87

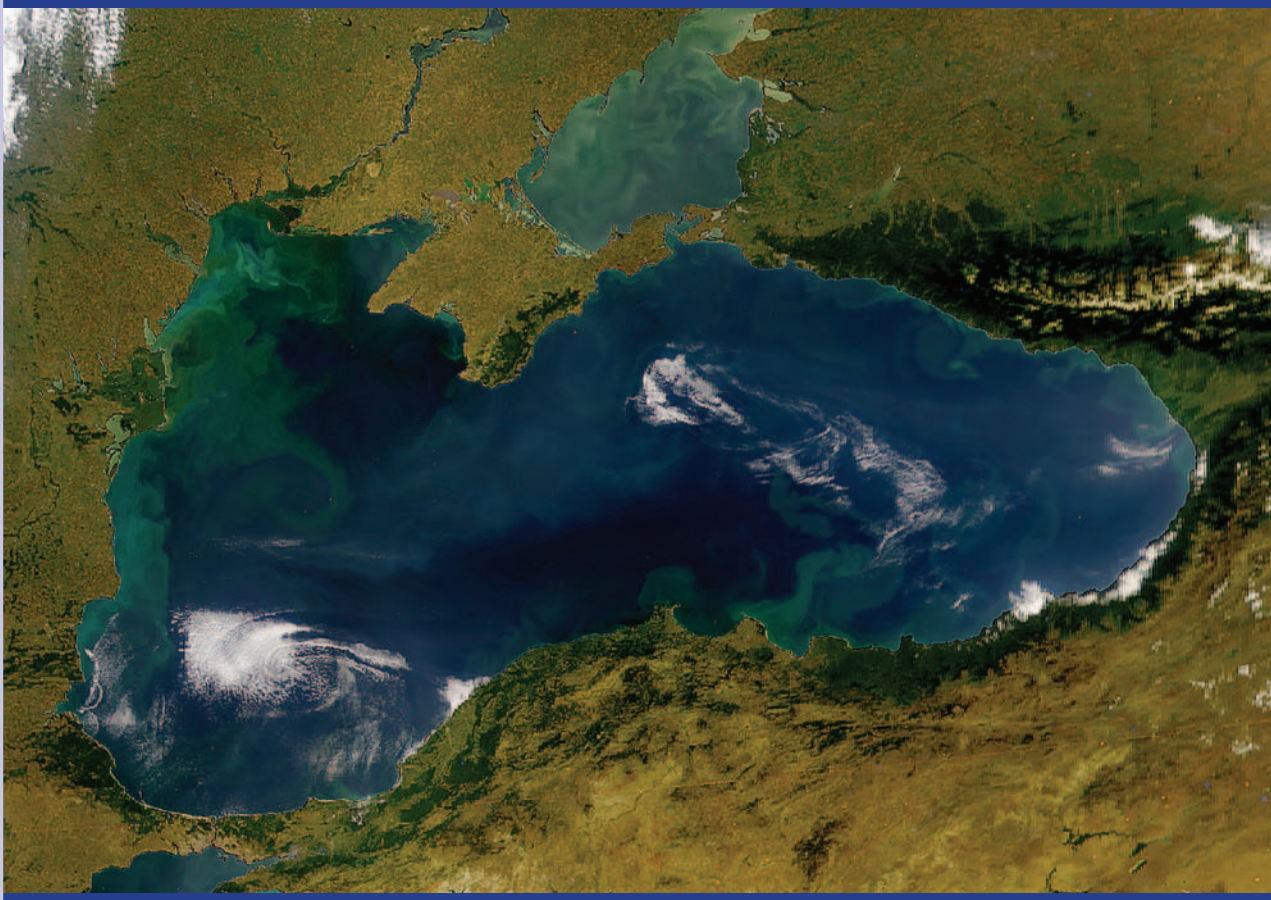
REPORTS AND STUDIES

GESAMP

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

REPORT OF THE THIRTY-NINTH SESSION OF GESAMP

New York, 15-20 April, 2012



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87

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Scientific Aspects of Marine
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Notes:

GESAMP is an advisory body consisting of specialised experts nominated by the Sponsoring Agencies (IMO, FAO, UNESCO-IOC, UNIDO, WMO, IAEA, UN, UNEP, UNDP). Its principal task is to provide scientific advice concerning the prevention, reduction and control of the degradation of the marine environment to the Sponsoring Agencies.

This study is available in English only from any of the Sponsoring Agencies, with the executive summary available in all UN languages.

The report contains views expressed or endorsed by members of GESAMP who act in their individual capacities; their views may not necessarily correspond with those of the Sponsoring Agencies.

Information about GESAMP and its reports and studies can be found at: http://gesamp.org

Report of the 39th session of the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), held at the UNDP, New York, 15 to 20 April 2012.

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Front cover satellite photograph of hypoxia zones in the Black Sea choked by harmful, noxious algal blooms. Image courtesy of the NASA SeaWiFS Project/GeoEye Inc./NASA Goddard Earth Sciences Data and Information Services Center. Image acquired by SeaWiFS satellite on July 15, 1998. http://visibleearth.nasa.gov/view.php?id=52595

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Report of the 39th session of the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), held at the UNDP, New York, 15 to 20 April 2012

0. EXECUTIVE SUMMARY

0.1 **Introduction:** The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) held its 39th session hosted by the United Nations Development Programme (UNDP), in New York, from 15 to 20 April, 2012. GESAMP was established in 1969 by a number of United Nations organisations as a Joint Group to encourage the independent, interdisciplinary consideration of marine pollution and environmental protection problems with a view to avoiding duplication of efforts within the United Nations system. The main topics considered at this session are described below. GESAMP continues to function largely through its working groups which can be sponsored directly by the UN agencies in answer to their science needs. Alternatively, attention for topical and urgent issues is raised through GESAMP's New and Emerging Issues Programme with mixed or outside funding; the most recent example being the micro-plastics working group. In either case, sustained and predictable funding is required and securing this remains a concern for GESAMP and its Executive Committee.

0.2 **Evaluation of the hazards of harmful substances carried by ships (WG 1):** This working group (WG) evaluates, at the request of IMO, the hazards to the environment and human health of bulk liquid chemicals carried by ships, with around 900 hazard profiles currently on record. The hazard profile contains a unique fingerprint of each substance, providing information on 14 separate human health, environmental, and physico-chemical hazard criteria. WG 1 did not meet since GESAMP 38, however it continued its review of GESAMP Reports and Studies No. 64 (2002) on the Revised GESAMP Hazard Evaluation Procedure to take into account new developments in the field of chemical safety. The final second edition of Reports & Studies No. 64 would be externally peer reviewed and then submitted to GESAMP for approval during the next inter-sessional period, i.e., before GESAMP 40 in 2013.

0.3 **Review of applications for 'active substances' to be used in ballast water management systems (BWMS) (WG 34):** WG 34 met three times since GESAMP 38, evaluating 14 ballast water treatment systems and reporting its recommendations to IMO's Marine Environment Protection Committee (MEPC). Five of these systems received a recommendation for Basic Approval and seven received a recommendation for Final Approval. Also, the third annual stocktaking workshop was held to review the methodology for evaluation of applications received from industry with a fourth session planned for August 2012 in Busan (Republic of Korea). In the coming period, WG 34 will prepare the GESAMP approved Methodology for publication in GESAMP Reports & Studies series; and in line with requests made by GESAMP during its peer review of the group's evaluation reports, the WG will discuss, at its fourth stocktaking workshop, the cumulative implications of disinfection byproducts from shipping, reporting back to GESAMP's 40th session.

0.4 **Metals (formerly mercury) Working Group (WG 37):** GESAMP noted that all findings related to mercury have been included in a shortened joint UNEP/GESAMP pre-publication report awaiting GESAMP peer review. This UNEP pre-publication report and the additional material gathered by WG 37 would be combined into a single GESAMP Reports and Studies volume and be finalised following external peer review and approval by GESAMP. Also, GESAMP decided that the WG should remain in existence, with a reduced role, to finalise the GESAMP publication by October 2012; and to review and support, as appropriate, a future role in the Trans-Boundary Waters Assessment Project.

0.5 **Atmospheric input of chemicals to the ocean (WG 38):** WG 38 continued to build on its assessments after four years of work having completed the three tasks contained in its original (2007) Terms of Reference as well as additional tasks given to it in 2010 resulting in three scientific peer-review papers (two published; one in the phase of final review), and to a scientific paper (submitted). GESAMP noted that WMO, as the lead organisation, and IMO, the US National Science Foundation, and SCOR would continue supporting the work of WG 38 which examines anthropogenic atmospheric nitrogen inputs to the oceans. GESAMP instructed the WG to finalise a new Terms of Reference for the continued examination by the group for approval, intersessionally, by GESAMP; and organise and report on the results of a workshop on this topic scheduled for early 2013.

0.6 **Establishment of trends in global pollution in coastal environments (WG 39):** The purpose of this WG is to contribute to the reduction of stress in the coastal ecosystem by providing stakeholders, scientists and society with an objective and global assessment of pollution trends during the last century in sensitive coastal ecosystems. The WG has not met since 2011, due to other priorities at the IAEA in relation to the Fukushima accident in March 2011, and thus limited progress has been achieved. GESAMP noted and confirmed that the co-chairs will organise the next meeting of the WG 39 as soon as funding is secured by IAEA and UNIDO and aim to progress on a number of technical preparatory issues, with a report to GESAMP 40 on its achievements.

0.7 **Global assessment of (micro)-plastics (WG 40):** GESAMP 38 established this new WG on inputs, levels, distribution and fate of micro-plastics in the ocean, and potentially the role of micro-plastics as a pathway for persistent, bio-accumulating and toxic substances entering marine food-webs. WG 40 has attracted wide support from NOAA and the plastics producers, as represented by Plastics Europe and the American Chemistry Council (ACC), in addition to support from the UN Agencies UNESCO-IOC (as lead), IMO, UNIDO and UNEP. GESAMP approved the amended Terms of Reference to include socio-economic aspects and new timelines which had been formulated at the WG Inception Meeting, held in Paris in March 2012. GESAMP also instructed the WG to *inter alia* prepare for its next meeting/workshop and provide a brief annual summary of its activities and particularly its achievements (by letter) to the sponsoring agencies and the external sponsors.

0.8 **Contribution to the United Nations 'Regular Process' (UNRP):** GESAMP received an overview of the developments concerning the UN Regular Process that had occurred since GESAMP 38 in May 2011. In particular, institutional arrangements, funding, past and future work of the Regular Process, its methods of work, as well as the outline of the First Global Integrated Marine Assessment due in 2014, were presented by the Joint Coordinator of the Group of Experts of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-economic Aspects. GESAMP noted that the development of the UNRP continued to be slow and that a number of structural issues remained to be resolved. However, progress was being made in regard to the regional workshops and the recruitment to the Pool of Experts.

0.9 **Contribution to the Transboundary Waters Assessment Programme (TWAP):** GESAMP took note of progress towards the implementation of this GEF project that aims to undertake a global assessment of transboundary water bodies, through a formalised consortium of partners, to support informed investments by the GEF and other international organisations. The assessment will establish a baseline environmental, governance, socio-economic and natural resource overview of the five types of transboundary water systems. It is estimated that the Full Size Project execution would start latest by December 2012 for implementation over two years (2013/2014). GESAMP recommended that it be involved in the LME and Open Ocean modules and would take part at the inception meeting in Paris from 3 - 4 May 2012, if resources were available, with several follow-up meetings with the relevant Task Force on these matters, noting that these could be back to back at the 40th session of GESAMP (2013), and - if resources allow - to be looked at with possible sponsoring for two other meetings by IOC as part of the TWAP project.

0.10 **Identification of new and emerging issues regarding the degradation of the marine environment:** The following new and emerging issues were briefly discussed: ocean hypoxia and endocrine disruption; biomagnification of contaminants in top predators; and the possible danger to the marine environment from the discharges of disinfection by-products (including Total Residual Oxidants, (TRO)) into the coastal seas and oceans.

