

**IMO/FAO/UNESCO-IOC/WMO/WHO/IAEA/UN/UNEP
Joint Group of Experts on the Scientific Aspects
of Marine Environmental Protection (GESAMP)**

Report of the twenty-ninth session of GESAMP

London, 23-26 August

1999

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of Marine Environmental Protection
(GESAMP)**

**REPORT OF THE TWENTY-NINTH SESSION
London, United Kingdom, 23-26 August 1999**

**INTERNATIONAL MARITIME ORGANIZATION
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EXECUTIVE SUMMARY

1 Introduction: The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) held its Twenty-Ninth Session at the Headquarters of the International Maritime Organization in London from 23 to 26 August 1999. This meeting marked the thirtieth anniversary of the Group, which held its first meeting in 1969 in London.

GESAMP had been established by a number of United Nations Organizations as a Joint Group to encourage the interdisciplinary consideration of marine pollution problems with a view to avoiding duplication of efforts within the United Nations system. At this meeting GESAMP considered four main issues:

- the evaluation of the hazards of harmful substances carried by ships;
- estimates of oil entering the marine environment from sea-based activities;
- environmental impacts of coastal aquaculture; and
- marine environmental assessments.

In addition, the Group reviewed a number of items of particular concern regarding the degradation of the marine environment which had emerged during the intersessional period.

2 Evaluation of the Hazards of Harmful Substances Carried by Ships: GESAMP approved the hazard profiles of new products carried in bulk by chemical tankers or as packaged dangerous goods onboard cargo vessels. The evaluation procedures developed for such purposes by GESAMP had recently been brought in line regarding aquatic environmental effects with the OECD Harmonized Integrated Hazard Classification System for Human Health and Environmental Effects of Chemical Substances. However, differences remained in the approaches to human health criteria for skin and eye irritation and corrosion. GESAMP noted that it did not possess sufficient expertise in the field of human health to assess in detail the scientific merits of the two different systems. It requested the Secretariat to approach the World Health Organization and OECD to establish an expert panel to consider the scientific aspects and rating of chemicals regarding their irritation/corrosive effects.

3 Estimates of Oil Entering the Marine Environment from Sea-based Activities: GESAMP took note of the progress of work achieved by a working group it had established two years ago to evaluate all available data sources on oil input into the marine environment from maritime activities. GESAMP appreciated the accomplishments achieved so far, including initial figures on oil inputs from ships (operational and accidental), dry-docking discharges, operational offshore activities, offshore pipelines, accidents at sea, scrapping of ships, natural oil seeps, refineries and unknown sources. GESAMP requested that the data available so far should be used to evaluate the geographic distribution of spills and aspects of their occurrence, such as in coastal versus open sea locations. It also emphasized the need for more efforts to be made by the offshore industry to provide data and information regarding oil inputs from offshore exploration and production activities which are currently lacking from many regions of the world.

4 Environmental Impacts of Coastal Aquaculture: GESAMP received from its Aquaculture Working Group another, fourth, draft document entitled “Planning and Management for Sustainable Coastal Aquaculture Development”. This consisted of guidelines for policymakers on the principles and practice of more integrated planning to promote sustainable coastal aquaculture development and tools providing a detailed scientific review of methods to facilitate the planning process. These were accompanied by examples and case studies to provide an overview of experience gained in the application of the principles and tools mentioned above.

This document was the fourth prepared within a series of studies on environmental impacts of coastal aquaculture. GESAMP recommended a number of editorial changes and changes to the structure of the report. A revised draft will be prepared during the intersessional period.

5 Marine Environmental Assessments: Two reports are being prepared:

- “The State of the Marine Environment – current major issues and emerging problems”; and
- “Land-based sources and activities affecting the quality and uses of the marine, coastal and associated freshwater environment”.

GESAMP took note of the status of work accomplished so far, noting that additional expertise has recently been identified to deal with deficiencies in the fields of environmental economics, public health and environmental problems encountered in developing small island countries. GESAMP agreed that a comparative analysis of priorities based on regional programmes of action on land-based activities which has recently been produced by UNEP should be incorporated.

GESAMP further agreed to establish co-operative arrangements on all scientific and technical issues related to the preparation of marine environmental assessments with the UNEP/GEF Global International Water Assessment Project.

6 Matters of Particular Concern Regarding the Degradation of the Marine Environment: A number of issues were raised with a view to evaluating these further during the forthcoming intersessional period on the basis of additional information, material and data which individual GESAMP members undertook to collect and, where appropriate, evaluate. These included, not in order of priority, the following:

- the potential blindness of deep-dwelling benthic-pelagic species exposed to bright artificial lights used in deep-sea research and exploration activities;
- the bleaching of corals in wide areas of the oceans caused by unusually high ocean surface temperature as well as UV-B radiation, probably resulting in severe long-term ecological impacts;
- the appearance of “dead” zones, i.e., anoxic waters in coastal areas caused by inputs of nutrients from land;
- the lack of proper environmental impact assessments in offshore oil and gas exploration activities, particularly in areas under the jurisdiction of developing countries;

- the global disease burden and economic impacts of various human diseases associated with marine pollution; and
- human health risks posed by contaminated aquaculture feeds.

RÉSUMÉ

1 Introduction : Le Groupe mixte d'experts chargé d'étudier les aspects scientifiques de la protection de l'environnement marin (GESAMP) a tenu sa vingt-neuvième session au Siège de l'Organisation maritime internationale, à Londres, du 23 au 26 août 1999. La tenue de cette session marquait le trentième anniversaire du Groupe, qui s'était réuni pour la première fois à Londres en 1969.

Le GESAMP a été créé par un certain nombre d'institutions du système des Nations Unies afin de promouvoir l'examen interdisciplinaire de problèmes de pollution des mers et d'éviter le chevauchement des activités à cet égard au sein du système. Lors de cette réunion, le GESAMP a examiné les quatre questions principales suivantes :

- l'évaluation des risques que présentent les substances nuisibles transportées par mer;
- les estimations des rejets d'hydrocarbures dans le milieu marin dus à des activités en mer;
- les effets de l'aquiculture côtière sur l'environnement; et
- les évaluations du milieu marin.

Le Groupe a examiné, en outre, un certain nombre de questions ayant trait à la détérioration du milieu marin qui avaient suscité des préoccupations au cours de la période intersessions.

2 Évaluation des risques que présentent les substances nuisibles transportées par mer : Le GESAMP a approuvé les profils de risques de nouveaux produits transportés en vrac à bord de navires-citernes pour produits chimiques ou comme marchandises dangereuses en colis à bord de navires de charge. Les procédures d'évaluation que le GESAMP avait mises au point à cette fin ont été harmonisées dernièrement, pour ce qui est des effets sur le milieu aquatique, avec le système élaboré par l'OCDE, à savoir le Système de classement harmonisé des substances potentiellement dangereuses pour la santé humaine et des effets des produits chimiques sur l'environnement. Toutefois, des différences d'approche subsistent au niveau des critères de santé humaine qui sont utilisés pour définir l'irritation de la peau et des yeux et l'action corrosive. Le GESAMP a noté qu'il ne disposait pas de suffisamment de connaissances spécialisées en matière de santé humaine pour évaluer en détail les avantages respectifs des deux systèmes sur le plan scientifique et il a demandé au Secrétariat de se mettre en rapport avec l'Organisation mondiale de la santé et l'OCDE pour qu'elles envisagent la création d'un groupe d'experts qui serait chargé d'examiner les aspects scientifiques et la classification des produits chimiques en fonction de leurs effets irritants et corrosifs.

3 Estimations des rejets d'hydrocarbures dans le milieu marin dus à des activités en mer : Le GESAMP a noté les progrès réalisés par le Groupe de travail qu'il avait créé deux ans auparavant pour évaluer toutes les sources de données disponibles sur les rejets d'hydrocarbures dans le milieu marin dus à des activités en mer. Il s'est déclaré satisfait des résultats réalisés jusque-là, y compris notamment les chiffres préliminaires concernant les rejets d'hydrocarbures provenant de navires (liés à l'exploitation ou accidentels), de la mise en cale sèche, d'activités menées au large, de canalisations au large, d'accidents de mer, de la démolition de navires, d'infiltrations naturelles, de raffineries et de

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sources non connues. Il a demandé que des données disponibles soient utilisées pour déterminer la répartition géographique des rejets et les aspects liés à leur survenance, tels que la question de savoir si le rejet s'était produit sur la côte ou en haute mer. Le GESAMP a également mis l'accent sur le fait que le secteur des activités au large devrait déployer davantage d'efforts pour fournir des données et des renseignements concernant les rejets d'hydrocarbures dus aux activités d'exploitation et de production menées au large, qui font actuellement défaut pour plusieurs régions du monde.

4 Effets de l'aquiculture côtière sur l'environnement : le GESAMP a reçu de son Groupe de travail sur l'aquiculture un nouveau et quatrième projet de document sur la planification et la gestion pour un développement durable de l'aquiculture côtière. Ce document fournit des directives à l'intention des décideurs quant aux principes et à l'utilisation de méthodes de planification plus intégrée en vue de favoriser le développement durable de l'aquiculture côtière et décrit également des moyens qui permettent de procéder à un examen scientifique détaillé des méthodes à adopter pour faciliter le processus de planification. Les directives sont assorties d'exemples et d'études de cas destinés à donner un aperçu général de l'expérience qui a été acquise dans l'application de ces principes et moyens.

Ce document est le quatrième d'une série d'études ayant trait aux effets de l'aquiculture côtière sur l'environnement. Le GESAMP a recommandé que l'on y apporte un certain nombre de modifications d'ordre rédactionnel, ainsi que des modifications de structure. Un projet de texte remanié sera élaboré pendant la période intersessions.

5 Évaluations du milieu marin : les deux rapports ci-après sont en cour d'élaboration :

- "L'état du milieu marin – principales questions actuelles et nouveaux problèmes"; et
- "Pollution d'origine tellurique et activités connexes préjudiciables à la qualité du milieu marin et côtier et des eaux douces voisines et à leurs utilisations".

