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REPORTS AND STUDIES



GESAMP

Joint Group of Experts on the
Scientific Aspects of Marine
Environmental Protection

REPORT OF THE THIRTY-FOURTH
SESSION OF GESAMP

Paris, 8- 11 May 2007

11



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Scientific Aspects of Marine
Environmental Protection

IMO FAO UNESCO-IOC WMO UNIDO IAEA UN UNEP

REPORT OF THE THIRTY FOURTH SESSION

Paris, 8-11 May 2007

**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION OF UNITED NATIONS
EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION
Paris, 2007**

REPORTS AND STUDIES

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EXECUTIVE SUMMARY

1 Introduction

The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) held its thirty-fourth session at the Headquarters of the United Nations Educational, Scientific and Cultural Organization (UNESCO) in Paris, from 8 to 11 May 2007. GESAMP was established in 1969 by a number of United Nations Organizations as a Joint Group to encourage the independent, interdisciplinary consideration of marine pollution and environmental protection problems with a view to avoiding duplication of efforts within the United Nations system. The main topics considered at this session are described below.

2 The revitalization of GESAMP

In late 2005, GESAMP received a welcome support from the Swedish International Development Cooperation Agency (Sida), spanning over three years. In addition, the Swedish Maritime Administration has seconded an officer to act as GESAMP Officer, based at IMO, for an initial period of two years till the end of 2008. It has therefore been possible to speed up the revitalization process, including the development of a new website, a Pool of Experts, and a new GESAMP logo and design style. GESAMP was also informed about the latest progress in terms of the administrative arrangement between the Sponsoring Organizations underpinning the new set-up of GESAMP, including the establishment of a GESAMP Office.

3 Evaluation of the hazards of harmful substances carried by ships (WG1)

Since GESAMP convened in 2003, WG1 has held five sessions and continued its work of revising the hazard profiles contained in the IMO International Bulk Chemicals Code (IBC Code). Since the 33rd session of GESAMP, all bulk chemicals in maritime transport have been re-evaluated by the Working Group and have also been re-categorized by IMO as to pollution category, ship type and carriage conditions. The Working Group has also developed a new evaluation criterion based on water solubility, specific gravity, volatility and viscosity, which enables IMO to identify floating, sinking and, in particular, persistent slick-forming substances and to treat them accordingly. A range of substances now have to be carried in double-hulled tankers, probably the single most significant achievement for the environment of the revision of MARPOL Annex II.

GESAMP WG1 is the first international body to develop and use an estimation system to evaluate the inhalation hazards of chemicals. This was developed primarily to fulfil an IMO requirement for inhalation toxicity data to protect crews on board ships.

4 Environmental risk assessment and communication in coastal aquaculture (WG31)

The draft study report by WG31 was presented to GESAMP and discussed. GESAMP recognized the significant efforts by the Working Group, but also the need for thorough review and careful revision of the draft study report as submitted, to ensure the high quality, scientific excellence and conceptual clarity and rigor expected of a GESAMP publication.

GESAMP suggested that the final report should emphasize the methodological and procedural aspects of systematic, stepwise and logical conduct of environmental risk assessments, and the necessary associated efforts of risk communication. The Group also recognized the budgetary and time limitations requiring that the study be completed and published before the end of 2007. Therefore, GESAMP discussed and agreed to a roadmap for the final review and finalization of WG31's study report in 2007.

5 Environmental exposure models for application in seafood risk analysis (WG33)

WG33 has been dormant since 2003, due to shortage of funds and staff time. For these reasons, the lead agency, FAO, has had to decide that it will no longer provide the lead support for WG33. In light of this, GESAMP decided to discontinue the initiative of WG33.

6 Review of applications for 'active substances' to be used in ballast water management systems (WG34)

Working Group 34 was established in November 2005 to review any proposals submitted to IMO for approval of Ballast Water Management systems that make use of Active Substances. The Working Group reports to IMO on whether such proposals present unreasonable risk to the environment, human health, property or resources. WG34 does not evaluate the operation or design of the systems, or their effectiveness, only their potential for environmental and human health risks. To date, the Working Group has evaluated seven systems in various stages of the IMO approval process. The Working Group has also developed a rationale or methodology not only for assessing the environmental and human health risks from active substances injected into ballast water but also for treatment systems generating such substances *in-situ*.

7 Deepwater fisheries-habitat and ecosystem (WG35)

FAO, supported by UNIDO, proposed to establish a GESAMP Working Group on deepwater fisheries habitat and related ecosystem concerns. The objective of WG35 will be to provide an independent, scientific review to

inform policy of selected aspects of deep-water fisheries and their ecosystem interactions.

GESAMP recognized the need for better scientific advice, review and synthesis, and that this was a fertile area for the Group. The scope, objectives and terms of reference for the envisaged GESAMP Working Group will be refined and focused during the coming months. GESAMP agreed to consider the terms of reference for approval intersessionally.

8 Development of an ecosystem approach to offshore mariculture (WG36)

FAO, supported by UNIDO, proposed the establishment of WG 36, which will review the existing literature, and identify the next steps to be taken in research, consider the ecosystem aspects of offshore aquaculture as it relates to the above issues. The Working Group will propose solutions by way of recommending guidelines and protocols for the conduct of offshore aquaculture operations.

The Working Group will commence its deliberations in September of 2007, and continue through 2008, at which time a report will be submitted to GESAMP for review and approval prior to publication. GESAMP welcomed the establishment of the Working Group, noting the proactive nature of the proposal and its potential contributions to ecosystem research.

9 Assessment of threats posed by persistent organic pollutants (POPs) to the marine environment (WG37)

UNIDO proposed the establishment of WG37, which will review threats posed by persistent organic pollutants (POPs) to the marine environment. After discussions of the proposal it was agreed that the focus of WG37 should be on an expanded scientific review of mercury and its compounds (related to sources, transport, fate, effects etc of mercury) and threats to the marine environment.

GESAMP approved the establishment of WG37 after revising the focus of the initial proposal. The re-drafted Working Group proposal and terms of reference will be circulated for final approval during the intersessional period.

10 Atmospheric input of chemicals to the ocean (WG38)

In light of the increased recognition of the importance of chemical air-sea interchange, WMO proposed the establishment of WG38, which builds on the highly acclaimed *GESAMP Reports and Studies No. 38*. With a proposed timeframe of 2 to 4 years, the Working Group will assess the need for model and measurement products of the atmospheric input of nitrogen species, dust (iron), and possibly other chemicals to the ocean. The Working Group will work with the WMO Sand and Dust Warning System as well as the WMO Precipitation Chemistry Data Synthesis and Community Project.

GESAMP commented positively on the value of the proposed work and gave its approval, in principle, for the establishment of the Working Group.

11 Global trends in pollution of coastal ecosystems: retrospective ecosystem assessment

IAEA presented a preliminary proposal and draft terms of reference for a Working Group, for comments and suggestions. The objective of the Working Group would be to contribute to the reduction of coastal ecosystem stress globally by providing stakeholders, scientists and society in general with an objective and global assessment of pollution trends during the last century in sensitive coastal ecosystems. The Working Group would use retrospective ecosystem analysis, based on environmental archives and time-series data, where available.

GESAMP responded positively to the proposal and its potential for extending the scope of marine pollution assessments and their normal temporal and geographical limitations. In addition, it would be of particular importance to countries where monitoring data is scarce. Several regional organizations also indicated their interest in the project.

12 Contributions to the Assessment of Assessments under the 'UN Regular Process'

Since its 33rd session, GESAMP has closely followed the developments of the UN Regular Process for the Global Reporting and Assessment of the State of the Marine Environment, including Socio-economic aspects. GESAMP has also actively supported the UNEP World Conservation Monitoring Centre (UNEP-WCMC) in their publication of the report "*Survey of global and regional assessments and related activities of the marine environment*", mainly by providing a review team for the draft for this report.

The IOC Executive Secretary emphasized that he anticipated that GESAMP and its Members will have a key role to play in the Assessment of Assessments, providing technical support to the process. GESAMP agreed that they will be able to contribute to the process in several ways, for example peer reviewing of outputs, undertaking commissioned studies, and capacity building. The Members of GESAMP also emphasized the importance of proactive involvement in the Assessment of Assessment by the Sponsoring Organizations of GESAMP and the need to respond quickly to any requests related from the lead agencies.

In conclusion, GESAMP reaffirmed that it stands ready to contribute to the Assessment of Assessment and the UN Regular Process, and that the Group has the mandate, expertise and funds to do so.

13 Workshop on the identification of themes of mutual interest between GESAMP and Regional Organizations

As part of its revitalization process, GESAMP organized a one-day Workshop, for which a number of regional organizations had been invited. By convening the Workshop, GESAMP is seeking to increase its regional relevance and engagement by increasing the dialogue with regional organizations and the awareness of GESAMP's capabilities.

After a brief presentation by each of the workshop participants, discussions followed, departing from three different topics; 'Identifying networks', 'Where and how can GESAMP's advice be useful?' and 'Opportunities for capacity building'. A summary of the discussions as well as the presentations by the participants are presented in this report, but also as a separate publication in the series '*Reports to GESAMP*'.

14 Identification of new and emerging issues regarding the degradation of the marine environment

GESAMP discussed a list of topics with significant potential impact on marine ecosystems. Although GESAMP neither could nor should investigate all of these, it will be important to identify the areas where there is a role for GESAMP to carry out independent assessments. It was thus discussed how GESAMP should best be able to monitor emerging issues, identify those where GESAMP has the mandate and capacity to act, and how GESAMP would be able to react in a timely manner.

GESAMP was informed that the International Seabed Authority (ISA) has recently contracted for the exploration of commercial mineral extraction over large areas of the sea floor that are under international jurisdiction. While recognizing the economic importance of this development, GESAMP was also concerned about the potential impacts of this development on the nearby marine ecosystems, and what measures are in place for the environmental management of these activities. The Chairperson of GESAMP was subsequently asked to approach ISA requesting further information about these issues.

RÉSUMÉ ANALYTIQUE

1. Introduction

Le Groupe mixte d'experts chargé d'étudier les aspects scientifiques de la protection de l'environnement marin (GESAMP) a tenu sa 34^e session du 8 au 11 mai 2007 au Siège de l'Organisation des Nations Unies pour l'éducation, la science et la culture (UNESCO), à Paris. Créé en 1969 par plusieurs organismes des Nations Unies, le GESAMP est un groupe mixte chargé de promouvoir l'examen indépendant et interdisciplinaire des problèmes de pollution marine et de protection de l'environnement dans le but d'éviter les doubles emplois au sein du système des Nations Unies. Les principaux points abordés lors de cette session sont présentés ci-après.

2. La revitalisation du GESAMP

Fin 2005, le GESAMP a reçu le soutien fort utile de l'Agence suédoise de coopération internationale au développement (ASDI) pour une période de trois ans. En outre, l'Administration maritime suédoise a détaché un fonctionnaire chargé de remplir les fonctions d'agent du GESAMP, basé à l'OMI, pour une durée initiale de deux ans, jusque fin 2008. Il a ainsi été possible d'accélérer le processus de revitalisation du Groupe, notamment en créant un nouveau site Web, une équipe d'experts ainsi qu'un nouveau logo et un nouveau style graphique pour le GESAMP. Le Groupe a également été tenu informé des derniers avancements concernant les dispositions administratives de la nouvelle version du Mémoire d'entente entre les organisations parrainantes sur laquelle s'appuie le nouveau Règlement intérieur, et l'organisation du Groupe, y compris la mise en place d'un bureau du GESAMP.

3. Évaluation des risques liés aux substances nocives transportées par les navires (GT 1)

Depuis la réunion du GESAMP en 2003, le Groupe de travail 1 a tenu cinq sessions et poursuivi ses travaux de révision du Recueil international de règles sur les transporteurs de produits chimiques (Recueil IBC). Depuis la 33^e session du GESAMP, il a réévalué tous les produits chimiques transportés par voie maritime et l'OMI les a reclassés selon le type de pollution, le type de navire, et les conditions de transport. Le Groupe de travail a également établi un nouveau critère d'évaluation basé sur la solubilité dans l'eau, la densité relative, la volatilité et la viscosité, ce qui permet à l'OMI d'identifier les substances flottantes, coulantes ainsi que, plus particulièrement, celles qui forment des nappes persistantes, et de les traiter en conséquence. Diverses substances doivent désormais être transportées dans des pétroliers à double coque, ce qui constitue sans doute la seule réalisation importante pour l'environnement résultant de la révision de l'annexe II de MARPOL.

Le Groupe de travail 1 du GESAMP est le premier organe international à avoir mis au point et utilisé un système d'évaluation des risques d'inhalation de produ-

its chimiques. Ce système a été conçu avant tout parce que l'OMI avait besoin de données relatives à la toxicité par inhalation pour protéger les équipages à bord des navires.

4. Évaluation des risques pour l'environnement et communication en matière d'aquaculture côtière (GT 31)

Le projet de rapport du Groupe de travail 31 a été présenté au GESAMP et examiné. Le GESAMP a reconnu les efforts considérables déployés par le Groupe de travail mais a également jugé nécessaire de procéder à un réexamen complet et à une révision approfondie du projet de rapport afin de garantir la qualité, l'excellence scientifique, l'intelligibilité des concepts et la rigueur attendues d'une publication du GESAMP.

Le GESAMP a recommandé que le rapport final souligne les méthodes et procédures utilisées pour la réalisation systématique, progressive et logique des évaluations des risques environnementaux ainsi que les mesures à fournir en matière de communication des risques. Le Groupe a également reconnu les contraintes budgétaires et de temps imposant que l'étude soit achevée et publiée avant fin 2007. Par conséquent, le GESAMP a examiné et approuvé une feuille de route pour l'examen final et l'achèvement du rapport du Groupe de travail 31 en 2007.

5. Modèles d'exposition de l'environnement applicables à l'analyse des risques liés aux produits de la mer (GT 33)

Les travaux du Groupe de travail 33 sont en suspens depuis 2003, faute de fonds et de temps de travail. C'est pourquoi la FAO, l'organisation chef de file, a dû prendre la décision de ne plus apporter le soutien principal au Groupe de travail 33. Compte tenu de ces éléments, le GESAMP a décidé de mettre fin à l'initiative du GT 33.

6. Examen des demandes concernant les « substances actives » à utiliser dans les systèmes de gestion des eaux de ballast (GT 34)

Le Groupe de travail 34 a été constitué en novembre 2005 pour examiner toute proposition soumise à l'approbation de l'OMI concernant des systèmes de gestion des eaux de ballast utilisant des substances actives. Le Groupe de travail indique à l'OMI si ces propositions présentent des risques excessifs pour l'environnement, la santé humaine, les biens ou les ressources. Il n'évalue pas le fonctionnement ou l'objectif de ces systèmes, pas plus que leur efficacité, mais seulement les risques éventuels qu'ils pourraient présenter pour l'environnement ou la santé humaine. À ce jour, le Groupe de travail a procédé à l'évaluation de sept systèmes à différents stades

du processus d'approbation de l'OMI. Il a en outre mis au point des principes ou méthodes non seulement pour évaluer les risques des substances actives introduites dans les eaux de ballast pour l'environnement et la santé mais aussi pour les systèmes de traitement produisant de telles substances *in situ*.

7. Pêche-habitat en eau profonde et écosystème (GT 35)

La FAO, soutenue par l'ONUDI, a proposé de créer un groupe de travail du GESAMP chargé des questions liées à l'habitat et à la pêche en eau profonde ainsi qu'à l'écosystème associé. L'objectif du Groupe de travail 35 sera de réaliser une étude scientifique indépendante qui servira de base à des mesures concernant certains aspects de la pêche en eau profonde et de ses interactions avec les écosystèmes associés.

Le GESAMP a reconnu la nécessité d'améliorer la qualité des avis, des études et des synthèses scientifiques, domaine d'activité fécond pour le Groupe. Le domaine de compétence, les objectifs et le mandat du Groupe de travail du GESAMP qu'il est proposé de créer seront précisés et bien définis au cours des prochains mois. Le GESAMP a accepté d'examiner le mandat du Groupe de travail pour l'approuver pendant l'intersession.

8. Élaboration d'une approche écosystémique de la mariculture au large des côtes (GT 36)

La FAO, soutenue par l'ONUDI, a proposé de constituer le Groupe de travail 36 qui sera chargé d'analyser la documentation existante, d'identifier les prochaines mesures à prendre dans le domaine de la recherche, et d'examiner les liens entre les questions ci-dessus et les aspects écosystémiques de l'aquaculture en mer. Le Groupe de travail avancera des solutions en recommandant des principes directeurs et des protocoles pour la réalisation d'activités d'aquaculture en mer.

Les délibérations du Groupe de travail débuteront en septembre 2007 et se poursuivront jusqu'en 2008. Un rapport sera alors soumis au GESAMP pour examen et approbation avant publication. Le GESAMP a salué la création de ce groupe de travail et noté le caractère anticipatif de cette proposition ainsi que sa contribution éventuelle à la recherche sur les écosystèmes.

9. Évaluation des menaces que constituent les polluants organiques persistants pour le milieu marin (GT 37)

L'ONUDI a proposé la mise en place du Groupe de travail 37 qui examinera les menaces que constituent les polluants organiques persistants pour le milieu marin. Après examen de la proposition, il a été convenu que ce groupe de travail devrait concentrer son action sur une analyse scientifique détaillée du mercure et de ses composés (en rapport avec les sources, le transport, le devenir et les effets du mercure, entre autres) ainsi que des menaces pour l'environnement.

Le GESAMP a approuvé la création du Groupe de travail 37 après avoir revu l'orientation de la proposition initiale. La nouvelle version de la proposition du Groupe de travail ainsi que son mandat seront communiqués pour approbation finale pendant l'intersession.

10. Apports atmosphériques de produits chimiques dans l'océan (GT 38)

Compte tenu de la prise de conscience accrue de l'importance des échanges chimiques air-mer, l'OMM a proposé de créer le Groupe de travail 38 sur la base du très apprécié N° 38 des rapports et études du GESAMP (*GESAMP Reports and Studies No. 38*). Dans un délai de deux à quatre ans, le Groupe de travail évaluera les besoins en modèles et mesures des apports atmosphériques en produits azotés, poussières (fer) et éventuellement autres produits chimiques dans l'océan. Ce groupe travaillera avec le Système d'alerte aux tempêtes de sable et de poussière de l'OMM ainsi qu'avec la Synthèse de données chimiques sur les précipitations et le projet communautaire de l'OMM.

Le GESAMP a émis un avis favorable sur l'intérêt du travail envisagé et a donné son accord de principe pour la création de ce groupe de travail.

11. Évolution mondiale de la pollution des écosystèmes côtiers : évaluation rétrospective des écosystèmes

L'AIEA a présenté pour observations et suggestions une proposition préliminaire concernant la création d'un groupe de travail accompagnée d'un projet de mandat. L'objectif de ce groupe de travail serait de contribuer à la réduction des agressions contre les écosystèmes côtiers au niveau mondial en mettant à la disposition des parties intéressées, des scientifiques et de la société en général une évaluation objective mondiale de l'évolution de la pollution au cours du siècle dernier dans les écosystèmes côtiers fragiles. Le groupe de travail effectuerait une analyse rétrospective des écosystèmes fondée sur des archives environnementales et les données de séries chronologiques lorsque celles-ci sont disponibles.

Le GESAMP a répondu favorablement à cette proposition qui permet d'élargir le champ d'application des évaluations de la pollution marine ainsi que leurs contraintes temporelles et géographiques. En outre, elle aurait une importance particulière pour les pays ne disposant que de peu de données sur la surveillance. Plusieurs organisations régionales ont également fait part de leur intérêt pour ce projet.

12. Contributions à l'évaluation des évaluations dans le cadre du « Mécanisme des Nations Unies »

Depuis sa 33e session, le GESAMP a suivi de près les faits intervenus dans le cadre du Mécanisme des Nations Unies de notification et d'évaluation systématiques à l'échelle mondiale de l'état du milieu marin, y compris les aspects socioéconomiques (GRAME). Il a en outre activement soutenu le Centre mondial de sur-

veillance de la conservation du PNUE (PNUE-WCMC) pour la publication du rapport « *Survey of global and regional assessments and related activities of the marine environment* » (Étude des évaluations mondiales et régionales du milieu marin et activités connexes), principalement en constituant une équipe chargée d'étudier le projet de ce rapport.

Le Secrétaire exécutif de la COI a souligné qu'il avait anticipé le rôle clé que le GESAMP et ses membres tiendraient dans l'évaluation des évaluations en fournissant un appui technique à ce processus. Le GESAMP a convenu qu'il sera en mesure d'y contribuer de différentes manières, notamment grâce à l'examen des résultats par les pairs, la réalisation d'études sur commande et le renforcement des capacités. Les membres du GESAMP ont également insisté sur l'importance d'une participation proactive des organisations parainantes à l'évaluation des évaluations ainsi que sur la nécessité de répondre rapidement à toute demande formulée par les organisations chefs de file.

En conclusion, le GESAMP a réaffirmé qu'il était disposé à participer à l'évaluation des évaluations ainsi qu'au Mécanisme des Nations Unies de notification et d'évaluation systématiques à l'échelle mondiale de l'état du milieu marin, y compris les aspects socioéconomiques, et que le Groupe avait le mandat, l'expertise et les ressources financières pour le faire.

13. Atelier sur la définition des thèmes d'intérêt commun pour le GESAMP et les organisations régionales

Dans le cadre de son processus de revitalisation, le GESAMP a organisé un atelier d'une journée auquel plusieurs organisations régionales ont été conviées. En convoquant cet atelier, le Groupe s'efforce d'accroître sa pertinence et son engagement à l'échelon régional en renforçant le dialogue avec les organisations régionales et en faisant mieux connaître ses compétences.

Après un bref exposé par chacun des participants à l'atelier, les débats ont porté sur trois sujets, à savoir : « L'identification de réseaux », « Où et comment les avis du GESAMP peuvent-ils être utiles ? » et « Les possibilités de renforcement des capacités ». Un résumé de ces discussions ainsi que des exposés des participants sont présentés dans le présent rapport mais également dans une publication distincte parue dans la collection « *Reports to GESAMP* ».

14. Identification de problèmes nouveaux relatifs à la dégradation du milieu marin

Le GESAMP a examiné une liste de sujets pouvant avoir un impact important sur les écosystèmes marins. Bien que le Groupe n'ait pas été en mesure ni dans l'obligation de tous les étudier, il sera important de définir les domaines dans lesquels le GESAMP a un rôle à jouer dans la réalisation d'évaluations indépendantes. Les meilleurs moyens pour le Groupe de suivre les problèmes nouveaux et d'identifier ceux qui relèvent de son

mandat et de ses capacités ont été évoqués, de même que la façon dont il pourrait réagir en temps voulu.

Le GESAMP a été informé que l'Autorité internationale des fonds marins (AIFM) avait récemment externalisé l'exploration et l'extraction minières à des fins commerciales dans des zones étendues des fonds marins sous juridiction internationale. Tout en reconnaissant l'importance économique de cette mesure, le GESAMP s'est inquiété de ses éventuels effets sur les écosystèmes marins voisins et des dispositions prises pour assurer la gestion environnementale de ces activités. Il a ensuite été demandé au Président du GESAMP de se mettre en relation avec l'AIFM pour obtenir des informations supplémentaires sur ces questions.

RESUMEN DISPOSITIVO

1. Introducción

El Grupo Mixto de Expertos sobre los Aspectos Científicos de la Protección del Medio Marino (GESAMP) celebró su 34ª reunión en la Sede de la Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura (UNESCO) en París, del 8 al 11 de mayo de 2007. El GESAMP fue creado en 1969 por varios organismos de las Naciones Unidas para impulsar el estudio independiente e interdisciplinario de los problemas relativos a la contaminación de los mares y la protección del medio marino, así como para evitar duplicaciones de tareas en el sistema de las Naciones Unidas. A continuación se exponen los principales asuntos examinados en esta reunión.

2. La reactivación del GESAMP

A fines de 2005, el GESAMP recibió un oportuno respaldo de la Agencia Sueca de Cooperación Internacional para el Desarrollo (ASDI) que se extendería a lo largo de tres años. Además, la administración marítima de Suecia adscribió en la OMI a una persona para que se desempeñara como oficial del Grupo Mixto de Expertos, por un periodo inicial de dos años que concluirá a fines de 2008. Por consiguiente, ha sido posible agilizar el proceso de reactivación, comprendida la creación de un nuevo sitio web y de un grupo de expertos, así como del nuevo logotipo y diseño gráfico del GESAMP. También se informó al GESAMP de los últimos avances relativos a las disposiciones del Memorando actualizado concertado entre las organizaciones patrocinadoras en el que se sustentan su nuevo Reglamento y su organización, comprendido el establecimiento de una Oficina del GESAMP.

3. Evaluación de los peligros de las sustancias nocivas transportadas por vía marítima (Grupo de Trabajo 1)

Desde la reunión del GESAMP que tuvo lugar en 2003, el Grupo de Trabajo 1 ha celebrado cinco reuniones y proseguido la revisión de los perfiles de riesgo que figuran en el Código Internacional de Químicos (CIQ) de la OMI. Desde la 33a reunión del GESAMP, el Grupo de Trabajo ha reevaluado todos los productos químicos que se transportan a granel por vía marítima; asimismo, la OMI ha modificado su clasificación en función de la categoría de contaminación, características de los barcos y condiciones de transporte. El Grupo de Trabajo también ha formulado un nuevo criterio de evaluación basado en la solubilidad en el agua, el peso específico, la volatilidad y la viscosidad con el que la OMI identifica las sustancias que flotan, se hunden y, en particular, forman películas oleosas persistentes, y puede tratarlas en consecuencia. Actualmente, una serie de sustancias deben transportarse en buques-cisterna de doble casco; se trata, probablemente, del mayor logro para el medio marino de la revisión del Anexo II del MARPOL.

El Grupo de Trabajo 1 del GESAMP fue el primer órgano internacional que elaboró y aplicó un sistema de

evaluación de los peligros de la inhalación de productos químicos. Ese sistema se creó fundamentalmente para atender un pedido de datos de la OMI sobre la toxicidad por inhalación con objeto de proteger las tripulaciones de los barcos.

4. Evaluación de riesgos para el medio marino y comunicación sobre acuicultura costera (Grupo de Trabajo 31)

El GESAMP examinó el informe preliminar sobre el estudio presentado por el Grupo de Trabajo 31. Si bien el GESAMP reconoció los importantes esfuerzos del Grupo de Trabajo, señaló también la necesidad de que se sometiese el informe preliminar sobre el estudio presentado a un examen minucioso y una revisión detenida con objeto de garantizar la elevada calidad, la excelencia científica, así como la claridad y el rigor conceptuales que cabe esperar de las publicaciones del GESAMP.

El GESAMP propuso que en el informe final se hiciera hincapié en los aspectos metodológicos y de procedimiento de la realización sistemática, gradual y lógica de las evaluaciones de riesgos para el medio marino, así como en las necesarias actividades conexas de comunicación sobre riesgos. Asimismo, el Grupo reconoció las limitaciones de presupuesto y tiempo que obligaban a terminar y publicar el estudio antes de fines de 2007. Por consiguiente, el GESAMP examinó y acordó un plan de trabajo para la revisión final y la conclusión del informe sobre el estudio del Grupo de Trabajo 31 en 2007.

5. Modelos de contaminación ambiental aplicables al análisis de riesgos para los mariscos (Grupo de Trabajo 33)

El Grupo de Trabajo 33 ha estado inactivo desde 2003 debido a una insuficiencia de fondos y de tiempo de sus miembros. Por esos motivos, la FAO, el organismo coordinador, tuvo que decidir que dejaría de prestar su apoyo principal al Grupo de Trabajo 33. Habida cuenta de ello, el GESAMP decidió interrumpir la iniciativa del Grupo de Trabajo 33.

6. Examen de las solicitudes relativas a las "sustancias activas" utilizables en los sistemas de gestión del agua de lastre (Grupo de Trabajo 34)

El Grupo de Trabajo 34 se creó en noviembre de 2005 para que examinara todas las propuestas relativas a los sistemas de gestión del agua de lastre que utilizan sustancias activas, presentadas a la OMI con miras a su aprobación. El Grupo de Trabajo notifica a la OMI si esas propuestas presentan un riesgo excesivo para el medio marino, la salud humana, los bienes o los recursos. El Grupo de Trabajo 34 no evalúa el funcionamiento o el diseño de los sistemas, ni su eficacia, sino únicamente sus riesgos potenciales para el medio marino y la salud humana. Hasta la fecha, el Grupo de Trabajo

ha evaluado siete sistemas que se encontraban en distintas etapas del procedimiento de aprobación ante la OMI. Asimismo, el Grupo de Trabajo ha preparado un análisis razonado, o metodología, para evaluar no sólo los riesgos que entrañan para el medio marino y la salud humana las sustancias activas que se inyectan en el agua de lastre, sino también los sistemas de tratamiento que producen dichas sustancias in situ.

7. Pesca de altura - hábitat y ecosistema (Grupo de Trabajo 35)

La FAO, con la asistencia de la ONUDI, propuso establecer un Grupo de Trabajo del GESAMP sobre los problemas relativos al hábitat de la pesca de altura y su ecosistema conexo. El objetivo del Grupo de Trabajo 35 consistirá en preparar un estudio independiente y científico sobre ciertos aspectos de la pesca de altura y sus interacciones con el ecosistema con miras a la formulación de una normativa al respecto.

El GESAMP reconoció que era necesario contar con asesoramiento, análisis y síntesis de índole científica de mejor calidad, y que se trataba de una temática fecunda para el Grupo. En los próximos meses se definirán y determinarán con mayor precisión el campo de acción, los objetivos y el mandato de este posible Grupo de Trabajo del GESAMP. El GESAMP convino en examinar su mandato a fin de que pudiera aprobarse en el periodo entre reuniones.

8. Formulación de una metodología basada en los ecosistemas para la maricultura en alta mar (Grupo de Trabajo 36)

La FAO, con el apoyo de la ONUDI, propuso el establecimiento del Grupo de Trabajo 36 que revisará el material publicado existente, determinará las próximas medidas que han de tomarse en materia de investigación y estudiará los aspectos relativos a los ecosistemas de la maricultura en alta mar que atañen a esos asuntos. El Grupo de Trabajo propondrá soluciones recomendando directrices y protocolos para las actividades de maricultura en alta mar.