0.11 **Side event on 'Ocean Hypoxia and its Impacts on Ecosystems and Economies':** On Wednesday, April 18, 2012, GESAMP and UNDP organised and UNDP hosted a special side event entitled "Ocean Hypoxia and its Impacts on Ecosystems and Economies". It was attended by approximately 35 people and was 'webcast' live and made available on-line afterwards, including Powerpoint presentations via UNDP Teamworks and Ustream.tv:
http://www.ustream.tv/recorded/21944007

تقرير عن أعمال الدورة التاسعة والثلاثين لفريق الخبراء المشترك المعني بالنواحي العلمية للتلوث البحري (GESAMP) ، التي عُقدت في مقر برنامج الأمم المتحدة الإنمائي في نيويورك أثناء الفترة من ١٥ إلى ٢٠ نيسان/أبريل ٢٠١٢

0 ملخص تنفيذي

1.0 **مقدمة :** عقد فريق الخبراء المشترك المعني بالنواحي العلمية للتلوث البحري دورته التاسعة والثلاثين في مقر برنامج الأمم المتحدة الإنمائي في نيويورك ، أثناء الفترة من ١٥ إلى ٢٠ نيسان/أبريل ٢٠١٢ . وأنشأ فريقَ الخبراء في عام ١٩٦٩ عددٌ من منظمات الأمم المتحدة كفريق مشترك ليتولى الحث على النظر بشكل مستقل ومن جميع الجوانب في مشاكل التلوث البحري ومسائل حماية البيئة البحرية ، بحيث لا تتكرر الجهود ضمن منظومة الأمم المتحدة . وتُعرض أدناه تفاصيل عن الموضوعات الرئيسية التي بحثت في هذه الدورة . ويواصل فريق الخبراء الاضطلاع بمهامه ، في المقام الأول ، عن طريق أفرقة العمل التابعة له التي يمكن أن تعمل برعاية مباشرة من وكالات الأمم المتحدة لتلبية احتياجاتها العلمية . وفي وسع فريق الخبراء أيضاً إيلاء الاهتمام لمواضيع محددة وللمسائل الملّحة من خلال برنامج القضايا الجديدة والناشئة التابع له والذي يعتمد على موارد مالية مختلطة أو موارد مالية خارجية ؛ ومن الأمثلة الأخيرة على الأفرقة المشمولة بهذا البرنامج فريق العمل المعني باللدائن الدقيقة . وفي كلتا الحالين ، يلزم أن تكون الموارد المالية متوفرة دوماً ومضمونة ، وما زال نقصها يشكل مدعاة للقلق لدى فريق الخبراء ولجنته التنفيذية .

2.0 **تقييم مخاطر المواد الضارة التي تحملها السفن (فريق العمل ١)** : يتولى فريق العمل هذا ، بناء على طلب المنظمة البحرية الدولية ، تقييم الأضرار التي تخلّفها على البيئة وصحة الإنسان الموادُ الكيميائية السائبة التي تحملها السفن ، علماً أنه تم حتى الآن تسجيل قرابة ٩٠٠ مادة كيميائية مُضرة . ويعرض هذا السجل السمات الفريدة لآثار كل من هذه المواد ، ويوفر معلومات بشأن ١٤ معياراً منفصلاً تحدد الأضرار على صحة الإنسان والبيئة والأضرار التي تنطوي عليها الطبيعة الفيزيائية والكيميائية لهذه المواد . ولم يعقد فريق العمل ١ أي اجتماع منذ الدورة الثامنة والثلاثين لفريق الخبراء ، لكنه واصل مراجعة العدد ٦٤ (٢٠٠٢) من تقارير ودراسات فريق الخبراء (GESAMP Reports and Studies No. ٦٤) ، الذي تناول الإجراءات المعدّلة لتقييم المخاطر ، التي يعتمدها فريق الخبراء (Hazard Evaluation Procedure) ليأخذ في الاعتبار التطورات الجديدة في مجال السلامة الكيميائية . وستخضع الطبعة الثانية النهائية للعدد ٦٤ من هذه التقارير والدراسات للبحث من قِبل جهات خارجية متخصصة في المجالات نفسها ثم سترُفع إلى فريق الخبراء للموافقة عليها ، وذلك خلال الفترة المقبلة الفاصلة بين دورتيه ، أي قبل الدورة ٤٠ التي ستعقد في عام ٢٠١٣ .

3.0 **بحث الطلبات المتعلقة 'بالمواد الفعالة' ، التي ستُستخدم في نُظُم إدارة مياه الصابورة (فريق العمل ٣٤)** : عقد فريق العمل ٣٤ ثلاثة اجتماعات منذ انعقاد الدورة الثامنة والثلاثين لفريق الخبراء ، وقيّم أثناءها ١٤ نظاماً لمعالجة مياه الصابورة ورفع توصياته إلى لجنة حماية البيئة البحرية التابعة للمنظمة البحرية الدولية . وأُوصي بمنح خمسة منها الموافقة المبدئية وسبعة أخرى الموافقة النهائية . وعُقدت أيضاً حلقة العمل التقييمية السنوية الثالثة لاستعراض منهجية تقييم الطلبات التي ترد من قطاع النقل البحري ، ومن المقرر عقد حلقة عمل تقييمية رابعة في آب/أغسطس ٢٠١٢ في بوسان (جمهورية كوريا) . وخلال الفترة المقبلة ، سيعمل فريق العمل ٣٤ على إعداد منهجية نشر الأبحاث في سلسلة التقارير والدراسات الصادرة عن فريق الخبراء ، وستُعرض هذه المنهجية على الفريق للموافقة عليها ؛ وإن فريق العمل ٣٤ ، انسجاماً منه مع الطلبات التي قدّمها فريق الخبراء أثناء بحثه تقارير التقييم التي أعدّها فريق العمل هذا ، سيناقش أثناء حلقة العمل التقييمية الرابعة التبعات والأضرار المتزايدة التي تخلّفها الآثار الجانبية لعمليات التطهير التي تجري على متن السفن ، وسيوافي فريق الخبراء في دورته الأربعين بنتائج هذا التقييم .

4.0 **فريق العمل المعني بالفلزات (بالزئبق سابقاً) (فريق العمل ٣٧)** : أشار فريق الخبراء إلى أن جميع النتائج المتعلقة بالزئبق أُدرجت في موجز للتقرير المشترك بين برنامج الأمم المتحدة للبيئة وفريق الخبراء قبل نشره ، ريثما ينظر في هذا التقرير خبراء من المستوى نفسه تابعون له . وسيوضع التقرير الذي شارك في إعداده برنامج الأمم المتحدة للبيئة ، قبل نشره ، والمواد الإضافية التي جمعها فريق العمل ٣٧ ، في مجلد واحد من التقارير والدراسات التي يعدها فريق الخبراء ، وسيصبح في صيغته النهائية بعد أن تطلّع عليه جهات خارجية من الاختصاص نفسه وأن يوافق عليه فريق الخبراء . وقرر فريق الخبراء أيضاً الإبقاء على فريق العمل مع تقليص دوره ، ليضع اللمسات الأخيرة على هذا المجلد قبل حلول تشرين الأول/أكتوبر ٢٠١٢ ؛ والنظر في إسناده دوراً في برنامج تقييم المياه العابرة للحدود ، ودعم تأديته هذا الدور عند الحاجة .

5.0 **امتصاص البحار للملوِّثات الكيميائية المنبعثة في الجو (فريق العمل ٣٨)** : واصل فريق العمل ٣٨ البناء على عمليات التقييم التي أجراها بعد أربع سنوات من العمل ، فأنجز المهام الثلاث المشمولة بنطاق اختصاصه الأصلي (٢٠٠٧) ، إلى جانب مهام إضافية أوكلت إليه في عام ٢٠١٠ ، وأعدّ في إطارها ثلاث أوراق علمية بحثها متخصصون في المجال نفسه (نُشرت منها اثنتان ؛ وبلغت الثالثة مرحلة البحث النهائي) وورقة علمية (تم تقديمها) . وأشار فريق الخبراء إلى أن المنظمة العالمية للأرصاد الجوية ، بوصفها المنظمة الرائدة في هذا المجال ، والمنظمة البحرية الدولية

ومؤسسة العلوم الوطنية الأمريكية واللجنة العملية لبحوث المحيطات ستواصل دعمها للعمل الذي يضطلع به فريق العمل ٣٨ الذي يدرس مسألة غازات النيتروجين المنبعثة في الجو جراء الأنشطة البشرية وامتصاص البحار لها . وطلب فريق الخبراء من فريق العمل إعداد نطاق اختصاص جديد كي يواصل التدقيق في هذه المسألة ، على أن يعرضه عليه للموافقة عليه خلال الفترة الفاصلة بين الدورتين ؛ وتنظيم حلقة عمل عن هذا الموضوع من المقرر عقدها في مطلع عام ٢٠١٣ وموافاته بنتائجها .

6.0 **تبيان اتجاهات التلوث العالمي في المناطق الساحلية (فريق العمل ٣٩)** : تتمثل مهمة فريق العمل هذا في المساهمة في الحد من الإجهاد داخل النُظُم الإيكولوجية الساحلية من خلال تزويد الجهات المعنية والأوساط العلمية والمجتمع بتقييم موضوعي وعالمي لاتجاهات التلوث في النُظُم الإيكولوجية الساحلية الحساسة أثناء القرن الماضي . ولم يجتمع فريق العمل منذ عام ٢٠١١ ، بسبب اهتمامه بأولويات أخرى في الوكالة الدولية للطاقة الذرية ناجمة عن حادث فوكوشيما الذي وقع في آذار/مارس ٢٠١١ ، ولذلك فإن التقدم الذي تحقق في مجال تلوث النُظُم الإيكولوجية الساحلية لا يُذكر . وأشار فريق الخبراء إلى أن المشاركين في رئاسته سينظمون الاجتماع المقبل لفريق العمل ٣٩ ما إن تتمكن الوكالة الدولية للطاقة الذرية ومنظمة الأمم المتحدة للتنمية الصناعية من تأمين الموارد المالية اللازمة لذلك ، وأكدوا هذا الأمر . وهدفهم من ذلك هو قطع شوط بشأن عدد من القضايا التمهيدية التقنية ، على أن يزوَّد فريق الخبراء خلال دورته الأربعين بمعلومات عما أنجزه فريق العمل .

7.0 **تقييم عالمي للدائن الدقيقة (فريق العمل ٤٠)** : أنشأ فريق الخبراء في دورته الثامنة والثلاثين فريق العمل الجديد هذا ليُعنى باللدائن الدقيقة التي تدخل البحار وحجمها وطريقة انتشارها ومآلها ، ولربما ببحث دور اللدائن الدقيقة كمنفذ لدخول المواد السامة البيولوجية المتراكمة غير المتحلّلة إلى شبكات الغذاء البحرية . وتلقى فريق العمل ٤٠ دعماً شديداً من الإدارة الوطنية الأمريكية للمحيطات والجو ومن منتجي مادة البلاستيك الممثلين برابطة اللدائن الأوروبية والمجلس الأمريكي للكيمياء ، ودعماً من وكالات للأمم المتحدة هي لجنة علوم المحيطات المشتركة بين الحكومات (المنظمة الرائدة) التابعة لليونسكو والمنظمة البحرية الدولية ومنظمة الأمم المتحدة للتنمية الصناعية وبرنامج الأمم المتحدة للبيئة . ووافق فريق الخبراء على تعديل نطاق اختصاص فريق العمل ليشمل الجوانب الاقتصادية والاجتماعية والإطار الزمني الجديد الذي وُضع في الاجتماع الافتتاحي لفريق العمل الذي عقد في باريس في آذار/مارس ٢٠١٢ . وطلب فريق الخبراء من فريق العمل القيام بعدد من الأمور من بينها الإعداد للاجتماع المقبل/حلقة العمل المقبلة وتقديم موجز سنوي عن نشاطاته وخصوصاً إنجازاته (في رسالة) إلى الوكالات والجهات الخارجية الراعية .

8.0 **المساهمة في إطار العملية المنتظمة للإبلاغ التابعة للأمم المتحدة** : رُوِّد فريق الخبراء بلمحة عامة عن آخر التطورات التي شهدتها العملية المنتظمة للإبلاغ منذ دورته الثامنة والثلاثين التي عقدت في أيار/مايو ٢٠١١ . وقام المنسق المشترك لأعمال فريق الخبراء المعني بالعملية المنتظمة للإبلاغ عن حالة البيئة البحرية وتقييمها على الصعيد العالمي بما فيها الجوانب الاقتصادية والاجتماعية ، تحديداً ، بعرض الترتيبات المؤسسية ، والحالة المالية ، والعمل السابق الذي اضطُلع به في إطار هذه العملية ، والعمل القادم الذي سيضطلع به في إطارها ، وأساليب عملها ، والخطوط العريضة للتقييم المتكامل العالمي الأول لحالة البيئة البحرية الواجب إنجازه في عام ٢٠١٤ . وأشار فريق الخبراء إلى أن تطور العملية المنتظمة يظل بطيئاً وإلى أنها تعاني من عدد من المشاكل الهيكلية التي ينبغي حلها . ومع ذلك ، يُحرز بعض التقدم في ما يخص حلقات العمل الإقليمية والاستعانة بمجموعة من الخبراء .