Le GESAMP a noté l'état des travaux effectués jusque-là en relevant que des compétences supplémentaires avaient été identifiées dernièrement, ce qui permettrait de combler les lacunes en ce qui concerne l'économie de l'environnement, la santé publique et les problèmes environnementaux des petits pays insulaires en développement. Le GESAMP a décidé que l'on devrait également tenir compte d'une analyse comparative des priorités, fondée sur les programmes régionaux d'action visant les activités terrestres qui avait été élaborée récemment par le PNUE.

Le GESAMP a décidé en outre de conclure des accords de coopération AVEC LE PROJET PNUE/FEM d'évaluation mondiale des eaux internationales pour l'ensemble des questions scientifiques et techniques liées à l'établissement des évaluations du milieu marin.

6 Sujets de préoccupations concernant la détérioration du milieu marin

Plusieurs questions ont été soulevées afin de faire éventuellement l'objet de travaux d'évaluation complémentaires pendant la période intersessions à venir, sur la base des renseignements, éléments et données supplémentaires que les membres se sont engagés à réunir et, le cas échéant, à évaluer. Ces questions, qui ne sont pas énumérées ci-dessous dans un ordre de priorité quelconque, portent notamment sur ce qui suit :

- la cécité possible d'espèces pélagiques benthiques qui sont exposées à une intense lumière artificielle lors d'activités de recherche et d'exploration menées dans les fonds marins;
- la décoloration des coraux dans des zones étendues des océans en raison de la température inhabituellement élevée de l'eau et de la présence de rayons ultraviolets B, ce qui aura probablement des répercussions écologiques graves à long terme;
- l'apparence de zones "mortes", c'est-à-dire d'eaux dépourvues d'oxygène dans les zones côtières causées par des apports d'éléments nutritifs venant de la terre;
- le manque d'évaluations valables de l'impact sur l'environnement des activités de recherche de pétrole et de gaz menées au large, en particulier dans les zones relevant de la juridiction de pays en développement;
- la contamination sur le plan mondial et les conséquences économiques des diverses maladies humaines qui ont un lien avec la pollution des mers; et
- les risques que les aliments contaminés utilisés en aquiculture présentent pour la santé humaine.

РЕЗЮМЕ ТЕКУЩЕЙ ДЕЯТЕЛЬНОСТИ

1 Введение: Объединенная группа экспертов по научным аспектам охраны морской среды (ГЕЗАМП) провела свою двадцать девятую сессию в штаб-квартире Международной морской организации в Лондоне с 23 по 26 августа 1999 года. Это заседание ознаменовало тридцатую годовщину Группы, которая провела свое первое заседание в 1969 году в Лондоне.

ГЕЗАМП была учреждена рядом организаций Организации Объединенных Наций в качестве Объединенной группы для поощрения междисциплинарного рассмотрения проблем загрязнения моря с целью избежания дублирования работы в рамках системы Организации Объединенных Наций. На настоящем заседании ГЕЗАМП рассмотрела четыре основных вопроса:

- оценка опасности вредных веществ, перевозимых судами [\[U1\]](#);
- оценки поступления нефти в морскую среду в результате осуществляемой в море деятельности;
- воздействие прибрежной аквакультуры на окружающую среду; и
- оценки морской среды.

Кроме того, Группа рассмотрела ряд вопросов, вызывающих особую озабоченность в отношении деградации морской среды, которые возникли в межсессионный период.

2 Оценка опасности вредных веществ, перевозимых судами: ГЕЗАМП одобрила профили опасности новых продуктов, перевозимых наливом танкерами-химовозами или в качестве опасных грузов в упаковке на грузовых судах. Процедуры оценки, разработанные ГЕЗАМП для таких целей, недавно были приведены в соответствие в том, что касается воздействия на водную среду, с Гармонизированной комплексной системой классификации опасностей в отношении здоровья человека и воздействия химических веществ на окружающую среду ОЭСР. Однако в подходах в критериях здоровья человека, касающихся раздражения и разъедания кожи и глаз, остаются разногласия. ГЕЗАМП отметила, что она не обладает достаточными специальными знаниями в области здоровья человека для тщательной оценки научных достоинств двух различных систем. Она предложила Секретариату обратиться к Всемирной организации здравоохранения и ОЭСР в целях учреждения группы экспертов для рассмотрения научных аспектов и оценки химических веществ с точки зрения их способности вызывать раздражение/разъедание.

Оценки поступления нефти в морскую среду в результате осуществляемой в море деятельности: ГЕЗАМП приняла к сведению прогресс в работе, достигнутый рабочей группой, которую она учредила два года назад для оценки всех имеющихся источников данных о поступлении нефти в морскую среду в результате морской деятельности. ГЕЗАМП оценила достигнутые к настоящему моменту итоги, включая первоначальные числовые данные о поступлении нефти с судов (эксплуатационное и аварийное загрязнение), сбросах при доковании, оперативной деятельности в море, морских трубопроводах, авариях в море,

разборе судов на лом, просачивании природной нефти, нефтеперерабатывающих заводах и неизвестных источниках. ГЕЗАМП предложила, что имеющиеся в настоящее время данные следует использовать для оценки географического распределения разливов и аспектов их происхождения, например на прибрежных участках и на участках открытого моря. Она также подчеркнула необходимость направления дополнительных усилий морской отрасли на предоставление данных и информации, касающихся поступлений нефти в результате деятельности по разведке и разработке месторождений в море, которые по многим регионам мира отсутствуют в настоящее время.

4 Воздействие прибрежной аквакультуры на окружающую среду: ГЕЗАМП получила от своей Рабочей группы по аквакультуре еще один, четвертый, проект документа, озаглавленный "Planning and Management for Sustainable Coastal Aquaculture Development". Он включает руководство для лиц, формулирующих политику, относительно принципов и практики более комплексного планирования для содействия устойчивому развитию прибрежной аквакультуры, а также механизмов, обеспечивающих тщательный научный обзор методов для облегчения процесса планирования. Оно сопровождается примерами и анализами отдельных проблем, представляющих обзор опыта, приобретенного в применении принципов и механизмов, упомянутых выше.

Этот документ явился четвертым документом, подготовленным в рамках ряда исследований воздействия прибрежной аквакультуры на окружающую среду. ГЕЗАМП рекомендовала ряд редакционных изменений, а также изменений структуры доклада. Пересмотренный проект будет подготовлен в межсессионный период.

5 Оценки морской среды: Подготавливаются два доклада:

- "Состояние морской среды – основные текущие вопросы и возникающие проблемы"; и
- "Находящиеся на суше источники и осуществляемая на суше деятельность, затрагивающие количество и использование морской, прибрежной и связанной с ней пресноводной среды".

ГЕЗАМП приняла к сведению состояние выполненной к настоящему моменту работы, отметив, что недавно были определены дополнительные специальные знания для решения вопроса о недостатках в областях экономики окружающей среды, здравоохранения, а также экологических проблемах, с которыми сталкиваются небольшие развивающиеся островные страны. ГЕЗАМП постановила, что следует включить сравнительный анализ приоритетов на основе региональных программ действий по осуществляемой на суше деятельности, которые недавно разработала ЮНЕП.

ГЕЗАМП далее постановила установить совместные договоренности по всем научным и техническим вопросам, относящимся к подготовке оценок морской среды, с Глобальным международным проектом ЮНЕП/ГЭФ по оценке вод.

6 Вопросы, вызывающие особую озабоченность в отношении деградации морской среды: Был поднят ряд вопросов с целью их дальнейшей оценки в предстоящий межсессионный период на основе дополнительной информации, материалов и данных, которые отдельные члены ГЕЗАМП обязались собрать и, если это уместно, оценить. К ним относится, не в порядке первоочередности, следующее:

- потенциальная слепота глубоководных бенто-пелагических видов, подвергающихся воздействию яркого искусственного света, используемого при глубоководных исследованиях и деятельности по разведке месторождений;
- выщелачивание кораллов в широких зонах океанов, вызываемое необычно высокой температурой морской поверхности, а также УФ бета-излучением и, возможно, приводящее к серьезному продолжительному экологическому воздействию;
- появление "мертвых" зон, т.е. аноксия вод в прибрежных районах, вызываемая поступлением питательных веществ с суши;
- отсутствие надлежащих оценок экологического воздействия деятельности по разведке нефтяных и газовых месторождений в море, особенно в районах, находящихся под юрисдикцией развивающихся стран;
- глобальное бремя заболеваний и экономическое воздействие различных заболеваний человека, связанных с загрязнением моря; и
- опасность для здоровья человека, создаваемая загрязненными кормами для аквакультуры.

RESUMEN

1 Introducción: El Grupo mixto de expertos sobre los aspectos científicos de la protección del medio marino (GESAMP) celebró su 29º periodo de sesiones en la sede de la Organización Marítima Internacional, en Londres, del 23 al 26 de agosto de 1999. Esta reunión marcó el trigésimo aniversario del Grupo, el cual había celebrado su primera reunión en 1969 en Londres.

El GESAMP había sido constituido por varias organizaciones de las Naciones Unidas como grupo mixto, con el propósito de alentar el examen interdisciplinario de los problemas relacionados con la contaminación del mar, y, de esta manera, evitar la duplicación de esfuerzos en el seno del sistema de las Naciones Unidas. En esta reunión, el GESAMP examinó cuatro cuestiones principales, a saber:

- evaluación de los peligros de las sustancias perjudiciales transportadas por los buques;
- cálculos de hidrocarburos que pasan al medio marino como consecuencia de las actividades desarrolladas en el mar;
- efectos de la acuicultura costera en el medio ambiente; y
- evaluaciones relacionadas con el medio marino.

Asimismo, el Grupo examinó una serie de cuestiones que causan preocupación particular en lo que se refiere a la degradación del medio marino y que habían surgido durante el lapso interperiodos.