El Grupo de Trabajo iniciará sus deliberaciones en septiembre de 2007 y las proseguirá hasta fines de 2008, cuando someterá un informe al GESAMP con miras a su examen y aprobación antes de su publicación. El GESAMP acogió favorablemente el establecimiento de este Grupo de Trabajo y tomó nota del carácter previsor de la propuesta y de sus posibles contribuciones a la investigación sobre los ecosistemas.

9. Evaluación de las amenazas que representan los contaminantes orgánicos persistentes (COP) para el medio marino (Grupo de Trabajo 37)

La ONUDI propuso el establecimiento del Grupo de Trabajo 37 que examinará las amenazas que representan los contaminantes orgánicos persistentes (COP)

para el medio marino. Tras debatir la propuesta, se convino en que el Grupo de Trabajo 37 debería centrar su labor en un examen científico ampliado del mercurio y sus compuestos (procedencia, transporte, destino, efectos, etc.), así como en las amenazas que representan para el medio marino.

Tras revisar el enfoque de la propuesta inicial, el GESAMP aprobó el establecimiento del Grupo de Trabajo 37. La propuesta y el mandato revisados relativos al Grupo de Trabajo se difundirán durante el periodo entre reuniones con miras a su aprobación definitiva.

10. Sustancias químicas procedentes de la atmósfera presentes en los océanos (Grupo de Trabajo 38)

Habida cuenta del creciente reconocimiento de la importancia de los intercambios entre la atmósfera y los mares, la OMM propuso el establecimiento del Grupo de Trabajo 38 basándose en el muy encomiado N° 38 de la colección de *Informes y estudios del GESAMP*. Se propuso que el Grupo de Trabajo examinara en un periodo de dos a cuatro años la necesidad de disponer de modelos e instrumentos de medición de sustancias nitrogenadas, polvo de hierro y posiblemente otras sustancias químicas procedentes de la atmósfera presentes en los océanos. El Grupo de Trabajo colaborará con el Sistema de aviso de tormentas de arena y polvo y con el proyecto de la OMM relativo a la síntesis de datos sobre la composición química de las precipitaciones.

El GESAMP valoró positivamente la labor propuesta y dio su aprobación de principio al establecimiento del Grupo de Trabajo.

11. Tendencias mundiales de la contaminación de los ecosistemas costeros: evaluación retrospectiva de los ecosistemas

La OIEA presentó una propuesta preliminar y un proyecto de mandato relativos a un Grupo de Trabajo con objeto de recabar observaciones y sugerencias. El objetivo de este Grupo de Trabajo sería contribuir a la reducción a escala mundial de las tensiones a que están sometidos los ecosistemas costeros, aportando a las partes interesadas, los científicos y la sociedad en general una evaluación objetiva y mundial de las tendencias de la contaminación de los ecosistemas costeros frágiles durante el último siglo. El Grupo de Trabajo podría utilizar, de haberlos, análisis retrospectivos de los ecosistemas basados en archivos y series de datos cronológicos sobre el medio ambiente.

El GESAMP acogió favorablemente esta propuesta y las posibilidades que ofrece de ampliar el alcance de las evaluaciones de la contaminación marina más allá de sus limitaciones temporales y geográficas normales. Además, resultaría particularmente útil para los países que no cuentan con suficientes datos de seguimiento. Asimismo, varias organizaciones regionales manifestaron su interés por el proyecto.

12. Contribuciones a la «Evaluación de Evaluaciones» del «Proceso ordinario de las Naciones Unidas»

Desde su 33ª reunión, el GESAMP ha prestado gran atención a los avances del Proceso ordinario de presentación de informes y evaluación del estado del medio marino a escala mundial, incluidos los aspectos socioeconómicos (GRAME) de las Naciones Unidas. Asimismo, el GESAMP apoyó activamente al Centro Mundial del PNUMA de Vigilancia de la Conservación (PNUMA-WCMC) para la publicación del informe titulado *Estudio de las evaluaciones mundiales y regionales y actividades conexas del medio marino*, en particular proporcionando un equipo de revisión para la redacción de dicho informe.

El Secretario Ejecutivo de la COI hizo hincapié en que, según preveía, el GESAMP y sus miembros contribuirían de manera decisiva a la «Evaluación de Evaluaciones» mediante la prestación de apoyo técnico. El GESAMP convino en que podrá colaborar en esa tarea de distintas maneras como, por ejemplo, mediante la evaluación de los resultados por expertos homólogos, la realización de estudios por encargo y la creación de capacidades. Los miembros del GESAMP también destacaron la importancia de que los organismos patrocinadores del GESAMP participaran de forma dinámica en la «Evaluación de Evaluaciones» y la necesidad de que se atendieran con diligencia todas las solicitudes al respecto de los organismos coordinadores.

En conclusión, el GESAMP reafirmó su disposición a contribuir a la «Evaluación de Evaluaciones» y al Proceso ordinario de presentación de informes y evaluación del estado del medio marino a escala mundial, incluidos los aspectos socioeconómicos (GRAME) de las Naciones Unidas e indicó que su mandato, competencias especializadas y fondos lo habilitaban para ello.

13. Taller sobre la definición de asuntos de interés mutuo para el GESAMP y las organizaciones regionales

Como parte de su proceso de reactivación, el GESAMP organizó un taller de una jornada al que se invitaron a varias organizaciones regionales. El GESAMP celebró ese taller con objeto de impulsar el diálogo con las organizaciones regionales y dar a conocer sus capacidades a fin de reforzar su pertinencia y su participación regionales.

Tras una breve exposición presentada por cada uno de los participantes en el taller, se examinaron tres temas distintos: «Definición de redes», «Dónde y cómo puede resultar útil el asesoramiento del GESAMP» y «Posibilidades de creación de capacidades». En este informe se presentan un resumen de las deliberaciones y las exposiciones de los participantes, que también se publicaron en la colección *Reports to GESAMP*.

14. Determinación de problemas nuevos y recientes con respecto al deterioro del medio marino

El GESAMP examinó una lista de asuntos que podrían tener importantes repercusiones en los ecosistemas marinos. Aunque el Grupo Mixto de Expertos no podía ni debía efectuar investigaciones sobre todos ellos, será importante definir los ámbitos en los que el GESAMP podría efectuar evaluaciones independientes. Por consiguiente, se debatió la mejor forma de que el GESAMP examinara los nuevos problemas, determinara los asuntos en los que su mandato y sus capacidades lo habilitan para intervenir y la manera en que podría reaccionar oportunamente.

Se informó al GESAMP de que la Autoridad Internacional de los Fondos Marinos (ISA) había celebrado recientemente un contrato de prospección para la extracción de minerales con fines comerciales en grandes extensiones del fondo marino situadas bajo jurisdicción internacional. Si bien el GESAMP reconoció la importancia económica de esta iniciativa, manifestó también su preocupación por sus posibles repercusiones en los ecosistemas marinos adyacentes y se preguntó qué medidas se habían adoptado para la gestión ambiental de esas actividades. Posteriormente, se pidió al Presidente del GESAMP que se pusiera en contacto con la ISA a fin de solicitar mayor información sobre este particular.

РАБОЧЕЕ РЕЗЮМЕ ДОКЛАДА

1. Введение.

Объединенная группа экспертов по научным аспектам охраны морской среды (ГЕСАМП) провела свою тридцать четвертую сессию в Штаб-квартире Организации Объединенных Наций по вопросам образования, науки и культуры (ЮНЕСКО) в Париже 8-11 мая 2007 г. ГЕСАМП была создана в 1969 г. рядом организаций ООН в качестве объединенной группы в целях поощрения независимого междисциплинарного рассмотрения вопросов загрязнения морской среды и природоохранных проблем, с тем чтобы предотвратить дублирование усилий внутри системы Организации Объединенных Наций. Ниже приводятся основные темы, рассматривавшиеся на этой сессии.

2. Оживление деятельности ГЕСАМП

В конце 2005 г. ГЕСАМП приняла благожелательную поддержку со стороны Шведского агентства по сотрудничеству в целях международного развития (СИДА), рассчитанную на трехлетний период. Помимо этого, Морская администрация Швеции прикомандировала одного из своих сотрудников в качестве должностного лица ГЕСАМП с местонахождением в ИМО первоначально на два года, т.е. до конца 2008 г. Соответственно стало возможным ускорить процесс оживления деятельности, включая создание нового веб-сайта и пула экспертов, а также новой эмблемы и дизайнерского стиля ГЕСАМП. ГЕСАМП была также проинформирована о развитии последних событий в контексте обновленного меморандума между спонсорскими организациями, подкрепляющего новые Правила процедуры, а также о структуре ГЕСАМП, включая создание Бюро ГЕСАМП.

3. Оценка опасности вредных веществ, перевозимых на судах (Рабочая группа 1, РГ1)

Со времени проведения сессии ГЕСАМП в 2003 г. РГ1 провела пять сессий и продолжала свою работу по пересмотру профилей опасности, содержащихся в Международном кодексе по химовозам ИМО. После 33-й сессии ГЕСАМП Рабочая группа заново оценила все сыпучие химикаты, перевозимые морским транспортом, а ИМО ввела их новую классификацию в соответствии с категорией загрязнения, типом судна и условиями перевозки. РГ также разработала новый критерий оценки, основанный на показателях растворимости в воде, удельного веса, нестабильности и вязкости, что позволяет ИМО выявлять плавучие, погружающиеся и, в особенности, образующие устойчивую пленку вещества и предпринимать соответствующие меры. Целый ряд веществ теперь должен перевозиться в двухкорпусных танкерах, что, вероятно, является самым существенным достижением в сфере охраны окружающей среды в результате пересмотра Приложения II к МАРПОЛ.

РГ1 ГЕСАМП является первым международным органом, который разработал и применил оценочную систему для определения опасности ингаляционного воздействия химических веществ. Группа была создана в первую очередь во исполнение требования ИМО относительно предоставления данных об ингаляционной токсичности в целях защиты судовых экипажей.

4. Оценка и освещение экологического риска в прибрежной аквакультуре (РГ31)

В ГЕСАМП был представлен и обсужден проект исследовательского доклада РГ31. ГЕСАМП признала, что группа проделала существенную работу, но вместе с тем отметила необходимость подробного изучения и тщательного пересмотра представленного проекта доклада с тем, чтобы добиться высокого качества, научного совершенства, концептуальной ясности и строгости, которые присущи публикациям ГЕСАМП.

ГЕСАМП предложила, чтобы в заключительном докладе были особо отражены методологические и процедурные аспекты систематического, постепенного и логичного проведения оценок экологического риска и соответствующие необходимые усилия по его освещению. Группа также отметила бюджетные и временные ограничения, диктующие необходимость завершения исследования и публикации доклада до конца 2007 г. В этой связи ГЕСАМП обсудила и утвердила «дорожную карту» для окончательного рассмотрения и доработки исследовательского доклада РГ31 в 2007 г.

5. Модели экологической уязвимости, применяемые при анализе риска, связанного с морепродуктами (РГ33)

С 2003 г. РГ33 пребывала в бездействии ввиду нехватки финансовых средств и необходимого времени у персонала. По этой причине ФАО в качестве головного учреждения была вынуждена принять решение об отказе от оказания РГ33 руководящей поддержки. С учетом этого ГЕСАМП решила прекратить деятельность РГ33.

6. Обзор средств, применяемых в отношении «активных веществ», использующихся в системах управления балластными водами (РГ34)

Рабочая группа 34 была создана в ноябре 2005 г. для рассмотрения всех предложений, представленных в адрес ИМО в целях одобрения систем управления балластными водами, в которых

используются активные вещества. Рабочая группа представляет ИМО доклады относительно того, несут ли такие предложения неоправданный риск для окружающей среды, здоровья человека, имущества или ресурсов. РГ34 оценивает не функционирование, структуру или эффективность таких систем, а лишь их потенциальный риск для окружающей среды и здоровья человека. К настоящему времени Рабочая группа провела оценку 7 систем, находящихся на различных этапах процесса одобрения ИМО. Рабочая группа также подготовила обоснование или методологию не только для оценки той опасности для экологии и здоровья человека, которую представляют собой активные вещества, добавляемые в балластные воды, но и в отношении систем обработки, генерирующих такие вещества непосредственно на месте.

7. Глубоководные рыбопромысловые местообитания и экосистема (РГ35)

ФАО при поддержке ЮНИДО предложила учредить Рабочую группу ГЕСАМП по глубоководным рыбопромысловым местообитаниям и соответствующим экосистемным проблемам. Цель РГ35 будет состоять в проведении независимого научного обзора для информационного обеспечения политики, касающейся отдельных аспектов глубоководного рыбного промысла и его взаимозависимостей с экосистемой.

ГЕСАМП признала необходимость совершенствования научных рекомендаций, обзоров и обобщений, над чем группа могла бы плодотворно поработать. В ближайшие месяцы будут доработаны и точно определены сферы деятельности, цели и полномочия предлагаемой Рабочей группы ГЕСАМП. ГЕСАМП согласилась рассмотреть полномочия группы на предмет их одобрения в межсессионный период.

8. Разработка экосистемного подхода к прибрежной марикультуре (РГ36)

ФАО при поддержке ЮНИДО предложила учредить РГ36, которая проведет обзор существующей литературы и определит необходимые дальнейшие шаги в области исследований, рассмотрит экосистемные аспекты прибрежной аквакультуры в том, как она соотносится с вышеназванными вопросами. Рабочая группа будет предлагать решения путем предоставления рекомендаций о принципах и протоколах для осуществления деятельности в прибрежной аквакультуре.

Рабочая группа начнет свою работу в сентябре 2007 г. и продолжит ее в течение всего 2008 г. Затем на рассмотрение и одобрение ГЕСАМП будет представлен доклад для последующей его публикации. ГЕСАМП приветствовала создание этой Рабочей группы, отметив проактивный характер данного предложения и его потенциальный вклад в исследование экосистем.

9. Оценка опасности стойких органических загрязнителей (СОЗ) для морской среды (РГ37)

ЮНИДО предложила учредить РГ37, которая рассматривала бы угрозы, которые создают для морской среды стойкие органические загрязнители (СОЗ). После обсуждения этого предложения было решено, что работа РГ37 должна сосредоточиваться на проведении широкого научного обзора проблемы присутствия ртути и ее соединений (в том, что касается ее источников, переноса, эволюции, последствий и т.п.), а также на соответствующей опасности для морской среды.

ГЕСАМП одобрила создание РГ37, пересмотрев основную направленность первоначального предложения. Предложение о создании Рабочей группы и ее полномочия будут разосланы в переработанном виде для окончательного утверждения в межсессионный период.

10. Перенос химических веществ из атмосферы в океан (РГ38)

В свете растущего осознания важности химического взаимодействия между воздушной и морской средой ВМО предложила создать РГ38 на основе материалов получившего широкое признание Выпуска № 38 Докладов и исследований ГЕСАМП (*GESAMP Reports and Studies No. 38*). В течение предлагаемого периода в 2-4 года Рабочая группа проведет оценку потребностей в продуктах моделирования и измерений переноса в океан азотных соединений, пыли (железо) и, возможно, других химических веществ из атмосферы. Рабочая группа будет сотрудничать с Системой ВМО по предупреждению о песчаных и пылевых бурях, а также с Проектом ВМО по синтезу и обобщению данных о химических параметрах осадков.

ГЕСАМП позитивно оценила значимость предлагаемой работы и в принципе одобрила создание Рабочей группы.

11. Глобальные тенденции загрязнения прибрежных экосистем: ретроспективная оценка экосистем

МАГАТЭ внесло предварительное предложение о создании Рабочей группы и проект ее полномочий для того, чтобы можно было представить соответствующие замечания и предложения. Целью Рабочей группы могло бы быть содействие уменьшению стрессовой нагрузки на прибрежные экосистемы в мировом масштабе путем предоставления заинтересованным организациям, ученым и всему обществу объективной и глобальной оценки тенденций загрязнения в течение последних ста лет в уязвимых прибрежных экосистемах. Рабочая группа будет использовать ретроспективный анализ экосистем, основанный на экологических архивах и временных рядах данных, если таковые имеются.

ГЕСАМП положительно оценила это предложение и его потенциал в том, что касается расширения диапазона оценок загрязнения морской среды и их обычных временных и географических рамок. К тому же, это имело бы особую важность для стран, где данные мониторинга скудны. Свою заинтересованность в проекте проявили также некоторые региональные организации.

12. Вклад в оценку оценок в рамках «Регулярного процесса ООН»

Со времени своей 33-й сессии ГЕСАМП пристально следила за развитием регулярного процесса ООН по глобальному освещению и оценке состояния морской среды, включая социально-экономические аспекты (ГООМС). ГЕСАМП также активно поддержала публикацию Всемирным центром мониторинга охраны природы ЮНЕП (ЮНЕП-ВЦМОП) доклада «Обзор глобальных и региональных оценок и соответствующих мероприятий, касающихся морской среды», в первую очередь путем формирования обзорной группы для составления проекта этого доклада.

Как подчеркнул Исполнительный секретарь МОК, он ожидает, что ГЕСАМП и его члены сыграют ключевую роль в проведении оценки оценок, обеспечив техническую поддержку этого процесса. ГЕСАМП согласилась с тем, что ее члены смогут содействовать процессу различными путями, например, посредством рецензирования результатов, проведения исследований по заказу и наращивания потенциала. Члены ГЕСАМП также отметили важность проактивного участия в оценке оценок, проводимой спонсорскими организациями ГЕСАМП, и необходимость быстрого реагирования на любые соответствующие запросы от ведущих учреждений.

В заключение ГЕСАМП подтвердила свою готовность содействовать проведению оценки оценок и Регулярному процессу ООН (ГОМС) и наличия у группы соответствующего мандата, экспертных знаний и средств.

13. Семинар по определению тем, представляющих взаимный интерес для

ГЕСАМП и региональных организаций. В рамках процесса оживления своей деятельности ГЕСАМП провела однодневный семинар, на который был приглашен ряд региональных организаций. Посредством этого семинара ГЕСАМП стремилась повысить свое значение и роль в регионах путем расширения диалога с региональными организациями и информирования общественности о своих возможностях.

После кратких выступлений всех участников семинара, состоялась дискуссия по трем различным темам: «Определение сетей», «Где и как могут быть полезны консультативные услуги ГЕСАМП?» и «Возможности для наращивания потенциала».

Краткий отчет о дискуссии и выступления участников приведены в настоящем докладе, а также в виде отдельной публикации в серии «*Reports to GESAMP*».

14. Выявление новых и возникающих проблем в отношении деградации морской среды

ГЕСАМП обсудила перечень тем, имеющих большое потенциальное значение для морских экосистем. Хотя ГЕСАМП не может и не должна изучать все из них, было бы важным определить области, в которых ГЕСАМП призвана сыграть роль в проведении независимых оценок. Например, обсуждался вопрос о том, каким образом ГЕСАМП может лучше всего осуществлять мониторинг возникающих проблем, выявлять те из них, в отношении которых она обладает мандатом и способностью действовать, и определять возможности группы своевременно реагировать.

ГЕСАМП была проинформирована о том, что недавно Международный орган по морскому дну заказал исследование на тему коммерческой добычи минералов в обширных районах морского дна, находящихся под международной юрисдикцией. Признавая экономическое значение этого шага, ГЕСАМП в то же время выразила озабоченность по поводу потенциального воздействия такого развития на прилегающие морские экосистемы и тех мер, которые осуществляются в целях природоохранного управления этой деятельностью. Председателю ГЕСАМП было предложено в дальнейшем обратиться в Международный орган по морскому дну с просьбой о предоставлении дополнительной информации по этим вопросам.

1. INTRODUCTION

1.1 The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) held its 34th session from 8 to 11 May 2007 at the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organisation (UNESCO) Headquarters in Paris, France, under the Chair of Mr. Mike Huber. Mr. Robert Duce served as the Vice-Chairperson. On Monday, 7 May, the Members of GESAMP met for informal discussions, while the Executive Board held a GESAMP Executive Committee held meetings on 7 and 11 May 2007.

Opening of the session

1.2 The Chairperson of GESAMP, Mr. M. Huber, called the 34th session of GESAMP to order at 09.00 a.m. on 8 May 2007.

1.3 Mr. Patricio Bernal, Executive Secretary IOC, welcomed the participants to the UNESCO Headquarters on behalf of the host organization and indicated that this session was expected to generate important decisions and recommendations which would be significant for GESAMP's future. He recalled that IOC has supported past GESAMP Working Groups and continued to recognize GESAMP's outstanding role as an independent scientific advisory body in the UN System. In this respect, Dr. P. Bernal acknowledged the contribution of the late Dr. Umit Unluata, former GESAMP Technical Secretary for UNESCO-IOC in the work of GESAMP. He noted that GESAMP's revitalisation process is now well underway.

1.4 He recalled that GESAMP's New Strategic Vision¹ was recognised and welcomed by IOC Member States at the 37th IOC Executive Council and that GESAMP's role and *modus operandi* have been updated to meet more effectively the requirements of its sponsoring organizations.

1.5 Mr. P. Bernal stressed the importance of the UN Regular process for the Global Reporting and Assessment of the state of the Marine Environment (GRAME), for which UNESCO-IOC and UNEP are leading agencies. The establishment of GRAME was recognised as a key WSSD outcome as the need to provide accurate, scientifically robust and objective information to decision makers and the public on the state of the marine environment was realized.

1.6 Whilst the GRAME process took time to initiate, the start-up phase, called the 'Assessment of Assessments' is now being implemented through the establishment of a dedicated Group of Experts, which first met last March in UNESCO, Paris. The Chairman and Vice-Chairman of GESAMP are members of this group in their personal capacity. Dr. Bernal recalled that the potential role of GESAMP in the GRAME process has been emphasized during the meetings leading to the initiation of Assessment of Assessments (AoA) and now that the process has defined a clear work programme for the next two years, GESAMP should continue to stand ready to contribute to the AoA exercise and on a longer term perspective to the regular process itself.

1.7 Mr. P. Bernal expressed his wish for a successful session, one that would present a strong signal in favour of good and effective inter-agency collaboration.

Adoption of the Agenda

1.8 The agenda for the session as adopted is provided in Annex I to this report. Annexes II and III provide, respectively, the list of documents and the list of participants.

¹ «The New GESAMP: Science for Sustainable Oceans»: <http://gesamp.org/documentextern/newgesamp.pdf>

2. REPORT OF THE CHAIRPERSON OF GESAMP

2.1 The Chairman, Mr. M. Huber, informed the Members of significant developments related to GESAMP during the intersessional period and described the activities of the Chair, Vice-Chair (Mr. R. Duce), other Members of GESAMP, and the Technical Secretary for IMO (Mr. René Coenen) in representing GESAMP in international forums. To keep the membership of GESAMP aware of these activities, three intersessional short reports were sent to the Members to provide updates on GESAMP, and developments regarding the establishment of the Regular Process for Global Reporting and Assessment of the Marine Environment (GRAME).

2.2 There were several major developments regarding GESAMP during the intersessional period:

- The GESAMP Strategic Vision document was finalised in August 2003 in accordance with the decisions taken at GESAMP XXXIII, and subsequently revised to harmonise terminology regarding the administrative structure of the GESAMP mechanism with that of a draft Memorandum of Understanding being prepared by the agencies. The Strategic Vision document was published in its present form in early 2005.
- The GESAMP Ballast Water Working Group on Active Substances (WG 34) was established in December 2005. GESAMP reviewed two of the BWWG's reports intersessionally by correspondence and teleconference.
- Also in December 2005, GESAMP received financial support from the government of Sweden, for a period of three years, for the implementation of GESAMP's Strategic Vision including development of the GESAMP network, to strengthen GESAMP's participation in the GRAME, and to increase the participation of developing country experts in GESAMP activities. On behalf of GESAMP the Chair expressed his sincere appreciation and thanks to the government of Sweden for their generous support.
- A GESAMP Task Team met in London during 18-20 September 2006 to peer-review the *Survey of global and regional assessments and related activities of the marine environment and associated database* (see report of agenda item 6).
- In November 2006 Mr. Fredrik Haag was seconded from the Swedish Maritime Administration to the post of GESAMP Officer in the Administrative Secretariat at IMO. The Chair thanked Mr. F. Haag for his enthusiastic and effective efforts, and noted the tremendous benefit to GESAMP of having a full-time officer to support its activities.

2.3 Noting that the Strategic Vision calls for proactive engagement with other organisations and activities, the Chair informed Members of meetings and other fora at which GESAMP was represented during the intersessional period, including:

- As decided at GESAMP XXXIII, the IMO Technical Secretary, Mr René Coenen, attended the meeting "2010 – The Global Biodiversity Challenge" in London, May 2003.
- As decided at GESAMP XXXIII, Mr Tim Bowmer represented GESAMP at an informal meeting to develop UNEP's contribution to the GRAME in The Hague, May 2003.
- As decided at GESAMP XXXIII, the Chair represented GESAMP at the 4th meeting of the Informal Consultative Process on Oceans and Law of the Sea (ICP) in New York, 2-6 June 2003. He presented the Strategic Vision for the New GESAMP during the ICP meeting.
- As decided at GESAMP XXXIII, the Chair attended two workshops in Cairns, Australia, in June 2003: the Workshop on Governance of High Seas Biodiversity Conservation and the Workshop on Ecosystem-Based Management (EBM) – "Beyond Biodiversity, Sustainable Management and Conservation of the Oceans using EBM"
- The Chair represented GESAMP at the 6th and 7th meetings of the Steering Group of the Global International Waters Assessment, of which GESAMP was an ex-officio member, in Kalmar, Sweden, October 2003 and August 2004, respectively
- The Chair represented GESAMP, and presented GESAMP's position on its possible role in GRAME as developed at GESAMP XXXIII, at a Planning meeting to develop a UNEP module for the GRAME in Nairobi, November 2003. The Vice-Chair also attended this meeting, but in his capacity as President of SCOR and not in that of Vice-Chair. Mr. Larry Awosika also attended the meeting, in the capacity of an independent expert
- The Chair presented the Strategic Vision for the New GESAMP at the East Asian Seas Congress in Kuala Lumpur, Malaysia, December 2003. During that meeting the Chair also represented GESAMP at the Meeting of Experts to Identify Requirements for Scientific Support for the Seas of East Asia and, along with the Administrative Secretary of GESAMP, co-Chaired the section of the meeting devoted to the development of the GRAME.

- Mr L. Awosika represented GESAMP at a meeting of the Group of Experts on establishing the GRAME in New York, March 2004. The Chair and Vice-Chair also attended this meeting in the role of consultants to the UN Division of Oceans and Law of the Sea (UN-DOALOS)

- The IMO Technical Secretary of GESAMP, Mr. R. Coenen delivered a presentation describing the Strategic Vision for the New GESAMP to the IOC Assembly in Paris, June 2004.

- The Chair represented GESAMP at the 5th meeting of ICP, New York, June 2004 and attended the 1st International Workshop on the GRAME, which was held in conjunction with ICP, in the role of consultant to UN-DOALOS.

- The Chair represented GESAMP at the 2nd International Workshop on the GRAME, New York, June 2005.

- The Chair attended the first meeting of the GRAME Assessment of Assessment (AoA) Steering Group, New York, June 2006 in the capacity of consultant to UNEP.

- The Chair and Co-Chair participated in meetings of the Executive Committee held at the IAEA Marine Environmental Laboratory, Monaco in

February 2004, by teleconference in September 2005, and at IMO headquarters in London in February 2006.

- Mr. R. Coenen attended the Consultative Meeting on Large Marine Ecosystems, Paris, July 2006 to present the Strategic Vision and inform LME programmes that the workshop to identify themes of mutual interest between GESAMP and regional organisations would be convened at GESAMP 34 (see agenda item 7).

- The Chair reported on GESAMP and its activities at the annual SCOR meeting, held in Concepcion Chile in October 2006. It was agreed that GESAMP and SCOR would maintain contact to pursue opportunities for joint activities, particularly in the area of capacity building.

- The Chair and Vice-Chair are members of the AoA Group of Experts. The Chair attended the first meeting of the Group in Paris, February 2007, which the Vice Chair was unable to attend. The GESAMP Officer, Mr F. Haag, represented GESAMP at that meeting as an observer.

2.4 The Chair expressed his thanks to the Sponsoring Organisations and the Administrative Secretariat for supporting increased interactions of GESAMP with other organisations and activities.

3. REPORT OF THE ADMINISTRATIVE SECRETARY OF GESAMP

Activities and achievements of the Sponsoring Organizations of GESAMP since 2003

3.1 Mr. Miguel Palomares, the Administrative Secretary of GESAMP introduced an overview of the activities and achievements as reported by UNESCO-IOC, FAO, UNIDO, IAEA and IMO with the aim of providing a context of their involvement and interest in the activities GESAMP undertakes (GESAMP 34-INF.6-Rev.1). Some of these achievements are reported in Annex IV.

Modus operandi of GESAMP

3.2 GESAMP was informed that the Memorandum of Understanding agreed in 1994 between the Sponsoring Organizations of GESAMP as the administrative basis for GESAMP would be updated (GESAMP 34 INF.3-Rev.1). Furthermore, to make this MoU operational, draft Rules of Procedure and Guidelines for their Implementation had been developed using the Strategic Vision for the New GESAMP as the basis (GESAMP 34-INF.2).

3.3 The Executive Committee had reviewed the draft Rules of Procedure at its meeting on Monday, 7 May 2007. In this context it was agreed for the time being to remove any reference to the GESAMP Office and to a GESAMP Trust Fund until such time when these would be agreed upon. The Rules of Procedure were subsequently agreed in principle with some editorial amendments. Eventually, a revised MoU, the Rules of Procedure and any other arrangements such as a Trust fund would have to be adopted by either the Executive Heads or the Governing Bodies of each of the Sponsoring Organizations depending on their internal approval procedures.

3.4 The Executive Secretary of UNESCO-IOC informed GESAMP of the concerns that the Executive

Council of IOC in 2004 had expressed at the initial plan to review the MoU for GESAMP in such a way that it might become and be seen as an organization in its own right, rather than as a joint venture of its Sponsoring Organizations. As these concerns had been echoed by other Sponsoring Organizations, the discussion had since that time focused on a more flexible version of the MoU.