9.0 **المساهمة في برنامج تقييم المياه العابرة للحدود** : أخذ فريق الخبراء علماً بالتقدم الذي شهده تنفيذ مشروع مرفق البيئة العالمية الذي يهدف إلى إجراء تقييم عالمي للكتل المائية العابرة للحدود ، من خلال إنشاء تجمّع رسمي للشركاء ، للمساعدة على إجراء استثمارات من قِبل مرفق البيئة العالمية والمنظمات الدولية الأخرى انطلاقاً من معلومات واضحة . وسيجري في إطار هذا التقييم بحث أساسي للبيئة وإدارة شؤونها والعوامل الاقتصادية والاجتماعية والموارد الطبيعية للأنواع الخمسة من التجمعات المائية العابرة للحدود . ومن المقدَّر أن يبدأ تنفيذ المشروع بأكمله في كانون الأول/ديسمبر ٢٠١٢ على أقصى تقدير ، وسيستغرق تنفيذه عامين (٢٠١٣/٢٠١٤) . وأوصى فريق الخبراء بأن يتم إشراكه في إعداد الأجزاء من المشروع المتعلقة بالنُظُم الإيكولوجية البحرية الكبيرة والمحيطات المفتوحة ، وسيشارك في الاجتماع الافتتاحي الذي سيعقد في باريس يومي ٣ و ٤ أيار/مايو ٢٠١٢ ، إذا توفرت الموارد ، وبالنظر في عقد عدة اجتماعات متابَعة مع فرقة العمل المعنية بهذه المواضيع ، علماً أنه يمكن عقد هذه الاجتماعات على هامش الدورة الأربعين لفريق الخبراء (٢٠١٣) ، – إذا توفرت الموارد – مع احتمال أن تتولى رعايةَ عقد اجتماعين آخرين لجنةُ علوم المحيطات المشتركة بين الحكومات في سياق برنامج تقييم المياه العابرة للحدود .

10.0 **عرض المشاكل الجديدة والناشئة على صعيد تدهور البيئة البحرية : نوقشت المشاكل الجديدة والناشئة التالية** : نقص الأكسجين في المحيطات ؛ وبروز خلل في هرمونات الحيوانات البحرية ؛ وتلوث الأسماك المفترسة الضخمة بكميات مركزة من المواد الملوِّثة والسامة ؛ والضرر المحتمل أن يخلفه على البيئة البحرية تصريفُ مخلفات المواد الكيميائية التي تُستخدم في عمليات التطهير (بما في ذلك الرواسب الكلية للمؤكسِدات) في البحار الساحلية والمحيطات .

11.0 **اجتماع جانبي بشأن 'نقص الأكسجين في المحيطات وآثاره على النُظُم الإيكولوجية والاقتصاد'**: نظّم فريق الخبراء يوم الأربعاء ١٨ نيسان/أبريل ٢٠١٢ ، بالتعاون مع برنامج الأمم المتحدة الإنمائي ، اجتماعاً جانبياً خاصاً في مقر برنامج الأمم المتحدة الإنمائي تحت شعار 'نقص الأكسجين في المحيطات وآثاره على النُظُم الإيكولوجية والاقتصاد'. وحضره نحو ٣٥ شخصاً وتم بثه مباشرة عبر الإنترنت (Webcast) ، وأتيح لاحقاً على الإنترنت ، وتخللت هذا الاجتماع عروض 'باوربوينت'، باستخدام الوسيلتين الإلكترونيتين :Ustream, UNDP Teamworks: http://ww.ustream.tv/recorded/21944007

海洋环境保护的科学方面联合专家组第三十九次会议报告（2012年4月15至20日，纽约，联合国开发计划署）

0. 内容提要

0.1 序言: 2012 年 4 月 15 日至 20 日，联合国开发计划署(UNDP)在纽约主持召开了海洋环境保护的科学方面联合专家组(GESAMP)第三十九次会议。1969年，数个联合国组织共同建立了GESAMP以鼓励对海洋污染和环境保护问题进行独立的跨领域的考量，从而避免联合国系统内重复性的工作。以下详述了会议上所讨论的主要议题。GESAMP继续主要通过工作组发挥作用。联合国各机构直接资助他们，以回应他们的科学需求。另外，GESAMP的新兴问题项目利用通过综合及外部资金提醒关注热带及新兴问题。最近的一个例子是微塑料工作组。在任何一种情况下，持续的及可预测的资金是必需的，但是确保资金仍是GESAMP及其执行委员会所要面对的问题。

0.2 评估船舶只运输的有害物质(WG1) : 在 IMO 的要求下，这个工作组评估船舶运输的大量液体化学物质对环境和人类健康造成的伤害，目前记录中大约有900个危险特征表。这些特征表里包含每一种物质的独特记号，提供14种人类健康、环境和理化的危险性标准。自GESAMP 38 以来， WG1 一直没有碰头，但是他们一直在审评GESAMP的第64号报告和研究(2002)，即有关修改过的GESAMP有害物质评估程序，从而将化学安全领域的新发展纳入考虑的范围。第64号报告和研究(2002)的第二版终版将经过外部的同行评审并在下次的闭会期间，也就是说在 2013 年召开的 GESAMP 40 之前，提交给 GESAMP 批准。

0.3 审查在压载水管理系统 (BWMS) 中使用“活性物质”的申请(WG 34:) 自 GESAMP 38 以来， WG 34 有过三次会晤，评估14个压载水处理系统并将他们的建议报告给IMO的海上环境保护委员会(MEPC) 。其中五个系统获得了初步批准的建议七个获得了最终批准的建议。第三届年度盘点研讨会审查了业界实践的评估方法，并计划于 2012 年 8 月在韩国釜山举办第四届研讨会。在接下来的阶段中， WG 34 将准备发布GESAMP批准的方法作为GESAMP报告和研究系列的一部分；为了满足GESAMP在同行评审工作组评估报告中提出的要求，工作组将在第四届盘点研讨会上讨论使用航运消毒副产品的累加影响，并报告给 GESAMP 的第 40 次会议。

0.4 金属（前水银）工作组 (WG 37) : GESAMP 指出所有与水银有关的研究结果被收录在简短的 UNEP/GES 联合出版前报告中，有待 GESAMP 的同行评审。这个 UNEP 的出版前报告及WG37收集的其他资料将被整合成一份 GESAMP 报告及研究册，并在外部同行评审结束及GESAMP批准后确定终稿。GESAMP还决定保留工作组，但削减其职责，从而在2012年10月前确定GESAMP的刊物；并在恰当的时候审查并支持工作组未来在 TWAP 项目中的作用。

0.5 大气向海洋输入的化学物质 (WG 38): WG 38 继续在其评估的基础之上，经过四年的努力，完成了包含在其原来的(2007年)职权范围内的三项任务以及2010年接受的额外任务。结果完成了三份科学同行评审论文（两份已发表；一份在最后审查阶段）、一份科学论文（已提交）。GESAMP指出，作为带头组织的气象组织、美国国家科学基金会及海洋研究科学委员会将继续支持WG38的工作，该工作组检查人为输入到海洋中的大气氮。GESAMP指示工作组确定新的职权范围以供工作组持续审查并在闭会期间获得GESAMP的批准；组织并报告定于2013年年初举办的有关该议题的研讨会的结果。

0.6 确定沿海环境中的全球污染趋势 (WG39) : 该工作组的目的是减少沿海生态系统的压力，为利益攸关方、科学家和社会提供一个目标以及对上世纪敏感沿海生态系统污染趋势的全球评估。这个工作小组自2011年以来还没有碰过头，由于在国际原子能机构忙于有关2011年3月福岛核事故的其他首要任务，因此取得的进展有限。GESAMP指出并确定一旦获得了原子能机构和工发组织的资助，联席主席将组织WG39的下一次会议，旨在解决一些技术准备方面的问题并向 GESAMP 40 报告取得的进展。

0.7对（微）塑料的全球评估(WG40):GESAMP38设立这个新的工作组以评估海洋中微塑料的含量、水平、分布和趋同，以及微塑料作为进入海洋食物网的带有持久性、生物积累性和毒性的物质的可能性。WG40吸引了来自国家海洋和大气管理署及塑料生产商的广泛支持（由欧洲塑料和美国化学理事会作代表），此外还获得了联合国机构如联合国教科文组织海洋学委员会（带头）、海事组织、工发组织和环境署的支。GESAMP批准了修正后的职权范围以包括社会经济方面以及2012年三月在巴黎举行的工作组成立会议上制定的新的时间表。GESAMP还指示工作组准备下次会议并向资助机构和外部赞助商提供其活动的简要年度总结（书面），尤其是所取得的成就。

0.8 对联合国“经常性程序”的贡献：GESAMP 得到了自 2011 年5月的GESAMP38以来联合国经常性程序进展的概述。尤其是制度安排、资金、经常性程序过去及未来的工作、工作方法及第一次全球海洋综合评估的大纲(2014年到期)，由对海洋环境包括社会经济方面的现况作出全球报告和评估的经常性程序的联合协调机构作代表。GESAMP指出，联合国开发计划署的发展仍较迟缓，一些结构性问题仍有待解决。然而，在地区研讨会和扩大专家库方面已取得了进展。

0.9 对跨界水域评估项目的贡献 (TWAP) : GESAMP 记录了为执行全球环境基金(GEF)项目所取得的进展，旨在通过正式的伙伴团队对跨界水域进行全球评估，从而支持GEF和其他的国际组织作出知情的投资。该评估将确立一个对五类跨界水系统的环境、社

会经济和自然资源的基线概述。据预测项目最迟将于2012年12月全面执行两年(2013/2014)。GESAMP建议参与LME及公海模块并参加将于2012年5月3日至4日在巴黎举行的成立会议，并就这些议题与有关专案组开展后续会议。在召开第四十次会议时，这些会议可能连续举办，并在资源允许的情况下，资助另外两个由海洋学委员会(IOC)召开的会议，作为 TWAP 项目的一部分。

0.10 识别在海洋环境退化方面出现的新兴问题：以下的新兴问题简要讨论了海洋缺氧和海洋内分泌干扰、食物链顶层中污染物的生物放大作用以及排放消毒副产物(包括总残余氧化剂 (TRO)) 对海洋环境可能造成的危害。

0.11 有关“海洋缺氧及其对生态系统和经济的影响”的会外活动：2012 年 4 月 18 日，星期三，由 GESAMP 和联合国开发计划署组织、联合国开发计划署主持了一个有关“海洋缺氧及其对生态系统和经济的影响”的特殊会外活动。大约35人参加了这个会外活动。活动通过联合国开发计划署团队 (UNDP Teamworks) 和 Ustream.tv 进行了现场的“网络直播”(活动结束后仍可在线观看活动内容，包括 Powerpoint 报告)。链接是：
http://www.ustream.tv/recorded/21944007

0. RÉSUMÉ DU RAPPORT

0.1 **Introduction :** le Groupe mixte d'experts chargé d'étudier les aspects scientifiques de la protection de l'environnement marin (GESAMP) a tenu du 15 au 20 avril 2012 sa 39e session organisée par le Programme des Nations Unies pour le développement (PNUD) à New York. Créé en 1969 par plusieurs organisations des Nations Unies, le GESAMP est un groupe mixte chargé de promouvoir l'examen indépendant et interdisciplinaire des problèmes de pollution marine et de protection de l'environnement dans le but d'éviter les doubles emplois au sein du système des Nations Unies. Les principaux points abordés lors de cette session sont présentés ci-après. Le GESAMP continue de fonctionner largement par l'intermédiaire de ses Groupes de travail, qui peuvent être directement financés par des agences des Nations Unies en vue de répondre à leurs besoins dans le domaine scientifique. Par ailleurs, les travaux sur les questions d'actualité de nature urgente sont menés dans le cadre du programme New and Emerging Issues [Nouveaux sujets de préoccupation] du GESAMP à l'aide de financements mixtes ou extérieurs. L'exemple le plus récent est le Groupe de travail sur les micro-plastiques. Dans les deux cas, des financements stables et prévisibles s'avèrent nécessaires, ce qui demeure une source de préoccupation pour le GESAMP et son Comité exécutif.

0.2 **Évaluation des risques liés aux substances nocives transportées par les navires (Groupe de travail 1) :** ce Groupe de travail (GT) évalue, à la demande de l'OMI, les risques pour l'environnement et la santé humaine présentés par les substances chimiques transportées en vrac par voie maritime. À ce jour, près de 900 profils de risque ont été établis. Chaque profil de risque contient une fiche signalétique de la substance à laquelle il se rapporte, fournissant des informations sur 14 critères de danger d'ordre sanitaire, environnemental et physico-chimique. Bien qu'il ne soit pas réuni depuis la 38e session du GESAMP, ce Groupe de travail a poursuivi la révision du numéro 64 de la Collection Rapports et études du GESAMP sur la Procédure révisée d'évaluation des dangers du GESAMP afin de tenir compte des dernières évolutions dans le domaine de la sécurité chimique. La version finale de la seconde édition du numéro 64 de cette collection fera l'objet d'un examen externe par les pairs pendant la prochaine période intersessions, à savoir, avant la 40e session du GESAMP en 2013.