2 Evaluación de los peligros de las sustancias perjudiciales transportadas por buques: El GESAMP aprobó los perfiles de peligrosidad de los nuevos productos transportados a granel en buques tanque quimiqueros o como mercancías peligrosas en bultos a bordo de buques de carga. Los procedimientos de evaluación elaborados por el GESAMP a tal fin habían sido armonizados, en lo que se refiere a los efectos acuáticos medioambientales, con el *Harmonized Integrated Hazard Classification System for Human Health and Environmental Effects of Chemical Substances*, de la OCDE. No obstante, aún había diferencias de enfoque sobre los criterios de salud relacionados con la irritación y corrosión de la piel y los ojos. El GESAMP, haciendo observar que no poseía la pericia necesaria en el campo de la salud humana para evaluar detalladamente el fundamento científico de ambos sistemas, pidió a la Secretaría que se pusiera en contacto con la Organización Mundial de la Salud y la OCDE con el fin de constituir un panel de expertos encargado de examinar los aspectos científicos y la clasificación de los productos químicos según sus efectos corrosivos/de irritación.

3 Cálculos de hidrocarburos que pasan al medio marino como consecuencia de las actividades desarrolladas en el mar: El GESAMP tomó nota de la actividad realizada por un grupo de trabajo, que había establecido hacía dos años, encargado de evaluar todas las fuentes disponibles de datos sobre la introducción de hidrocarburos en el medio marino como consecuencia de las actividades marítimas. El GESAMP valoró los logros alcanzados hasta la fecha, en particular las cifras iniciales sobre los aportes de hidrocarburos procedentes de buques (contaminación operacional

y accidental), las descargas en dique seco, las actividades operacionales mar adentro, los oleoductos mar adentro, los accidentes en el mar, el desguace de buques, las filtraciones naturales de hidrocarburos, las refinerías y demás fuentes desconocidas. El GESAMP señaló que los datos disponibles hasta el momento deberían utilizarse para evaluar la distribución geográfica de los derrames y los aspectos relacionados con su incidencia, por ejemplo en lugares costeros y en mar abierta. También recalcó la necesidad de que el sector de actividades mar adentro se esfuerce en facilitar datos e información sobre los aportes de hidrocarburos procedentes de las actividades de exploración y producción mar adentro, de los que se carece en la actualidad sobre muchas regiones del mundo.

4 Efectos de la acuicultura costera en el medio ambiente: El GESAMP recibió de su grupo de trabajo encargado de la acuicultura otro proyecto de documento -el cuarto-, titulado *Planning and Management for Sustainable Coastal Aquaculture Development* (Planificación y gestión para un desarrollo sostenible de la acuicultura costera), el cual consistía en directrices para los responsables de formular políticas sobre los principios y la práctica de una planificación más integrada a fin de fomentar el desarrollo sostenible de la acuicultura costera y los instrumentos para un examen científico detallado de los métodos que faciliten el proceso de planificación. Dichas directrices iban acompañadas de ejemplos y de estudios de casos que ofrecían una visión general de la experiencia adquirida en la aplicación de los principios y los instrumentos mencionados anteriormente.

Se trataba del cuarto documento elaborado en el marco de una serie de estudios sobre los efectos medioambientales de la acuicultura costera. El GESAMP recomendó introducir algunos cambios de redacción y otras modificaciones en la estructura del informe. Se elaborará un proyecto revisado durante el lapso interperiodos.

5 Evaluaciones del medio ambiente marino: Se están preparando dos informes, a saber:

- "El estado del medio ambiente marino - principales cuestiones actuales y nuevos problemas";
y
- "Fuentes de contaminación de origen telúrico y actividades conexas que afectan a la calidad y la utilización del medio ambiente marino y costero y las aguas dulces asociadas".

El GESAMP tomó nota del estado de la labor realizada hasta la fecha, y observó que recientemente han surgido nuevos descubrimientos, interpretaciones y otros adelantos que permiten abordar las deficiencias en los ámbitos de la economía ambiental, la salud pública y los problemas del medio ambiente con los que se enfrentan los pequeños países insulares en desarrollo. El GESAMP acordó que debería incorporarse el análisis comparativo de prioridades basado en los programas de acción regional para la protección del medio marino frente a las actividades realizadas en tierra, recientemente elaborado por el PNUMA.

El GESAMP acordó también establecer con el "*Global International Water Assessment Project*" (PNUMA/FMAM) acuerdos de cooperación que abarquen todas las cuestiones científicas y técnicas relacionadas con la preparación de evaluaciones ambientales del medio marino.

6 Cuestiones que causan preocupación particular en lo que se refiere a la degradación del medio ambiente marino: Se suscitaron diversas cuestiones que convendrá evaluar de nuevo durante el próximo lapso interperiodos, basándose en la información, material y datos adicionales que los miembros del GESAMP se comprometieron a recopilar y, según los casos, a evaluar. Dichas cuestiones incluían, aunque no por orden de prioridad, las siguientes:

- (x)
- la posible ceguera de especies bentónico-pelágicas abisales, expuestas a las fuertes luces artificiales que se utilizan en las actividades de investigación y exploración en aguas profundas;
- la decoloración de corales en amplias zonas oceánicas causada por temperaturas

inhabitualmente altas en la superficie del mar, así como por radiaciones UV-B, que probablemente tendrá un grave impacto ecológico a largo plazo;

- la aparición de zonas "muertas", es decir, aguas anóxicas en zonas costeras, debido a los aportes de nutrientes procedentes de tierra;
- la falta de evaluaciones válidas del impacto ambiental de las actividades de exploración de hidrocarburos y gas, particularmente en zonas bajo la jurisdicción de países en desarrollo;
- los efectos patógenos y económicos, a nivel mundial, de diversas enfermedades humanas asociadas con la contaminación marina; y
- los riesgos que representa para la salud humana el uso de alimentos contaminados en la acuicultura.

1 INTRODUCTION

1.1 The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) held its twenty-ninth session from 23 to 26 August 1999 at the Headquarters of the International Maritime Organization (IMO) in London, United Kingdom, under the Chair of Mr. P. Wells. Mr. R. Duce was Vice-Chairperson.

Opening of the session

1.2 The Chair of GESAMP, Mr. P. Wells, called the XXIXth session of GESAMP to order at 9.30 a.m. on 23 August 1999.

1.3 Mr. O. Khalimonov, Acting Secretary-General of IMO, welcomed the participants, recalling that it was 30 years ago that GESAMP held its first session at the Headquarters of this Organization. GESAMP had assisted since that time IMO and its Member States in the effective implementation of IMO Conventions on the prevention of marine pollution from ships. He highlighted other activities carried out by GESAMP during this period, in particular, its advice concerning management of waste disposal at sea under the London Convention 1972, its role in the preparation of UNCED's Agenda 21, as well as its contribution to the development of UNEP's Global Programme of Action for the Protection of the Marine Environment from Land-based Activities.

1.4 Mr. Khalimonov mentioned that fundamental changes had occurred in the UN system since GESAMP's establishment, including the availability of financial support provided by the Sponsoring Organizations to GESAMP. In light of "zero nominal growth", or other restrictions in budgets of organizations, be they sponsors or not, increasing workloads had to be absorbed with existing staff and at the expense of new projects. This was the reason that IMO had had to shelve some of its requests to GESAMP. In conclusion Mr. Khalimonov wished GESAMP every success in the performance of its tasks during this session.

Adoption of the Agenda

1.5 The agenda for this session as adopted, is given in annex I to this report. The list of documents considered at the session is given in annex II, and the list of participants is set out in annex III.

2 REPORT OF THE ADMINISTRATIVE SECRETARY

2.1 The Administrative Secretary of GESAMP informed the Group of the recommendations of the UN Commission on Sustainable Development (CSD) which, at its seventh session in April 1999, in the context of co-ordination and co-operation regarding oceans and seas, emphasized the importance for sound decision-making and scientific understanding regarding the marine environment. The Commission welcomed the intention of IMO, working in partnership with other GESAMP Sponsoring Organizations, to improve the effectiveness and inclusiveness of the Group, as a source of independent scientific advice, and recommended exploring the possibility of establishing a means for GESAMP to interact with scientific representatives of Governments and major groups.

2.2 Technical Secretaries and representatives of the Sponsoring Organizations during the week preceding this GESAMP session reviewed the 1996 memorandum of understanding on GESAMP, through which the Executive Heads of these Organizations agree on operational procedures as well as on the provision of financial resources for the effective operation of the Group.

2.3 The Administrative Secretary introduced the draft revised memorandum, which will be submitted in due course for approval and signature by the Executive Heads of the Sponsoring Organizations.

2.4 The Group considered the draft revised memorandum and suggested several changes, in particular to sections dealing with the functions of GESAMP, its membership and that of its Working Groups, as well as

the review mechanism for GESAMP Studies. The Intersecretariat would take these suggestions into account when preparing the final text.

2.5 The Administrative Secretary also informed the Group of the development of plans by IMO, as well as of its measures to strengthen the protection of the marine environment from pollution caused by shipping, such as:

- .1 the extension of the Oil Pollution Preparedness, Response and Co-operation Convention (OPRC) by incorporating noxious liquid substances;
- .2 the phasing out of organotin compounds in antifouling paints used for ships' hulls by a Diplomatic Conference in 2001;
- .3 the adoption of a Convention to minimize the risks of introducing harmful aquatic species and pathogens with ballast water discharged from ships at a Diplomatic Conference in early 2002. This will be accompanied by intensive awareness programmes and capacity building projects for developing countries through a GEF/IMO/UNDP project starting in September 1999; and
- .4 the inclusion in the work-programme of the IMO Marine Environment Protection Committee (MEPC) of the issue of scrapping of vessels, with a view to developing environmental and safety standards for such activities.

3 EVALUATION OF THE HAZARDS OF HARMFUL SUBSTANCES CARRIED BY SHIPS

3.1 The IMO Technical Secretary introduced the activities of the Working Group on the Evaluation of the Hazards of Harmful Substances Carried by Ships (EHS), carried out during the intersessional period (GESAMP XXIX/3).

3.2 The Chairperson of the Working Group, Mr. T. Bowmer, reported on the progress achieved as well as on the problems encountered by the Working Group, as summarized in the following two sections.