3.5 On a question whether decisions on the *Modus Operandi* for GESAMP might affect its scientific programming, the Group was assured that these decisions would only concern the administrative support arrangements for GESAMP.

Establishment of the “GESAMP Office”

3.6 GESAMP was informed that the Executive Committee had reconfirmed the aspiration to establish a “GESAMP Office” to centralize the support for GESAMP activities and make it more visible for its members, sponsors, governments and the scientific community. The Executive Committee is currently reviewing the legal, financial and administrative arrangements, including a roadmap towards a final decision regarding the establishment of the GESAMP Office, so encouraging the Sponsoring Organizations to reach decisions internally. This would also serve as an invitation to all Sponsoring Organisations to put forward, if they so wish, offer similar to the current offer by the IAEA Marine Environment Laboratories in Monaco to host the Office, in order to find the best possible solution for GESAMP. The Executive Committee would finalise the basic criteria and roadmap aimed at a final decision before the end of 2007 and with a focus on the modalities of a “Start-up” Office that, if successful, would be expected to evolve into the full GESAMP Office described in the Strategic Vision.

3.7 GESAMP took note of these developments.

4. GESAMP POOL OF EXPERTS AND WEB-SITE

4.1 In December 2006, IMO and IAEA agreed, through an MOU, to work jointly on redesigning the GESAMP web-site to provide a dynamic tool for facilitating all phases of the future work of GESAMP. The two major tasks undertaken by IAEA involved the re-development of the basic GESAMP web-site, and the development and operation of the database for the GESAMP Pool of Experts.

4.2 The IAEA consultant, Mr. Scott Fowler, co-ordinating these tasks presented the design and functioning of the pilot web-site to the Members and Observers placing particular emphasis on the methods of proposing and registering potential experts for the Pool of Experts. In order to expand the database, the consultant urged all the Members and observers at this meeting to furnish him or members the Executive Committee basic information (at least full name and e-mail address) on potential experts so that they can become registered for the Pool. He further noted that as the existing Working Groups are reactivated or new ones established, the Working

Group page will have the capability for uploading and downloading working group documents and drafts. It is anticipated that following GESAMP-34, there will be new information to post on various pages of the site, and that GESAMP and the Working Groups will begin to make full use of it.

4.3 The Group expressed its gratitude for the new web-site design and its functions, and made several suggestions for improvement including the possibility of having the site available in other official UN languages and the incorporation of a forum for interactive communication. All the suggestions were noted by the Executive Committee who will discuss them during their next meeting, and then advise the IAEA on what direction to take in making any substantial revision of the web-site. In this connection, the IAEA Technical Secretary stressed the need of having all suggestions for substantive alterations to the web-site decided upon soon, since as a next step it is intended to have a commercial firm finalize the basic web-site design and structure in the very near future.

5. GESAMP ACTIVITIES

5.1 Evaluation of the hazards of harmful substances carried by ships (WG1)

Introduction and history

5.1.1 The GESAMP Working Group on the Evaluation of Hazards of Substances carried by Ships (WG1) evaluates, at the request of IMO, the hazards to the environment and human health of bulk liquid chemicals carried by ships.

5.1.2 Since GESAMP met at its 33rd session in 2003, WG1 has held its 40th to 44th sessions and continued its work of revising the hazard profiles contained in the IMO International Bulk Chemicals Code (IBC Code). It completed this work in 2006 ahead of entry into force of Annex II of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) on 1 January 2007.

5.1.3 In that Convention, 'Bulk liquid chemicals' are defined loosely as those pumped onto or discharged from fixed tanks onboard a ship. Chemical tankers, of which there are approximately 1,000 to 1,200 active in international trade, are divided into three Ship Types, as follows:

Ship Type 1: Double-hulled with stringent carriage requirements to prevent exposure of given chemical to the crew and the marine environment

Ship Type 2: Double-hulled with less strict carriage requirements

Ship Type 3: Single-hulled for less hazardous or harmless substances

5.1.4 WG1 was established by GESAMP in 1974 to assist IMO in the hazard evaluation of chemicals under the then, new MARPOL 73/78 Convention. This work focused initially on developing a methodology to determine the hazard to the marine environment of substances carried under both MARPOL Annexes II (Noxious Liquid Substances in Bulk) and Annex III (Harmful Substances Carried by Sea in Packaged Form). This became the "GESAMP hazard profile", and was based on the following criteria: bioaccumulation (column A), aquatic toxicity (column B), acute toxicity to mammals (column C), skin and eye irritation (column D) and interference with amenities (column E, e.g., maritime infrastructure, fisheries, beaches). Over the intervening years a composite list of over 2,250 evaluated chemicals transported by sea was built up.

5.1.5 In 1995, two decades after MARPOL 73/78 had come into effect, the IMO Marine Environment Protection Committee requested GESAMP to review

its methodology in parallel with a planned update of MARPOL Annex II. Work commenced on the revised methodology over four sessions and received approval from GESAMP in 1998. This revised GESAMP Hazard Evaluation Procedure, published as GESAMP Reports & Studies No. 64, is summarized in Annex V to this report.

5.1.6 IMO subsequently requested WG1 to revise the 625 MARPOL Annex II hazard profiles contained in the IBC code (1998) according to the revised GESAMP hazard evaluation procedure, as it became known and this work commenced in 1998. At a rate of 100 substances per year, the first pass through the IBC code was completed on schedule in 2002. The next four years were used for the difficult work of filling in missing data through communication with the chemical industry and to evaluate additional substances from other IMO lists, leading to a total of approximately 850 re-evaluated substances.

5.1.7 The revised MARPOL Annex II and the revised pollution categories, ship type and carriage conditions associated with each chemical, entered into force on 1 January 2007, at which time the administration on board all chemical tankers in international trade switched to the new system.

Progress since GESAMP 33 in 2003

5.1.8 As part of the IMO process, the following has been achieved through the revision of MARPOL Annex II:

.1 IMO has reduced the quantities of tank washings permissible for discharge at sea to the maximum practicable extent;

.2 IMO has closed a loophole in the old regulations by which large quantities of tank washings, other slops, and even off-specification cargos could effectively be discharged at sea;

.3 All bulk chemicals in maritime transport have been re-evaluated by WG1 according to modern environmental, human health and physical-chemical criteria and have also been re-categorized by IMO as to pollution category, ship type and carriage conditions;

.4 WG1 developed a new criterion based on water solubility, specific gravity, volatility and viscosity, which enables IMO to identify floating, sinking and, in particular, persistent slick-forming substances and to treat them accordingly. A range of substances such as vegetable oils (currently representing a 30,000,000 tonnes per year trade) plus all other viscous and solidifying substances now have to be carried in double-hulled tankers, probably the single most significant achievement for the environment of the revision of MARPOL Annex II; and

.5 GESAMP WG1 is the first international body to develop and use an estimation system to evaluate the inhalation hazards of chemicals. This was developed primarily to fulfil an IMO requirement for inhalation toxicity data to protect crews on board ships. However, while requesting that the appropriate tests continue to be carried out by industry, it was felt necessary to reduce the number of animal tests, in particular for chemicals with which only marginal inhalation hazards would be expected.

5.1.9 The work of WG1 is unique, as it is possibly the only international body that evaluates the hazards of commodity chemicals by independent scientific peer-review. It allows scientific evaluation to be carried out independently of classification. A level playing field for industry has been maintained and encouraged upon which the hazards of substances are scientifically and fairly evaluated. Any changes which WG1 may recommend to the GESAMP Hazard Evaluation Procedure are submitted for approval by GESAMP, whereas the WG1/EHS reports containing the hazard profiles themselves are reported directly to the working group IMO has designated to assign the carriage requirements for the chemicals so evaluated.

Does the system work?

5.10 If a substance has no GESAMP hazard profile, or if the profile is missing ratings in particular columns, then IMO cannot categorize the substance and any ship accepting to carry such a cargo runs the real risk of being prevented from proceeding by the harbour authorities of Contracting Parties to MARPOL.

5.2 Environmental risk assessment and communication in coastal aquaculture (WG31)

5.2.1 The FAO Technical Secretary introduced the background to the presentation of the draft study report by WG31 on Environmental Risk Assessment and Communication in Coastal Aquaculture and referred to meetings documents: GESAMP34/5/2 and GESAMP34/5/3. During GESAMP-XXXII in New York, WG31 was given the task of producing a review report and guidelines for environmental risk assessment of coastal aquaculture, aimed at promoting harmonization and consistency in the treatment of risk and uncertainty, and improved risk communication. Based on a background and discussion paper (Hambrey and Southall, 2002) to identify and explore key issues, WG31 started its task with an initial scoping planning meeting in 2003. Following health and workload problems faced by the first two chairpersons of WG31, in 2005 Mr Edward Black took over chairmanship for WG31. Finally in November 2006, with the support by FAO, Members of WG31 met in Rome to discuss and complete draft sections of its study. In March 2007 the revised draft study was circulated to peer reviewers from both the scientific and user community.

5.2.2 The Technical Secretary emphasized that FAO appreciated the efforts by WG31, and at the

same time he highlighted the significant requirement for the study report of WG31 to be finalized as soon as possible so that it be submitted in time to printers for publication in 2007 in the series of GESAMP Reports and Studies.

5.2.3 Mr Black, Chair of WG31 presented an overview of the approach of the draft study on assessment and communication of environmental risks associated with coastal aquaculture. He gave a general overview of risk analysis, illustrated by selected aspects of the proposed risk assessment and communication framework. He highlighted the importance of linking the structure, process and content of the risk analysis with the public's perception of what they require to evaluate risks and buy into risk assessment on a personal emotive level in contrast to the scientific risk analysis level.

5.2.4 The draft study contains five chapters outlining the environmental risk assessment and communication framework. These chapters provide an introduction to the report, a discussion of the environmental risk associated with coastal aquaculture development, a description of the nature of risk and uncertainty and the relationship between uncertainty and the application of the precautionary principle. A comparative discussion of other decision support systems follows along with a discussion of the structure of the proposed risk assessment system. The fifth chapter contains an extended discussion of the need for and functions of risk communication, the challenges the communication strategy must meet and an outline of engagement and communication tools. Six case studies were developed to illustrate the process of risk assessment of specific environmental hazards associated with 6 coastal aquaculture scenarios in Europe and Asia. Mr Black also summarized briefly the comments and suggestions received from experts who have peer reviewed the draft study.

Discussion by the Group

5.2.5 GESAMP recognized the significant efforts by WG31 of trying to develop an extensive review and guidance document on the complex issues of environmental risk assessment and risk communication in the realm of coastal aquaculture. The Group also recognized that the peer review of the draft study report has confirmed both the significance of the effort by WG31 as well as the evident need for thorough review and careful revision of the draft study report as submitted, to ensure the high quality, scientific excellence and conceptual clarity and rigor expected of a GESAMP publication.

5.2.6 The Meeting discussed issues of scope of the present report such as geographical extent of ecological risk assessments, coverage of habitats, rela-

² Hambrey, J. and T. Southall, 2002. Environmental risk assessment and communication in coastal aquaculture: A background and discussion paper for GESAMP Working Group 31 on Environmental Impacts of Coastal Aquaculture. (71 p.).
ftp://ftp.fao.org/FI/DOCUMENT/gesamp/GESAMP31Hambrey_Southall2002.pdf

tionships in the use of fishmeal for aquaculture feeds and effects on wild fish resources, quantification of nutrient releases, cost-benefits assessments in aquaculture. It was emphasized that good science is needed in particular in developing countries, especially for the development and management of small-scale aquaculture. It was recommended that such scientific issues be reflected in the respective sections of the study report, for example in addressing data-rich and data-poor situations in environmental risk assessments of coastal aquaculture. Overall, it was concluded that the study should emphasize and focus on the methodological and procedural aspects of systematic, stepwise and logical conduct of environmental risk assessments, and the necessary associated efforts of risk communication. In order to highlight the scientific focus on environmental risk issues, it was suggested that the title be changed to "Assessment and communication of environmental risks in coastal aquaculture".

5.2.7 The Group recognized the budgetary and time limitations requiring that the study be completed and published before the end of 2007. Therefore, GESAMP discussed and agreed to the below roadmap for the final review and finalization of WG31's study report in 2007. Mr E. Black confirmed he and WG31 will undertake the necessary efforts to finalize the study report in time.

5.3 Environmental exposure models for application in seafood risk analysis (WG33)

5.3.1 The FAO Technical Secretary of GESAMP introduced the origins and status of Working Group 33. Following a proposal by FAO, GESAMP in 2001 established WG33 with the expectation that the group "will

assess the feasibility of the development/adaptation and use of practical and cost-effective aquatic ecotoxicological and microbiological hazard/risk assessment methods for application in seafood safety risk assessment and management". The WG began its efforts with a scoping meeting held in Rome, December 2001, to examine the critical issues within the general mandate for the Working Group, and to better define the scope of the WG's activities. The report of this Scoping Meeting is available from FAO. WG33 was originally supported primarily by FAO and WHO, but agencies such as IOC, UNEP and IAEA had also shown interest. However, WG33 has been dormant since 2003, due to shortage of funds and staff time. For these reasons, FAO has had to decide that it will no longer provide the lead support for WG33. Other possibly interested agencies were invited to present proposals to revitalize and lead this WG in view of shared concerns over seafood safety and consumer protection. The Technical Secretary also highlighted that seafood risk analysis along the entire food chain is undertaken by FAO/WHO within the framework of the Codex Alimentarius Commission. Finally, he thanked Messrs D. Weston and F. Gobas, Chairs of this WG, and all experts of WG33 for their efforts.

5.3.2 The Group briefly discussed general issues of funding and duration of working groups, and, in conclusion, decided to discontinue the initiative of WG33.

5.4 Review of applications for 'active substances' to be used in ballast water management systems (WG34)

5.4.1 The GESAMP – "Ballast Water Working Group on Active Substances" or WG34, was established in November 2005 to review any proposals submitted to

Roadmap for revision and completion of WG31 Study Report during 2007

14-18 May 2007	F. Haag/Administrative Secretariat produces list/compilation of comments by peer reviewers
21 May 2007	U. Barg/FAO sends above compilation of peer reviewers comments to all members of WG31
by 01 July 2007	I. Davies & other WG31 experts revise Main Chapters 1-5 of Draft Study addressing all peer reviewer comments on Chapters 1-5. I. Davies confirmed target date. As soon as main chapters 1-5 are revised, these should be circulated as soon as possible to GESAMP Members
by 1 July 2007	All WG31 experts revise all Case Studies 1-6 addressing all peer reviewer comments
by 15 September 2007	E. Black/WG31 Chair has reviewed and consolidated all revisions following peer reviewers comments, and submits revised WG31 Study Report to Haag & Barg, together with response by WG31 to peer review comments.
17 September 2007	F. Haag/ Administrative Secretariat circulates (1) revised study report, (2) compilation of peer reviewers comments and (3) response by WG31 to peer reviewers comments, to all Members of GESAMP
08 October 2007	Telephone Conference all GESAMP Members to discuss revised Study Report, with a view to approve it for publication
22 – 26 October 2007	E. Black/WG31 Chair submits final version of revised Study Report to FAO
01 November 2007	U. Barg/FAO submits FINAL Study Report to FAO printing

IMO for approval of Ballast Water Management systems (further referred to as treatment systems) that make use of Active Substances. WG34 reports to IMO on whether such proposals present unreasonable risk to the environment, human health, property or resources in accordance with the criteria specified in the Procedure for approval of ballast water management systems that make use of Active Substances, adopted by IMO.

5.4.2 WG34 does not evaluate the operation or design of the systems, or their effectiveness, only their potential for environmental and human health risks.

5.4.3 WG34 has met on three occasions at IMO Headquarters in London, WG34/1 and 2 being chaired by Mr. Finn Petersen and WG34/3 by Mr. Tim Bowmer. The workload and timetable for the approval of active substances for use in treatment systems is determined by the number of interested manufacturers and by the planned implementation of the Ballast Water Management Convention (2004) and WG34/4 is planned for 29 October to 2 November 2007. Each meeting has produced a report to the Marine Environment Protection Committee (MEPC) of IMO, the end user, which is first approved by GESAMP. MEPC, taking the WG34 reports into account, then approves or rejects these applications.

5.4.4 To date, WG34 has evaluated seven systems in various stages of the IMO approval process. They generally depend on pre-filtration of the ballast water followed by the application of oxidizing mechanisms, (e.g. using ozone, peroxide, chlorine or free-radicals). Such substances/species are mainly generated in-situ but may also be applied by the injection of chemical substances.

5.4.5 WG34 has also developed a rationale or methodology not only for assessing the environmental and human health risks from active substances injected into ballast water but also for treatment systems generating such substances in-situ.

5.4.6 Many of the treatment systems evaluated to date tend to produce a similar range of chemical by-products, although concentrations may vary widely. These include low molecular weight, halogenated substances, some of which are volatile. These by-products arise from the interaction of the oxidizing substances/species produced by the treatment system with organic matter in the treated water.

5.4.7 Such by-products are well known from coastal, industrial cooling water systems. However, their use on board ships presents some challenges where human health risk assessment is concerned and only a qualitative assessment can be conducted at present, as the quantities, in particular, of volatile compounds produced in ballast water tanks and associated spaces are difficult to predict. Such considerations of risk are necessarily always coupled to shipboard requirements for ventilation and Personal Protective Equipment.

5.4.8 The potential risks to the marine environment from ballast water treatment measures in busy waterways are currently not the subject of assessment but may well need consideration in the future, when ballast

water treatment systems are installed on a regular basis on board ships.

5.4.9 The WG34 has identified the following priorities for the coming period:

.1 to further develop its methodology as a matter of urgency;

.2 to strengthen its membership with further expertise on toxicology/occupational exposure to active substances and the by-products of large scale oxidizing systems;

.3 to focus efforts on identifying the similarities of the system emissions, in order to move towards a more efficient and integral assessment of the human health & environmental risks; and

.4 to assess the feasibility of developing an emission scenario document(s) for ballast water treatment systems.

5.4.10 WG34 benefits greatly from the close scrutiny of its reports and activities by GESAMP and looks forward to feedback from a growing number of GESAMP experts.

5.5 Deepwater fisheries-habitat and ecosystem (WG35)

Introduction

5.5.1 The FAO Technical Secretary briefly introduced the background to FAO's proposal in 2006 for the establishment of a GESAMP working group on deepwater fisheries habitat and related ecosystem concerns, and referred to meeting document GESAMP34/5/6. The FAO Fisheries and Aquaculture Department has been aware of the increasing challenges faced if deepwater fisheries are to be sustained and of the frequently dismal record many such fisheries have of resource depletion, over-fishing, excessive by-catch and discards, and damage, if not destruction of the benthos by fishing gear. He also highlighted the funding situation for this WG, which presently includes contributions of USD 20,000 (by FAO), USD 10,000 (from SIDA funds in support of GESAMP), and USD 10,000 (by UNIDO). Funds contributed by FAO and UNIDO are available for 2007. He invited additional contributions by other possibly interested parties.

Presentation

5.5.2 Mr. John Gordon, Chair of WG35, gave a presentation on the proposed WG on deepwater fisheries-habitat and ecosystem. The increasing concerns about the sustainability of deep-water fisheries, and in particular their over-exploitation and their impacts on deep-water ecosystems, led FAO to facilitate DEEP-SEA 2003 and its preceding workshops in New Zealand. Other organisations have been active in raising concerns over deep-water fisheries, especially bottom-trawling on the high seas, culminating in a case for a moratorium on

deep-water trawling being presented to the UNGA in December 2006. Certain knowledge gaps were identified. UNGA turned to FAO for technical advice and COFI (Committee on Fisheries) in March 2007 agreed to establish technical guidelines through an Expert Consultation and a Technical Consultation. FAO also agreed to create a global database on high seas vulnerable marine ecosystems. They identified as a first step the need to define terminology and to this end a meeting of deep-water fisheries experts is planned for June 2007. It is envisaged that this meeting might make a contribution to the proposed GESAMP activity and, in particular, facilitate the setting up of a smaller GESAMP working group.

5.5.3 There are a wide range of activities associated with deep-water fisheries that require attention and deciding priorities will be difficult. There has been considerable emphasis on issues related to the exploitation of high-seas fisheries, especially for species that aggregate around seamounts and similar topographic features. Mr. Gordon, however drew attention to the wide range of other fisheries, from those that extend from the shelf into slope waters to those that are widely dispersed on continental slopes and those associated with oceanic islands. The prerequisite for a deep-water fishery, as for any shelf fishery, is high surface productivity leading to a rich food supply. Although 400 m is often considered as the upper limit, the growing awareness of shelf slope interactions sometimes indicates that 200m would be more appropriate. Fishing methods such as bottom trawl, semi-pelagic trawl, longlines, gill nets and traps all raise separate issues for sustainability and environmental impacts. The issue of the removal of considerably more biomass of semi-pelagic species from the same ecosystem is seldom addressed.

5.5.4 Some topics are of particular relevance to FAO. Seamount fisheries are currently highly topical both in terms of the vulnerability of the target species and the readily recognisable impacts on seamount benthic fauna. There is a need for an integrated global approach and an independent scientific review of the considerable and growing literature. Case studies for the management of deep-water fisheries are confined to relatively few important commercial species. New case studies on other species are needed. By-catch issues in deep-water fisheries have often placed the emphasis on damage to benthic habitats but the issue of discards of non-target species and their high, if not total mortality, should also be addressed, especially in the fisheries based on dispersed species. The harvesting levels are very often too high and based on inaccurate assessments of risk. The collection of by-catch data could be facilitated by means of on board observer programmes. The working group should review the benefits of Marine Protected Areas in the context of fisheries, conservation of biodiversity and fish habitat.

Discussion

5.5.5 GESAMP expressed its interest in the discussion paper and noted that more detailed Terms of Reference (TOR) should be developed for discussion

by GESAMP. The preparation time has been very short and it was intended that these should be decided using the expertise attending the FAO Workshop (June 2007) on destructive fishing and vulnerable ecosystems. A further complication that arose was that 75% of the budget had to be used to fund meetings before the end of 2007. This would mean that GESAMP would have to agree the terms of reference intersessionally.

5.5.6 There is a considerable amount of published data and ongoing work on conservation aspects of high seas deep-water fisheries. A term of reference might be to synthesise all these data sources, provide an independent scientific opinion on their credibility and to identify gaps. Some participants expressed an interest in a better understanding of the linkages between shelf and continental slope fisheries, for example in the West African upwelling areas. It was pointed out that a Workshop on the Governance of High Seas Biodiversity Conservation in 2003 had covered Marine Protected Areas (MPA) in some detail and in focusing the terms of reference to one or two topics consideration of MPAs might be removed. Protection by declaring an IMO Particularly Sensitive Sea Area was an option that could be considered. Issues of governance of high seas fisheries and their links with the UNGA process were raised and it was suggested that the working group might carry out a global evaluation.

5.5.7 In summary, the Chair of GESAMP expressed the view that this was a fertile area for GESAMP and there was a need for better scientific advice, review and synthesis. The sustainability of funding was a concern especially to ensure adequate reporting of outcomes. It was pointed out that GESAMP products are very varied and long detailed reports are not always necessary. It was agreed that a small discussion group would meet off-line to come up with proposals for a way ahead and would report back in plenary on Thursday, 10 May.

5.5.8 The discussion group suggested that terms of reference and a roadmap of follow-up activities be developed as an outcome of the meeting in Paris. Mr J.Gordon developed and presented the following tentative TOR and tentative roadmap to GESAMP, with due consideration of the envisaged FAO expert meeting in June 2007 which would assist in refining and focusing the scope, objectives and TOR for the envisaged GESAMP WG35 on Deep-water Fisheries. GESAMP agreed to the proposed approach, and to consider the TOR for approval intersessionally.

5.5.9 The objective of WG35 will be to provide an independent, scientific review to inform policy of selected aspects of deep-water fisheries and their ecosystem interactions. The TOR will include topics that would benefit from scientific review and also the identification of emerging issues and the identification of research needs. An over emphasis on high-seas fisheries should be avoided to allow a consideration of all deep-water fishing activities. Regional aspects, which were emphasised at GESAMP-34, will involve slope and oceanic island fisheries.

5.5.10 Three key questions underlying the WG.

How much? Summarise the present status of deep-water fisheries in the regions. At what level are deep-water fisheries sustainable taking account of the fact that there are likely to be differences between single-species fisheries on aggregations and multi-species fisheries based on dispersed species.

Where? Identify where these fisheries occur and what are the risks in terms of stock depletion, bycatch and habitat degradation. What are the factors that influence the location of these fisheries and how are they influenced by climatic fluctuations such as ENSO and NAO. Are there any robust long-term time series of data to evaluate temporal change?

How? Provide an overview of the different fishing methodologies, their selectivity, their impact on the deep-water ecosystem and how these might be ameliorated by gear design or modification. Given that all fisheries impact on the ecosystem can we arrive at an evaluation of acceptable levels for some ecosystems?.

Thematic areas for consideration in the development of Terms of Reference

GESAMP-34 identified the following key thematic areas to consider in developing the TOR for WG35:

(1) *Seamounts*

5.5.11 Tasks that WG35 might consider with respect to seamount fisheries include:

- To summarise and evaluate the available information on seamount fisheries and their ecosystem interactions (possibly in collaboration with the CoML Censeam project);
- To investigate the possibility of accessing historical data including landings data reported as 'other species' because of the lack of species codes for recording data;
- Given that seamount fisheries differ considerably depending on geographical area and depth, to compile an inventory with relevant information on, for example, hydrographic features and trophodynamics; and
- To assess available information on existing management, its successes and failures, and provide objective scientific advice.

(2) *Fisheries on widely dispersed deep-water species*

5.5.12 Unlike seamount (and some semi-pelagic fisheries) which are generally clean (single species with minimal bycatch) the fisheries of the continental slope are usually mixed and can generate significant amounts of bycatch. Most bycatch (fish and invertebrate) that is discarded is subject to high mortality. Fishing in the third dimension raises questions of the interaction between target and non-target species. For example fishing a target species at one depth can impact on the juveniles of another target species that is harvested from a different depth. Many deep-water fisheries develop as extensions of shelf

fisheries yet the interaction between shelf and slope is seldom investigated. There is potential for regional case studies in a variety of different ecosystems and to assess the risks to existing fisheries of exploiting new resources.

(3) *Case studies on the management of deep-water fisheries, including assessments and management of the risks.*

5.5.13 Case studies might include:

- Summaries of existing management of selected and representative deep-water stocks on a regional basis, providing a scientific assessment.
- Consideration of the need to undertake regional or global workshops on other species for which data are limited.
- Depending on the expertise available to the WG, an evaluation of present assessment methods and advice on their suitability.

(4) *Collection of data on landings and bycatch*

5.5.14 Reported landings of fish species can, for a variety of reasons, be inaccurate and in the case of deep-sea species this problem has been compounded by the lack of appropriate species codes. For example deep-water demersal sharks are often recorded as "sharks various", a term that includes numerous pelagic species. Accessing national and regional databases could add an important historical dimension. Bycatch data can be obtained directly from fisheries where observers are carried or indirectly from exploratory or research surveys. Where funds are available these data should be archived.

(5) *Food web/trophodynamic linkages*

5.5.15 The interactions between deep-sea demersal fisheries and the pelagic realm are often neglected. Questions that WG35 could consider addressing include: What are the implications for demersal fisheries of changes, anthropogenic or otherwise, in pelagic biomass? What are the implications of the selective removal of top predators?

The way ahead

5.5.16 The formulation of the terms of reference for the new GESAMP Working Group on Deep-water Fisheries is at a preliminary stage and benefited from discussions at GESAMP-34. The process is closely linked with other ongoing FAO deep-water fishery activities. Several deep-water fishery experts will meet at an FAO sponsored meeting in June 2007 that aims to define destructive effects of deep-water fishing and the impact on vulnerable ecosystems. This meeting will be used to refine the terms of reference of the proposed GESAMP working group.

5.5.17 Soon after this meeting (late June) the proposed terms of reference will be submitted to GESAMP for approval. Given that \$30,000 of the \$40,000 budget must be used in 2007 a meeting(s) of experts will be convened as soon as possible thereafter. The objective will be to produce the first draft report in early 2008, and in time for consideration at GESAMP-35.

5.6 Development of an ecosystem approach to offshore mariculture (WG36)

5.6.1 The FAO Technical Secretary briefly introduced the background to FAO's proposal in 2006 for the establishment of a GESAMP working group on the development of an ecosystem approach to offshore mariculture, and referred to meeting document GESAMP34/5/4. The FAO Aquaculture Management Service is concerned about the ecosystem interactions of offshore mariculture, and is interested in the advancement of an ecosystem approach to offshore mariculture. He also highlighted the funding situation for this WG, which presently includes contributions of USD 20,000 (by FAO), USD 10,000 (from SIDA funds in support of GESAMP), and USD 10,000 (by UNIDO). Funds contributed by FAO and UNIDO are available for 2007. He invited additional contributions by other possibly interested parties.

5.6.2 Mr. John Marra, Chair of WG36, presented the case for the new Working Group. Mariculture will play an increasing role in the sea's living resources, and because of various kinds of pressures in the coastal zone, the future will see a general move to offshore environments. The issues for mariculture in the offshore environment for the ecosystem are:

- the relationship of mariculture operations to the pelagic ecosystem in terms of nutrient output and food sources,
- the occurrence of diseases in farmed fish; and
- how to deal with the effects of escaped fish on wild populations.

The WG36 will :

1. will review the existing literature, and identify the next steps to be taken in research;
2. will consider the ecosystem aspects of offshore aquaculture, as it relates to the above issues, and
3. will propose solutions, by way of recommending guidelines and protocols for the conduct of offshore aquaculture operations. The composition of the WG will be geographically broad, while retaining the appropriate expertise to deal with the scientific issues identified, and will number about 10. A core group of the WG met for a scoping meeting in April 2007. The WG will commence its deliberations in September of 2007, and continue through 2008, at which time a report will be submitted to GESAMP for review and approval prior to publication.