0.3 **Examen des demandes concernant les « substances actives » à utiliser dans les systèmes de gestion des eaux de ballast (Groupe de travail 34) :** le Groupe de travail s'est réuni à trois reprises depuis la 38e session du GESAMP pour évaluer 14 systèmes de gestion des eaux de ballast utilisant des substances actives et transmettre ses recommandations au Comité de la protection du milieu marin de l'OMI. Cinq de ces systèmes ont fait l'objet d'une recommandation pour approbation initiale et sept, d'une recommandation pour approbation définitive. Pour la troisième année, un atelier « d'établissement de bilan » a été organisé afin d'examiner la méthode d'évaluation des propositions soumises par l'industrie. Un quatrième atelier doit se tenir en août 2012 à Busan (République de Corée). Au cours de la période à venir, le Groupe de travail 34 soumettra la méthodologie approuvée pour publication dans la Collection Rapports et études du GESAMP. Conformément aux demandes exprimées par ce dernier dans le cadre de son examen par les pairs des rapports d'évaluation du groupe, le Groupe de travail évaluera lors de son quatrième atelier « d'établissement de bilan » les effets cumulatifs des sous-produits de désinfection utilisés dans les transports maritimes. Ses conclusions seront communiquées lors de la 40e session du GESAMP.

0.4 **Groupe de travail sur les métaux (anciennement Groupe de travail sur le mercure) (Groupe de travail 37) :** le GESAMP a noté que toutes les conclusions relatives au mercure ont été consignées dans un rapport abrégé élaboré conjointement par le PNUE et le GESAMP, qui sera examiné par les pairs du GESAMP avant publication. Ce rapport ainsi que les informations supplémentaires recueillies par le Groupe de travail 37 feront l'objet d'un numéro de la Collection Rapports et études. Une fois le rapport approuvé par le GESAMP et l'examen externe par le pairs terminé, une version finale sera établie. Le GESAMP a également décidé de reconduire le Groupe de travail avec un rôle réduit, afin de finaliser la publication d'ici octobre 2012 et d'étudier plus avant l'opportunité d'une éventuelle participation au Programme d'évaluation des eaux transfrontalières (TWAP).

0.5 **Apports atmosphériques de produits chimiques dans l'océan (Groupe de travail 38) :** le Groupe de travail 38 a poursuivi ses travaux d'évaluation entamés il y a quatre ans, après avoir mené à bien les trois missions qui lui avaient confiées dans le mandat attribué lors de sa création en 2007. Ce Groupe s'est également acquitté d'autres travaux qui lui avaient été confiés en 2010 et rédigé trois articles pour des revues scientifiques (deux sont déjà publiés, le troisième est en phase finale de révision). Le GESAMP a noté que l'Organisation météorologique mondiale, en qualité d'organisation chef de file, l'OMI, la Fondation nationale pour la science des États-Unis (NSF) et le Comité scientifique pour les recherches océaniques (SCOR) continueraient d'appuyer les travaux du Groupe de travail 38, qui mesure les apports atmosphériques en produits azotés d'origine anthropique dans les océans. Le GESAMP a demandé au Groupe de travail de lui soumettre pour approbation au cours de la période intersessions un mandat révisé, axé sur la poursuite de ses travaux. En outre, il l'a invité à publier un rapport sur les résultats d'un atelier qui doit être organisé sur ce thème début 2013.

0.6 **Évolution mondiale de la pollution des écosystèmes côtiers (Groupe de travail 39) :** l'objectif de ce Groupe de travail est de contribuer à la réduction des pressions sur les écosystèmes côtiers en fournissant aux parties prenantes, aux scientifiques et à la société civile une évaluation objective et globale de l'évolution de la pollution des écosystèmes côtiers vulnérables au cours du siècle passé. Le

Groupe de travail ne s'est pas réuni depuis 2011, car en raison de l'accident nucléaire de Fukushima de mars 2011, l'AIEA a dû faire face à des priorités plus pressantes, de sorte que les travaux ont peu avancé. Le GESAMP a noté et confirmé que les co-présidents organiseraient la prochaine réunion du Groupe de travail 39 dès que l'AIEA et ONUDI auront fourni les financements nécessaires, dans le but d'avancer sur un certain nombre de questions techniques préparatoires. Un rapport sur les progrès accomplis sera soumis au GESAMP lors de la 40e session.

0.7 **Évaluation globale des micro-plastiques (Groupe de travail 40) :** ce Groupe de travail sur les apports, les niveaux, la répartition et le destin des micro-plastiques dans les océans, ainsi que le rôle potentiel des micro-plastiques en tant que vecteurs de substances polluantes, persistantes, bio-accumulables et toxiques dans la chaîne alimentaire marine, a été mis en place lors de la 38e session du GESAMP. Il bénéficie d'un large soutien de la part de la National Oceanic and Atmospheric Administration (NOAA) et des fabricants de plastiques, représentés par Plastics Europe et l'American Chemistry Council (ACC), ainsi que de la part d'agences des Nations Unies telles que l'UNESCO/COI (organisation chef de file), l'OMI, l'ONUDI et le PNUE. Le GESAMP a approuvé le mandat révisé du Groupe de travail, qui inclut désormais les aspects socioéconomiques et un nouveau calendrier, tels que formulés lors de la réunion de lancement du Groupe, qui s'est tenue à Paris en mars 2012. Le GESAMP a également demandé au Groupe de travail de préparer sa prochaine réunion/son prochain atelier et de communiquer chaque année par courrier un bref aperçu de ses activités et notamment de ses résultats aux agences parrainantes et aux bailleurs de fonds extérieurs.

0.8 **Contributions dans le cadre du « Mécanisme régulier des Nations Unies » (UNRP) :** le GESAMP a été informé des évolutions qui sont intervenues dans le Mécanisme régulier des Nations Unies depuis sa 38e session, qui a eu lieu en mai 2011. Les dispositifs institutionnels, les financements, les travaux passés et futurs du Processus, ses méthodes de travail ainsi que les grandes lignes de la première évaluation mondiale intégrée de l'état du milieu marin, prévue pour 2014, ont été présentés par le Coordonnateur commun du Groupe d'experts du Mécanisme des Nations Unies de notification et d'évaluation systématiques à l'échelle mondiale de l'état du milieu marin, y compris les aspects socioéconomiques. Le GESAMP a constaté la lenteur des progrès du Mécanisme et remarqué qu'il restait un certain nombre de questions d'ordre structurel à résoudre. Toutefois, des progrès ont été accomplis s'agissant des ateliers régionaux et du recrutement d'une équipe d'experts.

0.9 **Contribution au Programme d'évaluation des eaux transfrontalières :** le GESAMP a pris note des progrès réalisés dans la mise en œuvre de ce projet du FEM, qui vise à entreprendre une évaluation mondiale des principales étendues d'eau douce et marines du globe qui sont partagées par plusieurs pays, par l'intermédiaire d'un consortium officiel de partenaires, en vue d'orienter les investissements du FEM et d'autres organisations internationales. Cette évaluation établira un aperçu des cinq types d'étendues d'eau transfrontalières sur le plan de l'environnement, de la gouvernance, des facteurs socioéconomiques et des ressources naturelles, lequel servira de référence. L'ensemble du projet devrait être mis en œuvre en décembre 2012 au plus tard, et s'étaler sur deux ans (2013-2014). Le GESAMP a recommandé d'être associé, sous réserve de ressources suffisantes, aux modules relatifs aux grands écosystèmes marins et à la haute mer. Il a également fait part de son souhait de participer à la réunion de lancement à Paris, les 3 et 4 mai 2012, ainsi qu'aux différentes réunions de suivi avec les groupes de travail concernés, en soulignant qu'elles pourraient se tenir dans la foulée de la 40e session du GESAMP, en 2013. Si les financements nécessaires sont disponibles, il a évoqué la possibilité d'étudier la possibilité d'organiser avec l'aide de la COI deux autres réunions dans le cadre du Programme d'évaluation des eaux transfrontalières.

0.10 **Identification de problèmes nouveaux relatifs à la dégradation du milieu marin : le GESAMP a examiné brièvement les sujets suivants :** hypoxie des océans et perturbation endocrinienne, bioamplification des contaminants chez les grands prédateurs, dangers potentiels pour l'environnement marin des rejets de sous-produits de désinfection (notamment les oxydants résiduels totaux, ORT) dans les mers côtières et les océans.

0.11 **Événement parallèle sur l'hypoxie des océans et ses impacts sur les écosystèmes et les économies :** le 18 avril 2012, le GESAMP et le PNUD ont organisé, dans les locaux du PNUD, un événement parallèle autour de l'hypoxie des océans et de ses impacts sur les écosystèmes et les économies. Cette manifestation a réuni quelque 35 participants et a été retransmise en direct puis mise en ligne, accompagnée de présentations PowerPoint via la plate-forme du PNUD « Teamworks » et le site Ustream.tv: http://www.ustream.tv/recorded/21944007

0. RESUMEN EJECUTIVO

0.1 **Introducción:** El Grupo Mixto de Expertos sobre los Aspectos Científicos de la Protección del Medio Marino (GESAMP) celebró su 39º período de sesiones, organizado por el Programa de las Naciones Unidas para el Desarrollo (PNUD) en Nueva York, del 15 al 20 de abril de 2012. Varias organizaciones de las Naciones Unidas establecieron el GESAMP en 1969 como grupo mixto para alentar el examen independiente e interdisciplinario de los problemas de la contaminación marina y la protección del medio ambiente con miras a evitar la duplicación de esfuerzos en el sistema de las Naciones Unidas. Los principales temas examinados en este período de sesiones se describen a continuación. El GESAMP sigue funcionando principalmente por conducto de sus grupos de trabajo, que los organismos de las Naciones Unidas pueden patrocinar directamente en respuesta a sus necesidades científicas. También puede plantearse el trato de cuestiones temáticas y urgentes por conducto del Programa de cuestiones nuevas e incipientes del GESAMP con financiación mixta o externa; el ejemplo más reciente es el del grupo de trabajo sobre microplásticos. En ambos casos, se requiere financiación sostenida y previsible; garantizar esto es una preocupación del GESAMP y de su Comité Ejecutivo.

0.2 **Evaluación de los peligros de las sustancias perjudiciales transportadas por buques (Grupo de trabajo 1):** Este Grupo de trabajo evalúa, a petición de la Organización Marítima Internacional (OMI), los peligros para el medio ambiente y la salud humana de los productos químicos líquidos a granel transportados por buques, y actualmente se dispone de unos 900 perfiles de riesgo. Dichos perfiles contienen una huella singular de cada sustancia, que suministra información sobre 14 criterios distintos de peligro ambiental, fisicoquímico y sobre la salud humana. El Grupo de trabajo 1 no se ha reunido desde el 38º período de sesiones del GESAMP; no obstante, prosiguió su examen del GESAMP Reports and Studies No. 64 (2002) sobre el procedimiento revisado de evaluación de peligros del GESAMP para tener en cuenta los nuevos acontecimientos en el ámbito de la seguridad química. La segunda edición definitiva de Reports and Studies No. 64 sería verificada externamente por pares y luego se presentaría al GESAMP para su aprobación durante el siguiente intervalo entre períodos de sesiones, es decir, antes del 40º período de sesiones del GESAMP, que se celebrará en 2013.

0.3 **Examen de solicitudes de aprobación de "sustancias activas" para su utilización en los sistemas de gestión de aguas de lastre (Grupo de trabajo 34):** El Grupo de trabajo se reunió tres veces desde el 38º período de sesiones del GESAMP, evaluó 14 sistemas de gestión de aguas de lastre y presentó sus recomendaciones al Comité de Protección del Medio Marino de la OMI. Cinco de esos sistemas recibieron una recomendación de aprobación inicial y siete una recomendación de aprobación definitiva. Además, se celebró el tercer taller anual de evaluación en el que se examinó la metodología de evaluación de las aplicaciones recibidas del sector y se planificó una cuarta reunión en agosto de 2012 en Busan (República de Corea). Próximamente, el Grupo de trabajo 34 preparará la metodología aprobada del GESAMP para la publicación en la serie GESAMP Reports and Studies; de conformidad con las solicitudes formuladas por el GESAMP durante el examen por pares de los informes de evaluación, el Grupo de trabajo analizará, en su cuarto taller de evaluación, las consecuencias acumuladas de los subproductos de la desinfección de buques, y se presentará el correspondiente informe al GESAMP en su 40º período de sesiones.

0.4 **Grupo de trabajo sobre metales (anteriormente mercurio) (Grupo de trabajo 37):** El GESAMP observó que todas las conclusiones relativas al mercurio habían quedado incluidas en un informe resumido conjunto del Programa de las Naciones Unidas para el Medio Ambiente (PNUMA) y el GESAMP antes de su publicación, que estaba aguardando el examen por pares del GESAMP. Este informe del PNUMA previo a la publicación y el material complementario recopilado por el Grupo de trabajo 37 se combinarían en un solo volumen de GESAMP Reports and Studies que se ultimaría tras el examen externo por pares y la aprobación del GESAMP. Además, este decidió que el Grupo de trabajo seguiría funcionando, si bien su papel sería más limitado, hasta que se ultimara la publicación del GESAMP en octubre de 2012, y se examinara y apoyara, según procediera, su futuro papel en el Programa para la evaluación de las aguas transfronterizas.