Revision of MARPOL 73/78 Annex II substances

3.3 The Marine Environment Protection Committee of IMO requested GESAMP's Working Group to re-evaluate by the year 2002 the 670 bulk liquid substances listed in the International Bulk Chemicals Code (1998) according to the revised GESAMP hazard evaluation procedure). The Working Group devoted most of its time to this activity and reviewed the logistics of re-evaluating these products. It developed procedures for using the new evaluation procedure, in particular those related to data collection, assessment, and the assignment of ratings in the various columns of the new hazard profiles. Missing and extrapolated data were considered. The following progress was achieved:

- .1 The re-evaluation of the first 65 revised GESAMP Hazard Profiles (rGHP) (in alphabetical order) was completed by the Working Group in February 1999, i.e. 16 weeks after MEPC's request, and submitted to the IMO Sub-Committee on Bulk Liquids & Gasses (BLG) in April 1999.
- .2 Data gathering on the next 155 substances, bringing the total to 1/3 of the IBC Code was well underway, and expected to be completed before the end of 1999.
- .3 A further request from the IMO Sub-Committee on Bulk Liquids and Gases to focus on lists of 50-200 "high-volume substances" provided by administrations and the shipping industry, was received in July 1999. These lists are being collated by the Secretariat and this task will be commenced in early 2000.

3.4 The data on all the GESAMP hazard profiles, including the 670 IBC Code substances are contained at

IMO in hard copy files. This includes confidential company data. The volume of files is too large to be transported easily and the files are effectively only accessible at IMO Headquarters. For reasons of confidentiality, even individual files have never been circulated to members by mail. Bearing this in mind, the Working Group requested IMO to seek finances for an additional meeting each year and support for visits to London by various experts plus additional days for the IMO consultant in preparing summaries of the available data and supporting material. The size of this proposal was determined largely by the limited access to the essential data files and lack of administrative alternatives.

3.5 Regrettably, MEPC was not in a position to recommend provision of any additional funds on the grounds of “zero nominal growth” constraints in IMO budgets. It was noted that further progress could only be achieved if some form of evaluation by correspondence could be established. This would require a number of elements in data handling as follows:

- .1 Efforts to summarize the hard copy files and compile an electronic database would be given priority. The Secretariat would circulate the database printouts to the members of the Working Group on a regular basis, and enter additional data being received back from the members.
- .2 Selected members would still need to screen large numbers of hard copy files at IMO Headquarters (3 - 5 individual visits p.a.), in order to confirm the integrity of the summaries and to fill in any detail required. A source of finance for this activity would have to be found.
- .3 The findings of these experts would be circulated for comments by other members of the Working Group. Finally, these members would propose hazard profiles for approval by correspondence or at the regular annual meeting of the Working Group.

The Working Group and its Chair would continue to work closely with the IMO Secretariat to find ways and means of fulfilling the requests.

Harmonization of the revised GESAMP Hazard Evaluation Procedure with the OECD scheme

3.6 GESAMP at its XXVIIth and XXVIIIth sessions approved the revised Hazard Evaluation Procedure for finalization and publication respectively, as Reports and Studies No. 64. The Working Group had developed this revised Procedure ahead of the finalization of the development of the OECD Harmonized Integrated Hazard Classification System for Human Health and Environmental Effects of Chemical Substances. Through co-operation with OECD, it had been possible to achieve a high degree of harmonization between both systems, particularly where the aquatic environment was concerned. However, differences remained in the approaches to human health criteria for skin and eye irritation and corrosion.

3.7 To take account of this the Working Group, at its thirty-fourth session, had developed a conversion table between the OECD and the revised GESAMP rating systems for irritation/corrosive effects on skin and eye. Since that meeting however, OECD had changed its classification system considerably and it was no longer possible to provide a simple conversion table in order to compare the classification of these effects.

3.8 The Working Group rated skin and eye effects for the first 63 IBC Code substances according to both the revised GESAMP evaluation procedure and the OECD scheme. This study suggested that using the OECD scheme and the GESAMP revised system would produce different results for a significant number of compounds.

3.9 The Marine Environment Protection Committee (MEPC), at its 43rd session in June/July 1999, noted the divergence of views regarding skin and eye effects of chemicals for the purpose of classification, as expressed by the human health experts of the Working Group on the one side and OECD on the other. Emphasizing that the OECD classification scheme after submission to the Inter-Organizational Programme for the Sound Management of Chemicals (IOMC) shall be globally applicable for inter alia all transportation modes, MEPC requested GESAMP to consider the use of the harmonized OECD classification scheme on the effects of chemicals regarding their irritation/corrosive effects.

3.10 The principle differences between the systems can be characterized by a more medical approach based on clinical signs (GESAMP), as compared to a more laboratory-oriented approach based on toxicological tests (OECD). In considering the problem, GESAMP noted that it did not possess sufficient expertise in the field of human health, to assess in detail the scientific merits of the two different systems. Nevertheless, GESAMP considered that the inclusion of adequate clinical experience in the development of systems to evaluate the hazards of chemical products was of scientific importance and that it warranted further consideration.

Action by GESAMP

3.11 GESAMP recommended that an expert panel consisting of scientists and/or medical practitioners in the field of skin and eye irritation and corrosion should consider the scientific aspects of this issue. This panel should preferably be composed of experts from or recommended by WHO, GESAMP and OECD. The Secretariat was requested to approach the appropriate bodies to ensure a broad exchange of views.

3.12 The publication of the revised GESAMP Hazard Evaluation Procedure has been delayed as a result of the foregoing issue. GESAMP therefore recommended that publication should be arranged as soon as possible, excluding the columns on skin and eye irritation. These would be the subject of an addendum at a later date after further relevant decisions have been made.

3.13 GESAMP approved the hazard profiles of chemicals set out in the report of the Working Group (GESAMP XXIX/3, annex 3). A list of members of the Working Group, its terms of reference and a short overview of its current activities is set out in annex IV to this report.

4 ESTIMATES OF OIL ENTERING THE MARINE ENVIRONMENT FROM SEA-BASED ACTIVITIES

4.1 The IMO Technical Secretary introduced this topic, recalling that the Marine Environment Protection Committee of IMO at its thirty-fifth session in 1994 had requested GESAMP to evaluate all available data sources of oil input into the marine environment from sea-based activities and to develop methodologies for improving the estimates of oil entering the marine environment from maritime activities. The Working Group carried out these activities according to the Terms of Reference approved by GESAMP in 1998, as set out in annex V to this report.

4.2 The Working Group met intersessionally, in May 1998 and in January 1999, in London. It had made substantial progress in compiling and analyzing data and writing sections of its report, based on a comprehensive outline covering the following four areas:

- .1 approaches to making estimates of oil inputs;
- .2 oil inputs from ships;
- .3 oil inputs from offshore exploration and production; and
- .4 other oil inputs and related topics.

4.3 The Chairperson of the Working Group, Mr. P. Wells, summarized the content of the draft report tabled for discussion, noting in particular accomplishments, primary findings and items still to be completed (GESAMP XXIX/4). Initial figures were presented for oil inputs from ships (operational and accidental), ships (cargo-operational), dry-docking discharges, scrapping of ships, offshore operational, offshore pipelines, offshore accidents, natural oil seeps, refineries and unknown sources.

4.4 The report solicited the following major comments for consideration by the Working Group, others were also noted and would be considered. These are not in order of priority:

- .1 VOC emissions from ships should be considered in the overall estimates, taking into account the atmospheric fate of the compounds once released, and their deposition onto the sea surface;

- .2 data on sources of oil from recreational activities at sea, e.g., outboard motors are available from the United States and should be considered, as well as available data from some European countries;
- .3 data on oil inputs from fishing boats of all sizes should be estimated, using sources available through FAO;
- .4 questions pertaining to marine environmental protection from oil inputs should be identified as part of the study, leading to recommendations, if possible, on future work, e.g., identifying exposure scenarios for organisms, the use of GIS to map geographic areas of concern, the relationship between oil input figures and the role and efficacy of particular conventions, etc.;
- .5 data from the Straits of Malacca and other relevant shipping lanes should be identified and incorporated into the study;
- .6 the relative importance of the oil inputs from sea-based activities as compared with those from other sources should be briefly addressed in the study;
- .7 in presenting the data, due consideration should be given to their variability and uncertainties;
- .8 the data should be used to evaluate the geographic distribution of spills and aspects of their occurrence, such as in coastal versus open sea locations;
- .9 an analysis of oil type spilled accidentally should be included;
- .10 extraordinary events, such as major spillages and blowouts, should be further evaluated, particularly in the context of their frequency; and
- .11 a note should be included on the scarcity of information and data regarding oil inputs from offshore exploration and production activities in many regions of the world.

4.5 The outline of the draft report prepared by the Working Group, together with its terms of reference and a list of its members, is set out in annex V to this report.

5 ENVIRONMENTAL IMPACTS OF COASTAL AQUACULTURE

5.1 The FAO Technical Secretary of GESAMP introduced the report "Planning and Management for Sustainable Coastal Aquaculture Development" (GESAMP XXIX/5) which had been revised, following comments made on the original draft presented at the XXVIIIth session of GESAMP. GESAMP was invited to consider this report with a view to its approval.

5.2 The report comprised four parts:

- .1 Guidelines (intended for policy makers and technical specialists);
- .2 Tools (intended for planners and technical specialists);
- .3 Case Studies; and
- .4 Supporting/background documents.

5.3 The Chairperson of the Working Group, Mr. J. Hambrey, introduced the report and led the Group through the executive summary.

- 5.4 The report was then extensively reviewed by the Group and the following specific points were made:
- .1 the report was too long;
 - .2 the language of the report would have to be made more readable and relevant to practitioners in developing countries;
 - .3 inadequate emphasis was placed on environmental sustainability and habitat impacts;
 - .4 the sections on zoning and environmental capacity required some technical improvements;
 - .5 references to public involvement were overly repetitive;
 - .6 the heading structure of the section providing an overview of procedures and tools required rationalization;
 - .7 a clearer reference should be made to previous GESAMP documents; and
 - .8 more practical examples, selected and summarized from the case study material, should be included in both the guidelines and tools sections of the report to illustrate the application of the principles and tools to coastal aquaculture in practice.