Discussion

5.6.3 GESAMP welcomed the establishment of WG36. It was noted that the scope of the WG anticipates potential issues arising from offshore mariculture rather than reacting to existing problems, and also that the work will advance the ecosystem approach. There was substantial discussion with regard to representation on the WG from Africa and from other developing regions, and consequently on the size of the WG. Under the first of the TOR, it was suggested that there is important literature available regarding issues that the WG should consider, and the appropriate links were identified. There was also

a discussion of the relationship of the ecosystem properties to issues of globalisation, and Mr J. Marra said that while there is a focus on ecosystem issues, the WG will have one member that is an economist, and another expert knowledgeable of industry interests and concerns. Some participants expressed a desire for a more precise definition of 'offshore' and Mr. Marra discussed the various issues surrounding this definition and said that it would be part of the WG's considerations. It was noted that there are protocols for ecosystem-based management of fisheries, and it was suggested that these could inform the WG with respect to guidelines for the conduct of mariculture operations offshore.

Conclusions

1. The Chair of WG36 will revise the TOR in accordance with the views of GESAMP, and in consultation with the WG members.
2. The final membership of the WG will be confirmed by the Chair. UNIDO's Technical Secretary will suggest one or two experts in mariculture for possible participation in the WG. It was suggested that a junior expert in mariculture be involved in the WG for capacity building.

5.7 Assessment of threats posed by persistent organic pollutants (POPs) to the marine environment (WG37)

5.7.1 The proposal for the Working Group on Assessment of threats posed by persistent organic pollutants (POPs) to the marine environment (WG37) was presented by the UNIDO Technical Secretary Mr. Chika Ukwé. He highlighted the rationale and background of the proposal including draft TOR, partners, funding and timeline, and referred to meeting document GESAMP 34/5.

5.7.2 GESAMP commented on the proposal and after extensive discussion it was agreed that reference to the potential designation of methyl mercury as a POP under the Stockholm Convention be removed from the proposal and the focus of WG37 should be on an expanded scientific review of mercury and its compounds (related to sources, transport, fate, effects etc of mercury) and threats to the marine environment.

5.7.3 GESAMP approved the establishment of WG37 with the revised focus and requested UNIDO to proceed with appointment of a Chair for the WG and, in consultation with the Chair, to re-draft the WG proposal and TOR to reflect the comments of GESAMP. UNIDO agreed to circulate the redrafted proposal and TOR to GESAMP for comments and final approval during the intersessional period .

5.8 Atmospheric input of chemicals to the ocean (WG38)

5.8.1 GESAMP considered the proposal submitted by WMO entitled GESAMP Working Group on the Atmospheric Input of Chemicals to the Ocean (meeting doc-

ument GESAMP 34/5/1). The WMO Technical Secretary for GESAMP was unable to attend this GESAMP-34 due to the session overlapping with the WMO Assembly. The WMO Technical Secretary asked Mr. Duce to present the proposal to GESAMP in his absence.

5.8.2 Mr. Duce began by reminding the members that GESAMP Reports and Studies No. 38, published in 1989 and in the peer-reviewed journal *Global Biogeochemical Cycles* in 1991, covered a similar topic. These have been the benchmark publications in the area of air/sea exchange of chemicals well into the 2000s. Some of the conclusions of GESAMP R&S No. 38 were presented as illustrations of the importance of the atmosphere as a transport path for chemicals entering the ocean. In addition, more recent information on the importance of the input of nitrogen and iron (via mineral dust) to the ocean from the atmosphere was presented. These latter substances in particular have potentially important implications for climate, since they are both nutrients that limit primary productivity in different areas of the ocean. Changes in their input could thus result in changes in productivity, which in turn could affect the exchange of carbon dioxide between the ocean and the atmosphere.

5.8.3 It was pointed out that the data used in the earlier publications are now almost 20 years old, significant new data and new models are now available, and the recognition of the importance of chemical air/sea exchange has grown considerably since 1989. This has prompted the proposal for this new Working Group.

5.8.4 The draft TOR for WG38 were presented, and they are as follows:

1. Assess the need for model and measurement products of the atmospheric input of nitrogen species, dust (iron), and possibly other chemicals to the ocean;
2. Work with the WMO Sand and Dust Warning System as it develops to make certain that the needs of the marine community are represented in their planning process; and
3. Work with the WMO Precipitation Chemistry Data Synthesis and Community Project to evaluate the needs of the marine community and assist in clearly articulating them in the development of the Project's products.

5.8.5 The proposed time frame for the working group is 2 to 4 years. It was proposed for WG38 to hold its first meeting in conjunction with the WMO Sand and Dust Forecasting Community Experts Meeting to be held in Barcelona in November. At this meeting dust research forecasting scientists will meet with the user and observation community. Having the WG38 meeting in conjunction with this meeting would enable personnel involved in the WMO effort to discuss and develop possible forecast and analysis outputs that could be valuable to the marine community.

5.8.6 WMO has also indicated that it would be very pleased for other interested agencies to join in co-sponsoring this WG. The Technical Secretary for IMO indicated that IMO was possibly interested in participating in this

Working Group. The Technical Secretary of UNIDO also indicated his interest in this WG, in particular in the area of nitrogen cycling and deposition, and other chemicals. The representative of UNEP indicated that she would carry the information on this WG back to the UNEP Technical Secretary for evaluation of UNEP's interest.

5.8.7 The representatives of both the Northwest Pacific Action Plan and the UNDP-IOCARIBE Caribbean LME Project also indicated a strong interest and asked to be kept informed in ways in which they could become involved in the Working Group activities.

5.8.8 GESAMP commented positively on the value of the proposed work and its relevance to GESAMP activities. In particular, it was suggested that it would provide added value if chemicals in addition to nitrogen and iron (dust) could be considered by the Working Group. Specific chemicals mentioned included mercury and methyl mercury as well as possibly bio-monitoring chemicals, including some heavy metals and synthetic organic chemicals.

5.8.9 GESAMP gave its approval for this Working Group, in principle, contingent upon further discussions between the Technical Secretaries of WMO, IMO, and UNIDO and the selection of appropriate experts as members.

5.9 Global trends in pollution of coastal ecosystems: retrospective ecosystem assessment

5.9.1 The Technical Secretary of IAEA shared with GESAMP a preliminary draft proposal for a potential Working Group "Global trends in pollution of coastal ecosystems: retrospective ecosystem assessment", including a proposal for its Terms of Reference, for comments and suggestions. The objective of this Working Group would be to contribute to the reduction of coastal ecosystem stress globally by providing stakeholders, scientists and society in general an objective and global assessment of pollution trends during the last century in sensitive coastal ecosystems, through retrospective ecosystem analysis, by using dated environmental archives and time-series data where available.

5.9.2 GESAMP responded positively to the proposal and provided useful comments on the preliminary document, including that i) the concept is very valuable as it would extend the temporal and geographic scope of marine pollution assessments beyond time-series data, which is limited in duration and geographically; ii) it would provide quantitative scientific evidence of coastal ecosystem evolution; and iii) it would be particularly important for countries where little monitoring data is available.

5.9.3 GESAMP recommended that the lead organization consider the coordination with other international projects and contact potential co-sponsoring agencies for the further development of the draft proposal. Several regional organizations indicated their interest in the project.

6. CONTRIBUTIONS TO THE ASSESSMENT OF ASSESSMENTS UNDER THE 'UN REGULAR PROCESS'

6.1 The IOC Technical secretary provided an overview on the latest development related to the UN regular Process. The United Nations General Assembly (UNGA) Resolution A/RES/57/141 and the Heads of States and Governments at the World Summit on Sustainable Development (Johannesburg, 2002) called for the establishment of a Regular Process for the Global Reporting and Assessment of the State of the Marine Environment, Including Socio-Economic Aspects (GRAME) by 2004.

6.2 UNGA, through its Resolution 60/30, decided to launch the start-up phase of the Regular Process through an arrangement with the following entities:

- (i) An Ad Hoc Steering Group to oversee the execution of the "Assessments of Assessments";
- (ii) IOC of UNESCO and the United Nations Environment Programme (UNEP) to lead the process; and
- (iii) A Group of Experts to carry out the "Assessment of Assessments".

6.3 In conformity with the UN Resolution, the "Assessment of Assessments" (AoA), to be undertaken within a period of two years, has been initiated by IOC and UNEP and will be implemented in collaboration with other UN agencies and institutions, such as FAO, IMO, WMO and the International Seabed Authority (ISA). The Ad Hoc Steering Group to oversee the execution of the Assessment of Assessments held its first meeting from 7 to 9 June 2006 in New York and adopted targeted decisions on substantive agenda items, such as the scope, key questions, process, budget, implementation plan and schedule for the "Assessment of Assessments".

6.4 Stated succinctly, the primary aims of the AoA were reconfirmed as:

- (i) to assemble information on, and carry out a constructive appraisal of, past or ongoing assessments relevant to the marine environment;
- (ii) to identify gaps and uncertainties in scientific knowledge and current assessment practices and assess how these assessments have been communicated to policymakers at the national, regional and global levels;
- (iii) to produce a framework and options for the Regular Process itself.

6.5 In August 2006, a list of high-level experts (20) and peer reviewers identified by IOC and UNEP was endorsed by the Ad Hoc Steering Group. Further preparatory work was undertaken in the fall, in collaboration with the UNEP World Conservation Monitoring Centre (UNEPWCMC), with the support of GESAMP. This led to the publication of a "Survey of global and regional assessments and related activities of the marine environment" in February 2007, and the development of an associated online database (www.unep-wcmc.org/gramed). Based on GESAMP's long-standing involvement in global marine assessments and its active remit in this regard, GESAMP

hosted, at the request of UNEP and UNESCO-IOC, a workshop in September 2006 to review the draft UNEP-WCMC Survey report on the latest achievements concerning key global and regional assessment activities since their identification in a UNEP-WCMC survey published in 2003. This report, published in 2007, provides supporting information for the work of the AoA Group of Experts as well as recommendations on methodological issues. GESAMP was briefed on the outcomes of the 1st Group of Experts meeting, held at UNESCO-IOC in March 2007, and in particular on the proposed outline of the AoA.

6.6 The GESAMP Administrative Secretary informed the session that the GESAMP Executive Committee decided to officially contact the lead agencies in view of inviting GESAMP to become a recognised observer to the Ad Hoc Steering Group and Group of Experts of the AoA.

6.7 The Chair highlighted the participation of GESAMP Members and Secretariat in the various UN meetings that led to the establishment of the AoA.

6.8 The IOC Executive Secretary emphasised that there were many potential opportunities for GESAMP to contribute, and the lead agencies anticipate that GESAMP members will have a key role to play in the Assessment of Assessment as it progresses. There will be a need for technical support, and GESAMP will be an appropriate body to provide this at the appropriate time. He welcomed the fact that the AoA process at this stage demonstrated high commitment and leadership from Member States.

6.9 GESAMP agreed that the following potential contributions as suggested by the lead agencies are activities that GESAMP could feasibly undertake, provided clear terms of reference were provided:

- (I) peer review role of AoA outputs by GESAMP;
- (II) on a request basis, to undertake commissioned studies on specific technical issues for which it has expertise (for eg. supra-regional issues identified by the Group of Experts); and
- (III) the provision of capacity building support for assessment methodologies once the Regular Process capacity building requirements are defined.

GESAMP Members also agreed to provide information to UNEP-WCMC on regional assessments of which they are aware for incorporation and further development of the GRAME Database .

6.10 Overall, the GESAMP Members reaffirmed the need for both sponsoring agencies and the GESAMP Members to be proactive in their involvement with the AoA process and to respond to the requests of the AoA Steering Group and Group of Experts, as relevant to its expertise. GESAMP reaffirmed that it stands ready to contribute to the AoA and to the GRAME.

7. WORKSHOP ON THE IDENTIFICATION OF THEMES OF MUTUAL INTEREST BETWEEN GESAMP AND REGIONAL ORGANIZATIONS

7.1 Introduction by the Chairman

7.1.1 As part of its revitalization process, GESAMP convened a Workshop under item 7 of the agenda. The tentative programme of the workshop can be found in Annex VI. The workshop participants are listed under a separate heading in the List of Participants (Annex III).

7.1.2 As an introduction to the workshop, the Chair introduced the structure of the New GESAMP to the participants, stressing the mission statement and the fact that the pillars of the New GESAMP are credibility, engagement and professionalism.

7.1.3 The Chair further explained that the GESAMP is seeking to increase its regional relevance and engagement by increasing the dialogue with regional organizations and the awareness of GESAMP's capabilities.

7.2 Presentations from the workshop participants

7.2.1 Each workshop participant made a brief presentation about his/her organization, based on the questions outlined in the workshop programme (GESAMP 34/INF.5). The summaries of the presentations from the workshop participants are found in Annex VI. The following is a synopsis of the needs and concerns highlighted in some of the presentations:

Data issues

- Data gaps (inadequate, unreliable or non-existing data), for example with respect to:
 - Fisheries, stock assessments
 - Baseline data for marine environment/oceanography/biological data
- Lack of social and economic data and the methodology to collect this data efficiently
- Economic valuation of ecosystem services and coastal/marine resources
- Scenarios and predictions for the future state of the marine and coastal environment
- Impacts of climate change
- Improving the understanding of the impacts of deep-sea fisheries
- Improving the understanding of cumulative effects within the marine environment
- Development of low-cost, rapid assessment methodologies
- Lack of time series and monitoring programs
- Lack of mechanisms to share data
- The consequent under-utilization of some data

Applying science to management and governance

- Packaging of data to promote effective management, bridging the gap between scientists and decision makers
- Improving the accessibility of data
- Making science relevant to decision making
- Need for capacity building
- Consolidation of regional management structures

7.3 Discussion topic 1: Identifying networks

7.3.1 The discussion of topic 1 was moderated by Mr. Lawrence Awosika (GESAMP Member). The main focus of this discussion was to identify relevant regional networks of expertise and how the New GESAMP "can tap" into them in order to increase the relevance of GESAMP's work and thereby extend the GESAMP pool of Experts database.

7.3.2 The need to first identify existing networks or programmes that already have pool of experts was highlighted. Participants stressed the need to collaborate or form partnerships with existing regional and international networks to identify experts already in several regional and international programme's existing databases. Examples including ICES, PICES, SCOR, UN University, Black Sea Commission, IOC, Regional Fisheries bodies, African networks of marine scientists and Large Marine Ecosystem projects were given. In this regard, it was also pointed out that GESAMP should reach out to these regional and international programmes to make them aware of the work and activities of GESAMP and its Working Groups. In this way, the relevant regional programmes can make their experts databases available to GESAMP. It was also pointed out that, when approaching regional focal points, GESAMP should make clear what potential experts can and cannot expect as well as the fact that the experts serve in an independent capacity.

7.3.3 It was pointed out that, due to scarce resources, GESAMP may not be able to tap into every available database to identify experts and hence GESAMP will work with these programmes and explore opportunities to use regional and global databases to identify relevant experts for inclusion into GESAMP's pool.

7.4 Discussion topic 2: Where and how can GESAMP's advice be useful?

7.4.1 Discussion topic 2 was moderated by Mr. Joan Albert Sanchez-Cabeza (IAEA Technical Secretary for GESAMP). The moderator briefly reviewed the large

range of topics and problems mentioned by the workshop participants during the morning session regarding a marine environmental protection cycle (scientific knowledge – information to policymakers – implementation – monitoring). He invited workshop participants and GESAMP members to discuss how GESAMP can be used by organizations.

7.4.2 Major needs identified and discussed included i) the economic evaluation of ecosystem services; ii) participation of GESAMP experts in regional meetings (such as advisory committees, scientific meetings, etc.); iii) compiling and assessing available information; iv) providing advice regarding key policy decisions (for example, addressing controversial issues or developing standards that could be used to formulate policies); and v) providing external and independent peer review to organizations (regarding their processes, assessments, policies, etc.).

7.4.3 Workshop participants suggested that GESAMP should be proactive in its actions (with special emphasis on GESAMP Statements and the identification of new and emerging issues) and expressed their concern on the lack of resources necessary to achieve some of the objectives of the New GESAMP as delineated in the Strategic Vision document.

7.5 Discussion topic 3: Opportunities for capacity building

7.5.1 Topic 3 was moderated by Mr. Bisessar Chakalall (WECAFC). The moderator explained that capacity building is a new area that GESAMP intends to

get involved in, and requested ideas from the workshop participants. Regional capacity building could also be way to link regional scientists into global processes, e.g. GRAME. The following is a list of suggestions that will be considered by GESAMP:

- Internship/mentoring e.g. pairing young graduates as a research assistant to established expert;
- Learning outside the traditional setting of a “classroom”;
- Linking the Pool of Experts being developed by GESAMP to capacity building activities in partnership/collaboration with regional organizations.
- Sponsoring participation in regional scientific meetings;
- Providing inputs into curriculum development for training;
- Preparation of training manuals on cross-cutting issues; and
- Supporting the participation of developing/developed country experts in existing GESAMP working groups.

7.5.2 The Chair of GESAMP, in response to various questions, explained that:

- SIDA has provided funds to facilitate the participation of developing country experts in the existing working groups of GESAMP;
- GESAMP would not duplicate the training activities of existing institutions, and thus there is no issue of competition; and
- a two-way communication between scientists and decision-makers is required in capacity building.

8. IDENTIFICATION OF NEW AND EMERGING ISSUES REGARDING THE DEGRADATION OF THE MARINE ENVIRONMENT OF RELEVANCE TO GOVERNMENTS AND SPONSORING ORGANIZATIONS

8.1 A discussion of emerging issues, and how GESAMP might respond to these, was initiated by a presentation of a number of topics that have a significant potential impact on marine ecosystems. These were:

- climate change (e.g. ocean acidification, temperature increase);
- globalisation and economic growth (e.g. increased shipping, increased protein consumption);
- presence in the environment of 'lifestyle' chemicals (i.e. persistent, toxic chemicals used in many common applications and household/personal products);
- energy generation (e.g. wind, tide, wave);
- evaluation of regulatory and intrinsic/cultural ecosystem services;
- integration of social and natural sciences in ecosystem assessments;
- cumulative impacts (e.g. acidification plus increased temperature);
- exploitation of non-living resources in international waters.

8.2 It is not possible, or desirable, for GESAMP to attempt to investigate all of the above; the intention should be to recognise where there is a role for GESAMP to carry out independent assessments. It was also recognised that in many cases there are existing initiatives and sources of information at a global or regional level, and this knowledge should be used to plan GESAMP activities. A useful approach will be to evaluate the spatial and temporal scale of emerging issue and provide a ranking of ecological importance (amongst other value criteria), as a preliminary to further investigation. A record of existing major initiatives and relevant organisations could be established together with principle sources of information and outputs. For example, both IOC-SCOR and ICES have initiatives addressing ocean acidification, and the Society of Environmental Toxicology and Chemistry (SETAC) investigates the eco-toxicology of new and emerging chemicals. It is of particular importance to engage with the existing UN framework. For example, GESAMP should take note of the annual report of the Secretary General on Oceans

and Law of the Sea to the UN General Assembly, which includes inputs from all UN Agencies. This provides a synthesis of issues of concern and current and planned activities. In addition GESAMP should establish contact with the GEF Science and Technology Advisory Panel (STAP) to receive their perspective on emerging issues.

8.3 Several organisations represented at the meeting expressed an interest in contributing to this aspect of GESAMP's work and GESAMP should make use of the support being offered. There was discussion on whether a working group should be established to deal specifically with emerging issues, and whether this should be extended to include a 'fire-fighting' or emergency response capability. It was agreed that all members of GESAMP have a role in keeping a watching brief on new and emerging issues and bringing these to the attention of GESAMP. A capability to respond rapidly to requests for advice would be desirable and the flexibility envisaged under the new GESAMP process should help to achieve this. The Administrative Secretary informed the meeting of the Executive Committee decisions in this respect. It was agreed to develop a section on the website devoted to new emerging issues. It was also agreed that this matter should be addressed inter-sessionally under the leadership of the Chair and Vice-Chair.

8.4 It was agreed to develop a section on the website devoted to new emerging issues. It was also agreed that this matter should be addressed inter-sessionally under the leadership of the Chair and Vice-Chair.

8.5 GESAMP was informed that the International Seabed Authority (ISA) has recently contracted for the exploration of commercial mineral extraction over large areas of the sea floor that are under international jurisdiction. While recognizing the economic importance of this development, GESAMP was also concerned about the potential impacts of this development on the nearby marine ecosystems, and what measures are in place for the environmental management of these activities. The Chair of GESAMP was asked to send a letter to ISA requesting further information about these issues.

9. SCOPING ACTIVITIES

9.1 The GESAMP Chair introduced the agenda item and the proposal received from Professors Peter Wells and Bertrum MacDonald of Dalhousie University, Nova Scotia, Canada for the setting up of a GESAMP Working Group on the "Influence of Information on Marine Environmental Protection."

9.2 GESAMP Members commented on the Proposal and agreed that there was no need to constitute a working group at this stage, especially as funding sources have not been identified.

9.3 Members requested the Chair to acknowledge the value of the proposal and the earlier work of this group in his response to the proposal and to state that the Sponsoring Agencies did not have sufficient time to review the proposal prior to the GESAMP Meeting and so could not determine if they would sponsor the effort. It was requested that the proposal and related documents be posted on the GESAMP website to make it available to GESAMP members and invite discussion as to how to proceed.

10. FUTURE WORK PROGRAMME

Intersessional work

1 Evaluation of hazards of harmful substances carried by ships

(Working Group 1)

Lead Agency: IMO
Co-sponsors: none
Chairperson: C. T. Bowmer
Members: T. Höfer, D. James, M. Morrisette, H. Saito, T. Syversen, N. Soutar (consultant)

The 44th session of the Working Group was held from 30 April to 4 May 2007 in London. The tentative dates for the 45th session are 21 to 25 April 2008.

2 Environmental Impacts of Coastal Aquaculture (Working Group 31)

Lead Agency: FAO
Co-sponsors: none
Chairperson: E. Black
Members: C. Bacher, K. Black, K. Brooks, I. Davies, J. Hambrey, Y. Kedong, J. Petrell, H. Rosenthal, S-K Teng

The final draft report of this Working Group focussing on environmental risk assessment and communication in coastal aquaculture is currently being revised (see the road-map for revision in Chapter 5 of this report) and is planned to be published before the end of 2007.

3 Review of applications for 'active substances' to be used in ballast water management systems

(Working Group 34)

Lead Agency: IMO
Co-sponsors: none

Chairperson: C. T. Bowmer
Members: T. Borges, J. Crayford (consultant), E. Dragsund, S. Hanayama, J. Linders, D. Tongue

The 3rd session of the Working Group was held from 19 to 24 February 2007 at IMO Headquarters. The tentative dates for the 4th session are 29 October to 2 November 2007.

4 Deepwater fisheries-habitat and ecosystem

(Working Group 35)

Lead Agency: FAO
Co-sponsors: UNIDO
Chairperson: J. Gordon
Members: to be confirmed

The Chairperson will confirm the experts for this Working Group. The Working Group will meet during 2007 to produce first report. The Chairperson would attend a meeting on destructive deep-water fishing practices and vulnerable deep-water ecosystems in June 2007 to refine the terms of reference of the Working Group for GESAMP approval by correspondence.

5 Development of an Ecosystem Approach to Offshore Mariculture

(Working Group 36)

Lead Agency: FAO
Co-sponsoring agencies: UNIDO
Chairperson: J. Marra
Members: to be confirmed

Chairman will confirm experts for this Working Group. The Working Group will meet during 2007 to produce first report.

6 Assessment of threats posed by mercury and its compounds to the marine environment

(Working Group 37)

Lead Agency: UNIDO
Co-sponsoring agencies: to be confirmed
Chairperson: to be confirmed
Members: to be confirmed

UNIDO was requested to circulate a re-drafted proposal and terms of reference to GESAMP for comments and final approval during the intersessional period.

7 Atmospheric input of chemicals to the ocean

(Working Group 38)

Lead Agency: WMO
Co-sponsoring agencies: UNIDO, IMO
Chairperson: R. Duce
Members: to be confirmed

GESAMP approved in principle the establishment of this Working Group, contingent upon further discus-

sions between the WMO-, UNIDO- and IMO-Technical Secretaries and the selection of appropriate experts as members.

Support arrangements

The IMO Technical Secretary advised GESAMP that, pursuant to the current Agreement between the Swedish Government and IMO, support would be available both in 2007 and 2008 to cover the travel and subsistence costs of experts from developing countries involved in the activities of all Working Groups listed above. This support would complement the support provided by the Sponsoring Organizations of GESAMP.

Intersessional work

It was highlighted that given the high number of new active Working Groups during this intersessional period, inputs are expected from all GESAMP Members. Written comments on Terms of Reference as well as draft reports will be needed, and time plans will be important. It was suggested that an annual schedule be created by the GESAMP Officer. This schedule should allow four weeks for comments on documents that require the approval by GESAMP, and written comments should be submitted well ahead of telephone conference.

11. ANY OTHER BUSINESS

Invitation to GESAMP to make submissions to Oceanography and Marine Biology: An Annual Review (CRC Press)

11.1 The meeting noted the invitation by John Gordon to GESAMP Members to consider submitting contributions to future volumes of Oceanography and Marine Biology: An Annual Review. The publication pro-

vides authoritative reviews of recent research, exploring new aspects of fundamental topics, in addition to covering areas of special topical relevance. One of the papers in the next volume will focus on a review on climate change and marine life. It was proposed that this could provide a channel for publication of some elements of GESAMP reports. Interested members should contact John Gordon directly.

12. DATE AND PLACE OF THE NEXT SESSION

12.1 GESAMP accepted the offer of UNIDO to host the thirty-fifth session of GESAMP at the UNIDO Headquarters in Vienna, from 12-16 May 2008. The

Chair thanked UNIDO for their offer as a further demonstration of their commitment and partnership with GESAMP.

13. ELECTION OF CHAIRPERSONS

13.1. The Group unanimously re-elected Mr. Mike Huber as Chairperson and Mr. Tim Bowmer as Vice-Chairperson for the forthcoming intersessional period and the thirty-fifth session of GESAMP.

13.2 The Chair welcomed the incoming Vice-Chair and the opportunities that lie ahead for GESAMP.

13.3 The meeting expressed their sincere thanks to Mr. Robert Duce, the outgoing Vice Chair for his critical support and service to GESAMP at all levels.

14. ADOPTION OF THE REPORT OF GESAMP AND CLOSURE

14.1 The report of the thirty-fourth session of GESAMP was considered and approved by the Group on the last day of the session.

14.2 The Chairperson of GESAMP, Mr Mike Huber, closed the thirty-fourth session of GESAMP on 11 May 2007 at 13.50hrs.

ANNEX I: AGENDA

Opening

- 1 Adoption of the agenda
- 2 Report of the Chairperson of GESAMP
- 3 Report of the Administrative Secretary of GESAMP
- 4 GESAMP Pool of Experts and Web-site
- 5 Planning of GESAMP activities:
 - 5.1 Evaluation of the hazards of harmful substances carried by ships (WG1)
 - 5.2 Environmental risk assessment and communication in coastal aquaculture (WG31)
 - 5.3 Environmental exposure models for application in seafood risk analysis (WG33)
 - 5.4 Review of applications for 'active substances' to be used in ballast water management systems (WG34)
 - 5.5 Working Group on deepwater fisheries habitat and related ecosystem (WG35)
 - 5.6 Development of an ecosystem approach to off-shore mariculture (WG36)
 - 5.7 Assessment of threats posed by persistent organic pollutants (POPs) to the marine environment (WG37)

- 5.8 Atmospheric input of chemicals to the ocean (WG38)
- 5.9 Global trends in pollution of coastal ecosystems: retrospective ecosystem assessment
- 6 Contributions to the Assessment of Assessments under the 'UN Regular Process'
- 7 Workshop on the identification of themes of mutual interest between GESAMP and Regional Organizations
- 8 Identification of new and emerging issues regarding the degradation of the marine environment of relevance to governments and sponsoring organizations
- 9 Scoping activities
- 10 Future work programme
- 11 Any other business
- 12 Date and place of GESAMP 35
- 13 Election of Chairpersons
- 14 Consideration and adoption of the report of GESAMP 34

Closure

ANNEX II: LIST OF DOCUMENTS FOR GESAMP 34

GESAMP 34/1	Admin. Secretary	Provisional Agenda
GESAMP 34/1/1	Admin. Secretary	Annotations to the Provisional Agenda
GESAMP 34/4	S. Fowler	GESAMP Pool of Experts and web-site.
GESAMP 34/5	UNIDO	Planning of GESAMP activities: Assessment of Threats Posed by Persistent Organic Pollutants (POPs) to the Marine Environment
GESAMP 34/5/1	WMO	Planning of GESAMP activities: Atmospheric input of Pollutants into the Oceans.
GESAMP 34/5/2	FAO	Introduction to Draft Report of the GESAMP Working Group on Environmental Impacts of Coastal Aquaculture (Working Group 31)
GESAMP 34/5/3	FAO	Draft Report of the GESAMP Working Group on Environmental Impacts of Coastal Aquaculture (Working Group 31)
GESAMP 34/5/4	FAO	GESAMP Working Group: Ecosystem Approach to Mariculture (EAMAR) with emphasis on Off Shore Farming
GESAMP 34/5/5	IMO	Planning of GESAMP activities: Report of the Working Group on the Environmental Hazards of Substances Carried by Ships (EHS)
GESAMP 34/5/6	FAO	Proposed GESAMP Activities In Relation to the Working Group on Deepwater Fisheries
GESAMP 34/5/7	IMO	Planning of GESAMP activities: Report of the GESAMP Ballast Water Working Group (GESAMP-BWWG)
GESAMP 34/5/8	IAEA	Planning of GESAMP activities: Draft proposal for a GESAMP Working Group on Global trends in pollution of coastal ecosystems: Retrospective ecosystem assessment.
GESAMP 34/9	P. Wells and B. McDonald	A report to GESAMP: Activities and recommendations of a research team investigating the impact of marine environmental information.
GESAMP 34/INF.1	Secretariat	Draft List of Participants
GESAMP 34/INF.2	Secretariat	Draft Rules of Procedure of the New GESAMP and Guidelines for their implementation
GESAMP 34/INF.3/Rev.1	Secretariat	Annex 1: Updated Memorandum on GESAMP (1994) Annex 2: Updated Memorandum on GESAMP (2006)
GESAMP 34/INF.4	Secretariat	Proposed timetable
GESAMP 34/INF.5	Secretariat	Workshop programme
GESAMP 34/INF.6/Rev.1	Admin. Secretary	Report of the Administrative Secretary of GESAMP. Activities and achievements of sponsoring organizations of GESAMP since 2003
GESAMP 34/INF.7	Secretariat	Summary of presentations by workshop participants
GESAMP 34/INF.7/Add.1	Secretariat	Addendum to GESAMP 34/INF.7 Summary of Workshop participant's presentations
GESAMP 34/INF.8	Secretariat	List of Documents

ANNEX III: LIST OF PARTICIPANTS FOR GESAMP 34

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ANNEX IV: ACTIVITIES AND ACHIEVEMENTS OF THE SPONSORING ORGANIZATIONS OF GESAMP SINCE 2003

UNESCO-IOC

Coastal Nutrient Export from Watersheds:

IOC's Global NEWS project is an international, interdisciplinary scientific taskforce focused on understanding the relationship between human activity and coastal nutrient enrichment. The project had developed nutrient export models for the Millennium Assessment scenarios, including development of the necessary suite of input databases: land use, hydrology, nitrogen and phosphorus use, population distribution, agriculture (crop type/animal production, etc.) for the years 2000, 2030 and 2050 under the 4 different MA scenarios. In 2006, the Global NEWS workgroup had met at IOC to analyze the results of preliminary model runs with preliminary input databases, identify major gaps/needs and to begin the process of refining the input databases. These models would then be linked to full coastal ecosystem effects, providing a powerful tool for coastal managers to understand local dynamics and predict impacts on resources. Visit for more information <http://www.marine.rutgers.edu/globalnews/>

Integrated Coastal and Ocean Management

Indicators: While environmental indicators had been conceived to monitor the state of the coastal and marine environment, very limited use had been made of socio-economic indicators and the use of governance indicators had often been limited to the reporting of processes in the context of Integrated Coastal Management. In response, the IOC initiated a Pilot Program in 2003 in collaboration with DFO (Canada), NOAA (United States), and the Gerard J. Mangone Center for Marine Policy (University of Delaware) to promote the development and use of Integrated Coastal and Ocean Management (ICOM) indicators. In 2006, the project completed its *Handbook for Measuring the Progress and Outcomes of Integrated Coastal and Ocean Management*. The handbook provided a tool for developing, selecting, and applying indicators to measure, evaluate, and report on the progress and outcomes of integrated coastal and ocean management initiatives. The handbook is intended as a method and a series of guidelines that could assist different types of users: coastal managers and decision makers at the national and sub-national levels in the design, implementation, and assessment of ICOM initiatives, practitioners and experts engaged in evaluation research and evaluations, and donor agencies supporting coastal and marine management projects and programs. The Handbook is now being used in several regional and national coastal Management programmes, and a training module is being developed. Visit for more information <http://ioc3.unesco.org/icam/>

IMO

On 19 May 2005, the 1997 Protocol to the MARPOL Convention, Annex VI, -Regulations for the Prevention of Air Pollution from Ships, entered into force. This Annex applies to ships and drilling rigs and prohibits deliberate emissions of ozone depleting substances and installation of new systems containing such substances, sets emission limits on nitrogen-oxides for new engines, regulates the sulphur content in marine fuel oil, as well as shipboard incineration. Annex VI is currently being reviewed with the aim to set more stringent emission standards.