0.5 **Aportación atmosférica de sustancias químicas a los océanos (Grupo de trabajo 38):** Este Grupo de trabajo siguió consolidando sus evaluaciones después de cuatro años de trabajo y tras ultimar las tres tareas contenidas en su mandato inicial (2007), así como las tareas complementarias que se le encomendaron en 2010 que se tradujeron en tres documentos científicos examinados por pares (dos publicados y uno en la etapa de examen definitivo), y un documento científico (presentado). El GESAMP observó que la Organización Meteorológica Mundial (OMM), en su calidad de organismo principal, y la OMI, la Fundación Nacional para la Ciencia de los Estados Unidos de América y el Comité Científico sobre Investigación Oceánica (SCOR) seguirían prestando apoyo a la labor del Grupo de trabajo 38 que examina las deposiciones antropógenas de nitrógeno atmosférico en los océanos. El GESAMP encomendó al Grupo de trabajo que ultimara un nuevo mandato del examen permanente por el Grupo para su aprobación en el intervalo entre períodos de sesiones, por el GESAMP, y que celebrara un taller sobre este tema a comienzos de 2013 e informara sobre los resultados de este.

0.6 **Determinación de tendencias en la contaminación del medio ambiente costero a nivel mundial (Grupo de trabajo 39):** La finalidad de este Grupo de trabajo es contribuir a mitigar las presiones sobre el ecosistema costero suministrando a los interesados, los científicos y la sociedad una evaluación objetiva a nivel

mundial de las tendencias en materia de contaminación en el último siglo en los ecosistemas costeros sensibles. El Grupo de trabajo no se ha reunido desde 2011 debido a otras prioridades del Organismo Internacional de Energía Atómica (OIEA) en relación con el accidente de Fukushima de marzo de 2011, de modo que los progresos han sido limitados. El GESAMP observó y confirmó que los copresidentes organizarán la siguiente reunión del Grupo de trabajo 39 tan pronto el OIEA y la Organización de las Naciones Unidas para el Desarrollo Industrial (ONUDI) obtengan financiación, y se proponen avanzar en relación con un conjunto de cuestiones técnicas preparatorias y presentar un informe al 40º período de sesiones del GESAMP sobre los resultados alcanzados.

0.7 **Evaluación mundial de los microplásticos (Grupo de trabajo 40):** En el 38º período de sesiones del GESAMP se estableció este nuevo Grupo de trabajo sobre deposiciones, niveles, distribución y destino de los microplásticos en el océano, y el posible papel de estos como vector en el transporte de sustancias tóxicas, persistentes y bioacumulables que ingresan en las redes alimentarias marinas. El Grupo de trabajo 40 ha atraído amplio apoyo de la Administración Nacional del Océano y la Atmósfera de los Estados Unidos de América (NOAA) y los productores de plástico, representados por Plastics Europe y el American Chemistry Council (ACC), además del respaldo de organismos de las Naciones Unidas como la Comisión Oceanográfica Intergubernamental (COI) de la Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura (UNESCO) (como organismo principal), la OMI, la ONUDI y el PNUMA. El GESAMP aprobó el mandato enmendado a fin de que incluyera aspectos socioeconómicos y nuevos plazos conforme a lo formulado en la reunión de inicio del Grupo de trabajo, celebrada en París en marzo de 2012. El GESAMP también encomendó al Grupo de trabajo que, entre otras cosas, preparara para su siguiente reunión o taller un breve resumen anual de sus actividades y, en particular, sus logros (por carta) dirigido a los organismos patrocinadores y los auspiciadores externos.

0.8 **Contribución al "proceso ordinario" de las Naciones Unidas:** El GESAMP recibió una sinopsis de la evolución del proceso ordinario de las Naciones Unidas que había tenido lugar desde el 38º período de sesiones del GESAMP celebrado en mayo de 2011. En particular, el Coordinador conjunto del Grupo de Expertos en el proceso ordinario de presentación de informes y evaluación del estado del medio marino a escala mundial presentó las disposiciones institucionales, la financiación, la labor anterior y futura del proceso ordinario, sus métodos de trabajo y una síntesis de la primera evaluación integrada del estado del medio marino a escala mundial prevista en 2014, incluidos los aspectos socioeconómicos. El GESAMP observó que el proceso ordinario de las Naciones Unidas seguía siendo lento y que quedaban por resolver varias cuestiones estructurales. No obstante, se estaban logrando progresos en relación con los talleres regionales y el nombramiento de miembros del Grupo de Expertos del proceso ordinario.

0.9 **Contribución al Programa para la evaluación de las aguas transfronterizas:** El GESAMP tomó nota de los progresos realizados en relación con la aplicación de este proyecto del Fondo para el Medio Ambiente Mundial (FMAM) que tenía por objeto realizar una evaluación mundial de las aguas transfronterizas por medio de un consorcio oficial de asociados que respaldaran las inversiones fundamentadas del FMAM y otras organizaciones internacionales. La evaluación establecería una base de referencia sobre el medio ambiente, la gobernanza y una sinopsis socioeconómica y de recursos naturales de los cinco tipos de sistemas de aguas transfronterizas. Se estimaba que la ejecución del proyecto regular comenzaría a más tardar en diciembre de 2012 para su ejecución a lo largo de dos años (2013-2014). El GESAMP recomendó su participación en los módulos de los grandes ecosistemas marinos y mar abierto, y en la reunión de inicio del proyecto que se celebraría en París los días 3 y 4 de mayo de 2012, en caso de disponerse de recursos, y en varias reuniones de seguimiento con los grupos de tareas pertinentes que se ocupaban de estas cuestiones. Observó que estas reuniones podrían realizarse a continuación del 40º período de sesiones del GESAMP (2013) y, en caso de disponerse de recursos, podría considerarse la posibilidad de que la COI auspiciara otras dos reuniones como parte del Programa para la evaluación de las aguas transfronterizas.

0.10 **Determinación de las cuestiones nuevas e incipientes con respecto a la degradación del medio marino:** Se examinaron sucintamente las siguientes cuestiones nuevas e incipientes: la hipoxia de los océanos y los trastornos endocrinos, la biomagnificación de los contaminantes en los principales depredadores, y el posible peligro para el medio marino de las deposiciones de subproductos de la desinfección (incluidos los oxidantes residuales totales) en las zonas costeras y los océanos.

0.11 **Actividad paralela sobre hipoxia de los océanos y sus repercusiones en los ecosistemas y las economías:** El miércoles 18 de abril de 2012, el GESAMP y el PNUD organizaron, y el PNUD auspició, una actividad paralela especial titulada "Hipoxia de los océanos y sus repercusiones en los ecosistemas y las economías". Asistieron a ella unas 35 personas, se transmitió en vivo por la web y posteriormente se publicó en línea, incluidas las presentaciones en PowerPoint en las plataformas Teamworks del PNUD y Ustream.tv: http://www.ustream.tv/recorded/21944007.

0. РЕЗЮМЕ

0.1 **Введение:** С 15 по 20 апреля 2012 года в Нью-Йорке в рамках Программы развития Организации Объединенных Наций (ПРООН) была проведена тридцать девятая сессия Объединенной группы экспертов по научным аспектам защиты морской среды (ГЕСАМП). ГЕСАМП была создана в 1969 году рядом учреждений Организации Объединенных Наций в качестве Объединенной группы для содействия независимому и комплексному исследованию проблем загрязнения морей и охраны окружающей среды, с тем чтобы избежать дублирования действий в рамках системы учреждений Организации Объединенных Наций. Ниже приведено описание основных тем, обсуждавшихся на сессии. Деятельность ГЕСАМП по-прежнему осуществляется в основном через ее рабочие группы, которые могут получать финансирование для удовлетворения своих связанных с научной работой потребностей. Что касается тематических и неотложных вопросов, то они изучаются в рамках Программы новых и возникающих вопросов ГЕСАМП, которая получает смешанное или внешнее финансирование; одним из недавних примеров является рабочая группа по микропластикам. В любом случае необходимо стабильное и предсказуемое финансирование, обеспечение которого остается одной из основных задач ГЕСАМП и ее Исполнительного комитета.

0.2 **Оценка рисков, связанных с перевозом вредных веществ на судах (РГ 1).** Данная рабочая группа (РГ) занимается по запросу ИМО оценкой рисков для окружающей среды и здоровья человека, связанной с перевозкой жидких химикатов на судах. К настоящему времени зарегистрированы около 900 профилей рисков. Профиль риска содержит уникальные характерные признаки каждого вещества, предоставляя информацию о 14 отдельных критериях рисков для здоровья человека и окружающей среды, а также физико-химического риска. Несмотря на то что РГ 1 не собиралась со времени проведения тридцать восьмой сессии ГЕСАМП, она продолжила анализ публикаций Отчетов и исследований ГЕСАМП № 64 (GESAMP Reports and Studies No 64) (2002 год) по Пересмотренной процедуре оценки рисков ГЕСАМП (Revised GESAMP Hazard Evaluation Procedure) для учета новых достижений в области химической безопасности. Окончательное второе издание Отчетов и исследований № 64 будет направлено на внешнее коллегиальное рассмотрение и затем утверждение ГЕСАМП в течение следующего межсессионного периода, то есть до сороково+й сессии ГЕСАМП в 2013 году.

0.3 **Анализ заявок на использование “активных веществ“ в системах управления балластными водами (РГ 34).** В период после тридцать восьмой сессии ГЕСАМП РГ 34 провела три совещания, на которых были изучены 14 систем управления балластными водами, и представила свои рекомендации Комитету по защите морской среды ИМО (КЗМС). Пять из указанных систем были рекомендованы к общему утверждению, тогда как другие семь – к окончательному утверждению. Кроме того, был проведен третий ежегодный семинар для рассмотрения методологии оценки заявок, полученных от предприятий отрасли, на котором было запланировано провести четвёртую сессию в августе 2012 года в Пусане (Республика Корея). В предстоящий период РГ 34 подготовит утвержденную ГЕСАМП Методологию для опубликования материалов в серии Отчеты и исследования ГЕСАМП; кроме того, в соответствии с запросами, полученными от ГЕСАМП в ходе коллегиального рассмотрения оценочных отчетов группы, РГ на своем четвертом семинаре обсудит совокупные последствия обеззараживания побочных продуктов судоходства и представит свое заключение на сороковой сессии ГЕСАМП.

0.4 **Рабочая группа по металлам (ранее ртути) (РГ 37).** ГЕСАМП отметила, что все результаты исследований, связанные с ртутью, были включены в сокращенный совместный предварительный отчет ЮНЕП/ГЕСАМП, подлежащий коллегиальному рассмотрению ГЕСАМП. Данный предварительный отчет ЮНЕП и дополнительные материалы, собранные РГ 37, будут сведены в единый том Отчетов и исследований ГЕСАМП, подготовка которого будет завершена после проведения внешнего коллегиального рассмотрения и утверждения ГЕСАМП. Кроме того, ГЕСАМП приняла решение о сохранении РГ с уменьшенным объемом функций для завершения подготовки публикации ГЕСАМП к октябрю 2012 года, а также для анализа и обоснования, если необходимо, своей роли в рамках Программы оценки трансграничных вод (ПОТВ).

0.5 **Поступление химических веществ в океан из атмосферы (РГ 38).** РГ 38 продолжила совершенствование своих оценок, завершив после четырех лет работы выполнение трех задач, включенных в ее изначальное (2007 года) Техническое задание, а также дополнительных задач, поставленных перед нею в 2010 году. В результате указанной работы были подготовлены три научных отчета о коллегиальном рассмотрении (два отчета опубликованы, один находится в стадии окончательного рассмотрения) и научный доклад (представлен). ГЕСАМП отметила, что ВМО, в качестве возглавляющей работу организации, ИМО, Национальный научный фонд США и Научный комитет по океанологическим исследованиям (СКОР) продолжат оказывать поддержку РГ 38 в ее работе по изучению антропогенного поступления азота из атмосферы в океан. ГЕСАМП поручила РГ завершить разработку нового Технического задания для последующего изучения группой и утверждения в межсессионный период ГЕСАМП, а также организовать семинар по этой теме, запланированный на начало 2013 года, и представить отчет о его результатах.