Action by GESAMP

- 5.5 On the basis of the above discussion, the Group made the following recommendations:
- .1 the executive summary should be rewritten in more readable language;
 - .2 Part 1 (Guidelines) should be substantially shortened, with cuts made particularly in sections 1.1 (Background and Rationale) and 1.2 (Experience in planning and management of coastal aquaculture development). Section 1.1.1 (the status of aquaculture development) should be updated and clarified;
 - .3 Part 2 (Tools) should be edited with particular emphasis on minimizing jargon and providing more practical advice relating specifically to aquaculture. GESAMP members would provide inputs according to their field of expertise;
 - .4 a glossary and index should be added;
 - .5 key elements from Part 3 (Case Studies) should be incorporated in the text of Part 2 in form of boxes; and
 - .6 Parts 3 and 4 should be removed.

5.6 Comments are to be received from GESAMP members by the end of September 1999, so that a final version could be circulated by the end of October 1999. Approval would then be sought by the end of November 1999 with a view to publication in January 2000 as GESAMP Reports and Studies No.68. Final independent editing would be undertaken through the Secretariat. In the event that Part 1 was approved, but not Part 2, Part 1 would be published independently in January 2000 prior to the NACA^[1]/FAO Conference in Bangkok, and the full revised report would then be tabled at the XXXth session of GESAMP.

5.7 A summary of the report "Planning and Management for Sustainable Coastal Aquaculture Development" (GESAMP XXIX/5) is attached as annex VI to this report.

6 MARINE ENVIRONMENTAL ASSESSMENTS

6.1 In introducing this agenda item, the UNEP Technical Secretary noted four documents dealing with the activities of the Working Group on Marine Environmental Assessments (MEA) in preparing its two reports: "The state of the marine environment - current major issues and emerging problems" (the biennial report), and "Land-based sources and activities affecting the quality and uses of the marine, coastal and associated freshwater environment" (the LBA report) (GESAMP XXIX/6 - 6/3). He introduced the report of the Chairman and the Technical Secretary concerning the activities of the Working Group in this regard (GESAMP XXIX/6/2) focusing on (a) the substantive activities carried out in the intersessional period as reflected in the draft reports submitted to this session of GESAMP; (b) financial and technical assistance provided by the Sponsoring Organizations to the Working Group; (c) major problems encountered in the work of the Working Group; and (d) future plans. No attempt had yet been made by the Working Group to consider the report on the state of the marine environment (SOME).

6.2 The major problem encountered by the Working Group was the disruption caused by the uncertainty about continuing support from UNEP as its main sponsor. Since GESAMP XXVIII, the Working Group also noted that its membership was geographically unbalanced and lacked the expertise in several fields considered essential (i.e., environmental economics, public health, developing countries perspective). Due to these problems, the Working Group discontinued further work in November 1998 on both the biennial and the LBA reports. It was not until the problems were solved in March 1999 that the Working Group resumed its work. This was the reason why these two reports could not be submitted, as originally planned, for consideration and final approval to this session of GESAMP.

6.3 Information on the intersessional activities of the Working Group, including its workplan and timetable, is set out in annex VII to this report.

Biennial report

6.4 The Chairperson of the Working Group introduced the fifth draft of the biennial report (GESAMP XXIX/6/1). He pointed out that the draft biennial report (as well as the LBA report) was particularly deficient in addressing issues related to environmental economics, public health, and problems of developing and small island countries in general. Problems in extending the Working Group's membership with suitable experts to deal with these fields had recently been solved, and contributions had been received but were not yet reflected in the current drafts.

6.5 GESAMP gave a series of general and specific comments and recommendations concerning the report and it was agreed that additional comments would be provided in writing during this session. These comments would then be considered in detail by the Working Group and its Editorial Board, in meetings to be held immediately after this session of GESAMP. It was suggested that the Working Group consider the inclusion of a glossary.

LBA report

6.6 The Group took note of the second draft of the LBA report (GESAMP XXIX/6). In light of the relatively advanced state of chapters 4 and 5 of the report, members agreed to provide written comments and input to the relevant chapter co-ordinators and to focus their attention in plenary to problems encountered in the preparation of chapters 6 and 7 of the report. Mr. Huber (co-ordinator for chapter 6) and Mr. Insull (co-ordinator of the economic and institutional sections of chapter 6), described some of these difficulties, in particular the very broad terms of reference for this chapter, the difficulty of producing a coherent and readable presentation within the structure and terms of reference previously approved by GESAMP, and the necessity of building upon the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities itself without including excessive detail. The Group noted that chapter 7 presented similar difficulties, but deferred detailed discussion of chapter 7 for the meeting of the Working Group and its Editorial Board.

6.7 The Group took note of the summary of the regional programmes of action on land-based activities, recently produced by UNEP as the basis for comparative analysis of regional priorities (GESAMP XXIX/6/3),

and agreed that chapter 6 should include such an analysis. It was also agreed that the Working Group would have flexibility in determining the structure and content of chapters 6 and 7, and that it should not be rigidly bound by the outline approved at GESAMP XXVII.

Co-operation between GESAMP and GIWA

6.8 Mr. Per Wramner, Scientific Director of the UNEP/GEF Global International Waters Assessment (GIWA), attending this session as a UNEP observer, briefed GESAMP on the structure, aims and operational aspects of GIWA, as well as on the network to be established by GIWA to accomplish its work. A Core Team of specialists covering both regional and thematic concerns would co-ordinate the assessment, is to be advised by, and to report to, a Steering Group of senior scientists and representatives of the major co-sponsoring organizations.

6.9 Mr. Wramner noted that since the XXVIIth session of GESAMP in 1997, GESAMP and GIWA had agreed to establish co-operative arrangements on all scientific and technical issues relevant to the preparation of their respective assessments. He re-iterated the importance of co-operation between GIWA and GESAMP and invited GESAMP to become an active partner in implementing GIWA by:

- (a) designating a representative in its Steering Group;
- (b) taking the responsibility for the thematic task team relevant to the oceans; and
- (c) designating GESAMP sponsored experts for the nine mega-regional task teams comprising the GIWA network.

6.10 GESAMP members offered a number of comments and stressed the need to establish an information network on GIWA with Governments and other parties. Co-operation with GIWA, in particular for preparation of the SOME report, was considered valuable.

6.11 GESAMP welcomed the invitation to participate as partner in the implementation of GIWA and agreed to designate the Chairman of the MEA Working Group as an ex officio member of the GIWA Steering Group. It also agreed that members of the Working Group would participate in the mega-regional task teams and that it would be ready to take the responsibility of the thematic task team dealing with oceans. It was further agreed that the Intersecretariat would consider these issues and establish relevant arrangements with GIWA, which GIWA would consider during the first meeting of the its Steering Group (Kalmar, Sweden, 27 September 1999)

7 MATTERS OF PARTICULAR CONCERN REGARDING THE DEGRADATION OF THE MARINE ENVIRONMENT

Potential blindness in deep-dwelling benthic-pelagic species

7.1 A recently published report highlighted the potential problem of blindness in deep-dwelling benthic-pelagic species exposed to bright light flashes from strobe lights and other artificial lights used in deep-sea exploration activities. The Group as a whole was unaware of the report and stressed the need for more information on this problem.

Diverging global approaches to management of anthropogenic inputs of contaminants

7.2 There is a general lack of uniformity in global approaches currently used to manage the anthropogenic inputs of various contaminants. One model often cited is the approach used in the field of radiological protection, where the philosophy was that if human health is protected, the health of the surrounding environment is protected as well. Nevertheless, hard scientific evidence to support this contention is sparse and far more information on the relative risks of certain contaminants to man and other (marine) life forms would be useful in determining a unified approach to realistic management of contaminant inputs.

Coral bleaching

7.3 It is widely acknowledged that the 1998 bleaching of corals and other invertebrates (such as giant clams) on coral reefs world-wide was unprecedented in both magnitude and severity. Since this episode coincided with the 1997–1998 “El Niño” event the unusually high ocean surface temperature generated by the latter was a probable major cause of the bleaching. Other likely factors are UV-B radiation and certain micro-organisms. The severe bleaching episode of 1998 caused profound and long-term ecological impacts on the coral reefs affected, including their future ability to cope with or recover from anthropogenic stresses and this would certainly have severe economic consequences. It was felt that the scientific community was largely unaware of the scale of the problem and that it should be better informed with regard to areas where the process was accelerating.

Fertilization of the oceans

7.4 Over-fertilization and eutrophication phenomena continue to receive public attention in many regions. For example, a large “dead” zone (anoxic waters) had recently been reported in the Gulf of Mexico. There is growing awareness of the linkage between riverborne nutrient inputs and resultant oxygen depletion in coastal areas. The Group emphasized that management should employ existing tools to address this issue. A United States multi-agency taskforce is in the process of identifying and quantifying the sources of nutrients in the Mississippi River watershed in order to set management priorities for decreasing this loading. Significant monitoring and modelling efforts are being undertaken in the United States, that would be reported to future sessions of GESAMP.

Environmental Impact Assessment in relation to offshore oil and gas exploration and exploitation

7.5 In areas of South-East Asia, oil and gas exploration and exploitation activities continue to be carried out with little regard for prerequisite Environmental Impact Assessments (EIAs). Although commercial enterprises are licensed to undertake fossil fuel explorations, which may involve carrying out an EIA, it was necessary for responsible national and regional authorities to enforce agreed standards for such EIAs to ensure their adequacy.

Investigations into the global disease burden and economic impacts of various human diseases associated with marine pollution

7.6 A member of the MEA Working Group introduced his report dealing with scientific and socio-economic aspects of the global impact of marine pollution on human health. A preliminary methodology had been developed for making first order estimates of the global disease burden and economic impact of various human diseases associated with marine pollution. The MEA Working Group would examine these findings in depth.

7.7 GESAMP unanimously felt that this was an important issue for further study and urged the Intersecretariat to note the need for evaluating such public health problems in GESAMP assessments since these are at the heart of the concept of marine environmental protection. The establishment of a new working group to examine such public health aspects should be considered.

Human health risks posed by contaminated food

7.8 GESAMP noted that subsequent to public concern regarding human health risks posed by food contamination with polychlorinated dioxins, regulatory steps were being taken to establish maximum permissible levels in animal feeds, including fish meal widely used in animal husbandry and in aquaculture which makes an important contribution to food production. GESAMP cautioned that such levels should be based on sound risk assessments that take appropriate account of differences in the modes of transport and accumulation of chlorinated dioxins in marine, freshwater and terrestrial food chains.