On 24 March 2006, the 1996 Protocol to the London Convention 1972 entered into force. This Protocol represents a more modern and comprehensive agreement on protecting the marine environment from dumping activities than the original London Convention agreed 35 years ago. Parties to the 1996 Protocol also adopted amendments to regulate the sequestration of CO₂ streams from CO₂ capture processes in sub-seabed geological formations, for permanent isolation, thereby creating a basis in international environmental law to regulate this practice. These amendments entered into force on 10 February 2007 and rule out any sequestration of CO₂ in the deep oceans themselves. For further information <http://www.londonconvention.org>.

UNIDO

UNIDO executed a wide range of programmes designed to improve the governance, management and performance of industry in the developing countries and economies in transition and to reduce its environmental impacts globally. Its contribution may be considered under three principal headings: Marine Environmental Management Planning, Policy Formulation and Monitoring; Reducing Harmful Emissions from Industry; Pollution Control and Waste Management.

The Interim Guinea Current Commission had been established through the GEF/UNDP/UNEP/UNIDO Guinea Current Large Marine Ecosystem project in West and Central Africa. UNIDO was also presently assisting the 16 participating countries through a stakeholder participatory process to formulate, adopt and implement National Programmes of Action on Land Based Activities (NPA/LBAs) including the development and adoption of a Regional programme of Action on Land Based Activity (RPA/LBA) and Protocol for the protection of the marine environment from Land Based Activities under the Abidjan Convention.

A reduction of transboundary pollution discharges from industries in the Danube region was being implemented through the GEF funded project on Transfer of

Environmentally Sound technology (TEST) and building capacity in existing cleaner production institutions to apply the UNIDO's TEST procedures for pollution reduction. 20 pilot enterprises were assisted in obtaining Environmentally Sound Technologies (ESTs) to reduce pollution discharges to the Danube River Basin and the Black Sea while still remaining financially viable.

Technical assistance programmes had been completed for textile, tannery and leather industries in some regions (Africa, Asia and Latin America) in the application of clean technologies recording appreciable reductions in BOD concentrations in the waste stream translating to substantial savings to industry owners.

FAO CONTEXT

The Code of Conduct for Responsible Fisheries (FAO, 1995)⁴, adopted in 1995 as the global intergovernmental framework for sustainable fisheries, calls for effective conservation, management and development of living aquatic resources with due respect to the ecosystem and biodiversity. Its implementation is a top priority of FAO.

Based on major international agreements (UNCLOS, UNCED, CBD), the **Code of Conduct for Responsible Fisheries (CCRF)** sets out principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity. The Code covers all major issues and practices in fisheries, including fisheries management, fishing operations, aquaculture development, integration of fisheries into coastal area management, post-harvest practices, trade, and fisheries research, general principles, and provisions related to its implementation, monitoring, updating, and special requirements of provisions related to its implementation, monitoring, updating, and special requirements of developing countries. The **FAO Fisheries and Aquaculture Department is promoting the implementation of the CCRF** through numerous regular programme and field project activities. FAO disseminates technical, scientific as well as policy and governance guidelines in support of implementation of fisheries conservation and management measures for responsible use and development of living aquatic resources in marine and freshwater environments.

The Organization provides a leading forum for intergovernmental consultations, consensus-building and standards-setting on global fisheries issues. The **FAO Committee on Fisheries (COFI)**, and its Sub-Committees on Fish Trade and on Aquaculture, have a membership of more than 100 countries and numerous international intergovernmental and non-governmental organizations. FAO strengthens the activities of, and collaborates with numerous Regional Fisheries Bodies

and Regional Fisheries Management Organizations worldwide. Strong emphasis is given by FAO to further strengthening international cooperation and the role of such Regional Fishery Organizations, as well as of NGOs (including private sector, environmental and social interests), and other stakeholders concerned with fisheries and aquatic ecosystems.

MAIN ACHIEVEMENTS AND INITIATIVES

Major recent FAO achievements and initiatives include :

- Global promotion of Responsible Fisheries in Aquatic Ecosystems and the implementation of the Ecosystem Approach to fisheries and aquaculture in marine, coastal and inland waters;
- Leadership in development and promotion of global fisheries and ecosystem knowledge management and information systems, including the State of World Fisheries and Aquaculture, the UN Atlas of the Oceans, global and regional assessments and databases of fisheries resources, Fisheries Resources Monitoring Systems (FIRMS) and fish stock depletion alert systems;
- FIRMS Partnership established and system developed to assemble the world's most authoritative and comprehensive information on status and trends of fisheries and fishery resources from ten regional fishery bodies (RFBs) and other intergovernmental agencies;
- The Strategy for Improving Information on Status and Trends in Capture Fisheries (Strategy-STF), adopted in 2003 by the FAO Committee on Fisheries and the FAO Council, and endorsed by resolution of the UN General Assembly, currently being implemented with support from Japan, Norway and the USA;
- Intergovernmental Adoption and Implementation of four International Plans of Action (IPOA) aiming at reducing incidental catch of seabirds in longtime fisheries (IPOA Seabirds); conservation and management of sharks (IPOA Sharks); and management of unregulated fishing (IPOA-IUU);
- Adoption of the Rome Declaration on illegal, unreported and unregulated fishing by the FAO Ministerial Meeting on Fisheries in 2005;
- Development and adoption of Technical Guidelines for eco-labelling of products from marine capture fisheries;
- Adaptation and integration of resources assessment methodology, for example in relation to risk assessment for listing fishery species in CITES, and development of Bayesian methods in stock assessment;
- Review of highly migratory, straddling and high seas stocks as an input to the 2006 UN Review Conference on the Fish Stock Agreement;
- Development of methodology for the assessment of discards in fisheries and re-estimation of global discards;
- Studies on the impact of fishing gear on environment; Training workshops and guidelines on

⁴ FAO, 1995. Code of Conduct for Responsible Fisheries. Rome, FAO. 41 p.
<http://www.fao.org/DOCREP/005/v9878e/v9878e00.htm>

the use of turtle excluder devices (TEDs) and bycatch reduction devices (BRDs); Updated guidelines to avoid incidental catch of seabirds;

- Regional workshops on vessel monitoring systems (VMS);
- Assessment of marine debris and lost or derelict fishing gear, jointly by FAO and UNEP;
- Promotion of policies, and best management practices for responsible aquaculture; reviews principles and guidelines on sustainable shrimp aquaculture, jointly developed by a Consortium supported by FAO, NACA, World Bank, WWF and UNEP; studies on the application of EIA and environmental monitoring in aquaculture.

PROJECTS

Promotion and implementation of the provisions of the FAO Code of Conduct for Responsible Fisheries and, in particular, capacity-building, including institutional and human resources development in ecosystem-based fisheries management are major challenges for many developing countries, where lack of technical assistance and adequate financial resources are major constraints to the effective application of the CCRF and the ecosystem approach to fisheries. A wide range of **technical and policy assistance** projects are being carried out by FAO to address these challenges including major project initiatives such as:

- Global Partnership Programme for Responsible Fisheries (FishCode) – Multi-donor Programme for CCRF Implementation; 7 projects (budget US\$ 10 million); supported by: African Development Bank; European Union; Finland, Iceland, Japan, Nordic Development Fund, Norway, Sweden, UK, USA, World Bank;
- Sustainable Fisheries Livelihoods Programme in 25 Western African countries (budget US\$ 35 million; UK);
- FAO-Japan Cooperative Programme (16 sustainable fisheries projects; budget US\$ 18 million);
- Several Mediterranean Project (AdriaMed; MedSudMed; CopeMed; EastMed; MedFisis; budget –US\$ 14.5 million; Italy, Spain and EC);
- International Cooperation with the Nansen Programme and its related projects – including support to the implementation of the ecosystem approach to marine fisheries in developing countries (Norway);
- Reduction of environmental impact from tropical shrimp trawling (US\$ 9 million; in cooperation with UNEP/GEF);
- Protection of the Canary Current Large Marine Ecosystem (in cooperation with UNEP/GEF);
- Sustainable Management of the Bay of Bengal Large Marine Ecosystem (in cooperation with World Bank/GEF);
- Strategic Partnership for a Sustainable Fisheries Investment Fund in the Large Marine Ecosystems of Sub-Saharan Africa (in cooperation with GEF/ WWF/ World Bank Partnership.

RECENT DISCUSSIONS AT THE FAO COMMITTEE ON FISHERIES, MARCH 2007

A number of issues of possible interest to GESAMP and GESAMP partners were discussed during the recent Session of the Committee on Fisheries. These issues are very briefly presented below, including relevant URL references for further details.

Under agenda item Combating IUU fishing through monitoring, control and surveillance, port States measures and other means COFI recognized linkages between overcapacity allocations, overfishing and IUU fishing, urgent actions required in the IPOA on fishing capacity, IUU fishing, fisheries management, and work on satellite-based vessel monitoring system (VMS), data harmonization and formats.

Under the item on “Implementing the Ecosystem Approach to Fisheries, including deep-sea fisheries, biodiversity conservation, marine debris and lost and abandoned gear COFI discussed the need for technical guidelines on social, institutional and economic considerations in EAF, implementation of EAF in coral reef ecosystems, need for a scoping study to identify the key issues on climate change and fisheries, technical guidelines on the design, implementation and testing of Marine Protected Areas (MPAs), biodiversity mapping, and recommended that FAO should consult with IMO with a view to assessing current international instruments or measures related to marine debris. It agreed to establish the technical guidelines for the management of deep-sea fisheries in the high seas through convening an Expert Consultation and a Technical Consultation. It also recognized the need to follow the request in paragraph 90 of the UNGA Resolution to create a global database on vulnerable marine ecosystems in areas beyond national jurisdiction, in cooperation with other relevant organizations such as IUCN.

SOURCES AND SUGGESTED FURTHER READING

FAO Fisheries and Aquaculture Department
<http://www.fao.org/fi/default.asp>

Code of Conduct for Responsible Fisheries
http://www.fao.org/fi/website/FIRetrieveAction.do?dom=org&xml=CCRF_prog.xml

FAO Committee on Fisheries, March 2007
ftp://ftp.fao.org/FI/DOCUMENT/COFI/COFI_27/Default.htm
http://www.fao.org/fi/NEMS/events/detail_event.asp?event_id=33956

Report of the Twenty-sixth Session of the Committee on Fisheries, Rome, Italy, 7-11 March 2005
<ftp://ftp.fao.org/docrep/fao/008/a0008e00.pdf>

Annotations/Guide notes on Agenda Items
<ftp://ftp.fao.org/docrep/fao/meeting/011/j899e.pdf>

Rome Declaration on illegal, unreported and unregulated fishing by the FAO Ministerial Meeting on Fisheries in 2005

<ftp://ftp.fao.org/fi/DOCUMENT/ministerial/2005/iuu/declaration.pdf>

Recent Achievements and Initiatives by the FAO Fisheries and Aquaculture Department
FAO's Programme of Work in Fisheries and Aquaculture
<ftp://ftp.fao.org/docrep/fao/meeting/011/j9154e.pdf>

FAO/Programme Implementation Report 2004-05
<http://www.fao.org/docrep/meeting/011/j8013e/j8013e00.HTM>
<http://www.fao.org/pir/>

United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea
http://www.un.org/Depts/los/consultative_process/consultative_process.htm

Advance and unedited text of the Report of the Secretary-General on Oceans and the Law of the sea
http://www.un.org/Depts/los/general_assembly/documents/text_advance_unedited_62nd_session.pdf

IAEA

Radioactivity monitoring: In July 2005 IAEA published the International Safety Standard on "Environmental and Source Monitoring for Purposes of Radiation Protection" (IAEA Safety Guide RS-G-1.8, 2005). It provided international agreed guidance on strategy for monitoring in relation to the control of atmospheric and aquatic discharges of radioactive substances (including discharges to the sea) from the operation of nuclear installations and situations requiring intervention such as nuclear or radiological accidents.

IAEA Coordinated Research Projects:

- **Nuclear and Isotopic Techniques for the Characterisation of Submarine Groundwater Discharge (SGD) in Coastal Zones, 2001-2005:**

To promote and develop the application of existing and novel nuclear and isotopic techniques to the estimation of submarine groundwater discharge in coastal zones, the management of coastal aquifers and environmental management of the nearshore coastal marine environment.

- **Nuclear Applications to Determine Bioaccumulation Parameters and Processes used for Establishing Coastal Zone Monitoring and Management Criteria. 2003 - :**

To apply experimental radiotracer techniques for determining key contaminant bioaccumulation and retention parameters for bioindicator organisms used in coastal pollution monitoring programmes designed to furnish information on water quality.

- **Nuclear and Isotopic Studies of the El Niño Phenomenon in the Ocean. 2004 - :**

To investigate the El Niño phenomenon in the marine environment using nuclear and isotopic techniques, to contribute to better understanding its past behaviour and to predict possible scenarios for the future. To explore the applications of recent nuclear and isotopic techniques suitable for the quantitative estimation of past El Niño events.

ANNEX V: THE REVISED GESAMP HAZARD EVALUATION PROCEDURE

The revised GESAMP Hazard Evaluation Procedure, published as GESAMP Reports & Studies No. 64 (2002) provides an updated set of criteria for evaluating the hazards of chemical substances which may enter the marine environment through operational discharge, accidental spillage, or loss overboard from ships.

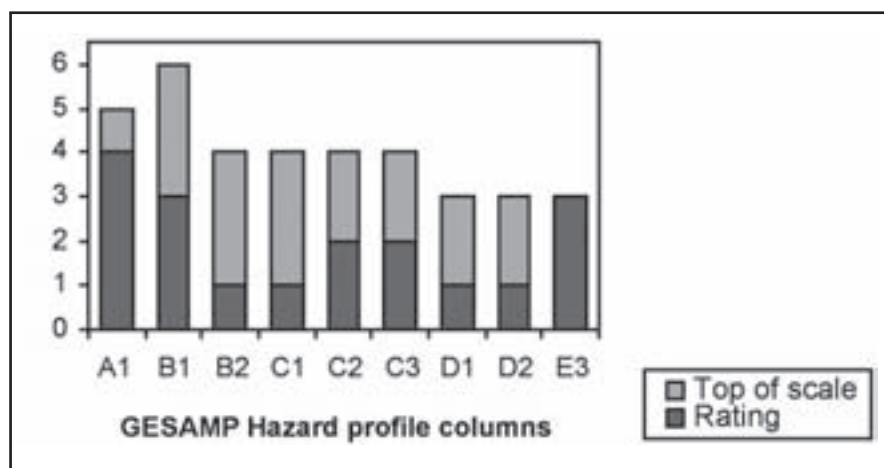
2 Hazards to both humans and the marine environment (see Table 1 and Figure 1 below) are considered and the information is collated in the form of a "hazard profile", an easily read fingerprint of the hazard characteristics of each substance. The hazard profiles of substances carried by ships that have been reviewed by the GESAMP/EHS Working Group are published at regular intervals and a «composite list» is available from IMO.

Table 1
Summary of the end-points used in the revised GESAMP hazard evaluation procedure

Title	Column	Hazard criterion	Comment
A Bioaccumulation and Biodegradation			
	A1	<input type="checkbox"/> Octanol/water partition coefficient (log Pow) and/or Bio-concentration factor (BCF)	<input type="checkbox"/> Measures of the tendency of a substance to bio-accumulate in aquatic organisms
	A2	<input type="checkbox"/> Ready bio-degradability	<input type="checkbox"/> Used to identify substances with favourable bio-degradation characteristics (% degradation to CO ₂ and water in 28d)
B Aquatic toxicity			
	B1	<input type="checkbox"/> Acute aquatic toxicity	<input type="checkbox"/> Toxicity to fish, crustaceans and micro-algae, generally measured in appropriate laboratory tests
	B2	<input type="checkbox"/> Chronic aquatic toxicity	<input type="checkbox"/> Reliable data on chronic aquatic toxicity from a wide range of organisms and sources, primarily based on fish and crustaceans
C Acute mammalian toxicity			
		Distinguishes toxicity as a result of exposure through the following routes:	Measured in appropriate tests with laboratory animals, based human experience or on other reliable evidence
	C1	<input type="checkbox"/> Oral	
	C2	<input type="checkbox"/> Dermal	
	C3	<input type="checkbox"/> Inhalation	
D Irritation, corrosion & long term (mammalian) health effects			
		Distinguishes toxicity as a result of the following:	Measured in appropriate tests with laboratory animals, based on human experience or on other reliable evidence
	D1	<input type="checkbox"/> Skin irritation & corrosion	
	D2	<input type="checkbox"/> Eye irritation & corrosion	
	D3	<input type="checkbox"/> Long term health effects	<input type="checkbox"/> Carcinogenic, Mutagenic, Reprotoxic, Sensitizer, Aspiration hazard, <input type="checkbox"/> Target Organ Systemic Toxicity: Lung injury, Neurotoxic, Immunotoxic.
E Interference with other uses of the sea			
	E1	<input type="checkbox"/> Tainting	<input type="checkbox"/> Off-flavours, in seafood following spillage of cargo
	E2	<input type="checkbox"/> Behaviour of chemicals in the marine environment and physical effects on wildlife and on benthic habitats	<input type="checkbox"/> Behaviour in seawater, i.e., the tendency to form slicks or blanket the seabed; evaluated on the basis of solubility, vapour pressure, specific gravity & viscosity.
	E3	<input type="checkbox"/> Interference with coastal amenities	<input type="checkbox"/> Necessity of closing beaches due to physical hazards and specific health concerns

Figure 1

Graphical and tabular (under) illustration of a revised GESAMP hazard profile for a given substance X (see text above for further explanation of columns and ratings).



A1	A2	B1	B2	C1	C2	C3	D1	D2	D3	E1	E2	E3
4	NR	3	1	1	2	2	1	1	C	0	Fp	3

3 In the examples for two real substances given in Table 2 below, it can be seen that, while the environmental criteria (Columns A and B) are very similar, indicating moderate hazards to the marine environment, the human health and physico-chemical criteria are quite different,

cyclopentadiene being highly toxic by inhalation (column C3) as well as being a persistent floater (slick forming, Column E2), whilst cyclohexane shows only low hazard substance across its entire profile.

Table 2

Some examples of GESAMP Hazard Profiles.

GESAMP hazard Profile columns															
Chemical substance	A1a	A1b	A1	A2	B1	B2	C1	C2	C3	D1	D2	D3	E1	E2	E3
Cyclohexane	3	NI	3	NR	3	NI	0	0	1	0	1		NI	E	2
1,3-Cyclopentadiene Dimer (Molten)	3	3	3	NR	3	NI	2	0	3	2	2		NI	Fp	3

ANNEX VI: SUMMARY OF PRESENTATIONS BY WORKSHOP PARTICIPANTS

1 All workshop participants have provided a brief presentation of their respective organizations, based on the following questions:

- .1 The context of the organization
- .2 The use of science today: How does your organization make use of science today? What kind of science, and how do you utilize the information? How do you obtain the information? What are the existing links to other organizations, universities, networks, governments etc?
- .3 The future challenges: What are the main issues in terms of planning and decision making during 2007/2008?
- .4 The needs: Considering the future challenges outlined above, what do you perceive as the main informational gaps in marine/coastal science as of today and in the nearest future?

2 Attached hereto are the profiles on these questions as received from the following organizations/projects:

- .1 Agulhas Somali Large Marine Ecosystems Project (ASLMES)
- .2 Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)
- .3 Caspian Environment Programme (CEP)
- .4 Northwest Pacific Action Plan (NOWPAP-UNEP)

- .5 North Atlantic Salmon Conservation Organization
- .6 Sub-Regional Fisheries Commission (SRFC)
- .7 South East Atlantic Fisheries Organisation (SEAFO)
- .8 Commission of the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR)
- .9 UNEP Caribbean Environment Programme
- .10 The Fishery Committee for the Eastern Central Atlantic (CECAF)
- .11 Caribbean LME Project (CLME)
- .12 Western Central Atlantic Fishery Commission (WECAFC)
- .13 Co-ordinating Working Party on Fisheries Statistics
- .14 North East Atlantic Fisheries Commission (NEAFC)
- .15 Black Sea Commission
- .16 Bay of Bengal Programme Inter-Governmental Organisation
- .17 Benguela Current Large Marine Ecosystem Programme (BCLME)
- .18 Interim Guinea Current Commission
- .19 Regional Organization for conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA)

AGULHAS SOMALI LARGE MARINE ECOSYSTEMS PROJECT (ASLMES)

Mr. Bradford Brown

1 These two LMEs occupy the Indian Ocean side of Africa and cover both mainland countries and adjacent islands. It is a unique GEF project in a number of ways. First it includes two separate LMEs within a single project management unit. While this may produce economies in Project Management costs it means a Transboundary Diagnostic Analysis (TDA) and Strategic Action Programmes (SAPs) for each LME. In addition, instead of one GEF project covering all of the LME areas, there are two other ecosystem scale GEF projects in the region. The first has been an active UNEP project for about three years and covers major (but not all) countries of these LMEs (Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Tanzania). The second is the South West Indian Ocean Fisheries Project (SWIOF) of the World Bank. Both the ASLMES and the SWIOF Projects are just getting underway as full projects. The interviews for the Project Coordinator position for the SLME are currently underway and the first steering committee meeting would be expected to be held in early autumn and the Project Management Unit's offices in Port Elizabeth, South Africa. Finally the project is starting without a significant portion of the Somali LME in the active project as there is not a government in Somali in the position to participate. However efforts will be made to establish all possible working links.

2 The Project will prepare a TDA and SAP for the Agulhas and a preliminary TDA for the Somali LME. These will be prepared jointly with the other two GEF Projects. In this way all of the five LME modules will be covered. In addressing the SAP and assigning responsibilities the other two projects will be responsible for major work in the pollution and ecosystem health and fish and fisheries modules. The productivity and socioeconomic module will be primarily the responsibility of the ASLMES Project. Gaps in the other modules will also be covered and the inshore artisanal fisheries have already been identified as one of those gaps. While all projects have some responsibility for the governance module component only the ASLMES project will provide the overarching ecosystem approach.

3 While the development of the TDAs is necessary before fully responding to the question of the science needed to provide the ongoing information for sustainable management of these ecosystems the project proposal did identify salient issues and states that the "main barriers to ecosystem management include inadequate data, lack of regionally based coordinated monitoring and information systems, lack of national and regional capacity and the absence of full stakeholder involvement."

4 The SLME will concentrate in the initial stages on "capturing essential information relating to the dynamic ocean-atmosphere interface and other interactions that

define LMEs along with critical data on artisanal fisheries, larval transport and nursery areas along the coast". Part of this information will be of use in determining if the adjacent Mascarene Plateau area warrants a separate LME. A detailed review done in the project preparation phase identified gaps in oceanographic data in the Agulhas LME but the linking of these gaps to management priorities is still needed. "The parallel World Bank and UNEP Projects will feed pertinent information into the TDA/SAP process".

5 Today science for management is primarily used separately by each country for nation management actions. In the future this will be done on a holistic ecosystem basis. Already in the planning phase linkages have been made to the science institutions both academic and Government in the region. Links have also been established to WIOMSA, the Western Indian Ocean Marine Science Association. The challenge of the project is to develop the ongoing mechanisms for providing ecosystem wide scientific information for management on a continuing basis and in a manner such that they are actually used.

6 The Steering Committee will consist of senior government officials which will ensure that the problems identified are critical to society. Working groups addressing key areas will bring the scientific community together. Capacity building is critical for although there are excellent scientists throughout the region there numbers are not large and the support systems can be enhanced.

7 The important difference between LME Projects and many other aid programs is that the primary goal is at the end of ten years to have institutionalized the LME management process and the provision of ongoing scientific advice to ensure it is science driven to the ultimate goal of reducing poverty through sustainability. The WSSD goals are the guideposts for this effort. Everything that the Project does from day one must be done with that sustainability goal in mind to succeed. There are some very simple guidelines that should be kept in mind if the countries are going to continue these LME efforts. They must see that the spending of the money benefits the countries in a tangible way. The same national realities are present as they are in for example U.S. food aid which while relieving areas food shortages is bought in the U.S. and shipped in U.S. carriers. Concrete results are needed but they must be combined with spending that maximizes benefits to the region. Capacity must be built within a region to adequately handle these tasks work involving outside consultants and outside scientific advice must be done in such a way as to enable the capacity to be built not only to work within the region but to work around the world bring insights from work in the region. A collegial working relationship must develop in contrast to the "expert" mode. The gap between the insights based on science and their application to management must be closed.

COMMISSION FOR THE CONSERVATION OF ANTARCTIC MARINE LIVING RESOURCES (CCAMLR)

Mr. Eugene Sabourenkov

1 The Convention on the Conservation of Antarctic Marine Living Resources (CAMLR Convention) was negotiated under the auspices of the Antarctic Treaty and entered into force on 7 April 1982. The Commission for the Conservation of Antarctic marine Living Resources (CCAMLR) was established in accordance with the Convention. The Convention embodies an «ecosystem approach» to living resources conservation with rational use of resources being considered a part of their conservation. This approach requires that the management of commercial fisheries should aim to conserve not only the targeted species, but also take into account the effect of fishing on other dependent and related species. This approach sets the CCAMLR's marine resources management regime apart from other international fisheries management organisations.

2 Main CCAMLR activities:

- (i) The current CCAMLR Conservation Measures cover regulation of all existing, new and exploratory fisheries, and fishing for research purposes.
- (ii) The CCAMLR measure on general environmental protection during fishing and a resolution on ice-strengthening standards in high-latitude fisheries are attached.
- (iii) The Catch Documentation Scheme for toothfish (*Dissostichus* spp.) is in force since 2000.
- (iv) The CCAMLR System of Inspection has been in force since the 1989/90 season.
- (v) The Scheme of International Scientific Observation has been in force since the 1992/93 season.
- (vi) The CCAMLR Ecosystem Monitoring Program (CEMP) was initiated in the 1987/88 season.
- (vii) The first international synoptic survey of krill biomass in Atlantic Ocean sector of the Convention Area (CCAMLR-2000 Survey) was conducted by CCAMLR in January 2000.
- (viii) The CCAMLR Marine Debris Monitoring Program has been in place since 1989. Its objective is to monitor incidence and accumulation trends in beached marine debris.

3 The following two current CCAMLR projects rely upon long-term and comprehensive collection of diverse categories of scientific data on the state of marine environment and marine living resources:

- (i) Ecosystem-based feedback management of Antarctic krill (*Euphausia superba*) fisheries with small-scale fishing areas already identified based on krill predator distribution and abundance; and
- (ii) Establishment of a representative network of

marine protected areas with its first stage-Bioregionalisation of the Southern Ocean, to be accomplished in 2007.