0.6 **Выявление тенденции в глобальном загрязнении прибрежных районов (РГ 39).** Целью данной РГ является оказание содействия в уменьшении стресса, которому подвергаются прибрежные экосистемы, посредством предоставления заинтересованным сторонам, ученым и обществу в целом объективной и глобальной оценки тенденций в загрязнении, наблюдавшихся за последнее столетие в уязвимых прибрежных экосистемах. Данная РГ не проводила совещаний с 2011 года из-за того, что перед МАГАТЭ стояли другие приоритетные задачи, связанные с аварией на АЭС “Фукусима” в марте 2011 года, вследствие чего был достигнут лишь незначительный прогресс. ГЕСАМП отметила и подтвердила, что сопредседатели организуют следующее совещание РГ 39 незамедлительно после предоставления финансирования со стороны МАГАТЭ и ЮНИДО в целях достижения прогресса по ряду технических подготовительных вопросов с представлением отчета о достигнутых результатах на сороковой сессии ГЕСАМП.

0.7 **Глобальная оценка (микро)пластиков (РГ 40).** Эта новая РГ была создана на тридцать восьмой сессии ГЕСАМП для изучения вопросов, связанных с попаданием, уровнями, распределением и пребыванием микропластиков в океане, а также потенциальной роли микропластиков в качестве способа проникновения стойких, биологически накапливающихся и токсических веществ в морскую пищевую сеть. Деятельность РГ 40 получила широкую поддержку со стороны НОАА и производителей пластиков, представленных ассоциацией Plastic Europe и Американским химическим советом (ACC), а также поддержку со стороны учреждений Организации Объединенных Наций: ЮНЕСКО-МОК (в качестве ведущей организации, ИМО, ЮНИДО и ЮНЕП. ГЕСАМП утвердила пересмотренное Техническое задание, включив в него социально-экономические аспекты и новые сроки, установленные на организационном совещании РГ, проходившем в Париже в марте 2012 года. Кроме того, ГЕСАМП, среди прочих вопросов, поручила РГ подготовиться к ее следующему совещанию/семинару и представить (письмом) спонсирующим учреждениям и внешним спонсорам краткий сводный годовой отчет о своей деятельности, в особенности о достижениях.

0.8 **Вклад в “регулярный процесс” Организации Объединенных Наций (РПООН):** ГЕСАМП получила обзорный отчет о событиях, связанных с Регулярным процессом Организации Объединенных Наций, которые имели место с момента проведения тридцать восьмой сессии ГЕСАМП в мае 2011 года. В частности, информация об институциональных механизмах, финансировании, прошлой и будущей работе в рамках Регулярного процесса, его методах работы, а также краткий обзор Первой глобальной комплексной оценки состояния морской среды, намеченной на 2014 год, были представлены Единым координатором группы экспертов регулярного процесса глобального освещения и оценки состояния морской среды, включая социально-экономические аспекты. ГЕСАМП отметила, что развитие регулярного процесса Организации Объединенных Наций по-прежнему идет медленными темпами и что некоторые структурные вопросы по-прежнему остаются нерешенными. Тем не менее был достигнут определенный прогресс в отношении региональных семинаров и найма экспертов для экспертного пула.

0.9 **Вклад в программу “Оценка трансграничных вод“ (ПОТВ).** ГЕСАМП

отметила прогресс, достигнутый в реализации данного проекта ГЭФ, предусматривающего проведение официальным консорциумом партнеров глобальной оценки трансграничных водных объектов для оказания ГЭФ и другим международным организациям поддержки в принятии обоснованных решений об инвестициях. В рамках данной оценки будет представлен обзор пяти типов трансграничных водных систем с точки зрения экологии, управления, социально-экономических аспектов и природных ресурсов. Предполагается, что реализация полномасштабного проекта начнется не позднее декабря 2012 года и займет два года (2013–2014 годы). ГЕСАМП рекомендовала включить специалистов группы в работу по разделам “Крупные морские экосистемы” и “Открытый океан”, а также направить представителей для участия в организационном совещании в Париже 3–4 мая 2012 года, при наличии соответствующих ресурсов, с проведением нескольких последующих встреч по этим вопросам с соответствующей Целевой группой. ГЕСАМП отметила также, что эти вопросы могут быть освещены единым блоком на сороковой сессии ГЕСАМП в 2013 году, и – если ресурсы позволят – рассмотрены на двух совещаниях, финансируемых МОК в рамках проекта ПОТВ.

0.10 **Выявление новых и возникающих проблем, касающихся деградации морской среды.** Были кратко обсуждены следующие новые и возникающие вопросы: кислородное голодание и эндокринное разрушение Мирового океана; биологическое накопление загрязняющих веществ в крупных морских хищниках и потенциальная угроза морской среде в результате сбросов побочных продуктов обеззараживания (включая общие остаточные окисляющие вещества (ООВ) в прибрежные воды морей и океанов.

0.11 **Параллельное мероприятие на тему “Кислородное голодание Мирового океана и его влияние на экосистемы и экономику стран”.** В среду 18 апреля 2012 года ГЕСАМП и ПРООН организовали, а ПРООН провела специальное параллельное мероприятие под названием “Кислородное голодание Мирового океана и его влияние на экосистемы и экономику стран”. В мероприятии приняли участие 35 человек, в интернете велась его прямая трансляция с последующим размещением записи на портале ПРООН Teamworks и Ustream.tv: http://www.ustream.tv/recorded/21944007.

1 INTRODUCTION

1.1 The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) held its 39th session (GESAMP 39) from 16 to 20 April 2012 in New York, hosted by the United Nations Development Programme. The session was held under the Chairmanship of Mr. Tim Bowmer, with Mr. Peter Kershaw and Mr. Manmohan Sarin serving as Vice-Chairmen. The session was preceded by the GESAMP Executive Committee (ExCom) meeting and GESAMP Members' informal meeting both held on 15 April 2012.

Adoption of the agenda

1.2 The meeting approved the provisional agenda. The agenda for the GESAMP 39 is attached as Annex I to this report. The list of documents submitted to this session is shown in Annex II to this report and the list of participants in Annex III.

2 REPORT OF THE CHAIRMAN OF GESAMP

The Chairman expressed his thanks to UNDP, the host of GESAMP 39 for their warm hospitality and in particular Ms Jane Fulton for her organisation of the meeting and the coordination of the report drafting.

2.1 At each session of GESAMP, the Chairman has the honour of summarizing the activities of the Joint Group of Experts in the intersessional period, on this occasion leading up to the 39th session. This provides an opportunity to focus on and highlight specific aspects of GESAMPs activities. In the current economic climate, it will therefore be of no surprise that the focus this time is on funding matters. In as far as possible, I would like to emphasize the success stories, rather than dwelling on all of the problems – some exceptions will be evident in what follows!

GESAMP Funding

2.2 Since the cessation of the Swedish International Development Co-operation Agency (Sida) funding to GESAMP in December 2010 and in the absence of any major external sponsor, the Joint Group of Experts continues to seek funding for its activities from a variety of sources. We are still looking for new possibilities for structural funding to follow on from Sida and in this search the UN Sponsoring Agencies can play a central role with us.

2.3 The sponsoring agencies continue to support GESAMP members to attend its sessions and also to carry out some intersessional activities such as New and Emerging Issues workshops. This is the core support upon which GESAMP relies and the sponsoring agencies are urged to continue their efforts each year.

2.4 Our working groups have been both the familiar face of GESAMP within the UN system and for considerable stretches of its history, its main reason for existing. To ensure the long-term stability of GESAMP therefore, we need to attract the sponsoring agencies to support new working groups on challenging and urgent topics in the protection of the marine environment. Each of these working groups (currently 6) needs to be adequately and in as far as possible independently funded in order to achieve the goals of their respective Terms of Reference and produce the right product in the agreed time-frame.

- WG1 on the Environmental Hazard Evaluation of Substances carried by ships in bulk (known to IMO as EHS), was set at the request of IMO in 1974. Previously it was funded solely by IMO and when very busy with the revision of Annex II of MARPOL, through IMO Member State donations. In recent years, industry has been requested by IMO to pay fees for the evaluation of new substances and cleaning additive components. This provides a stable source of funding and as long as industry needs substances evaluated for the purpose of bulk maritime transport, the group is set to continue its work. In addition, IMO continues to provide WG 1 with additional funding in order for it to deal with specific questions from the Organization.

- WG 34 was set up at the request of IMO in 2006 to evaluate ballast water treatment systems using active substances. From the start, such evaluations were performed by the group following payment of fees to IMO by manufacturers on a cost recovery basis. The number of treatment systems being submitted through Administrations to the group for evaluation remains high, ensuring adequate funding, to the extent that the group is able to hold occasional "stock taking" meetings to work on their risk-based evaluation methodology.

- WG 37 on Metals in the marine environment is currently completing the reporting of its assessment of mercury at the request of UNEP. The work described in its Terms of Reference has therefore almost reached completion.

- WG 38 has been able to continue its excellent work on the assessment of the atmospheric transport of nutrients to the oceans through a mixture of funding sources. A small but long-term contribution from the lead agency WMO, has been successfully used as seed money to ensure that external funding (in the past, Sida and SCOR) has made up the balance. IMO has also contributed financially to this working group. In recent months, the US National Science Foundation has agreed to sponsor an extension of WG 38's work until 2013. GESAMP looks forward to reading the future publications of WG 38 in the scientific literature.

- WG 39, at the request of IAEA, looks at the establishment of trends in global pollution in coastal environments. Having started the first phase of its work programme in 2011, this working group is looking for external sources of funding.

- WG 40 on Microplastics in the oceans, with UNECSO-IOC as the lead agency, has recently started its work with an inception meeting held at UNESCO IOC in Paris. It has been able to secure external funding for 3-4 years from PlasticsEurope and the American Chemistry Council and at a level sufficient to meet its ambitious goals. Additionally, NOAA is sponsoring two leading experts to contribute to the work of the Group. This is a new departure for GESAMP and we are very grateful for this collaboration. The combination of a lead agency prepared to look for a variety of resources to gradually develop this issue as part of GESAMP's New and Emerging Issues programme, combined with an active GESAMP team and an interested external sponsor will we hope prove to be very successful.

Peer review

2.5 In line with the decision of ExCom at GESAMP's 38th session in principle to charge fees for the peer review of assessment reports, IMO as part of its cost recovery strategy for WG 34 has agreed to compensate GESAMP for its work in peer reviewing WG 34's (BWWG) frequent reports to MEPC. A group of GESAMP members provides detailed peer review of each report. This, in addition to peer review work for outside agencies, e.g. UNEP-MAP in 2011, will ensure that GESAMP receives some limited funding for operational use.

GESAMP Office

2.6 The loss of the Sida funding has been most felt in the GESAMP Office. Since December 2010, GESAMP continues its work without the support of the full-time Officer, a function envisioned in the Strategic Vision (2005). Sida and the Swedish Maritime Authority sponsored three successive GESAMP Officers between 2006 and 2010 allowing us to expand rapidly in terms of our activities and just as importantly to adopt a more professional approach. The lack of an officer has meant additional workload particularly for IMO staff; the efforts of Mr. Edward Kleverlaan as IMO Technical Secretary, ably assisted by Ms. Jennifer Rate in filling the gap in as far as possible are especially appreciated. With no immediate prospect of funding for a GESAMP Officer, we need to consider carefully at what level the organization can be sustained in the immediate future.

Reasons for supporting GESAMP

2.7 GESAMP's New and Emerging Issues Programme is one of the keys to its future and may also form a useful mechanism through which it can interact with the UN Regular Process and provide advice on emerging topics. GESAMP has spent the last five years redeveloping its New and Emerging Issues Programme and this week, we will consider how to make progress with the following topics:

- Hypoxia is acknowledged as a major threat to the oceans. At our side event we heard presentations from distinguished speakers on the causes of hypoxia and the extent of its effects, including a special focus on endocrine disruption. This latter is an issue on which GESAMP has already provided a scoping paper (GESAMP R&S 81, Annex VIII). The side event concluded with a brief review of policy options presented by our host UNDP. The event was broadcasted live on the internet and a recording is also available for download at www.ustream.tv/channel/undp-oceans, while the presentations are available from www.gesamp.org under the 39th session;

- Bio-magnification of contaminants in marine top predators is an issue affecting both marine and human communities and an ecological and sociological approach is warranted in the view of GESAMP. A report on the potential scope of this issue has been prepared (GESAMP R&S 85, Annex VIII) and GESAMP in collaboration with CIESM plans to investigate this further in 2012/13. Funding is currently being sought for an international workshop; and

- The potential impact of disinfection byproducts in the marine environment (low molecular weight halogenated substances), is an issue raised during recent peer reviews by GESAMP of WG 34's reports to the MEPC of IMO on the evaluation of ballast water treatment systems for use on board ships. Such systems predominantly use electrolysis to produce chlorine as an active substance; the chlorine oxidizes organic matter in the water to form disinfection by-products including bromoform. However, this issue is also relevant to the global expansion of coastal power generation sites, refineries and desalination plants and its proponents consider that an investigation by GESAMP may be appropriate.

