

These comments provide a snapshot of the general success of SCOR Working Groups and the Working Group model. Not all Working Groups have been successful, as shown by the following comments.

- *The word ‘working’ suggests activity and production. Where the objective of Working Groups has been to provide a synthesis of a subject area, my personal impression has been that the outputs have been disappointing, perhaps because committees do not construct lively and really critical texts. There are some tasks which do require Working Groups (and perhaps such matters as the development of measurement protocols, undertaking inter-comparison tests and setting of quality standards may be in this category). There may also be areas which lead to the subsequent release of funding, but few of us are sufficiently farsighted to identify seedling subjects which require the nurture and encouragement which a SCOR WG might provide in time to be effective.*

#### **Some Working Groups “failed” because**

- *They never met. From WG 87 (Fine-scale Distribution of Gelatinous Planktonic Animals): To my knowledge this working group never met and never did anything!! This was upsetting to those of us who were supposed to be involved.*
- *They lost interest: “As you know, WG 94 (Altimeter Data and In-situ Current Observations) essentially dissolved after its first year. My recollection is that we decided that most of the work related to this would be done without the need for a Working Group.”*
- *Time passed – things changed: “WG 80 (Role of Phase Transfer Processes in the Cycling of Trace Metals in Estuaries) was formed in 1986 and worked initially via correspondance. By the time we held our first meeting in Plymouth UK in October 1989 just over half the first draft manuscripts had been received. By the time we were able to schedule the second meeting (April 1991) several problems had arisen. The fall of the former USSR and political problems in China had made communication difficult and several members of the group had serious health problems. In addition, authors who had drafted chapters and submitted them early in the process requested that they be returned for updating. The material was therefore not ready for publication. In the event, the good intentions of the authors at Jekyll Island did not convert into completed manuscripts...I have no doubt that the participants, and their science programmes, benefited significantly from the formation of the Working Group. It is a matter of great regret that we were unable to share these benefits with the wider scientific community through the publication of our deliberations.” WG 104 (The Role of Wave Breaking on Upper Ocean Dynamics) also disbanded without a product for a similar reason.*

#### **Lessons Learned**

Some lessons can be learned from the performance of past Working Groups, particularly the failures:

- *The focus of the WG has to be sharp, and the (minimum) deliverables have to be specified:*

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*“I have reviewed the papers I have on file from WG 90 (Chemical and Biological Oceanographic Sensor Technology), and was surprised to re-read the terms of reference, which are not particularly clearly defined: comparison with the experience of getting WG 109 (Biogeochemistry of Iron in Seawater) approved, and with discussions at recent SCOR meetings I have attended suggest that SCOR has become much more aware of the need for clearly defined and achievable terms of reference. Interestingly, no deliverable (report, book, review article...) was identified in SCOR’s decision to set up the Working Group. Again, this is in contrast to current practice where SCOR is rightly very keen to see that the expected output of the Working Group is defined from the beginning.”*

It is important that the Group finish their work within the expected four years, so as to not lose momentum and leadership. In order for a Group to finish in four years, its terms of reference must be clear and achievable and SCOR should ensure that it has enough funding available for annual meetings of its Working Groups. The topic should truly be a “hot topic” that the Working Group can help to advance significantly.

- The success of a Working Group depends critically on the Chair, who must be chosen with great care. The Chair must be passionate about the topic and known to be organized and productive. Working Groups are not merely discussion groups.
- Members must be told explicitly what is expected of them.
- Make sure that the members have the necessary expertise. For example, in relation to WG 89 (Sea Level and Erosion of the World’s Coastlines): *I suggested several names for potential committee members based on their research on the topic of WG 89, and a few of them were appointed. SCOR selected other members, mainly from third-world countries, individuals I had not known previously. This resulted in a somewhat schizophrenic committee, with half of the members having a reasonable scientific knowledge of how coasts respond to sea-level changes, the focus of WG 89. The other members were concerned mainly with the social impacts of sea-level rise, and although of interest as the background motivation for WG 89, these members were only able to make limited contributions when we dealt with the scientific and engineering issues.*
- The timeline is important. The Working Group should be monitored closely and produce annual progress reports, as opposed to activity reports.

### Visibility of SCOR WG products

An important issue that was raised by past participants in SCOR working groups relates to the visibility of the group’s products.

- *WG 71 (Particulate Biogeochemical Processes): I must add that the “visibility” of our report has been low. This is reflected in the very low citation the report has received in various types of publications. The impact of WG 71 (and perhaps other Working Groups) would have been more if its reports and recommendations were brought to the attention of more scientists working in the field. SCOR should explore avenues to increase the visibility and profile of its Working Groups.*

SCOR Working Group reports of earlier years were often published in the “gray literature” as technical reports and sometimes only in the *SCOR Proceedings*! Visibility has increased in recent years as the final product of many Working Groups is often a special issue of a peer-reviewed journal, which presumably reaches other scientists who work on that topic. Slightly less visible are books by major publishers, which may be priced too high for the average scientist or library to purchase.

The visibility and accessibility of SCOR Working Group products could be increased by:

- Making working group products available for downloading on the SCOR Web site;
- Making working group products available on CDs;
- Favoring publishers who are willing to allow open access to Working Group products (*e.g.*, ASLO);
- Finding other ways to spread the word about the working group results, such as funding Working Group Chairs to present the Working Group's findings at international meetings.