4 The latter project also requires extensive cooperation and data exchange with such organisations as Committee on Environmental Protection (CEP) of the Antarctic Treaty, Scientific Committee on Antarctic Research (SCAR), Scientific Committee on Oceanic Research (SCOR), FAO, Agreement on the Conservation of Albatrosses and Petrels (ACAP) and with several Regional Fisheries Management Organisations responsible, in particular, for waters to the north of the CCAMLR Convention Area

Appendix

CONSERVATION MEASURE 26-01 (2006)⁵⁶

General environmental protection during fishing

Species: all
Area: all
Season: all
Gear: all

The Commission,

Concerned that certain activities associated with fishing may affect the Antarctic marine environment and that these activities have played a notable role in CCAMLR's efforts to minimise incidental mortality of non-target species such as seabirds and seals,

Noting that previous CCAMLR recommendations, and the provisions of the marpol 73/78 Convention and its Annexes, prohibit the disposal of all plastics at sea, in the CCAMLR Convention Area,

Noting various provisions of the Protocol on Environmental Protection to the Antarctic Treaty in particular its Annexes as well as related Recommendations and Measures of the Antarctic Treaty Consultative Meetings,

Recollecting that for many years advice from the Scientific Committee has indicated that significant numbers of Antarctic fur seals have been entangled and killed in plastic packaging bands in the Convention Area,

Noting the recommendations of CCAMLR and the

⁵ Except for waters adjacent to the Kerguelen and Crozet Islands

⁶ Except for waters adjacent to the Prince Edward Islands

provisions of the MARPOL Convention and its Annexes which prohibit the jettisoning of all plastics at sea and that entanglement of fur seals is still continuing,

Recognising that the bait boxes used on fishing vessels in particular and other packages in general need not be secured by plastic packaging bands because suitable alternatives exist,

Adopts the following conservation measure to minimise possible effects on the marine environment arising from fishing-related activities in the context of mitigating incidental mortality of non-target species and protecting the marine environment in accordance with Article IX of the Convention.

Disposal of Plastic Packaging Bands

1. The use on fishing vessels of plastic packaging bands to secure bait boxes shall be prohibited.
2. The use of other plastic packaging bands for other purposes on fishing vessels which do not use on-board incinerators (closed systems) shall be prohibited.
3. Any packaging bands, once removed from packages, shall be cut, so that they do not form a continuous loop and at the earliest opportunity burned in the on-board incinerator.
4. Any plastic residue shall be stored on board the vessel until reaching port and in no case discarded at sea.

Prohibition of Discharge in High-Latitude Fisheries

5. Vessels fishing south of 60°S shall be prohibited from dumping or discharging:
 - (i) oil or fuel products or oily residues into the sea, except as permitted under Annex I of MARPOL 73/78;
 - (ii) garbage;
 - (iii) food wastes not capable of passing through a screen with openings no greater than 25 mm;
 - (iv) poultry or parts (including egg shells);
 - (v) sewage within 12 n miles of land or ice shelves, or sewage while the ship is travelling at a speed of less than 4 knots;
 - (vi) offal; or
 - (vii) incineration ash.

Translocation of Poultry

6. Live poultry or other living birds shall not be brought into areas south of 60°S, and any dressed poultry not consumed shall be removed from those areas.

RESOLUTION 20/XXII⁷

Ice-strengthening standards in high-latitude fisheries

Species: all
Area: south of 60°S
Season: all
Gear: all

The Commission,

Recognising the unique circumstances in high-latitude fisheries, especially the extensive ice coverage which can pose a risk to fishing vessels operating in those fisheries,

Recognising also that the safety of fishing vessels, crew and CCAMLR scientific observers is a significant concern of all Members,

Further recognising the difficulties of search and rescue response in high-latitude fisheries,

Concerned that collisions with ice could result in oil spills and other adverse consequences for Antarctic marine living resources and the pristine Antarctic environment,

Considering that vessels fishing in high-latitude fisheries should be suitable for ice conditions,

urges Members to licence to fish in high-latitude fisheries only those of their flag vessels with a minimum ice classification standard of ICE-1C⁸ which will remain current for the duration of the planned fishing activity.

⁷ Subareas and divisions south of 60°S and adjacent to the Antarctic continent

⁸ As defined in the Det Norske Veritas (DNV) Rules for Classification of Ships or an equivalent standard of certification as defined by a recognised classification authority.

CASPIAN ENVIRONMENT PROGRAMME (CEP)

Mr. Hamid Gaffarzadeh

1 The context of the organization

The Caspian Environment Programme (CEP) represents a partnership between the five littoral states, Azerbaijan, Islamic Republic of Iran, Kazakhstan, Russian Federation and Turkmenistan, and the International Partners, the EU, UNDP, UNEP, and the World Bank. The overall goal of the CEP is to promote the sustainable development and management of the Caspian environment in order to obtain the optimal long-term benefits for the human population of the region. CEP has been supported by both GEF and EU from 1998 for a total amount of approximately \$ 25 millions. CEP has been successful in a) initiating and promoting regional environmental dialogue – exemplified by the Tehran Convention; b) analytical work and policy development – Transboundary Diagnostic Analysis (TDA), Caspian Strategic Action Programme (SAP), National Caspian Action Plans (NCAP) and numerous research and policy documents and c) resource mobilizations activities. CEP is now collaborating with the nascent Tehran Convention Secretariat.

2 The use of science today: How does your organization make use of science today?

Scientists from different areas of environmental – and social and economic - sciences and scientific organizations are involved in conducting scientific researches including cruises; preparation of regional environmental reports and finally taking part in the Thematic Regional Advisory Groups. All these activities feed the development of regional technical reports, strategies and policies as well as setting up regional monitoring programmes and guidance documents.

3 What kind of science, and how do you utilize the information?

Marine biology; Fisheries; Hydrology, Hydrochemistry, Hydro-Chemistry Sediments and Soils Analysis; Hydro-meteorology including climatology, Remote Sensing; Social Sciences, Economics, Information Technology. Information produced from scientific work is used for analytical work and policy formulation as well as for environmental monitoring.

4 How do you obtain the information?

Mainly in framework of the studies, cruises and monitoring organized by CE; in the framework of information exchange with other organizations and projects (for instance TACIS) and finally through collaboration with the national institutions. We have also established a data bank of scientific and research bodies in the region. This is available on our website.

5 What are the existing links to other organizations, universities, networks, governments etc?

We are 'formally' linked to the Environment & Natural Resources Ministries /National Agencies in the Caspian governments. We also are collaborating to a lesser degree with fisheries, hydro-meteorological, shipping, and agriculture national agencies. Links are also established with numerous CEP stakeholders including research institutes, universities, NGOs and so on. A major institutional link to the scientific body in the region is established through the five Thematic Regional Advisory groups these being thematic scientific monitoring bodies that are membered by regional technical representatives. Through formal Inter Agency Agreements and less formal link we cooperate with UN specialized agencies. Contact with the academia is made very often through the formal governmental channels. Contacts with the private sector and the NGOs have been sought and established although not to the desired level.

6 The future challenges: What are the main issues in terms of planning and decision making during 2007/2008?

Getting the region to seriously undertake and own long term indicator based monitoring programmes; getting national and regional inter-sectoral collaboration going ; predicting climatic changes in the region; getting the attention of the planners to the interaction between economic development and environment and to economic valuation of environment

7 The needs: Considering the future challenges outlined above, what do you perceive as the main informational gaps in marine/coastal science as of today and in the nearest future?

Sufficient historical and monitoring data/info on environmental trends and status including data and information on pollution at sources, bio-resources change dynamism and the interactions between pollution and bio-resources dynamism; lack of regional network for operational data and information exchange; under-developed ecosystem and bio-resources modelling and forecast; economic values of environmental resources

NORTHWEST PACIFIC ACTION PLAN (NOWPAP) OF UNEP

Mr. Alexander Tkalin

1 The context of the organization

NOWPAP is an integral part of the UNEP Regional Seas Programme, consisting of the Regional Coordination Unit (RCU, serving as a Secretariat) and the four Regional Activity Centres (RACs) implementing the on-the-ground activities of the Action Plan. The Intergovernmental Meeting (held once every year) is a high-level governing body of NOWPAP. The four RACs are:

- CEARAC (Special Monitoring and Coastal Environmental Assessment RAC in Toyama, Japan);
- DINRAC (Data and Information Network RAC in Beijing, China);
- MERRAC (Marine Environmental Emergency Preparedness and Response RAC in Daejeon, Korea); and
- POMRAC (Pollution Monitoring RAC in Vladivostok, Russia).

2 How does the organization make use of science today?

NOWPAP RACs and RCU facilitate the participation and involvement of well-known regional experts in a specific field in NOWPAP activities (e.g., Marine Litter Activity, specific projects related to oil spills, atmospheric deposition of contaminants, harmful algal blooms, remote sensing applications).

NOWPAP RACs and RCU organize expert meetings, workshops and symposia related to NOWPAP mandate to exchange ideas, learn about new developments, build consensus on possible approaches to marine environmental issues in the region. These meetings also help to exchange views and up-to-date scientific information and technologies, introduce new information, trends and directions in line with the global initiatives and concerns in the specific field.

In some cases, these discussions are then reflected in new scientific activities of NOWPAP.

3 What kind of science, and how does the organization utilize the information?

Knowledge and experience of experts (please see above) is being used in NOWPAP data bases and online tools, e.g., on satellite remote sensing applications for marine environment monitoring (including harmful algal blooms), oil spill modelling, coastal sensitivity mapping and shore cleanup techniques, marine environmental assessment. The scientific data and information are also being used while preparing NOWPAP reports (e.g., on river and direct inputs of contaminants to the marine and coastal environment; harmful algal blooms; oil spill dispersant applications).

Up-to-date scientific information (provided by experts) is reflected in the NOWPAP work plans, when approved by the member states

4 How does the organization obtain the information?

From papers published in scientific journals, and a variety of reports and publications in respective fields; through personal communication with experts; by attending workshops and symposia.

5 What are the existing links to other organizations, universities, networks, governments, etc.?

At the international level NOWPAP is closely linked with:

- UNEP; UNEP Regional Seas Programme and UNEP Global Programme of Actions for the Protection of the Marine Environment from Land-Based Activities (GPA);
- International Maritime Organization (IMO);
- COBSEA (Coordinating Body on the Seas of east Asia);
- IOC/WESTPAC (IOC sub-commission for the Western Pacific);
- PEMSEA (Partnerships in Environmental Management for the Seas of East Asia);
- PICES (North Pacific Marine Science Organization);
- YSLME (Yellow Sea Large Marine Ecosystem Project).

At a national level, the following ministries, agencies and organizations are involved in NOWPAP activities:

- China: State Environmental Protection Administration; State Oceanic Administration; Chinese Research Academy of Environmental Sciences; China National Environmental Monitoring Centre, etc.
- Japan: Ministries of Foreign Affairs and Environment; National Institute of Environmental Studies; University of Tokyo, Toyama University, Kagoshima University, etc.
- Korea: Ministries of Maritime Affairs and Fisheries; of Foreign Affairs and Trade; of Environment; National Fisheries Research and Development Institute; Korea Ocean Research and Development Institute; Korea Maritime Institute; National Institute of Environmental Research; Seoul National University, Pukyong National University, etc.
- Russia: Ministries of Natural Resources and Transport; Pacific Institute of Geography and Pacific Oceanological Institute, Far Eastern Branch, Russian Academy of Sciences; Far Eastern Regional Hydrometeorological Research Institute, etc.

6 *The future challenges: what are the main issues in terms of planning and decision making during 2007/2008?*

- climate change;
- marine and coastal biodiversity;
- marine pollution (e.g., persistent toxic substances; marine litter);
- integrated coastal zone and river basin management.

7 *The needs: considering the future challenges outlined above, what do you perceive as the main informational gaps in marine/coastal science as of today and in the nearest future?*

- lack of national and regional capacity to initiate new projects related to the emerging issues to be addressed;
- limited data and information on new subjects and differences between the member states capacities, mainly due to different levels of national economy and different environmental priorities among the member states;
- practical difficulties with new experts involvement, in particular at early stages of dealing with new environmental subjects, mainly due to limited funds to organize workshops and symposia.

NORTH ATLANTIC SALMON CONSERVATION ORGANIZATION

Mr. Malcolm Windsor

1 The life-cycle of the Atlantic salmon, involving major migrations between natal rivers and oceanic feeding grounds, poses significant challenges to stock assessment biologists, not least because there are many discrete populations (more than 2,000 rivers support salmon populations) with different resilience to exploitation.

2 The North Atlantic Salmon Conservation Organization (NASCO) was established in 1984 with the objective of contributing to the conservation, restoration, enhancement and rational management of salmon taking into account the best scientific evidence available to it.

3 Initially the focus of the NASCO's work was on developing regulatory measures for the distant-water fisheries and the advice was provided by ICES. Much progress has been made by ICES in developing predictive models as a basis for informing management decisions. As NASCO has broadened its work to include issues such as habitat protection and restoration and minimising impacts of aquaculture, its need for advice has also broadened.

4 NASCO has obtained the science and other information it needs from a variety of sources, including ICES itself, NASCO Working Groups and Committees that

draw on the expertise available within NASCO delegations and the more than 30 accredited NGOs to NASCO, international symposia convened by NASCO and other IGOs, and other sources. These include a Liaison Group with the salmon farming industry to discuss issues of mutual interest, including minimising impacts of escapees and sea lice on the wild stocks.

5 While NASCO strives to be a science-based management organization, it has recognised that in situations where scientific advice is uncertain, unreliable or inadequate, a Precautionary Approach has been adopted and is to be applied to protect the resource and preserve the environments in which it lives. Under this approach, the absence of scientific information and advice may not be used as a reason for postponing or failing to take conservation and management actions.

6 Despite all the progress and sacrifices in improving habitat and reducing exploitation, the abundance of salmon remains low and for some monitored salmon stocks marine mortality is now double or treble the value in the 1970s. A priority for NASCO is to improve understanding of the distribution and migration of salmon at sea and a comprehensive, innovative programme of research has been developed, SALSEA, to address this topic and better understand the factors responsible. However, the funding and vessel time to achieve this study is uncertain. NASCO is also taking steps to compile all available information on the social and economic values of the wild Atlantic salmon.

SUB-REGIONAL FISHERIES COMMISSION (SRFC)

Mr. Aboubacar Sidibe

1 Context and objective of the SRFC

The SRFC is an intergovernmental organization of fishery cooperation created in March 29, 1985 by convention. Today it counts among its members seven West African coastal states: Cape-Verde, Gambia, Guinea, Guinea Bissau, Mauritania, Senegal and Sierra Leone. Combined, these countries have a coast line of 3,400 km and have jurisdiction over an EEZ of 1,550,000 km². The general objective of the SRFC is the harmonization of fisheries policies and legislation for a durable exploitation of the fisheries resources and marine ecosystems. The SRFC comprises three entities:

- The Conference of Ministers (CM) includes the Minister of Fisheries and Marine Environment from each Member State. It is the decision making body of the SRFC;
- The Coordinating Committee (CC): includes the Director of Fisheries and any other expert designated by the member country; it is the technical and consultative institution of the SRFC;
- The Permanent Secretariat (PS) is the executive body of the SRFC, in charge of applying the decisions from the Conference of Ministers. It is composed of the Permanent Secretary, the Program manager, the Scientific Adviser, the Assistant in Information, Communication and Formation (ICF), and the administrative and financial controller.

2 The use of science

The SRFC emphasises the need for science to evaluate the development of the exploitation of fisheries resources and the state of the sub regional marine ecosystems. Knowledge generated from applied sciences like fisheries, oceanography, economic and social sciences are actively promoted by the SRFC. The information from scientific programs/projects and national data bases are exploited to contribute to the decision making process especially in respect to marine resources and ecosystems shared among Member States of the SRFC.

The SRFC maintains links with all fishery and oceanographic research institutions and universities at sub-regional and regional level, as well with other international scientific organizations (CECAF/FAO, IRD, IFREMER, IEO, DG Research of EU ...).

3 The future challenges

- Realization of joint scientific surveys (between 2 or 3 SRFC countries) to assess shared fisheries resources and to undertake oceanographic studies of the coastal marine ecosystems;
- Identification of important common ecosystems and promoting the ecosystem approach in fisheries management in the sub-region.

4 The needs

Impact assessment of coastal pollution (domestic and industrial waste) on food chains in coastal fish communities and on marine ecosystems of the region.

SOUTH EAST ATLANTIC FISHERIES ORGANISATION (SEAFO)

Mr. Hashali Hamukuaya

1 The context of the organisation

SEAFO is a regional fisheries management organisation in southeast Atlantic Ocean established to ensure long-term conservation and sustainable use of the fishery resources in the area. It has competence in the high seas of south-east Atlantic Ocean with a Convention Area covers approximately 16 million square kilometres - from equator to the southern ocean and westward to about the middle of the Atlantic Ocean (Fig. 1). SEAFO process was initiated in 1997 by the coastal States of Angola, Namibia, South Africa and the United Kingdom (in respect of its dependencies Tristan da Cunha and Ascension Island). The idea was further shared with other States with real interest in the fishery resources of the area. Complex negotiations between the coastal States and the distant water fishing nations started in 1997 and completed in 2000. The Convention was signed in April 2001 by Angola, European Community, Iceland, Namibia, Norway, Republic of Korea, South African, United Kingdom and United States of America and came into force on 13 April 2003 after the deposit of instrument of ratifications by European Community, Namibia and Norway. Angola became a fourth Contracting Party in 2006. The Convention covers two types of fisheries, namely (i) those which straddle the Convention Area and adjacent waters under the jurisdiction of coastal States and (ii) discrete high seas stocks that are largely associated with seamounts which do not occur at any stage of their biological cycle in waters under national jurisdiction (Table 1). The Organisation consists of the Commission (highest decision-making body), the Scientific Committee and the Secretariat, based in Walvis Bay, Namibia. For more information refer to <http://www.seafo.org>.

2 How does SEAFO make use of science today?

SEAFO relies on sound scientific input to fulfil its mandate - long-term conservation and sustainable use of the fishery resources covered by the Convention. The Convention dictates that conservation and management measures to be adopted by the Commission should base on the best scientific evidence (article 3(a) and where scientific information is uncertain, unreliable or inadequate, precautionary approach principle prevails (article 3(b) and article 7. The Convention also required that the whole ecosystem be taken into account in the application of the Convention (article 3(c-f)). To this effect, the Commission is served by the Scientific Committee (SC) that has advisory responsibilities. The SC is com-

posed of scientists from Contracting Parties and its meetings are open to the observers from non-Parties.

3 What kind of science?

The SC is focusing mainly on the evaluation and analyses of fisheries data (catch and efforts) as well as on enhancing knowledge on oceanography, productivity and biodiversity. In the future, and when more data are available, the SC will conduct stock assessments of the main commercially important species such as deep sea red crab, toothfish, orange roughy and alfonsino.

4 How is information utilised?

Fisheries information produced by the SC is provided to the Commission, accompanied by specific recommendations in respect of conservation and sustainable use of the resources. The Commission then formulate measures in line with the advice received from the SC. Recently, the Commission adopted several measures based on the advice from the SC, among them (i) control and monitor the fisheries through the establishment of a record of vessels (ii) placement of scientific observer on all fishing vessels (iii) mandatory vessels monitoring system (VMS) (iv) catch reporting requirements (v) reduce incidental mortality of seabirds, especially petrels and albatrosses, by fishing gear adjustments and other technical measures during fishing operations (vi) ban transshipments at sea in order to combat IUU fishing (vii) prohibit shark finning practices whereby vessels cut the valuable shark fins off and retain them on-board while discarding the carcasses of the shark (viii) reduce incidental mortality of sea turtles in fishing operations, notably by promptly releasing turtles entangled in fishing gear (ix) prohibit fishing activities in about a dozen sensitive marine areas with prominent seamounts until more information is available. These measures are binding to both Parties and non Parties.

5 How is information obtained?

Historical catch and effort data were obtained from the Parties and from published and unpublished information. Since 2005, when the Secretariat became operational, catch and effort data are supplied [monthly] directly by flag States to the Secretariat. VMS data are also transmitted in real time from the vessels to the Secretariat via Fisheries Monitoring Centres (FMC) of flag States.

6 Existing links to other organisations, universities, networks, governments

SEAFO is collaborating with scientists from South America (Brazil, Argentina, and Uruguay) under the Mar-Eco project to study patterns (distribution and abundances of faunal assemblages) and the relationships of the organisms along the mid-Atlantic ridge.

The mid-Atlantic ridge extends about 5,000 kilometres through the western part of the Convention Area. SEAFO has partnership arrangement with FAO-FIRMS (FIRMS Fishery Resources Monitoring System) to promote the development and extension of fisheries status and trends reporting. SEAFO is represented at the meeting of the Coordinating Working Party (CWP) on fisheries statistics. There is a close working relationships with the regional programs such as the Benguela Current Large Marine Ecosystem (BCLME), Benguela Environment Fisheries Interaction and Training (BENEFIT).

SEAFO has observer status in the Program Steering Committee of BCLME. The coastal States in the region (Angola, Namibia and South Africa) are at advanced stage to establishing the Benguela Current Commission (BCC) in which SEAFO has observer status. With other RFMOs, SEAFO has established linkages with ICCAT, CCAMLR and there are constant correspondence pertaining to data exchange on by-catches, on IUU fishing activities, on conservation and management measures adopted by each Commission and on exchange of general experiences on administrative matters. With NEAFC, a MoU was entered into in 2007 VMS. SEAFO collaborates with NAFO, in particular on exchange of information on IUU fishing. SEAFO is represented at the annual meetings of the above Commissions and its annual meetings are open to any organization with interest in the fishery resources of the area.

7 The future challenges: What are main issues in terms of planning and decision making during 2007/2008:

The Commission may have to consider institutionalise the ecosystem approach to fisheries management. Even in the current situation where data are inadequate or lacking, it would be preferred to develop/formulate management plans that include stock specific target reference points. Monitoring, control and surveillance (MCS) as envisaged in the Convention is not fully in place as it is implemented on phases, pending the availability of the required information.

8 The needs: What is the perceived as the main information gaps in marine / coastal science as of today and in the nearest future

One of the main challenges faced by the Organisation is limited fisheries information. There are no adequate time series of historic fishing trends essential for stock assessment. The current management is based largely on the precautionary approach principles and innovative management. The SC has set-up data sampling procedures and protocols which are implemented to build time series, but it will take time. Information (resources, environment) on many of the marine habitats such as seamounts, rises, ridges is none existent. Some fish resources are perceived to straddle between the waters under national jurisdiction of the coastal States and those of the adjacent high seas within the Convention Area. Measures

adopted by the Commission and those applied by the coastal States regarding straddling fish stocks need to be compatible. The extent of IUU fishing activities on the species covered by SEAFO need to be evaluated and quantified.

Fig. 1
SEAFO Convention Area [SE = South Equatorial Current, AC= Angolan Current, SM= Seamount, HS = Hotspot, R=Rex, F = Frankies, J = Johnnies, BC = Benguela Current, AgC+Agulhas Current, BraC = Brazil Current, SAC = South Atlantic Current].

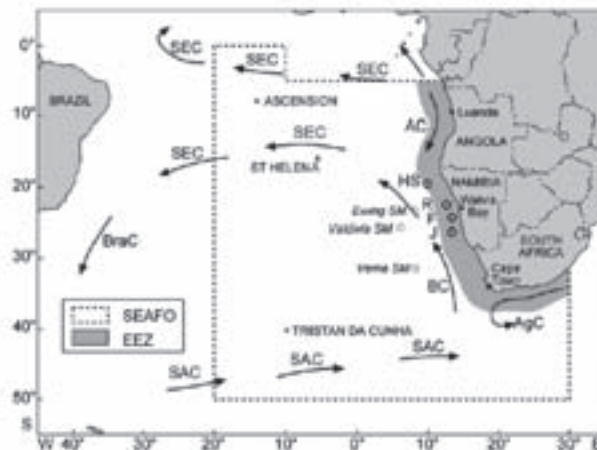


Table 1
The list of stocks for covered by the SEAFO Convention.

Species	Latin Name
Alfonsino	Family Berycidae
Horse Mackerel	Trachurus spp.
Mackerel	Scomber spp.
Orange	Roughy Hoplostethus spp
Skates Family	Rajidae
Sharks	Order Selachomorpha
Armourhead	Pseudopentaceros spp.
Cardinal Fish	Epigonus spp.
Deep-sea Red Crab	Chaceon maritae
Octopus	Family Octopodidae
Squid	Family Loliginidae
Patagonian toothfish	Dissostichus eleginoides
Hake	Merluccius spp.
Wreckfish	Polyprion americanus
Oreo dories	Family Oreosomatidae

COMMISSION OF THE CONVENTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT OF THE NORTH-EAST ATLANTIC (OSPAR)

Ms. Hanne-Grete Nilsen

1 The context of the organization

OSPAR (that is, the Commission established by the 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic) is the mechanism by which fifteen western European governments cooperate to protect the marine environment of the north-east Atlantic. The OSPAR Convention imposes general obligations, binding in international law, on the Contracting Parties, in accordance with the provisions of the Convention, to "take all possible steps to prevent and eliminate pollution and shall take the necessary measures to protect the maritime area against the adverse effects of human activities so as to safeguard human health and to conserve marine ecosystems and, when practicable, restore marine areas which have been adversely affected".

OSPAR has adopted an ecosystem approach to management as the basis for integration of five thematic strategies, which it is using to implement the convention, i.e. on biodiversity, eutrophication, hazardous substances, offshore oil and gas industry and radioactive substances. These are underpinned by a sixth strategy on monitoring and assessment of the status of the marine environment.

2 The use of science today

OSPAR makes use of scientific knowledge as basis for development of programmes and measures and for monitoring and assessments of pressures and impacts on the marine environment and progress towards environmental targets.

Information on hazardous properties and environmental risks is used to select substances for priority action. Comprehensive Background Documents have been prepared for the priority substances. The information is used as basis for conclusions on actions needed. Under the biodiversity strategy scientific evidence is used as basis for identification of threatened and declining species and habitats, for identifying areas to be included in a network of marine protected areas, and for considering the impacts and management of human activities in the marine environment.

The Convention requires OSPAR to undertake and publish at regular intervals joint assessments of the quality status of the marine environment and of its development, and to include in such assessments both an evaluation of the effectiveness of the measures taken and planned for the protection of the marine environment and the identification of priorities for action.

The Contracting Parties are required to cooperate in carrying out monitoring programmes which are underpinned by methodological guidelines, quality assurance

methods, and assessment tools and to carry out research which is considered necessary to increase knowledge and understanding of the marine environment.

OSPAR is heavily dependent on science in order to fulfil these obligations. Contracting Parties provide scientific expertise to support OSPAR's work often drawn from national research institutes or academia. Collective scientific expertise is often used to evaluate or assess information in support of programmes and measures and data collected in monitoring programmes.

OSPAR uses a lead country approach to collect information. The lead country may sub-contract national research institutes or universities. For certain issues OSPAR asks the International Council for the Exploration of the Seas (ICES) to provide scientific advice. Advice may encompass assessments of data collected by OSPAR, scientific peer reviews of work by OSPAR, or providing an evaluation of the state of scientific knowledge.

3 Main issues in terms of planning and decision making during 2007/2008

The preparation of the Quality Status Report (QSR) 2010 will be a major challenge for OSPAR in the coming few years. This includes ensuring that it can fulfil the requirements of the initial assessment foreseen under the emerging Marine Strategy Directive.

A number of assessments of pressures and impacts are being prepared under the thematic strategies of OSPAR as basis for the QSR. Challenges in the implementation of OSPAR's thematic strategies in 2007 and 2008 include:

- an integrated assessment by 2008 of the eutrophication status of the OSPAR maritime area;
- establishment of an ecologically coherent and well managed network of Marine Protected Areas;
- conclusions on the need for OSPAR action on hazardous substances, including endocrine disruptors, in the light of developments in the OECD and the EU;
- prevent and eliminate pollution by oil and other substances caused by discharges of produced water into the sea;
- an assessment by 2008 (for those regions where information is available) of the impact on marine biota of anthropogenic sources (past, present and potential) of radioactive substances;
- conclusions on sub-seabed storage of CO₂

4 Main informational gaps in marine/coastal science

The quality and completeness of data are not always sufficient and make it difficult to observe trends in time series and to compare data between Contracting

Parties or within the time series of one Contracting Party. This concerns data submissions under OSPAR monitoring programmes, in implementation reports and other data reports under any of the thematic Strategies alike:

- OSPAR is at an early stage in its work to monitor, assess and manage the status of the ecosystems and biodiversity. There are further challenges to establish and implement a coherent and workable set of ecological quality objectives both within the North Sea and in the regions beyond;
- there is a need for assessments of hazardous substances which link emissions/discharges,

inputs to, and concentrations and effects in, the marine environment;

- it is difficult to ascertain whether the input reductions of nutrients achieved so far have resulted, or will result, in any decrease of concentrations of nutrients in the sea and of the incidence of eutrophication;
- there is a need to improve the state of knowledge on extent and status of vulnerable species, habitats and ecological processes, and the responses to any management measures in the high seas of the OSPAR maritime area.

UNEP CARIBBEAN ENVIRONMENT PROGRAMME

Mr. Jean-Nicolas Poussart

1 *The context of the organization:*

This is best captured in our Mission Statement which is to promote regional cooperation for the protection and development of the Marine Environment of the Wider Caribbean Region. Emphasis of our work is to prevent pollution of the Caribbean Sea from land and marine based sources, and to minimize damage to critical coastal and marine resources from all direct and indirect activities. This recognizes the importance of these coastal and marine resources for the development of the Wider Caribbean Region. In so doing, our projects and activities focus primarily on:

- Promoting use of best practices and appropriate technologies;
- Applying management tools in decision-making, including measures such as establishment of protected areas, use of EIAs, economic valuation, etc.;
- Facilitating scientific and technical cooperation and exchange of information;
- Capacity building at the institutional, legal, policy and scientific levels.