Synergism: what is meant by it?

7.9 The terms “synergism” and “synergistic effects” are used in the scientific literature, without providing a clear definition of these terms. It was suggested that a statement by GESAMP defining these terms would clarify matters and avoid misconceptions in future.

8 FUTURE WORK PROGRAMME

8.1 Environmental impacts from sea-bed exploration and exploitation

8.1.1 GESAMP recalled that, at its XXVIIIth session in 1998, it had decided that future involvement of the Group on this issue should be held in abeyance until the results of activities carried out by the International Seabed Authority regarding the development of guidelines for the assessment of environmental impacts from the exploration of deep sea-bed polymetallic nodules from the Area had been made available.

8.1.2 The IMO and Unesco-IOC Technical Secretaries of GESAMP informed the Group of their contacts made with the International Seabed Authority to enquire on the status of its above activities. Subsequently, IMO and IOC had been informed that the draft guidelines mentioned above and further plans for the development of regulations on prospecting and exploration for other sea-bed mineral resources, together with associated environmental impact guidelines were currently under discussion by the Legal and Technical Commission of the International Seabed Authority. The IMO and Unesco-IOC Technical Secretaries felt that further information was needed to review and revise as appropriate their original proposal (GESAMP XXVIII/8).

8.1.3 The UN Technical Secretary undertook to promote the strengthening of co-operation with the International Seabed Authority with a view to facilitating the exchange of relevant information.

8.2 Intersessional work

Taking into account the above considerations, GESAMP noted the intersessional work planned, as follows:

1 Evaluation of the hazards of harmful substances carried by ships (Working Group 1)

Lead Agency:	IMO
Co-sponsor:	UNEP, FAO, WHO
Chair:	T. Bowmer

The next meeting of the Working Group will be held in early 2000.

2 **Marine environmental assessments**

(Working Group 26)

Lead Agency:	UNEP
Co-sponsors:	IMO, FAO, Unesco-IOC, WMO, WHO, IAEA, UN
Chair:	S. Keckes
Members:	M. Bewers, R. Boelens, S. Charmasson, R. Duce, L. Jeftic, R. Engler, M. Huber, D. Insull, H. Yap

Subject to the availability of adequate financial support, the Working Group plans to finalize the drafts of the Biennial and LBA reports for consideration by GESAMP XXX. Members of GESAMP and the Technical Secretaries were invited to provide by the end of September 1999 to the Chairperson of the Working Group comments on the drafts considered at the present session. Pending the development of the GIWA project, no work was planned on the SOME report during the forthcoming intersessional period.

One meeting of the Working Group is tentatively planned in January/February 2000. The draft reports would be distributed to members of GESAMP in March 2000 and subsequently be submitted to GESAMP XXX for final approval.

3 **Environmental impacts of coastal aquaculture**

(Working Group 31)

Lead Agency:	FAO
Co-sponsors:	UNEP, Unesco-IOC, WHO, and with support of IUCN
Chair:	J. Hambrey
Members:	P. Menasveta

No meeting is planned for the coming intersessional period.

4 **Estimates of oil entering the marine environment from sea-based activities**

(Working Group 32)

Lead Agency:	IMO
Co-sponsor:	Unesco-IOC
Chair:	P. Wells

The next meeting would be convened in January 2000. Another meeting may have to be planned in conjunction with GESAMP XXX.

5 **Endocrine disrupting substances in the aquatic environment: impacts on aquatic life and human health**

(Working Group 27)

Lead Agency:	IMO
Co-sponsors:	WHO, FAO, UNEP
Chairman (interim):	P. Wells

Agreement has been reached to carry out work jointly with the European Inland Fisheries Advisory Commission (EIFAC) in addressing this issue. Due to funding problems, however, this Working Group will not be able to meet during the next intersessional period.

9 **OTHER MATTERS**

The observer from the United Nations Industrial Development Organization (UNIDO) briefly

described UNIDO's role regarding environmentally sustainable development in coastal areas and its expertise on technologies for waste treatment, waste management and cleaner production. He mentioned a recent work by M. Moore and Z. Csizer (at UNIDO) and stated that this might usefully contribute to activities carried out by GESAMP. The Group welcomed the information that UNIDO is considering the possibility of joining GESAMP as a co-sponsoring agency. It proposed that this matter be considered within the GESAMP Intersecretariat and that UNIDO be contacted in this regard.

10 DATE AND PLACE OF NEXT SESSION

GESAMP noted that its XXXth session would be hosted by the International Atomic Energy Agency at its Marine Environment Laboratory in Monaco, and agreed that it should be held from 22 to 26 May 2000.

11 ELECTION OF CHAIRPERSONS

GESAMP unanimously re-elected Mr. P. Wells as Chairperson and Mr. R. Duce as Vice-Chairperson for the next intersessional period and the XXXth session of GESAMP.

12 REPORT OF THE TWENTY-NINTH SESSION

12.1 The report of the XXIXth session of GESAMP was considered and adopted by the Group on the last day of the session. It contains in annexes IV to VII summaries or outlines of draft studies prepared by GESAMP Working Groups. The summaries are included for information and were not considered by the Group with a view to their approval.

12.2 The XXIXth session of GESAMP was closed by the Chair at 12.30 p.m. on 26 August 1999.

ANNEX I

AGENDA

- 1 Adoption of the agenda
- 2 Report of the Administrative Secretary
- 3 Evaluation of the hazards of harmful substances carried by ships
- 4 Estimates of oil entering the marine environment from sea-based activities
- 5 Environmental impacts of coastal aquaculture
- 6 Marine environmental assessments
- 7 Matters of particular concern regarding the degradation of the marine environment
- 8 Future work programme
- 9 Other matters
- 10 Date and place of next session
- 11 Election of Chairpersons
- 12 Report of GESAMP XXIX

ANNEX II

LIST OF DOCUMENTS

Agenda Item	Document	Submitted by	Title
1	GESAMP XXIX/1	Administrative Secretary	Provisional agenda
3	GESAMP XXIX/3	IMO	The evaluation of the hazards of harmful substances carried by ships
4	GESAMP XXIX/4	IMO	Estimates of oil entering the marine environment from sea-based activities
5	GESAMP XXIX/5	FAO	Planning and management for sustainable coastal aquaculture development
6	GESAMP XXIX/6	UNEP	Marine environmental assessments – Report on land-based sources and activities affecting the quality and uses of the marine, coastal and associated freshwater environment
6	GESAMP XXIX/6/1	UNEP	The state of the marine environment – current major issues and emerging problems
6	GESAMP XXIX/6/2	UNEP	Activities of the Working Group on Marine Environmental Assessments in the intersessional period – report of the Chairman and the Technical Secretary
6	GESAMP XXIX/6/3	UNEP	Summary of regional programmes of action on land-based activities

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ANNEX IV

EVALUATION OF THE HAZARDS OF HARMFUL SUBSTANCES CARRIED BY SHIPS

1 Overview of current activities

During the intersessional period the Working Group re-evaluated the hazards of 63 substances on the basis of the revised GESAMP Hazard Evaluation Procedure (GESAMP Rep. Stud. No.66, Annex VI). This was a first batch of the 670 bulk liquid substances listed in IMO's International Bulk Chemical (IBC) Code, which IMO had requested the Working Group to review within the coming three years.

Whilst the Working Group had further continued the evaluation of the hazards of new products proposed for transportation by ships, others of its planned activities had to be set side in the light of the above request of IMO.

During the re-evaluation process the Working Group noted that its ratings of irritation/corrosive effects on skin and eye were not compatible with the classification schedule, which has recently been developed by OECD with a view to harmonizing for worldwide use the classification and labelling of chemicals, on the request of the Inter-Organizational Programme for the Sound Management of Chemicals (IOMC). Accordingly, the Working Group had not been in a position to publish, as adopted by GESAMP XXVIII, its revised new hazard evaluation procedures.

The Working Group will determine, in co-operation with hazard evaluation experts from other relevant scientific bodies, how the differences in categorization systems could be bridged.

2 Terms of Reference of the Working Group

To examine and evaluate available data and to provide such other advice as may be requested, particularly by IMO, for evaluating the environmental hazards posed by harmful substances carried by ships, in accordance with the rationale approved by GESAMP for these purposes.

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ANNEX V

ESTIMATES OF OIL ENTERING THE MARINE ENVIRONMENT FROM SEA-BASED ACTIVITIES

A: Outline of the draft Study

Executive Summary

1 Introduction

- 1.1 Scope of Task
- 1.2 Demographics of Sea-based Activities
- 1.3 Overview of the Report

2 Approaches to making Estimates of Oil Inputs into the Sea

- 2.1 The General Approach
- 2.2 Accidental Spillage Methodology
 - 2.2.1 International Oil Spill Database
 - 2.2.2 Correction Factors for Smaller Spills
 - 2.2.3 Application of the Correction Factor to the International Oil Spill Database
 - 2.2.4 Definition of Accidental Spillage
 - 2.2.5 Regional Analysis of Accidental Spillage Data Methodology
- 2.3 Limitations and Uncertainties
 - 2.3.1 Bilge Oil
 - 2.3.2 Fuel Oil Sludge
 - 2.3.3 Air Pollution from Ships
- 2.4 Statistics and Data Handling
- 2.5 Sources of Information

3 Inputs from Ships

- 3.1 Operational Discharges - Ship Related
 - 3.1.1 Introduction
 - 3.1.2 Machinery Space Bilges
 - Oil Tankers
 - 3.1.3 Fuel Oil Sludge
 - 3.1.4 Oily Ballast from Fuel Tanks
 - 3.1.5 Total Amount of Oil Discharged from Engine Rooms
 - 3.1.6 Air Emissions - VOCs from Tankers
- 3.2 Operational Discharges - Cargo-related
 - 3.2.1 Tank Washing
 - 3.2.2 Oil in Ballast Water
- 3.3 Accidental Discharges from Ships

