

## 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 the chairs and members were mostly still living, and yet their work was concluded long enough ago that some may have borne fruit beyond their final publications. This group of respondents may also be likely to produce positively biased information, but it seemed like the group most likely to answer the questionnaire. Responses were received related to 25 of the 38 working groups considered. 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.

### Impact of Working Groups

The following are some 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 WG'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 WG 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 WGs have been successful, as shown by the following comments.

- *The word 'working' suggests activity and production. Where the objective of WGs 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 WGs (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 WG."
- 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 103 (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: *“I have reviewed the papers I have on file from WG90 (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 WG109 (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 WG. Again, this is in contrast to current practice where SCOR is rightly very keen to see that the expected output of the WG 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 of the field. 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” which the working group can help to advance significantly.

- The success of a WG 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 WG89, 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 WG89. The other members were concerned mainly with the social impacts of sea-level rise, and although of interest as the background motivation for WG89, these members were only able to make limited contributions when we dealt with the scientific and engineering issues.*
- The time line is important. The working group should be monitored closely and

produce annual progress, not 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.

- *WG71 (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 WGs) 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 WGs.*

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 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. In some cases, the product may be very visible, but SCOR's role in it is invisible, because the chair or editor of the publication neglected to acknowledge SCOR. Working group members and the SCOR Secretariat share the responsibility for making sure that working group results are visible.

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 WG chairs to present the WG's findings at international meetings.