2 *The use of science today:*

As a Regional Environmental Convention, much work is informed by scientific data and information. Scientific data formed the basis and justification for the initial development of the Convention and Protocols and continues to be used to monitor and evaluate the effectiveness of the Convention and its Protocols at the national and regional levels. Scientific and environmental data also form the basis for several scientific and management guidelines produced by CEP. More importantly, if the Convention is to be successful in stimulating policy, institutional and legal reform, it should be based on sound scientific data and information. This means that much of our capacity building has focussed on being able to generate accurate and sustained data and information on the state of the region's natural resources and assessing the major stressors and impacts to them. The information is obtained directly from national government agencies, through external regional and/or global programmes and projects, from our own activities, in particular through our Regional Activity Centres (RACs) and other collaborating organizations (RAN) includ-

ing NGOs, universities, regional research institutions. Our links to regional and international organizations are through a variety of mechanisms: Formal MOUs of cooperation – e.g. with BASEL, CITES, RAMSAR, OECS, IAEA, through participation of these agencies at our Intergovernmental Meetings and other technical meetings as are allowed by the Rules of Procedure for the Caribbean Action Plan and Cartagena Convention and Protocols, through the network of RACs and RAN, as partners in various regional and global projects, as executing agencies for specific UNEP Projects.

3 *The future challenges:*

Mainstreaming environmental data and information into development planning and economic decision making processes by senior policy and decision makers. The lack of scientific and technological capacity in developing countries means that there are some basic data gaps on the state of the marine environment in this region. Appropriate capacity building programmes are required both at the national and regional levels including universities to assist in more targeted research and monitoring programmes, identification of hot spots and relating state of environment data to major environmental and human health impacts as well as the main causes of environmental degradation. The transfer of raw scientific data into environmental information for decision-making. While some achievements have been made, more needs to be done on the packaging of data through modelling, GIS, etc. to make it more accessible and useable for decision making. Importance of the continued incorporation of economics and social indicators when generating, compiling and evaluating marine scientific data. In this regard consideration of scale is important. In other words, while we need to continue to promote economic valuation of the value of services provided by ecosystems at a regional or global level – these need to be presented at the national and even at the local and community level to result in greater impacts on the ground.

4 *The needs*

Bridging the gap between marine/coastal science and the political decision maker. Making the science more relevant to the day to day development decisions. More integrated information that considers social and economic indicators as well. For SIDS, considerations related to Climate Change. Linkages with human health need to be better defined. Monitoring Programmes – how to make them simpler, faster and less expensive.

THE FISHERY COMMITTEE FOR THE EASTERN CENTRAL ATLANTIC (CECAF)

Alhaji Jallow

1 Context

The Fishery Committee for the Eastern Central Atlantic (CECAF) was established by FAO in 1967 and now has 34 members consisting of 22 coastal states bordering Africa, 11 non-coastal states, and the European Community. The Eastern Central Atlantic fishing area (FAO Area 34) stretches from Cape Spartel on the Straits of Gibraltar to the River Congo and CECAF was established to promote the optimum utilisation of the living resources in this area of its competence through the promotion of the collection and analysis of statistical, biological and socio-economic data and their dissemination, and the formulation of management recommendations for implementation by its Members.

2 Use of Science

In September 1998, the Committee abolished its four subsidiary bodies and agreed to have a simpler structure consisting of the Committee and a Scientific Sub-Committee (SSC). The Scientific Sub-Committee has been providing scientific advice to the Committee since its inception in October 2000. The Scientific Sub-Committee established working groups on small pelagics, demersal species and artisanal fisheries. These groups meet regularly to assess stocks and deal with prevailing technical and social issues related to resource

management. The use of science in these groups has been on the techniques and methodologies of assessing stocks and in fisheries statistical data collection, processing and analysis.

3 Future challenges

In general, the Committee identified inadequate data as a major problem for the working groups that provide information to the Scientific Sub-Committee. In particular, there is a general lack of biological data. There is also a need for improving the catch and effort data for more reliable stock assessment in the region. Reliable data for scientific work and eventual advice will continue to be a major challenge to the Committee.

4 Needs

The data problem being experienced by CECAF will require a continuous effort in improving data collection through training and sensitization of the administrations and related institutions on the significance of supplying reliable and adequate fisheries data. As indicated for CECAF, the information gap in marine coastal science is in the quantitative state of the major stocks that the major fisheries depend on. The trawl and acoustic surveys that provide more reliable information are usually rare or non-existent in many countries. The lack of appropriate information affects monitoring efforts and contributes to rapid depletion of stocks and consequent over-exploitation.

CARIBBEAN LME PROJECT (CLME)

Ms. Lucia Fanning

1 The context of the organization

The Caribbean Large Marine Ecosystem (CLME) Project Unit is the technical coordinating unit for the implementation of GEF-funded CLME Project on behalf of the 26 member countries that make up the Wider Caribbean Region. IOCARIBE, the Regional Sub-Commission of IOC for the Caribbean and Adjacent Regions is the Executing Agency for the project.

The CLME Project uses a networked approach to conduct the approved project implementation plan, drawing on a diversity of national, sub-regional, regional and international partners.

2 The use of science today

The CLME Project uses the policy cycle (data and information; analysis and advice; decision-making; implementation; and monitoring and evaluation) to guide the identification of science needs (Figure 1). Sound scientific input into all CLME Project components provides the foundation for recommendations to enhance the sustainability of transboundary living marine resources at the LME level.

Given the overall objective of the project to work towards the sustainable management of the shared LMRs and to work towards the achievement of the WSSD targets, the kind of science that is needed spans both the social sciences and natural sciences. Regarding the utilization of scientific information, the primary objective is to ensure more informed decision-making at multiple levels. As such, the nature of the science needed and the form of its uptake will be dependent on the nature of the activity, the actors involved and the level at which the decision is effected.

Information is obtained by accessing the expertise and products of the suite of network actors essential for addressing LME-level issues that affect shared marine resources. Access is via a variety of mechanisms including electronic transfer via the internet, workshops, conferences, meetings, research conducted by the PCU, etc.

The CLME Project has made a concerted effort to build partnerships and to link with an extensive array of organizations, intergovernmental as well as non-governmental (e.g. FAO, UNEP, Organization of American States, The Nature Conservancy), universities (e.g. UWI, U.Miami, Dalhousie), networks (e.g. WW2BW, IWLEARN, GCFI), subregional FMOs, member countries (e.g. via an Inter-Ministerial/Intersectoral

Committee and specific Natural Resources and Environment Ministries) and a variety of other players.

3 The future challenges

The current degrading state of the shared LMRs in the Caribbean suggests that ecosystem management and the recovery of depleted fish stocks will require cooperation at various geopolitical scales, but there are at present inadequate institutional, legal and policy frameworks or mechanisms for managing shared living marine resources across the region. There is also a lack of capacity at the national level and scientific information is poor, particularly with relation to the transboundary distribution, dispersals and migrations of these organisms and the impact of changes in productivity and climate. In cases where information is available, it is oftentimes not easily or readily accessible for region-wide decision-making. These institutional deficiencies as well as a lack of knowledge represent a major barrier to the sustainable ecosystem management of these shared marine resources where long-term programs to collect and integrate biogeophysical, social and economic data is critical.

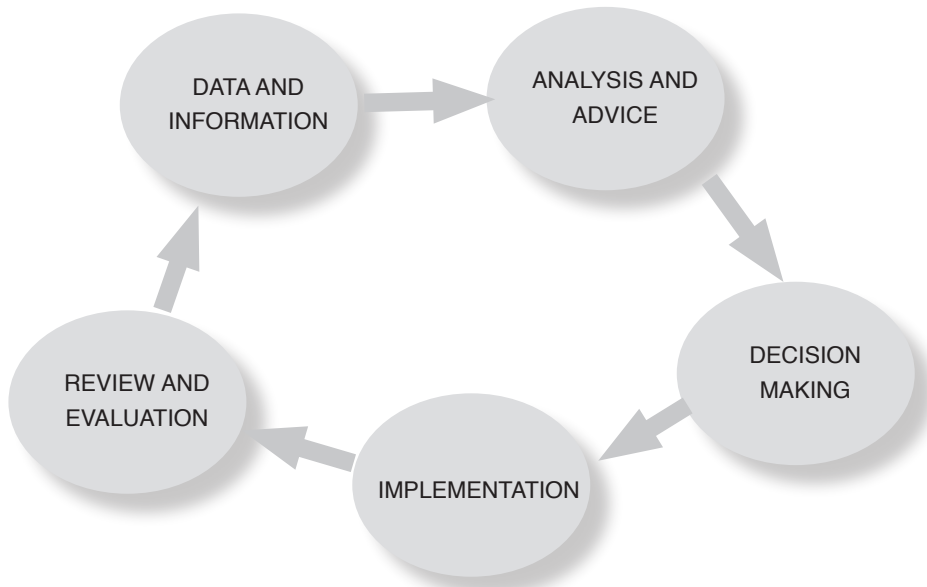
4 The needs

Given the complexity and diversity of the Wider Caribbean, needs vary widely from place to place and problem to problem. A preliminary Transboundary Diagnostic Analysis has revealed the need for a great diversity of information and analysis to address LMR issues. The following are a few of the most prominent ones:

- The development and ongoing analysis and reporting of the current biogeophysical status of the LME that uses a simplified suite of indicators or index-based reporting structure that allows for a holistic analysis of the issues at an ecosystemic level.
- A focused programme of activities aimed at understanding the transboundary distributions, dispersals and migrations of selected transboundary fisheries in the region, e.g. dolphin fish
- Science needed to better understand the cumulative ecological effects of a number of pressures on the LME including climate change; coastal population growth including tourism; and marine pollution, including the extent of the threat from marine invasive species and the trans-shipment of hazardous goods.
- Economic valuation of the natural capital in the LME.
- Methodological approaches to low cost rapid assessment of resource status that can support decision making.

- Metadata data information systems that will facilitate access and meaningful use to scientific data and information, thereby promoting its movement from research centres and other owners of the data to users.

Fig. 1
A generic policy cycle used for the proposed LME governance framework for the Caribbean LME.



WESTERN CENTRAL ATLANTIC FISHERY COMMISSION

Mr. Bissesar Chakalall

1 Introduction

WECAFC, an FAO regional fishery body, was established by Resolution 4/61 of the Sixty-first Session of the FAO Council, November 1973, under Article VI (1) of the FAO Constitution. Revised Statutes of the Commission were endorsed by the Hundred and Thirty-first Session of the FAO Council, November 2006. WECAFC provides fishery fisheries management advice and recommendations, based on the best available scientific information, for its members to implement. Membership is open to coastal States whose territories are situated wholly or partly within the area of the Commission or States whose vessels engage in fishing in the area of competence of the Commission that notify in writing to the Director-General of the Organization of their desire to be considered as members of the Commission.

The general objective of the Commission is to: promote the effective conservation, management and development of the living marine resources of the area of competence (Fig. 1) of the Commission, in accordance with the FAO Code of Conduct for Responsible Fisheries; and address common problems of fisheries management and development faced by Members of the Commission. It covers all living marine resources, without prejudice to the management responsibilities and authority of other competent fisheries and other living marine resources management organizations or arrangements in the area.

2 Work Programme

Funding for the work programme of the Commission comes mainly from the FAO Regular Programme budget and from partners. FAO bears the running costs for the Secretariat. Funding is a major constraint.

The work of the Commission is guided by the following three principles:

- promote the application of the provisions of the FAO Code of Conduct on Responsible Fisheries and its related instruments, including the precautionary approach and the ecosystem approach to fisheries management;
- ensure adequate attention to small-scale, artisanal and subsistence fisheries; and
- coordinate and cooperate closely with other relevant international organizations on matters of common interest

Fishery management advice, based on the best available scientific information, is provided through ad hoc working groups, established by the Commission. The groups were decided on basis of ecosystem boundaries (e.g. Working Group on Shrimp and Groundfish Fisheries in the Brazil-Guianas LME); on species/stocks (e.g. Working

Group on Caribbean Spiny Lobster; Queen Conch and Flying Fish); or on specific subjects/issues (e.g. Working Group on Anchored Fish Attracting Devices in the Lesser Antilles). Fishery scientists, managers and decision makers of member countries participate in the working groups which have specific terms of reference and are time bound. The goal is to achieve sustainable utilisation through effective fishery management. The data used by the working groups to generate fishery management advice are collected by the participating countries.

Where applicable and appropriate, the activities of the Commission are implemented in partnership with regional and international organisations working in the region. WECAFC is also a member of the Regional Fishery Body Secretariats Network that meets biennially.

3 The needs

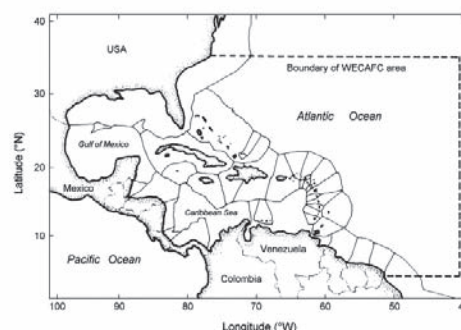
The need to improve the quality of data and information being collected for the generation of management advice and the implementation of the management recommendations by the countries are two of the main challenges facing the region.

4 The future challenges

Taking into consideration the experiences of the working groups the major challenges are the institutional deficiencies existing in most member countries. These include: small staff with limited experience and high turn-over rates; no clear decision making processes for uptake of scientific information for management; poor communication among scientists, managers and decision makers; weak institutional capacity (absence of a critical mass); and inadequate funding.

WECAFC is addressing these issues and those efforts should be strengthened through working in partnership with GEF/UNDP/UNESCO/IOCARIBE Caribbean Large Marine Ecosystem Project (CLME), through pilot projects on shrimp and groundfish in the Brazil-Guianas LME, Caribbean Spiny Lobster and Flying fish.

Figure 1
The WECAFC Region. Note: The hypothetical EEZs, using the equidistant principle, are for illustrative purposes only and does not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organisation concerning the legal or developmental status of any country, territory or of its authorities, or concerning the delimitation of its frontiers or boundaries.



COORDINATING WORKING PARTY ON FISHERIES STATISTICS

Ms. Tsuji Sachiko

1 The context of the organization

Mission: To provide a mechanism to coordinate fishery statistical programmes of regional fishery bodies and other inter-governmental organizations with a remit for fishery statistics.

Status: Established in 1960 in accordance with Article VI of the FAO Constitution and reconstituted in 1995

Main Objectives: i) to keep continuously review the needs of fishery statistics for research, policy-making and management; ii) to agree on standard concepts, definitions, classifications and methodologies for the collection and collation of fishery statistics; and iii) to make proposals for the coordination and streamlining of statistical activities among relevant intergovernmental organizations.

Participating organizations: CCAMLR, CCSBT, EuroStat, FAO, GFCM, IATTC, ICCAT, ICES, IOTC, IWC, NAFO, NASCO, NEAFC, OECD, and SEAFDEC. WCPFC and CPPS expressing their interest for participation.

2 The use of science today

Recently the CWP has paid more attention toward the monitoring procedures, actual data need and the utilization of data with the recognition that data and corresponding scientific analyses are the key in providing indicators useful and appreciated for the decision makers. In order to identify appropriate techniques and data requirements, it is essential for the CWP to keep a good overall understanding on the most advanced technology and science.

3 The future challenges

The followings are the list of main activities recommended for 2007/2008 which reflect the areas of our concerns and challenges:

- Establishment of a consolidated catch database based on the publicly available data under RFBs, incorporating species distribution information in relation to oceanographic and topographic data, if possible;
- Workshop on new data requirement and new data collecting techniques including data needs for fishery monitoring and management in the context of ecosystem approach; and
- Review on estimation of catch and vessel capacity of IUU activities (including under-reporting and mis-reporting due to poor monitoring by States participating to the management).

4 The needs - the main informational gaps

- Under-utilization of data collected through management schemes, including observer data, VMS information, catch documentation, for scientific analyses and assessments. Major constraints include confidentiality issues and shortage of resources.
- Lack of mechanism to allow inter-organizational share and exchange of data, information, experiences, technical knowledge and scientific analyses.

NORTH EAST ATLANTIC FISHERIES COMMISSION (NEAFC)

Mr. Kjartan Hoydal

1 *The context of the organization*

NEAFC is a convention based Regional Fisheries Management Organisation in the North East Atlantic. After the latest amendments (2006) to the Convention the objective is "to ensure the long-term conservation and optimum utilization of the fishery resources in the Convention Area, providing sustainable economic, environmental and social benefits." (New Article 2). The Contracting Parties are Denmark (in respect of the Faroe Islands and Greenland), the EU, Iceland, Norway and the Russian Federation.

2 *The use of science today*

In New Article 4 stipulates that when recommending management measures shall:

- a) ensure that such recommendations are based on the best scientific evidence available;
- b) apply the precautionary approach;
- c) take due account of the impact of fisheries on other species and marine ecosystems, and in doing so adopt, where necessary, conservation and management measures that address the need to minimise harmful impacts on living marine resources and marine ecosystems; and
- d) take due account of the need to conserve marine biological diversity.

ICES¹⁰ is the provider of scientific advice to NEAFC. NEAFC submits annually a request for advice to ICES prepared by the NEAFC Permanent Committee on Management and Science. The request covers standard advice, in general stock assessments for the stocks relevant to NEAFC, and specific advice. Conservation and management measures have now been adopted for all major fisheries in the NEAFC Regulatory area.

NEAFC is a member of FAO-CWP and a FIRMS partner. It participates in the Regional Fishery Body Secretariats Network. The Secretariat attends FAO-COFI meetings and in the Informal Consultation Process in UN. A list of participation last year is given below

3 *The future challenges*

NEAFC has adopted new Port State Control measures as a part of the existing comprehensive NEAFC Control and Enforcement Scheme. The new measures will enter into force on 1 May 2007. This new Scheme

will effectively close Contracting Party ports to landings of frozen fish which have not been certified by the Flag State of the vessel intending to land.

NEAFC has joined forces with its sister organisation in the Northwest Atlantic, NAFO, to create a pan-North Atlantic list of IUU vessels. The two RFMOs have decided that vessels on their respective lists of IUU vessels are transferred from the list of one organisation to the list of the other. The blacklisting of IUU vessels has proved very efficient. There are twenty vessels, fishing vessels and reefers, on the NEAFC blacklist.

Of these 6 notorious pirates, fishing illegally for redfish in the Irminger Sea, have been confirmed to be on their way for scrapping after been held back in NEAFC ports. 9 others, fishing vessels and reefers, are held back in NEAFC ports and 5 are known to operate outside the North Atlantic.

4 *The needs*

NEAFC has for some time asked for fisheries based rather than stock based scientific advice from ICES. The ecosystem approach has been a major issue in NEAFC since 2001 and scientific advice to address this is still patchy.

NEAFC has closed 8 areas to demersal fishing gear in the Regulatory Area to protect vulnerable marine ecosystems. Criteria and objectives for using closed areas as a tool to minimise the ecological impacts of fisheries on marine habitats and biodiversity will be more closely examined in NEAFC's Permanent Committee on Management and Science. The scientific basis for closing the first 8 areas is patchy and they are therefore limited in time in the hope that more precise advice will be forthcoming.

¹⁰ International Council for the Exploration of the Sea, Copenhagen

Catches NEAFC Convention area

Stock/Species	Management Measures	CatchesNEAFC Convention area. 1000 tonnes 2005
Blue Whiting	TAC and allocation	1,973
Deep-sea species.	35 % reduction in effort, closed areas, precautionary fishing ban	27
Mackerel	TAC and allocation	356
Norwegian Spring Spawning (Atlanto-Scandian) herring	TAC and allocation	1,234
Pelagic redfish (<i>Sebastes mentella</i>) in the Irminger and Sea	TAC	69
Redfish in ICES Sub-areas I and II	precautionary fishing ban	8
Rockall haddock;	Closed Area	5

Other meetings and conferences in 2005/2006

Meeting	Date	Venue	Convener
CWP and FIRMS Steering Group meeting	13-15 February.	ICCAT HQ Madrid	FAO
Informal consultations UNFA Review Conference	20-24 March	UN HQ New York kjh	UN
MCAP-MICC meeting	10-11 April	ICES HQ kjh	ICES
Nordic Conference Focus on the Economy	3-4 May	Tórshavn (lecture) kjh	Nordic Council of Ministers
Marine Nature Conservation in Europe in 2006	8-12 May	Stralsund, lecture) kjh	Federal Agency for Nature Conservation, Bonn.
UNFA Review Conference	22-26 May	UN HQ New York kjh	UN
North Atlantic Conference MPAs	6-7 June	Tromsø, Lecture kjh	Norway
North Atlantic Fisheries Minister Meeting	8 June	Hurtigruten lecture kjh	Norway
7th ICP Meeting Biodiversity	12-16 June	UN HQ New York	UN
ICES Symposium Fisheries Management Strategies	28-30 June	Galway, Ireland kjh	ICES
Nordic Network in international organisations	01 Sep	Oslo kjh	Nordic Council of Ministers
Implementing the Ecosystem Approach to Fisheries	26-28 Sep	Bergen kjh	FAO, Norway
Expert Consultation on VMS and satellites *	24-26 Oct.	FAO, Rome JN	FAO
Chatham House update on IUU *	21 November	Chatham House	Chatham House
Global IUU Monitoring Workshop *	22-23 Nov.		Royal Inst. International .Affairs London

BLACK SEA COMMISSION

Ms. Violeta Velikova

1 *The context of the organization:*

Commission on the Protection of the Black Sea Against Pollution (Black Sea Commission, Istanbul) is the intergovernmental environmental organisation of the Black Sea coastal states including Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine for implementation of the Convention on the Protection of the Black Sea Against Pollution (1992).

The Black Sea Commission was established in 2001 according to the provisions of the Convention and for coordination of the Strategic Action Plan for Rehabilitation and Protection of the Black Sea signed by all six Black Sea coastal states in 1996. Priority policy actions that have full national commitments include biodiversity conservation and marine living resource management, eutrophication and pollution reduction, and sustainable human development. A variety of tools are applied such as improvement and implementation of national legislation, pilot projects, short- and long-term planning and management, including monitoring programs.

2 *The use of science today*

Black Sea Convention: Article XV on Scientific and Technical Cooperation and Monitoring:

'The Contracting Parties (Black Sea countries) shall cooperate in conducting scientific research aimed at protecting and preserving the marine environment of the Black Sea and shall undertake, where appropriate, joint programmes of scientific research, and exchange relevant scientific data and information'.

Science is not yet sufficiently used for BSC's policy and regulatory decisions, however, along with other relevant factors/drivers, it informs and supports decision-making in the Black Sea countries. The scientific community and the BSC together identify, control/monitor, and improve decision-making following the 'Drivers, Pressures, State, Impacts and Response' Model (DPSIR). Main objective of the Science-BSC collaboration: to recognize the root causes and outline priorities in protection of the Black Sea through comprehensive investigations on the state of the Black Sea ecosystem and impacts, transboundary diagnostic analyses and gaps in decision making.

3 *What kind of science?*

All kinds of scientific investigations relevant to:

- assessment of the nature and extent of eutrophication and pollution and of their effects

on the ecological system, incl. environmental impact assessments and risks assessments;

- identification of scientific criteria for the formulation and elaboration of rules, standards and procedures in environmental management;
- monitoring programmes covering all sources of eutrophication/pollution, introduction of new species and overfishing for measuring, evaluating and analyzing the response of the ecosystem to environmental management (progress evaluation);
- assessment of potential effects of human activities and climate change;
- legislation, policy making.

4 *How does the organization utilize the information?*

The BSC tries to use science for policy and regulatory decision-making, as Science provides the foundations for credible management through elaboration of recommendations and guidelines based on scientific achievements.

Where,

- adequate knowledge about the risks to human and ecosystem health triggered by various drivers/pressures,
- innovative solutions to prevent pollution and reduce risk,
- forecast of environmental problems before they reach a critical level

are the milestones of all purpose-driven scientific investigations in the Black Sea region toward environmental protection.

BSC staff uses and performs research and policy analysis, reviews science publications, writes scientific papers or have interventions at various scientific events. Examples include attempts for habitat mapping for deciding/designating protection areas, fishery assessment, oil pollution monitoring activities

Reporting: Regular annual assessment of the Black Sea Pollution/Eutrophication and Black Sea ecosystem state in terms of policy measures efficiency. Five-years reports: TDA and SoE are part of the BSC reporting system, prepared basically by scientists.

Bi-annual scientific conferences on topics related to the goals of the Black Sea Strategic Action Plan are planned in the Work Program of the BSC.

The scientific research and development are integral part of the BSC work through MoUs with ICPDR, HELCOM, EEA, UNEP (in marine litter and marine mammals projects), JRC.

Financial and/or scientific and technical support to the BSC comes from:

- GEF Black Sea Environmental Program 1993-1996, BSERP 2002-2004; 2004-2007;
- TACIS Funds 1995/1996, 1996/1997, 2002-2004, 2005-2007;
- EEC DG Environment

The BSC observes or participates to international projects: Black Sea GOOS, PHARE, ARENA, IASON, Black Sea SCENE, SESAME, ACCOBAMS, etc.

Cooperation with:

- IMO, BSEC, EMSA, EMMA/EEA, IAEA, OSPRI, ESPOO Convention, Convention on Conservation of Biodiversity, etc.
- Individual governments
 - International NGOs

The basic financial assistance comes from the Black Sea Countries governments, GEF/UNDP, EC and international scientific projects.

5 How does the organization obtain the information?

The BSC information system is annually provided/nourished with data collected on a National level by the Ministries of Environment in all the six Black Sea countries. The UNDP/GEF BSERP project and other international projects are also source of data and information.

6 The future challenges

The major challenge in the Black Sea region is: to increase economic prosperity without endangering the ecological recovery of the Black Sea. Priorities/main issues in terms of planning and decision making remain: combating eutrophication, elimination of input of hazardous substances (diffuse and point sources from land-based activities, vessels, emergency situations, dumping, pollution from activities on the continental shelf, pollution from or through the atmosphere, hazardous wastes in transboundary movement), improving the safety of navigation and response capabilities, halting the decline of biodiversity, overcoming the common dilemma of overuse and mismanagement (protection of the marine living resources and marine ecosystem), sustainable human development. One of the significant problems that will require attention of the Black Sea Commission is major regime shifts in the Black Sea induced by global climate change.

Re-organisation of scientific activities, dissemination of information and better data collection are priorities in the Black Sea region.

7 The needs

Main gaps in our knowledge toward improved decision-making, questions to be answered:

- Are regional efforts to combat eutrophication effective and what are the present nutrient loads to the Black Sea?
- What is the role of diffuse sources of pollution and eutrophication in the region?
- What are priority pollutants for the Black Sea and their impact on the Ecosystem and Human Health?
- For which species we need urgent conservation plan?
- What are priority habitats for establishing protected areas?
- What Monitoring Program should be established to follow climate change and human impact adequately?
- What is the role of climate change in the region? Where climate change and where human impact, in what proportion?

Questions related to Sustainable human development:

- Coastal processes and coastal development;
- Erosion;
- Are Tourism and Aquaculture sustainable?
- Criteria for Environmental Impact Assessment in transboundary context;
- Environmental pricing;
- Economic indicators;
- Demography and Social Indicators;

Draft Scientific Plan was outlined during the 1st bi-annual scientific Conference in the Black Sea region, organized by the BSC. The plan includes full list of gaps in oceanography and climate change, hydrochemistry and biology. Example: gaps:

- Insufficiency of long-term deep sea data and marine meteorological observations.
- Absence of long-term strategy of monitoring and study of the Black Sea climate change as one of the key elements of environmental management.
- Lack of sufficient knowledge on key physical and biogeochemical processes controlling state of the Black Sea ecosystem.

BAY OF BENGAL PROGRAMME INTERGOVERNMENTAL ORGANISATION

Mr. Yugraj Singh Yadava

1 *The context of the Organisation*

The Bay of Bengal (BoB) covers an area of 2 215 000 sq. km. More than a quarter of the world's population is found in the BoB countries. The Bay also supports a large population of small-scale fishers: some 6-8 million directly and an additional 35 – 40 million engaged in ancillary activities related to fisheries. The contribution of coastal fisheries to nutrition and economic well being in the BoB region is substantial. Fisheries and aquaculture are now important contributors to the national economies in the countries around the BoB and fish and fish products are also the most heavily traded food commodities in the region.

Increasing human population and reduced productivity of coastal fisheries through unsustainable fishing practices, habitat degradation, post-harvest losses, etc. threaten the livelihood of millions of small-scale fishers in the Bay. In recent years, capture fisheries has either stagnated or seen a small increase in terms of production (e.g. in tuna and tuna like species), while aquaculture has continued to grow at a rapid rate. Further decline of fisheries would severely impact the livelihood security, food availability and national economy of the BoB countries.

The problems of depleting fisheries resources and degrading habitats in the region have been further compounded by the 26 December 2004 tsunami waves that originated due to the massive earthquake(s) off the coast of northern Sumatra, Indonesia. The waves severely impacted the coastal communities and the marine ecology and environment.

The BOBP-IGO evolved from the erstwhile Bay of Bengal Programme (BOBP) of the Food and Agriculture Organization (FAO) of the United Nations in April 2003. Presently, the Governments of Bangladesh, India and Sri Lanka and Maldives are the members of the BOBP-IGO.

The BOBP-IGO is mandated to enhance cooperation among member- countries, other countries and organisations in the region and provide technical and management advisory services for sustainable coastal fisheries development and management in the BoB region. The organisation's mission is to promote, facilitate and secure the long-term development and utilisation of coastal fisheries resources of the BoB based on responsible fishing practices and environmentally sound management programmes.

2 *Goals and Objectives*

BOBP-IGO's goal is to connect member-countries to knowledge, experience and resources to help their fisherfolk build a better life and the core objectives are to:

- increase awareness and knowledge of the needs, benefits and practices of coastal fisheries management;
- enhance skills through training and education;

- transfer appropriate technologies and techniques for development of small-scale fisheries;
- establish a regional information networking; and
- promote women's participation in coastal fisheries development at all levels.

3 *The use of science today*

The use of science is of paramount importance to BOBP-IGO in the successful implementation of its goals and objectives. To meet this requirement, the Technical Advisory Committee (TAC) of the BOBP-IGO comprises lead fisheries institutions in the four member-countries. These institutions comprise (i) Bangladesh Fisheries Research Institute (BFRI), Mymensingh, Bangladesh; (ii) Fishery Survey of India (FSI), Mumbai, India; (iii) National Aquatic Resources Research and Development Agency (NARA), Colombo, Sri Lanka and Marine Research Centre (MRC), Malé, Republic of Maldives. The TAC meets once every year and provides advice to the Governing Council of the BOBP-IGO on topical issues and ways and means to address them. These premier scientific institutions also assist the BOBP-IGO Secretariat in implementation of its programmes and activities. Besides, the BOBP-IGO also has a close working relationship with the other research & development institutions, inter-governmental and UN organizations, universities and leading non-governmental organisations in the region. A web-based directory of scientists is also under construction, which will be available on the BOBP-IGO website shortly (www.bobpigo.org).