2.8 GESAMP would like to see these issues objectively evaluated in terms of their importance (or not) to the protection of the marine environment.

GESAMP website

2.9 While the GESAMP website has performed well since it was re-designed in 2009, it remains under-utilized and relatively static. In this intersessional period, the GESAMP Office (and the Chairman) took a one-day course on updating and adding to the site. It is now being updated constantly and it is hoped that the Office will be able to continue this in the coming intersessional period. GESAMP also noted that the GESAMP Pool of Experts list on the web-site had not been adequately maintained. It was agreed that due to current resource constraints in the GESAMP Office the Pool of Experts should no longer be available on the GESAMP site.

Activities of the Chairmen, Vice Chairmen and Technical Secretaries on behalf of GESAMP

2.10 The programme of out-reach visits by GESAMP to the Sponsoring agencies and other relevant bodies to GESAMP was curtailed in this inter-sessional by lack of funding. It was therefore not possible for the Chairman to continue his occasional visits to the Sponsoring agencies that were successful in developing new relationships in the period between 2008 to 2010.

2.11 As agreed at GESAMP 38 in Monaco, in June 2011, Mr. Andrew Hudson, UNDP under the flag of UN Oceans presented a Report on behalf of GESAMP to the June meeting of ICP. With Rio+20 as the topic, this well received paper set out GESAMP's achievements with regard to implementing Agenda 21, Chapter 17 over the last 20 years.

PICES, 14 to 23 October 2011, Khabarovsk, Russia

2.12 For the third year running, Peter Kershaw represented GESAMP at the PICES annual science conference, where a joint PICES-ICES-GESAMP one-day Workshop on: Pollutants in a changing ocean: Refining indicator approaches in support of coastal management, was held. This visit and enabling collaboration with PICES was generously sponsored by UNESCO-IOC.

Conclusion

2.13 The sponsoring agencies, many of whom we recognize are suffering budgetary cutbacks themselves, need to reiterate in clear and unequivocal terms what they expect from GESAMP and to work with GESAMP to provide direction in securing the necessary funding for the future from a range of suitable sources. While the New and Emerging Issues Programme is intended to bring new issues to the attention of the Sponsoring Agencies, there should always be room for working groups directly initiated by the Sponsoring Agencies in answer to their science needs.

3 REPORT OF THE ADMINISTRATIVE SECRETARY OF GESAMP

Outcome of the meeting of the Executive Committee of GESAMP (ExCom)

3.1 GESAMP noted that ExCom met on Sunday, 15 April 2012. The main points of discussion are shown in paragraphs 3.2 to 3.7 below.

Memorandum of Understanding (MoU)

3.2 In considering the GESAMP MoU, ExCom agreed that a revised text modeled on the 1994 MoU, using some of the 2007 amendments, would be prepared and circulated to ExCom within a reasonable timeframe but preferably before the next session of GESAMP. This could then also take on board any new developments emanating from the review of UN Oceans by the UN Joint Inspection Unit (JIU) which is currently being undertaken and any new issues arising under the UN Regular Process. The Rules of Procedure, which refer to financial matters in some detail, could be developed to enable money transfers, as appropriate. The MoU text would be aimed at Director level and higher.

Funding

3.3 ExCom discussed an overview of the financial and in-kind support which the nine UN Sponsoring Organisations of GESAMP committed to support the activities of GESAMP in 2012-2013. ExCom noted that all Sponsoring Organisations would continue their support to the level of the previous years. It was noted that sector based funding – for example, from the fertilizer industry, for nutrient management, or as in the case of microplastics, the plastics industry could provide additional scope to fund working group activities. However, with increasing pressure on regular budgets, no additional funding to support the GESAMP Office could be made available.

3.4 At the same time ExCom had acknowledged that the UN Sponsoring Organisations need to commit, as a collective responsibility, to the implementation of the funding strategy for GESAMP, as outlined at GESAMP 38, in 2011.

3.5 ExCom discussed the implementation of the UN Regular Process, established in 2009, and looked forward to Mr. Alan Simcock's presentation on this matter planned for Friday 20 April, 2012.

3.6 ExCom also reviewed a report on the completion of the GEF funded Transboundary Waters Assessment Programme Medium-Size Project (TWAP), led by UNESCO-IOC and UNEP, and agreed to recommend the continuation of GESAMP's involvement in the Full-Size Project phase of TWAP.

3.7 ExCom noted that UNIDO had offered to host GESAMP 40 in 2013. ExCom requested the GESAMP Office to provide an overview of the hosting requirements to UNIDO to assist it with the preparation of GESAMP 40.

Activities and achievements of the Sponsoring Organisations of GESAMP since 2011

3.8 GESAMP considered the Administrative Secretary's report (GESAMP 39/3), and in particular IMO's continued commitment to supporting the GESAMP Office, commensurate with its needs. It was noted that GESAMP needed to increase promoting itself and mentioned two upcoming events that could be used for this purpose, namely the RIO + 20 event, to be held in Brazil in June 2012 and the EXPO 2012, to be held in the Republic of Korea. The latter event, in particular, at which the Yesou Declaration on Oceans would be developed, could be used as a vehicle to promote the work of GESAMP.

3.9 The Administrative Secretary also presented an overview of the activities and achievements of the Sponsoring Organisations of GESAMP, in particular, the activities of IMO, with the aim of providing a context of their involvement and interest in the activities GESAMP undertakes. The highlights of these achievements are reported in detail in Annex IV to this report.

3.10 In discussing this overview it was agreed that Mr. Peter Kershaw would contact the coordinator of the MEPC Correspondence Group that revised MARPOL Annex V to obtain information on possible plastic contamination in food waste discharged from ships.

3.11 In discussing carbon capture and sequestration projects, GESAMP noted the importance of providing appropriate information for developing countries on the implementation and safety of such carbon activities which were regulated under the London Protocol.

4 GESAMP OFFICE MATTERS

4.1 GESAMP was reminded that the GESAMP Office, which was established at IMO as a co-sponsorship arrangement among the current sponsors of GESAMP, had been supported by Sida until 31 December 2010. GESAMP noted that IMO had reviewed a number of options to staff the GESAMP Office following cessation of this support. Following the unsuccessful request to the IMO Council to include a new GESAMP Officer post into the IMO Regular Budget for 2012 – 2013, an Associate Professional Officer position (P-2 level) was advertized in December 2011. It was envisaged that a new Officer might be able to start in the second half of 2012.

4.2 The main activities of the GESAMP Office were reported and GESAMP took note of these developments.

GESAMP Website

4.3 GESAMP noted that the website had been improved and updated further since GESAMP 37, but that despite this the functionality of the site was occasionally compromised.

4.4 It was noted that the GESAMP website was visited frequently. It was noted that, as requested, links had been made from the GESAMP website to the site of the UN Atlas of the Oceans as a window to the 'UN Oceans' network, but also to the appropriate pages of the nine UN Sponsoring Organisations.

5 PLANNING OF GESAMP ACTIVIES

.1 Evaluation of the hazards of harmful substances carried by ships (WG 1)

5.1.1 A report of the activities of WG 1 was given by Mr. Tim Bowmer, Chairman of the Working Group (WG). It was noted that WG 1 did not meet during the past GESAMP inter-sessional; the 49th meeting of WG 1 was delayed to fit in with other meetings and would be held from the 25 to 29 June, 2012 at IMO Headquarters in London.

5.1.2 The main agenda item will be the evaluation of the hazards of liquid substances carried in bulk by sea, i.e. pumped on and off ships, to and from fixed tanks on board. The hazard profiles of over 850 bulk liquid substances are contained in the composite list[1], which is published after each meeting as an IMO circular. All of these hazard profiles have been checked and updated for accuracy and completeness at least twice in the last ten years and this is an ongoing process.

5.1.3 Each year 10 to 20 newly submitted substances are proposed by manufacturers for evaluation of their hazards. In addition, WG 1 deals with a sizeable correspondence with manufacturers and industry trade associations on the current hazard profiles. This may involve simple requests for clarification or requests to discuss a particular hazard profile with regard to data interpretation, ultimately with a view to its revision. New data may also be presented (refer to Annex V for the Terms of Reference of WG 1).

5.1.4 The methodology used by WG 1 is contained in GESAMP Reports & Studies 64 (2002), entitled the *Revised GESAMP Hazard Evaluation Procedure*. The working group is currently updating this methodology and the draft text of a second edition will be discussed at its 49th session later this year. While intended to be primarily editorial, some issues such as Column D3 of the hazard profile (long term health effects) will need more substantive change to bring them into line with developments in the Globally Harmonized System (GHS, UN chemical hazard classification). Most notably carcinogenicity (C), target organ systemic toxicity (T) and sensitization (S) need realigning with the GHS.

5.1.5 Where environmental hazards are concerned, the use of chronic aquatic toxicity is being looked at and where possible will be brought further into line with the GHS. One recent issue is the interpretation of the criterion "ready" (bio-) degradability under Column A2 where inorganic substances in particular are concerned. Finally, the acute inhalation toxicity extrapolation method developed and implemented by the group and published in 2011 in the scientific literature[2] will also be fully described in the 2nd edition of Reports and Studies No. 64.

5.1.6 GESAMP is requested to note the above activities of WG 1 for which it has already given approval in principle at GESAMP 38 in 2011.

Action taken by GESAMP

5.1.7 GESAMP noted that:

.1 The first draft of the 2nd edition of Reports & Studies should be completed in time for the 49th session of WG 1 in 2012; and

.2 The final report will be externally peer reviewed and then submitted to GESAMP for approval during the next inter-sessional period, i.e. before GESAMP 40 in 2013.

.2 Review of applications for 'active substances' to be used in ballast water management systems (WG 34)

Background and introduction

5.2.1 The International Convention for the Control and Management of Ships' Ballast Water and Sediments, (BWM Convention) was adopted at IMO on 13 February 2004, in response to the increasing concern of the international community with regard to the transfer of invasive species in ships' ballast water. To date, 26 March 2012, 33 of the required minimum of 30 countries representing 26.46% of the required 35% of the world's tonnage have ratified the BWM Convention. Eight years after the adoption of the Convention, it has still not entered into force.

5.2.2 An approval procedure had been set up in 2006 for those ballast water management systems which make use of an active substance or preparation (mainly chemicals with biocidal properties such a chlorine) in order to comply with the Convention. The procedure consists of two-steps: Basic Approval (BA) and Final Approval (FA). The approval is granted by the Marine Environment Protection Committee (MEPC) of IMO based on the advice provided by the Ballast Water Working Group of GESAMP (WG 34). All reports and recommendations of WG 34 are peer reviewed and approved by GESAMP prior to submission to the MEPC.

5.2.3 A general outline, the scope and aims of the BWM Convention have been previously presented in GESAMP Reports & Studies 78 (2008).

5.2.4 WG 34's task is to evaluate the risks to the crew and the ships' safety, the risk to the public at large and the environmental safety of the BWMS (refer to Annex V for the Terms of Reference of the WG). It is essential that these

1 http://www.imo.org/OurWork/Environment/PollutionPrevention/ChemicalPollution/Documents/GESAMP-EHSCompositelistofhazardeprofiles.pdf

2 Höfer, T. D. James, T. Syversen and T. Bowmer (2011). Estimation of the acute inhalation hazards for chemicals based on route-to-route and local endpoint extrapolation – experience from bulk maritime transport, ATLA 39, 541-556.

evaluations are carried out in a consistent and transparent manner. This is ensured by the methodology that the WG has developed and by the peer review of the WGs reports by GESAMP. The Methodology serves as guidance for applicants and indicates how the evaluations are carried out by the WG and the criteria upon which they are based.

5.2.5 The current report focuses on the evaluation by the Group of Ballast Water Management Systems (BWMS) during the inter-sessional period and the further development of the Methodology of WG 34. In the past, this Methodology has been reviewed, time allowing, at most meetings and changes and improvements made as appropriate.

5.2.6 WG 34 convened three times since GESAMPs 38th session, to evaluate proposed BWMS and it also held its 3rd. Stocktaking Workshop (STW) to discuss items related to the Methodology. A further session of WG34, not reported on here, is scheduled for the week of GESAMP 39. During the above meetings fourteen BWMS were evaluated. Five of these systems received a recommendation for BA and seven received a recommendation for FA. One system was denied a recommendation for BA and a further system was denied a recommendation for FA. The applicant did not demonstrate that the system would have no unacceptable effects on the receiving aquatic environment and hence BA was not approved. By contrast, the design, control and monitoring of the neutralization process of the second system was not convincing enough to ensure safe and successful operation and was therefore denied FA.

5.2.7 During its meeting in July 2011 and in March 2012, MEPC endorsed the recommendations of WG 34 in all cases and granted the approvals accordingly. Three additional systems submitted in time for the MEPC 63 deadline, have yet to be evaluated. This will take place at the meeting of WG 34 in April 2012.