- 3.3.1 Accidental Spillage Methodology
 - 3.3.1.1 International Oil Spill Database
 - 3.3.1.2 Correction factor for Smaller Spills
 - 3.3.1.3 Application of the Correction Factor
 - 3.3.1.4 Definition of Accidental Spillage
- 3.3.2 Accidental Spillage from All Sources
- 3.3.3 Accidental Discharges from Vessels
- 3.3.4 Accidental Spillage in Relation to Oil Production and Transport
 - Spillage Versus Production
 - Spillage Versus Transport
- 3.3.5 Regional Analysis of Accidental Spillage Data
- 3.3.6 Sunken Vessels
 - Merchant Vessel Casualties
 - Military Vessel Casualties
- 3.4 Dry Docking of Ships
 - 3.4.1 Tankers
 - 3.4.2 Other Vessels
- 3.5 Scrapping of Ships
- 3.6 Operational Discharges from Ships Operating Under Sovereign Immunity
- 3.7 Deliberate Discharges of Oil to Save Life at Sea

4. Exploration and Production in the Offshore

- 4.1 Operational Discharges
 - 4.1.1 Introduction
 - 4.1.2 Operational Discharges from Offshore Installations
 - Machinery Space Discharges
 - Drilling Discharges
 - 4.1.3 Produced Water Discharges
 - 4.1.4 Air Emissions (VOCs)
- 4.2 Accidental Discharges from Exploration and Production Activities
- 4.3 Pipelines
 - 4.3.1 Operational Discharges
 - 4.3.2 Accidental Releases from Pipelines

5. Other Oil Inputs into the Sea and Related Topics

- 5.1 Coastal Refineries, Oil Storage Facilities and Marine Terminals
 - 5.1.1 Operational Oil Spillage from Coastal Refineries
 - 5.1.2 Accidental Releases from Coastal Facilities
- 5.2 Reception Facilities
- 5.3 Oil in Waste Materials Dumped at Sea
- 5.4 Fuel Dumps from Aircraft
- 5.5 Outboard Motors
 - 5.5.1 Leisure Craft Activity

- 5.6 Natural Oil Seeps
- 5.7 Rocket Launches
- 5.8 Tar Distribution and Their Significance
- 5.9 Accidental Discharges from Unknown Point Sources
- 6. Oil Inputs - Analysis, Synthesis and Interpretation**
- 7. Summary and Conclusions**
- 8. Recommendations**
- 9. Bibliography**

B: Terms of Reference of the Working Group

The Terms of Reference approved by GESAMP are as follows:

1. to estimate current annual amounts of oil entering the marine environment from sea-based activities, taking into account that:
 - 1.1 "oil" would be defined as in MARPOL 73/78, Annex I;
 - 1.2 sea-based activities would include all forms of shipping, especially in oil tankers and carriers, other commercial and non-commercial ships, as well as transportation through marine pipelines. They would further include offshore and coastal exploration and production, atmospheric emissions from such sea-based activities, coastal refineries and storage facilities, oil contaminated material disposed of at sea, and natural marine oil seeps;
 - 1.3 the annual input estimates would consider both historical and extant data, methods for deriving those estimates and associated uncertainties; and
 - 1.4 the annual input estimates would consider the amounts of oil entering the sea through operational discharges and accidental spillages in relation to quantities transported by ships, through pipelines, etc., or in relation to offshore and coastal oil exploitation, and related industrial operations.
2. to focus particularly on improving the estimates of oil entering the marine environment from transportation sources, as one test of the efficacy of the MARPOL 73/78 Convention, and other conventions where appropriate, pertaining to the prevention of marine pollution from oil, and the safety of life at sea.

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ANNEX VI

PLANNING AND MANAGEMENT FOR SUSTAINABLE COASTAL AQUACULTURE DEVELOPMENT

A: Summary of the report prepared by the Working Group on Environmental Impacts of Coastal Aquaculture

The coastal zone is characterized by ambiguities of resource ownership, and complex interactions between resources, ecosystems and resource users. It has been widely recognised that to address these complexities, and to promote sustainable development in the coastal zone, a more integrated approach is needed, ideally within the framework of Integrated Coastal Management (ICM).

The rationale for more integrated approaches to aquaculture development is powerful: coastal aquaculture has brought significant economic and employment benefits to both national economies and coastal people throughout the world; aquaculture is highly vulnerable to pollution caused by other resource users; if poorly designed or managed it may cause pollution or the spread of disease; its impacts are often limited but incremental and cumulative; and it often takes place in areas where resource ownership or use rights are ill defined and ambiguous. Efforts to integrate aquaculture into coastal management can contribute to improvements in selection, protection and allocation of sites and resources of appropriate quality and quantity for existing and future aquaculture developments.

This report of the Working Group is based on a review of literature and experience relating to the integration of aquaculture into coastal area management. It is divided into four parts:

1. **Guidelines**, which provide broad guidance for policy makers on the principles and practice of more integrated planning to promote sustainable coastal aquaculture development;
2. **Tools**, which provides a detailed scientific review of the more important tools and methods which can be used to facilitate and inform the planning process;
3. **Examples and case studies**, which provide an overview of experience in the application of some of these principles and tools in different parts of the world; and
4. **Background and discussion papers.**

Part 1 is designed to help policy makers, planners and stakeholders in the coastal zone create a decision-making environment conducive to the promotion of sustainable aquaculture development, and its integration into broader coastal management initiatives. There are no simple formulae for creating such an environment, which may have social, legislative, educational and economic components. The guidelines are therefore necessarily general: the most effective approaches will vary significantly between locations. Widely agreed principles are summarised, some overall frameworks for addressing the issues are described, and an outline of the main components of more integrated planning for aquaculture development is presented.

The more important tools and methods referred to in Part 1 are reviewed in detail in Part 2, particularly as they relate to aquaculture. This section is designed primarily for technical professionals and scientists who may draw on these methods in the course of their professional lives. It should also serve as a reference and resource for others with an interest in, or a need to understand the strengths, weaknesses and application of different approaches and techniques. It was beyond the scope of this report to review all these tools in detail, and emphasis was therefore placed on those, which have been applied particularly to aquaculture development planning. Where appropriate the reader is directed to other more comprehensive reviews and guidelines.

Part 3 comprises real world examples and case studies of the application of different approaches to the planning and management of aquaculture development, and its integration into broader coastal management frameworks. This part should be of interest to all those with an academic or professional interest in improved planning and management of aquaculture development.

Part 4 contains background and discussion papers, which were circulated among WG 31 members prior to and during the WG's meeting.

B: Terms of Reference of the Working Group

GESAMP XXIII recommended the following tasks for future work of Working Group 31:

1. the establishment of scientifically based monitoring requirements and procedures for aquaculture pollutants leading to the assessment of the environmental capacity of existing and planned coastal aquaculture operations (published as GESAMP Rep. Stud. No. 57);
2. the preparation of review and guidance documentation for the safe use of chemicals in coastal aquaculture (published as GESAMP Rep. Stud. No. 65); and
3. review of concepts and experiences related to the integration of aquaculture into coastal management (dealt with in this study).

C: Participants of Meeting of GESAMP WG 31 (Bangkok, 1-5 December 1997.)

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ANNEX VII

ACTIVITIES OF THE WORKING GROUP ON MARINE ENVIRONMENTAL ASSESSMENTS (MEA) IN THE INTERSESSIONAL PERIOD

REPORT OF THE CHAIRMAN AND THE TECHNICAL SECRETARY

1 Background

The Working Group was formally established at the XXVI session of GESAMP (Paris, 25-29 March 1996).

During the XXVI/XXVII intersessional period the first meeting of the Working Group (Geneva, 17-18 May 1996) was held to consider the possible approaches and arrangements which may be used in the preparation of the reports but no substantive activities on the preparation of the reports were initiated.

The XXVII session of GESAMP ((Nairobi, 14-18 April 1997) reconstituted the Working Group, adopted its terms of reference (Annex I) and the outlines of three reports (biennial, LBA and SOME) expected to be prepared by the Working Group.

During the XXVII/XXVIII intersessional period the drafts of the biennial report and the selected chapters of the LBA report were prepared by correspondence among the members of the Working Group, with valuable inputs from experts that are not members of the Working Group.

The XXVIII session of GESAMP (Geneva, 20-24 April 1998) reviewed the second draft of the biennial report and the first drafts of 3 substantive chapters of the LBA report and provided guidance for the continuation of work on both reports, with a view to their adoption at XXIX session of GESAMP.

2 Substantive activities in the XXVIII/XXIX intersessional period

A short second meeting of the Working Group was held (Geneva, 25 April 1998). The meeting focused on the revision of the outlines of the biennial and the LBA reports, taking into account the comments, suggestions and decisions made at the XXVIII session of GESAMP. Following this meeting, the members of the Editorial Board prepared several new versions (drafts) of the biennial and the chapters of the LBA reports which were reviewed and revised at the following meetings:

- meeting of the Editorial Board (Geneva, 3-14 August 1998): reviewed the third and prepared the fourth draft of the biennial report; reviewed the new drafts of chapters 4, 5, 6, and 7 of the LBA report and prepared the first (preliminary) consolidated draft of the LBA report;
- the third meeting of the Working Group (Geneva, 2-7 November 1999), which was, for all practical purposes, the first substantive meeting of the Working Group: reviewed the first (preliminary) consolidated draft of the LBA report (i.e., the latest drafts of chapters 4, 5, 6 and 7) and advised the Editorial Board on the future work on the report;
- the second meeting of the Editorial Board (Geneva, 9-14 November 1999): revised the drafts of chapters 4, 5, 6 and 7 of the LBA report, as advised by the meeting of the Working Group; and
- the third meeting of the Editorial Board (Geneva, 14-22 June 1999): reviewed and revised the fourth draft of the biennial report and the drafts of chapters 4 and 5 of the LBA report, and prepared new outlines for chapters 6 and 7 of the LBA report.

As the result of the activities reviewed above the following drafts were submitted for consideration of the XXIX session of GESAMP:

- the fifth draft of the biennial report;
- the revised chapters 4 and 5 of the LBA report; and
- the revised outlines of chapters 6 and 7 of the LBA report.

These submissions are, admittedly, falling short of the outputs expected according to the workplan and timetable which envisaged the submission of the final drafts of the biennial and the LBA reports to GESAMP XXIX. The delay was caused by reasons reviewed in section 5 of the present report.