4 *The future challenges*

There is strong and growing optimism that the BoB can produce significantly more fish than the present levels of landings through improved and greater management of the marine resource. Such management will clearly benefit from better and more scientific and responsible technological inputs, better all-round awareness, larger involvement of the community in the management of fisheries resources, and adoption of approaches based on the principles of co-management. To achieve the management goals, the future challenges inter alia comprise optimization of fishing effort and community driven monitoring, control and surveillance programmes, penetration of the Code of Conduct for Responsible Fisheries to the grassroots, reducing the impacts of land-based pollution on the marine resources and understanding and implementation of the ecosystem approach to fisheries and aquaculture management.

5 *The needs*

To address the future challenges, the most important requirements in the BoB region are appropriate technology inputs, institutional capacity building, better all round awareness of resource management, strengthening of data base and its availability through extensive use of ICT and adoption of community-based participatory approaches.

BENGUELA CURRENT LARGE MARINE ECOSYSTEM PROGRAMME (BCLME)

Ms. Maria de Lourdes Sardinha

1 The context of the organization

The Benguela Current Large Marine Ecosystem (BCLME Programme) is a multi-sectoral regional initiative by Angola, Namibia and South Africa and is designed to improve the structures and capacities of the three countries to deal with the environmental problems that occur across the national boundaries, in order that the Benguela Current Large Marine Ecosystem may be managed as a whole in a sustainable manner.

These transboundary issues include the migration or straddling of valuable fish stocks across national boundaries, the introduction of invasive alien species via the ballast water of ships moving through the region, and pollutants or harmful algal blooms that can be advected by winds and currents from the waters of one country into another.

The Programme is funded by the Global Environmental Facility (GEF) under its International Water portfolio and is implemented by the United Nations Development Programme (UNDP) with the United Nations Office for Project Services (UNOPS) as executing agency. The three member countries provide further financial and in-kind contributions.

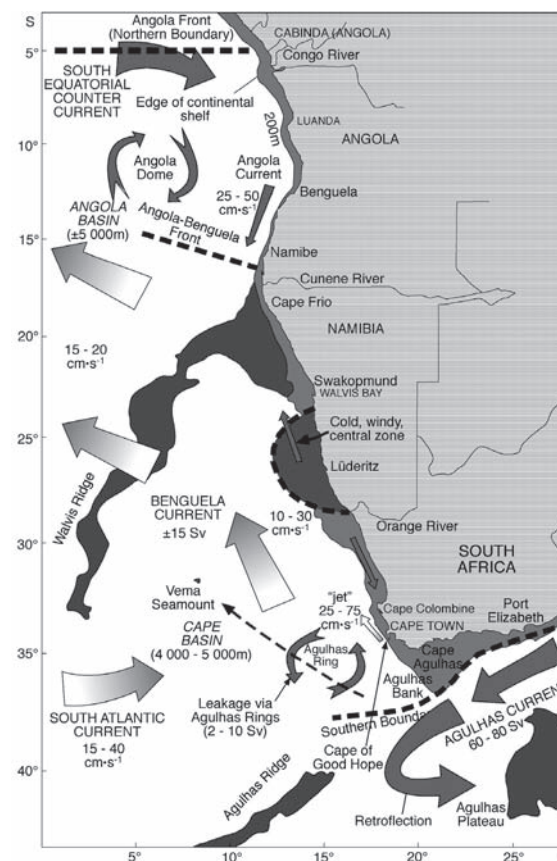
A Programme Co-ordinating Unit was established in March 2002 Windhoek and three Activity Centres – one in each participating countries – were established as the main mechanisms for the implementation of the Programme.

The Activity Centre for Living Marine Resources is located in Swakopmund, within the National Marine Information and Research Centre (NatMIRC). The Activity Centre for Biodiversity, Ecosystem Health and Marine Pollution is located in the National Fisheries Research Institute (INIP) Luanda, Angola and the Activity Centre for Environmental Variability is located in Marine Coastal Management (MCM, Cape Town, South Africa).

The Activity Centres function as the “headquarters” of the Advisory Groups, which are tasked with ensuring, among the others things, that the transboundary elements are properly addressed by the BCLME Programme. The Centres also manage specific projects associated with their mandate and provide capacity strengthening and networking for their respective activities.

The Benguela Current region is situated along the coast of southwestern Africa, stretching from east of the Cape of Good Hope in the south, northwards to Cabinda in Angola and encompassing the full extent of Namibia’s marine environment (Fig. 1)

Figure 1
External and internal boundaries of the Benguela Current Large marine Ecosystem, bathymetric features and surface (upper layer) currents



2 The use of science today

The main issues and threats in the BCLME area were identified through an extensive multi sectorial consultation process (Transboundary Diagnostic Analysis-TDA) and two regional workshops held in 1998 and 1999. A strategy was then developed to address the identified transboundary issues. The Strategic Action Programme (SAP) is a concise document that outlines regional policy for the integrated sustainable management of the BCLME, as agreed by the governments of Angola, Namibia and South Africa.

The SAP details the challenges faced by the region and the institutional arrangements for ensuring delivery; establishes the principles that are fundamental to integrated management in the region; specifies the nature, scope and timetable for deliverable management policy actions; elaborates cooperation between the BCLME region and external institutions and outlines approaches to ensure the long-term self-funding of the integrated management of the BCLME.

Within the portfolio for Ecosystem Health, and Management of Pollution based in Luanda, the following policy actions were identified:

- Improvement of water quality
- Prevention and management of oil spills
- Reduction of marine litter
- Retardation/reversal of habitat destruction/alteration
- Conservation of biodiversity

Twenty one projects were developed by scientists from the region and international to address the issues listed and the main activities. The activities are among others:

- Develop regional oil spill contingency plan
- Assessment of sources and management of land-based sources of marine pollution
- Establish regional consultative framework
- Coordinate and harmonise EIA policy
- Assess cumulative effects on marine biota
- Mapping vulnerable species and habitats and
- Conserve marine biological diversity through a conservation plan for the region.
- Identify priority marine protected areas (MPA's), especially in transboundary regions between Angola and Namibia, and Namibia and South Africa.
- Establishment of a database on threatened species and habitats (standardised systems and GIS)

Since different stakeholders play diverse function within the Benguela region, effective consultative processes with industry i.e. fishing, diamond mining and offshore oil and gas is taking place and will continue together with the development and promotion of community co-management.

Capacity building and training is a high priority in the region several courses to address these needs have taken place e.g. a training course on the management of ballast water as a pathway for marine and coastal invasive species (Luanda, from 4-7 December 2006) and the environmental impact assessment course in Swakopmund from the 23 -27 April 2007.

3 Existing links with other organizations, universities, networks, governments

BCLME is collaborating with the following key regional bodies:

- SADC Treaty (1992) regional development and integration including fisheries
- SADC Protocol on Fisheries (2001)
- NEPAD (New Partnership for African Development)
- SEAFO (South East Atlantic Fisheries Organisation)
- ICCAT (Conservation of Atlantic Tunas)
- BENEFIT (fisheries, oceanography and training)
- Monitoring, Control and Surveillance of Fishing Activities (EU – SADC MCS Programme)
- Abidjan Convention (UNEP-Nairobi)

4 Future challenges

The main challenge now is the setting up of the Benguela Current Commission (BCC), a formal institutional structure that will help Angola, Namibia and South Africa to implement an “ecosystem approach” to managing the resources of the BCLME. This means that, instead of managing living and non-living marine resources at the national level, the three countries will work together to tackle transboundary environmental issues such as pollution, the management of shared fish stocks and the coordination of regional efforts to mitigate the impacts of marine mining and oil and gas production on the environment.

Ministers from Angola Namibia and South Africa met in Cape Town on August 29 to sign an Interim Agreement that formally established the Benguela Current Commission (BCC). This agreement will be for four year with support from the GEF and other international donors for institutional strengthening, capacity building and implementation of core scientific projects. After this trial period, a full fledged environmental convention with sustainable financing will be set up through a partnership with the three governments and the marine industries.

INTERIM GUINEA CURRENT COMMISSION

Mr. Chidi Ibe

1 *The context of the Organization*

The Guinea Current Large Marine Ecosystem Project entitled, "Combating Living Resources Depletion and Coastal Area Degradation in the Guinea Current LME through Ecosystem-based Regional Actions" is a 16 country initiative focusing on marine environmental and living resource management.

As envisaged in the approved project document, the project is in a transition phase to a permanent technical Commission following the Abuja Declaration adopted by the First Meeting of Environment and Fisheries Ministers responsible for the Guinea Current LME project (Abuja, 21-22 September, 2006) which created the Interim Guinea Current Commission within the context of the Abidjan Convention (1981).

The transition to a Permanent Commission will be achieved by 2009 and will ensure the sustainability of the long term objectives and targets of the GCLME project. Implementation of the project is through the activities of Regional/National Activity Centres and Regional/National Technical/Scientific Advisory Groups.

2 *The Use of Science Today*

The Organization makes use of Science in an applied mode. The organization is very rarely involved in basic research. Instead it seeks to apply proven concepts and principles towards the solution of identified problems. Information is obtained from Satellite

imageries and other remotely sensed data, published and unpublished scientific Reports/Papers and other similar documents. To reinforce the collation, systematization and interpretation of data, a Regional Center for Environmental Information Management and Decision Support System was established at the University of Lagos, Nigeria with the active support of the University, the Nigerian Federal Government and the Private Sector and constitute the locomotive driving other project activities including the activities of other regional as well as national Centers.

All the Regional Activity Centers of the Project have active working relationships and collaborations with major Scientific, Technological and Policy Centres (public and private, UN and non-UN) in Europe, Asia and the Americas and through them, obtain additional insights into frontier science and technology issues and developments.

3 *The Future Challenge*

The main issues in terms of planning and decision making during 2007/2008 are linked to the need for the consolidation of regional mechanisms for consultations and joint actions.

The challenges of applying science and technology to the resolution of identified environmental and resource management problems remain current issues.

4 *The Needs*

The main information gaps as of today and in the nearest future are and will remain the near absence of operational equipment and systems for the acquisition/processing of ocean data and information.

REGIONAL ORGANIZATION FOR CONSERVATION OF THE ENVIRONMENT OF THE RED SEA AND GULF OF ADEN (PERSGA)

Mr. Ziad Abu Ghararah

1 Summary

The Red Sea and Gulf of Aden Region has witnessed rapid transformations in several aspects including coastal development, maritime transport, and exploitation of living resources. All of these activities are anticipated to increase dramatically in the mean future, magnifying threats of pollution and negative changes in the marine environments. Owing to its semi-enclosed nature, the Red Sea is relatively more fragile to environmental impacts. Such challenges suggest that it is the fitting time to enhance and renovate conservation management in the region. Up-to-date approaches adopting new technologies in monitoring, control, surveillance, developing mitigation and countermeasures, biotoping and sensitive mapping, pollutants dispersion modeling and the rehabilitation of impacted sites are required. An essential element for this is access to scientific information and efficient utilization of advanced scientific knowledge. Appropriate scientific information is needed at all levels of the conservation procedures, including the outputs of basic research as prerequisite to understand changes, the outcomes of problem-oriented research as tools for assessing impacts and drawing way-outs; developing of innovative conservation management with long-term strategies.

Throughout its work PERSGA has established good relations with academia in the region and other parts of the world; regional programs and international organizations. All have been sources of various kinds of scientific information, especially at the initial phase of PERSGA foundation. Afterward, the large amount of new scientific information on the region was assembled through the Strategic Action Program (SAP) and other PERSGA programs, which advanced PERSGA library as a main reference for the RSGA region.

Utilizing the SAP outputs of information in creation of innovative and appropriate conservation and management approach in the region, filling gaps of knowledge identified by SAP, enhancing support to basic and applied research, and promoting/ modernizing tools and methodology are major challenges. Informational gaps in marine and coastal sciences may be summarized as in the following:

- Temporal and spatial trends of variation of floral and faunal species, populations, and structure of the communities are not well understood.

- Updated information on bathymetry and hydrography are not available.
- The extent of illegal dumping of toxic wastes off the coast in the RSGA is largely unknown.
- The impacts of pollution and resource exploitation on the marine and coastal environment in the region have been not sufficiently studied in the region and they are poorly known.
- The indigenous knowledge concerning conservation management approach needs to be researched.
- Access to modern technology and technical expertise are not adequate
- Advances in waste water treatment in coastal cities; design of outfall systems in the region.
- More work is needed to develop scenario for application in the region taking into account projection of the future trends.

2 Introduction

The well recognized global conservation value of the Red Sea has been an issue of concern for the world community in the past decades. Recently, this has particularly been more realized due to a number of pronounced and rapid transformations in the region. Firstly, the development of the coastal zone of the Red Sea and Gulf of Aden (RSGA) in the past forty years is unlikely to have occurred at the same pace elsewhere in the world. Secondly, the ever increasing world trade transported through the Red Sea is anticipated to grow at more acceleration in the near future. Thirdly, with the continually growing demands for oil in the world markets, the significance of the RSGA as a strategic oil transit route, with important oil "chokepoints" has increased, receiving extra attention and focus. Finally, pressure on marine living resources have been greater than before, with reportedly over-fishing of several taxa such as sharks and cuttlefish. On the other hand, the semi-enclosed nature of the Red Sea renders it a less resistant and resilient ecosystem with high susceptibility to pollution and other kinds of stresses.

Such enormous changes magnify the threats and risks suggesting that it is the appropriate time to enhance and renovate conservation management in the region. This should consider up-to-date approaches adopting new technologies in monitoring, control, surveillance, developing mitigation and countermeasures, biotopes/ sensitive mapping, pollutants dispersion modeling, and the rehabilitation of impacted sites. An essential element for this is access and efficient utilization of the advances in scientific information. Appropriate scientific information is needed at all levels of the conservation procedures, including the outputs of basic research as prerequisite to

understand changes, the outcomes of problem-oriented research as tools for assessing impacts and drawing way-outs, and developing innovative conservation-management practices with long-term strategies.

3 The context of the organization

The Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA) is: An intergovernmental organization dedicated to the conservation of the coastal and marine environment in the Red Sea and Gulf of Aden region. Member States are: Djibouti, Egypt, Jordan, Saudi Arabia, Somalia, Sudan, Yemen, PERSGA Head Quarter is based in Jeddah, Saudi Arabia. The PERSGA Council comprises Ministers of Environments in the member states.

Although the (PERSGA) was declared in September 1995, its history goes back to early 70s when it was initiated by ALECSO as the Programme for the Environment of the Red Sea and Gulf of Aden (PERSGA). The Jeddah Convention, its attached Protocol and an Action Plan were signed by the Plenipotentiaries in 1982 which provided a framework for regional environmental cooperation towards attaining the goals of PERSGA Mission (Box 1).

Box1. PERSGA Mission

- Conservation of Coastal and marine environment and control of various pollution sources.
- Sustainable use of living coastal and marine resources.
- Enhance Regional Capabilities in marine emergency planning and response.
- Facilitate the implementation of conventions and protocols relevant to marine environment

Close collaboration with relevant International Organizations such as UNEP, UNESCO, IMO, IUCN led to the drafting and signing several memoranda of understanding between PERSGA and these partners. Several activities were carried out between the time of signing the Jeddah Convention in 1982 and the declaration of the Regional Organization in 1995. A number of joint projects were implemented on national levels as a start to the implementation of the Action Plan e.g. PERSGA was given the responsibility of coordinating two GEF funded projects in Egypt and Yemen.

One of the most ambitious programmes executed by PERSGA was the Strategic Action Programme (SAP), for the Red sea and Gulf of Aden (1999-2003). The SAP was funded through the Global Environmental Facility (GEF), implementing agencies (UNDP, UNEP, and the World Bank), the Islamic Development Bank and the PERSGA member states. The SAP activities were organized around eight components (Box 2).

The outcomes of SAP were highly significant for RSGA environment, capacity of member states for con-

servation management, and the future socioeconomic development of the Region. Furthermore, the large amount of information assembled through SAP technical reports and published literature has provided the main source for synthesis of the first comprehensive State of the Marine Environment Report, published in 2006.

Box 2. Objectives-based SAP Components

- Institutional Strengthening to Facilitate Regional Cooperation.
- Reduction of Navigation Risks and Maritime Pollution.
- Sustainable Use and Management of Living Marine Resources.
- Habitat and Biodiversity Conservation.
- Development of Regional Network of Marine Protected Areas.
- Support of Integrated Coastal Zone Management.
- Enhancement of Pubic Awareness and Participation.
- Monitoring and Evaluation of the Program Impacts.

4 The use of science today

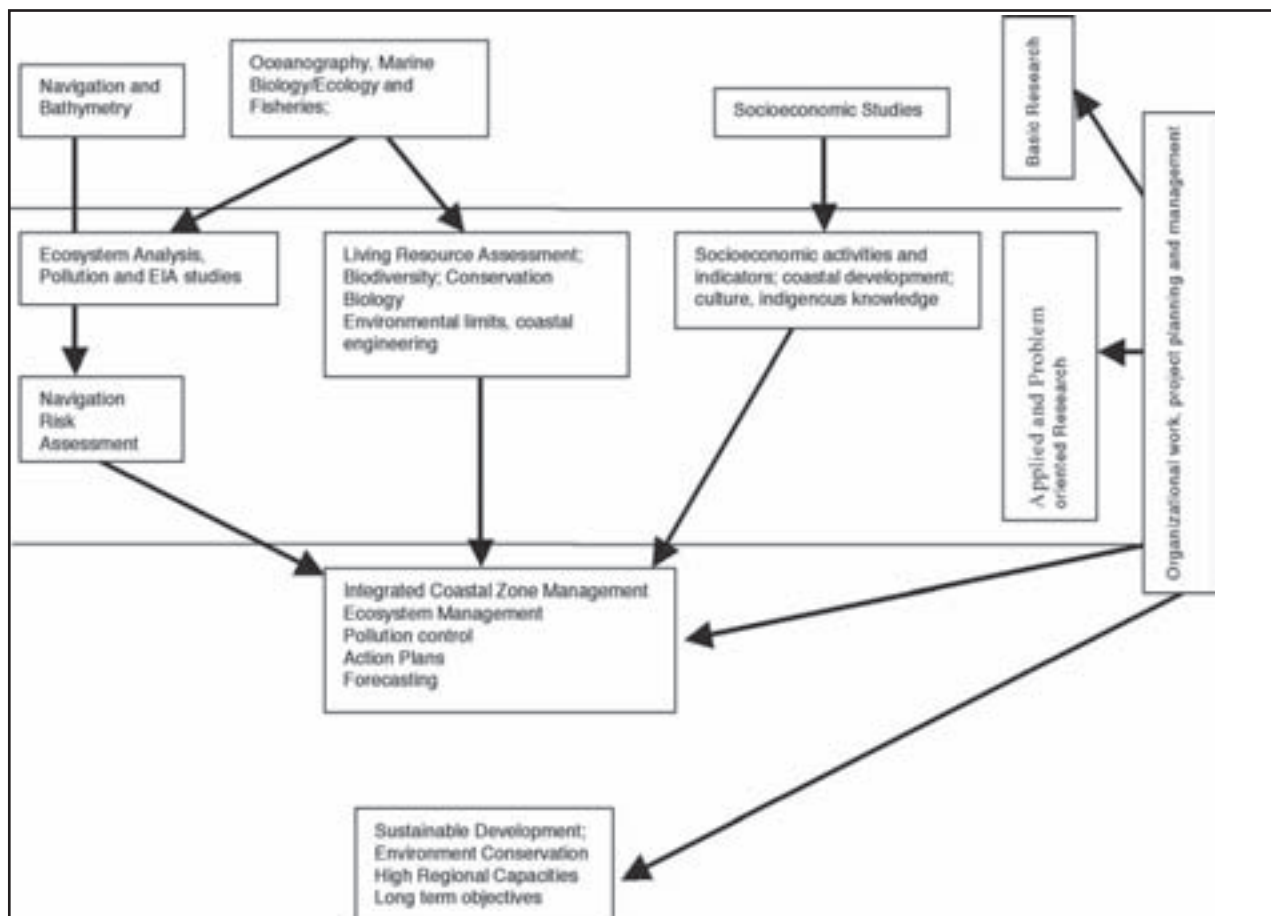
4.1 Kinds and significance of scientific information needed by PERSGA

In view of its mission (Box 1) and regional dimension, PERSGA envisages program activities with vital dependence on multidisciplinary subjects (Fig. 1). Generally, three kinds of scientific information are needed and utilized by PERSGA:

1) Information on basic sciences including oceanography, marine flora and fauna, species biology, population dynamics and community structure, ecosystem function, biogeography, geophysics, bathymetry, maritime studies and other subjects of marine sciences, in addition to demography and socioeconomic aspects of coastal zone. These kinds of knowledge are needed as a prerequisite to understand effects of changes in the marine and costal environment (baseline data).

2) Information on response of ecosystem, impact assessment and effects of changes; economic valuation of degradational changes, as well as relevant applied sciences such as conservation management, coastal and marine engineering, remote sensing and satellite imagery development studies, etc. Such kinds of information are needed to develop countermeasures and management action plans. In this respect sciences related to pollution control, rehabilitation of degraded marine habitats (such as corals, mangroves), monitoring techniques and schemes on education for sustainability are of prime importance. Some emerging issues represent meticulous challenges with respect to the needs of scientific knowledge to deal with, which include:

Fig. 1. Synopsis of PERSGA information needs and utilization. Information from basic research is a prerequisite to understand changes through applied research, which in turn formulate tools for countermeasures, action plans and management. Information on organizational work principles, project planning and management are necessary at all working levels.



- Sea-level rise due to climate changes: evaluate risk and proposing mitigation measures.
- Fate of toxic chemicals/wastes and spills in marine environment.
- Invasive species: their risks, monitoring; mitigation measures and capacity building to handle.

3) Information on organizational management such as finance/ administration, project planning and management, logical framework, information system etc. Such kinds of information are needed to maintain and keep up sound level of efficient organizational work at PERSGA.

4.2 Sources of information and PERSGA informational links to other organization

2.2.1 Regional and international academia

Throughout its program activities PERSGA has build its own world of diverse group of scientists in national institutes in the Region, as well as, experts from outside the Region. At the same time, PERSGA conservation strategy and plans has triggered tremen-

dous subjects of basic and problem-oriented research in the RSGA that are to be tackled by academicians and research institutes. Because of this interdependency, a network of regional academia has been recognized, beside a group of other scientists from outside the Region, particularly those focusing their work on the RSGA region. Both have long been essential information sources for PERSGA, especially at the initial phase of its foundation. Yet, PERSGA has accumulated a wealth of baseline data and scientific information on the region, a situation that advanced some sort of mutual exchange of information between PERSGA and the regional/international academia. The input of the Regional Academia to PERSGA literature, though it was initially rich and essentially informative, it has been at minimal level afterward (Fig. 2), which may be attributed to:

- Current severe regional shortage of research into basic sciences; the rich input at PERSGA foundation phase was due to existence of the already accumulated literature from previous research universities and institutes libraries in the region.
- Lack of long-term perspectives for basic and applied marine research in the RSGA countries.
- Inadequate capacities in national institutes;

insufficient funds allocated for research by the national budgets in the Region.

2.2.2 Analogous Regional Programs

PERSGA has established strong relations with several analogous regional organizations and programs such as ROPME and MAP. Based on the fact that such organizations have comparable agenda, vision, mission and scope of work, PERSGA has learned much from their rich experience. The regional organizations have been important sources of information for PERSGA, particularly in organizational matters: system of work, educational and public awareness programs, global environmental issues, and methodology in tackling regional problems. As PERSGA has gained experience in organizational work at regional level and accumulated ample literature on the region, which has permitted dissemination of information between PERSGA and the regional organizations.

2.2.3 International Organizations

Besides being supportive as implementing agencies for several programs executed by PERSGA, the major UN organizations and Programs have been the most important donor of knowledge and expertise for the Regional Organization. Their outputs in the form of technical reports, scientific publications, proceedings and capacity building activities have been directly or indirectly supplying PERSGA with a rich flow of scientific information. In the

aftermath of SAP, some sort of feed back from PERSGA has occurred. Firstly, the implementing agencies learned some lessons from such a pioneer extensive regional program. Secondly, many of the tremendous information collected through the SAP were inventories, and updating state of the art for several aspects of marine-coastal sciences in the Region, advancing PERSGA as an important reference in this respect.

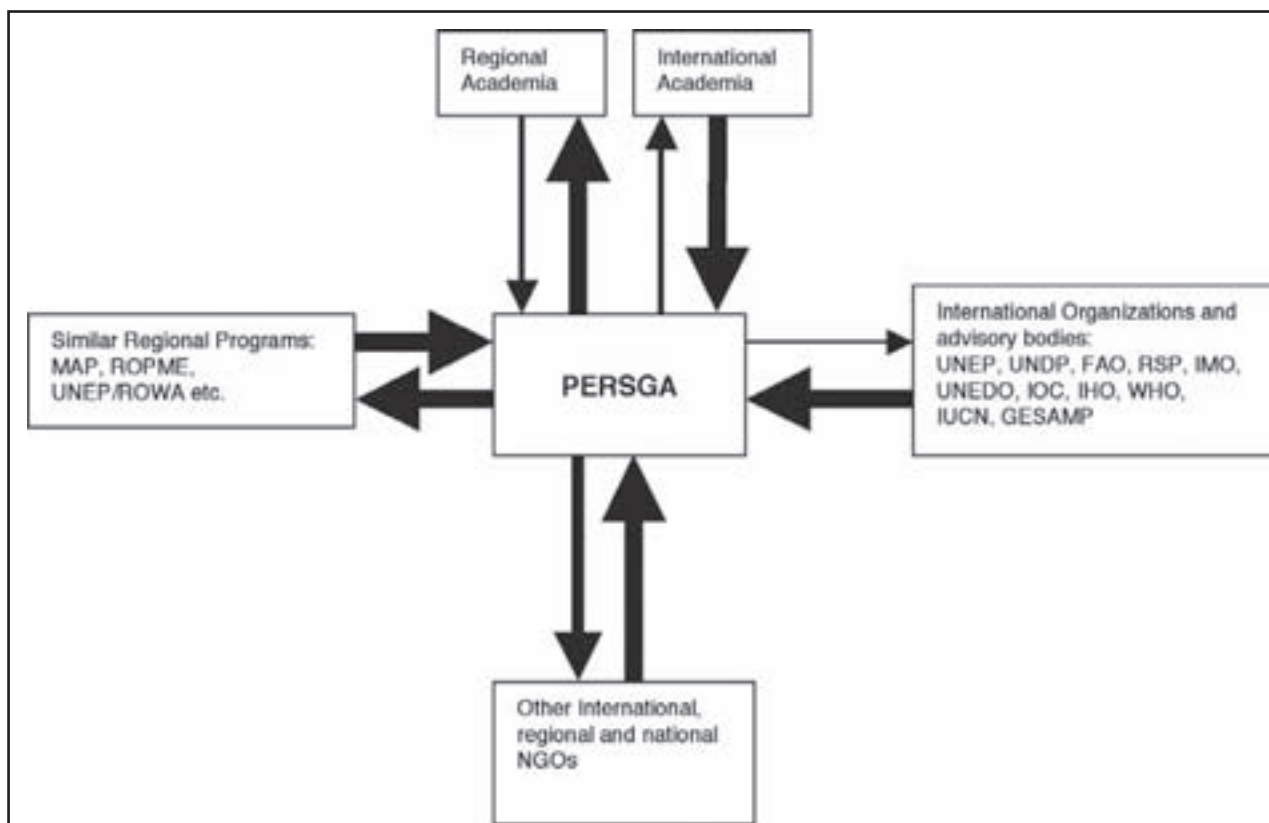
In summary, PERSGA gets scientific information from various sources and through different modes, which may include:

- PERSGA database and publications (such technical series and reports prepared by experts)
- Links with databases, publications, and websites of relevant organizations and institutes.
- Scientific events and meetings such as Sea to Sea Conference (every 3 years), annual meetings with national research centers (5 centers) and others.

3 Future challenges and needs

Extensive surveys carried out during the SAP, and other huge regional projects have provided a large amount of new scientific information and understanding about the RSGA, management actions and capacity building. Such outputs should be translated into an innovative and appropriate conservation management

Fig. 2 Outline of PERSGA sources of scientific information and informational exchange between PERSGA and its partners. The arrow width estimates the amount of and rate of information flows.



approach in the region. Enhancing continued efforts and support to attain this goal is a real challenge for PERSGA. On the other hand, the SAP and other extensive programs have identified several gaps in our essential basic knowledge that are to be considered in the future. The current research capacities and the insignificant national budgets allocated for basic research in the RSGA countries are far below the required standard to develop innovative and appropriate conservation and management approaches. Encouraging national and donor funding to support marine research in the region is one of the major challenges in the future.

Considering the above, the general informational gaps in marine / coastal sciences may be summarized in the following:

- Temporal and spatial trends of variation of floral and faunal species, populations, and structure of the communities in the Region are not well understood.
- Updated information on bathymetry and hydrography are not available.
- The extent of illegal dumping of toxic wastes off the coast in the RSGA is largely unknown.
- The impacts of pollution and resource exploi-

tation on marine and coastal environment in the region have not been sufficiently studied and they are poorly known.

- The indigenous knowledge concerning conservation management approach needs to be researched.
- Access of scientists in the region to modern technology in marine-coastal sciences is limited; technical know-how and expertise is inadequate.
- Advances in waste water treatment in coastal cities; design of outfall systems in the region.
- More work is needed to develop scenario for application in the region taking into account projection of the future trends.

Acknowledgements

The author wishes to express his gratitude to the GESAMP secretariat for inviting PERSGA to participate in this session. PERSGA would like to take this opportunity to express sincere thanks and appreciation to GESAMP for its inspiring leadership in assessing global marine pollution and continuous efforts to provide a wealth of scientific expertise over more than 40 years.

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