While the meetings held in the intersessional period were essential for the progress on the preparation of drafts submitted to GESAMP, most of the burden was on the coordinators responsible for the preparation of the biennial report and the individual chapters of the LBA report. The substantive assistance which was expected to be received from the members of GESAMP who are not members of the Working Group, as well as from the Technical Secretaries, was – with a few notable exceptions – negligible. This was, to a certain degree, compensated by inputs solicited by the members of the Editorial Board and received from experts not associated with GESAMP.

The Editorial Board is aware that the drafts submitted to the present session of GESAMP are still inadequate in many respects. They are particularly deficient in covering issues related to environmental economics, public health, and problems of developing and small island countries in general. Delays in the planned expansion of the Working Group's membership with suitable experts to deal with these fields have been resolved only recently.

Some of the views expressed in the drafts may appear as overly critical, controversial and differing from the traditionally held opinions and official policies of governments and intergovernmental bodies, including the sponsoring agencies of GESAMP. The Editorial Board felt that by expressing, and even emphasising such views a contribution is being made to expose the “skeletons in the cupboard” and develop a rationally balanced approach to the protection of the marine and coastal environment. In addition, the drafts are still biased towards developed countries perspectives due, in part, to the bias in composition of the Working Group membership.

No attempt was made either by the Editorial Board or by the Working group as a whole to consider the SOME report which is expected from the Working Group after the completion of the biennial and the LBA reports.

3 Membership of the Working Group

The Working Group presently consists of 11 members: Michael Bewers (Canada/France), Richard Boelens (Ireland), Sabine Charmasson (France), Robert Duce (USA), Michael Huber (Australia), David Insull (UK), Ljubomir Jeftic (Croatia), Terry Jones (Seychelles), Stjepan Keckes (Croatia) and Helen Yap (Philippines). Terry Jones was coopted as member of the Working Group since GESAMP XXVIII and Danny Elder resigned his membership in the same period since his sponsoring agency (UNESCO/IOC) declined to continue supporting him as member of GESAMP and the Working Group.

In addition there are two “associate members”: Francisco Brzovic Parilo (Chile) and Hillel Shuval (Israel) who joined the Working Group recently.

4 Financial and technical assistance provided to the Working Group

All eight GESAMP agencies expressed readiness to sponsor the Working Group, albeit their support is quite unbalanced:

- UNEP, as the lead agency for the Working Group, provides the secretary of the Working group,

acts as the focal point for concentration and exchange of documentation, negotiates the publication of the reports with potential publishers, and provides most of the financial and technical assistance needed by the Working Group. More specifically, UNEP: (i) provides financial assistance to all eleven members and one of the associate member of the Working Group, as a partial compensation for their time spent working on the reports; (ii) covers the cost of attendance at the sessions of GESAMP and the meetings of the Working Group (including the meetings of the Editorial Board) of 4 members and one associate member of the Working Group; (iii) meets the costs related to the technical support of these meetings held in Geneva; (iv) covers the cost of the comparative analysis of regional LBA reports; and (v) shares with WMO the costs associated with the editing of the reports;

- UNESCO/IOC covers the cost of attendance at the sessions of GESAMP and the meetings convened under the Working Group of 2 members of the Working Group;
- IMO covers the cost of attendance at the sessions of GESAMP and the meetings convened under the Working Group of 2 members of the Working Group;
- IAEA covers the cost of attendance at the sessions of GESAMP and the meetings convened under the Working Group of 1 member of the Working Group;
- WMO covers the cost of attendance at the sessions of GESAMP and the meetings convened under the Working Group of 1 member of the Working Group; in addition, WMO agreed to cover partially the costs associated with the editing of the reports.
- FAO covers the cost of attendance at the sessions of GESAMP and the meetings convened under the Working Group of 1 member of the Working Group;
- WHO provides financial assistance to an associate member of the Working Group, as a partial compensation for his time spent working on the reports, and agreed to covers the cost of his attendance at the forthcoming London meetings of the expanded Editorial Board; and
- No financial or technical assistance is provided by the UN.

5 Major problems encountered in the work of the Working Group

The major problem encountered by the Working Group was the disruption caused by the uncertainty about continuing support from the main sponsor of the Working Group (UNEP) and the apparent lack of interest of the Joint Intersecretariat as a whole (the Chairman of GESAMP included) to solve the problems restated repeatedly by the Working Group since the XXVIII session of GESAMP. The problem became very acute by the time of the November 1998 meeting of the Working Group and led to a unanimous decision of the Working Group to discontinue further work on the biennial and the LBA reports unless and until the sponsoring agencies credibly demonstrate that the necessary support is forthcoming. It took the sponsoring agencies five full month (November 1998 – March 1999) to resolve the problem, but in the meantime the time needed for the completion of the biennial and the LBA reports by GESAMP XXIX was irretrievably lost.

Since GESAMP XXVII it was noted that the membership of the Working Group is unbalanced geographically and lacks expertise in several important fields considered essential (i.e., environmental economics, public health, third world perspective). Partly for reasons reviewed in the paragraph above, the search for suitable experts who could be appointed as additional members of the Working Group was considerably delayed. Although the problem seems to have been resolved recently by coopting a member and two associate members into the Working Group, the drafts of the reports presently in front of GESAMP do not reflect fully the inputs of these additional experts.

The Working Group did not receive adequate substantive support from the members of GESAMP who are not members of the Working Group and from the Technical Secretaries. In general, there was no reaction to the drafts circulated to them for comments and suggestions.

6 Future plans

When considering the future work on the biennial and the LBA reports, the June 1999 meeting of the Editorial Board proposed a revised workplan and timetable (Annex II) which may lead to the finalisation of the edited drafts of both reports by GESAMP XXX.

APPENDIX I

TERMS OF REFERENCE

(paragraph 6.9.1 of the Report of GESAMP XXVII – Nairobi, 14-18 April 1997)

The terms of reference are modified as follows:

- 1) To undertake:
 - (a) Short, general biennial assessments, including highlights of major current and emerging issues;
 - (b) Assessment of land-based sources and activities affecting the quality and uses of the marine, coastal and associated freshwater environment; and
 - (c) Periodic comprehensive assessments of the condition of the marine environment (SOME reports), with emphasis on the effects of, and threats posed by, anthropogenic activities.
- (2) To develop scientific approaches:
 - (a) For improving the reliability, comprehensiveness and utility of assessments; and
 - (b) To meet expectations of the international community for a more balanced geographic coverage of assessments, including, inter alia:
 - New concerns and perspectives;
 - Improved insight regarding trends; and
 - The social and economic consequences of impacts on the marine environment, its resources and amenities, and vice versa.
- (3) To identify actions, including adoption of new scientific and innovative approaches for sustainable protection and development of the marine environment, its resources and amenities within the context of existing and planned international and regional agreements.
- (4) To promote and keep under review the conduct of regional assessments, and to provide scientific and technical guidance to facilitate improved global assessments.
- (5) To identify, recommend and apply better indices of environmental conditions to assess environmental changes and trends.

The outlines of the SOME and LBA assessment reports mentioned in item (1) above are attached as annexes to this report (Annexes VII and Annexes VIII). The outline for the biennial assessment reports is given below.

APPENDIX II

WORKPLAN AND TIMETABLE

(Annex V of the Report of the third meeting of the MEA Editorial Board, Geneva, 14-22 June 1999)

- early July 1999: contacts (by the Chairman) with experts identified as potential additional participants in the August 1999 meeting of the expanded Editorial Board in order to ascertain their availability for and interest in the meeting
- mid-July 1999: appointment (by UNEP) of the editor/writer
- mid-July 1999: distribution of selected MEA outputs to the participants of GESAMP XXIX (fifth draft of the biennial report, revised drafts of chapters 4 and 5 of the LBA report and the outline of the chapters 6 and 7 of the LBA report)
- July-August 1999: preparation (by the Chairman) of the drafts of chapters 1, 2, 3 and 8 of the LBA report through correspondence with the members of the Editorial Board
- late-July 1999: formal invitations (by UNEP) to the confirmed additional participants in the August 1999 meeting of the expanded Editorial Board
- 23-25 August 1999: **XXIX session of GESAMP** (in London) to review MEA outputs distributed in mid-July
- 26-28 August 1999: **meeting of expanded Editorial Board** (in London), including all WG members who attend GESMAP XXIX and the editor/writer, to review chapters 6 and 7 of the LBA report
- 30 August – 3 September 1999: **meeting of the Editorial Board** (in London), including the editor/writer, to review the latest versions of the biennial and the LBA reports
- September-October 1999: preparation of the first edited versions of the biennial and the LBA reports by the editor/writer in consultation with the members of the Editorial Board, and others as appropriate
- early November 1999: distribution of the first edited drafts of the biennial and the LBA reports (by the editor/writer) to the members of the Editorial Board
- 15-19 November 1999: **meeting of the Editorial Board** (preferably in Spain), including the editor/writer, to review the and revise the first edited drafts of the biennial and the LBA reports, and to finalise the list of potential reviewers of the drafts
- end of November 1999: circulation of the second edited drafts of the biennial and the LBA reports (by the Chairman, in cooperation with UNEP) to agreed reviewers for comments, with mid-January as the deadline for replies
- 31 January – 5 February 2000: **meeting of the Working Group** (in The Hague), including the editor/writer, to review the second edited drafts of the biennial and the LBA reports and the comments received by the reviewers
- 7-9 February 2000: **meeting of the Editorial Board** (in The Hague), including the editor/writer, to finalise the edited drafts of the biennial and the LBA reports, taking into account the comments and suggestions made at the meeting of the WG
- March 2000: distribution of the final edited drafts of the biennial and the LBA reports to participants of

GESAMP XXX

- 22-26 May 2000: **XXX session of GESAMP** (in Monaco) to review and endorse as appropriate the edited versions of the biennial and the LBA reports

Note: The workplan and timetable are based on the assumption that GESAMP XXX will be held in May 2000. This would leave some room to accommodate presently unforeseeable problems in the finalisation of the draft reports.

[1] NACA stands for Network of Aquaculture Centres in Asia-Pacific.

[2] Unable to attend

[3] Unable to attend

[4] Unable to attend

[U1]