Methodology for information gathering and the conduct of work of WG 34

5.2.8 The evaluation Methodology of WG 34 was initially drafted in 2006 and became a living document based on increasing experience of the Group in the evaluation of BWMS. During three stock-taking workshops, WG 34 further advanced the Methodology by adding:

.1 quantitative methods for human health risk assessment, including exposure assessment for professionals and the general public;
.2 quantitative assessment of the environmental effects by using a specific ballast water model, MAMPEC 3.0 BW; and
.3 completing the first version of a database for 17 specific disinfection by-products (DBP) in which the physico-chemical, toxicological and environmental fate data are included.

5.2.9 During MEPC 63, which was held from 27 February to 2 March 2012 at IMO Headquarters, the updated Methodology of WG 34 was reviewed and endorsed by the Committee. The new Methodology will be applied to the BA submissions to MEPC 65 and subsequent submissions for the FA of those systems. Proposals for approval submitted to the Committee prior to MEPC 65 will in principle be evaluated in accordance with the current Methodology. However, proponents are encouraged to use the updated Methodology for all applications prior to MEPC 65. Doing so will facilitate the work of the GESAMP-BWWG. For BWMS already in the pipeline, i.e. for Final Approval, the new Methodology may be used but must be used for submissions to MEPC 66.

Peer review

5.2.10 The reports of the 17th, 18th, 19th, and 20th sessions of WG 34 have already been peer reviewed by GESAMP before these were forwarded to MEPC 62 (report 17) and MEPC 63 (reports 18, 19 and 20). The report of the 21st meeting (16 to 20 April 2012) will be forwarded to the members of the GESAMP at the earliest opportunity for their review.

Planning

5.2.11 The next two meetings of WG 34 are planned as follows:

.1 BWWG(22) from 7 to 11 May 2012 and
.2 BWWG(23) from 25 to 29 June 2012.

5.2.12 In line with the request of GESAMP to hold occasional Stocktaking Workshops, which was endorsed by MEPC 62, WG 34 has scheduled its 4th Workshop from 14 to 17 August 2012 in Busan (Republic of Korea), hosted by Ministry of Land, Transport and Maritime Affairs.

Acknowledgements

5.2.13 The chairman of WG 34 is grateful to all the members of GESAMP that took the time to critically review the reports of WG 34 during the 2011-2012 intersessional. The quality of the work has been improved as a result of this Peer Review process and the comments made were brought to the attention of the consultants involved in the drafting of the reports.

Actions required by Working Group

.1 Now that its methodology has been endorsed by GESAMP, WG 34 will prepare this document for publication in GESAMP Reports & Studies series for completion in 2012; and

.2 In line with requests made by GESAMP during its peer review of the Groups evaluation reports, the Working Group will discuss, at it's 4th Stocktaking Workshop, the cumulative implications of disinfection byproducts from shipping, reporting back to GESAMPs 40th session.

3 Expanded scientific review of mercury and its compounds and threats to the marine environment (WG 37)

5.3.1 A report of the activities of WG 37 was given by Mr. Salif Diop on behalf of the Working Group Chairperson Ms. Helen Keenan, who was unable to attend. The Group was informed of the status of the report of WG 37 to UNEP-DTIE on "Mercury in the Aquatic Environment: Sources, Releases, Transport and Monitoring".

Finalisation of work

5.3.2 All findings related to mercury have been included in a shortened form this joint UNEP/GESAMP pre-publication report (which may be cited) awaiting GESAMP peer review. The pre-publication report is available on the UNEP website3. This report is intended to support UNEP in its development of an Intergovernmental Convention on Mercury.

5.3.3 GESAMP considered the status of this report at its meeting and considered that although it was in the public domain on a UNEP website and accredited to GESAMP, this report has not been clearly marked "pre-publication", nor had it been peer reviewed by GESAMP. It contains comprehensive sections on sources, releases, toxicity, transport and monitoring. Together, this UNEP pre-publication report and the additional material gathered by WG 37 under the lead of both UNIDO (2006-2008) and UNEP (2008-2012), should be combined into one GESAMP Reports and Studies report. This should be finalised as quickly as possible following GESAMP 39 and should include external peer review and approval by GESAMP, while UNEP will ensure publication. Mr. Mike Huber offered to help with the technical editing and Mr. Tim Bowmer will support the external peer review.

5.3.4 In the final report, amongst other important issues, the focus could be placed on an issue that has been identified by the scientific steering committee of the 11th International Conference on Mercury as a Global Pollutant (ICMGP) as challenging and relates to speciation and analytical methods, both of which are of particular interest in the marine environment. It was considered at the last meeting of ICMGP that lack of standardised methods (or the affordability of the equipment) would be one of the biggest barriers to ratification and capacity building for developed nations in analytical capability is required.

Future of the Working Group

5.3.5 GESAMP considered the future of the working group and decided that it should remain in existence, albeit with a reduced role. This would not only allow for timely completion of the above report but also provide an opportunity to build on the response of the UN scientific community to the report. It would also allow interaction with the TWAP Full Project scheduled to start in early 2013 and in which mercury was designated as a cross-cutting issue.

Action taken by GESAMP

5.3.6 GESAMP instructed the Working Group to:

.1 Complete the drafting of a final report for Reports and Studies by mid 2012;
.2 Organise an external peer review panel and collate the reviewers' comments by September 2012;
.3 Complete electronic publication by October 2012; and
.4 Review and support as appropriate a future role for WG 37 in the TWAP project.

.4 Atmospheric input of chemicals to the ocean (WG 38)

5.4.1 WG 38 was formed in 2008. It held its first meeting at the University of Arizona, Tucson, Arizona, in the same year. Subsequent meetings were held at IMO in London in 2010 and in Malta in 2011.

5.4.2 Sponsors of previous WG 38 efforts have included WMO, IMO, SCOR, SIDA, the European Commission Joint Research Centre, the University of Arizona, and the Euro-Mediterranean Centre on Insular Coastal Dynamics at the University of Malta.

5.4.3 The initial Terms of Reference (ToR) for WG 38 were as follows:

.1 Assess the need for the development of new model and measurement products for improving our understanding of the impacts of the atmospheric deposition of nitrogen species and dust (iron) to the ocean;
.2 Review the present information on the atmospheric deposition of phosphorus species to both the marine and terrestrial environments, considering both natural and anthropogenic sources, and evaluate the impact of atmospheric phosphorus deposition on marine and terrestrial ecosystems. Consider whether such a review of any other substances would be useful; and
.3 Work with the WMO Sand and Dust Storm Warning and Assessment System and with the WMO Precipitation Chemistry Data Synthesis and the Community Project, to evaluate the needs of the marine community and assist in clearly articulating them in the development of these WMO efforts.

5.4.4 ToR items .1 and .2, above, have been partially satisfied by the following two papers that have been published in peer-reviewed literature4. The results of these papers were discussed in details at GESAMP 38 meeting (Monaco 2011). In response to ToR item .3, WG 38 developed two reports at the first meeting, and after review by GESAMP, were submitted to WMO. The two reports are:

.1 Report of GESAMP Working Group 38 to the WMO Precipitation Chemistry Data Synthesis and Community Project; and
.2 Report of GESAMP Working Group 38 to the WMO Sand and Dust Storm Warning Advisory and Assessment System.

5.4.5 A third paper[5] developed under ToR items .1 and .2 was being prepared when the last meeting of GESAMP took place, and many of the results were presented last year. That paper was submitted to Global Biogeochemical Cycles late fall 2011 and positive reviews have just been received, It is expected the paper to be sent back to the journal before the end of May 2012.

5.4.6 At GESAMP 37, WMO proposed that GESAMP WG 38 hold a third meeting in the spring of 2011. At this meeting the WG would look in more detail at some aspects of the third term of reference, specifically related to dust. GESAMP WG38 was to establish a close cooperation with the WMO Sand and Dust Storm Warning and Assessment System (SDS-WAS) in order to exploit the already existing modelling and observational capabilities of the SDS-WAS project. Thus the meeting in the spring of 2011 was joint between WG 38 and SDS-WAS. This meeting had the title "Expert Workshop on Modelling and Observing the Impacts of Dust Transport/Deposition on Marine Productivity".

5.4.7 As described last year, the joint workshop meeting of GESAMP WG 38 and SDS-WAS was held in Malta from 7-9 March 2011. The meeting was organised around three separate topics, and both plenary discussions and individual group/topic discussions were held. The following three topics were discussed:

.1 Topic 1: Improving the quantitative estimates of the geographical distribution of the transport and deposition of mineral matter and its content to the ocean;
.2 Topic 2: Long-term assessment of mineral dust/Fe/P input to the ocean: In-situ observations and marine response utilizing coupled atmospheric transport and ocean biogeochemical modelling and remote-sensing; and
.3 Topic 3: Specifying test-bed regions for joint studies of the transport and deposition to the ocean of mineral matter.

5.4.8 The results of the Malta meeting were described in GESAMP 38 (2011). During the past year it was decided to submit these results to the Journal of Environmental Science and Technology, which was planning a special issue on the marine boundary layer. That paper[6] was submitted in early January, 2012. The reviews of paper were received only recently and some work will be necessary for this paper to be published. Conclusions from the Malta meeting are summarized as follows:

.1 A new research strategy is needs to be defined with that emphasis on long-term, internationally coordinated network of surface and atmospheric column measurements carried out on selected islands and exposed coastal sites.

.2 In addition, dedicated intensive campaigns and an advancement in measurement and modeling technologies must be developed to attain a consistent process understanding of processes and impact of dust on biogeochemistry of surface ocean.

5.4.9 The report from the Workshop was published by WMO as GAW, Workshop on Modelling and Observing the Impacts of Dust Transport/Deposition on Marine Productivity, Sliema, Malta, 7- 9 March 2011), 50 pp, November 2011 (GAR Report No. 202)
http://www.wmo.int/pages/prog/arep/gaw/documents/FINAL_GAW_202_web.pdf .

Future activities of WG 38

5.4.10 GESAMP 38 agreed on additional work of WG 38 to address issues related to the impact of the atmospheric deposition of anthropogenic nitrogen to the ocean (refer to Annex V for the Terms of Reference of the WG). The new work is supported by WMO, IMO, the US National Science Foundation, and SCOR. The research issues of the proposed continued work are:

.1 Update the geographical estimates of anthropogenic nitrogen deposition to the global ocean made in the paper by Duce et al. (2008) in Science, which were based on data from 2005 or earlier. This would utilize newer and more geographically distributed data on anthropogenic nitrogen concentrations over the global ocean and its deposition to the global ocean surface as well as improved models of atmospheric deposition and its impacts;
.2 On the basis of .1 above, re-estimate the amount of additional CO2 that could be drawn down from the atmosphere to the ocean as a result of the increased productivity in the ocean resulting from the additional anthropogenic nutrient nitrogen deposited. This would allow an update on the impact of the atmospheric nitrogen deposition atmospheric radiative properties, relative to the (2008) paper in Science;
.3 Provide a much more accurate estimate of the impact of atmospheric anthropogenic nitrogen deposition on the production of additional nitrous oxide in the ocean and its subsequent emission to the atmosphere. This was certainly one of the greatest uncertainties in the 2008 Science paper. This is very important to evaluate accurately, since N2O is such a powerful greenhouse gas, and the emission of additional N2O from the ocean will cancel to some

5 M. Kanakidou, R. Duce, J. Prospero, A. Baker, F. Dentener, K. Hunter, N. Mahowald, M. Sarin, P. Liss, M. Uematsu, et al. "Atmospheric organic material and the nutrients nitrogen and phosphorus it carries to the ocean"

6 Schulz, M., J. Prospero, F. Dentener, I. Tegen, M. Sarin, S. Nickovic, N. Mahowald, L. Ickes, A. Baker, C. Perez Garcia-Pando, S. Rodriguez, P. Liss, and R. Duce, "The atmospheric transport and deposition of mineral dust to the ocean - implications for research needs", Submitted to Journal of Environmental Science and Technology, (2012).

extent the effects of the additional drawdown of CO2 on the radiative properties of the atmosphere;

.4 Evaluate the extent to which anthropogenic nitrogen delivered to the coastal zone via rivers, atmospheric deposition, etc. is transported to the open ocean, in which regions may this happen, and what its impact is there. (In the 2008 Science paper we assumed that all nitrogen delivered to the coastal zone was sequestered there and did not reach the open ocean, but this may well not be true, and this is something that should be looked at more carefully); and

.5 Prepare a much more detailed estimate of the impact of anthropogenic nitrogen in the area of the Northern Indian Ocean (Arabian Sea, Bay of Bengal) and the South China Sea - the areas that are expected to show the greatest increase of anthropogenic nitrogen deposition over the next decade or so (according to the 2008 Science paper). These very important regions are also areas for which extensive new atmospheric data are now available compared with 5 years ago, and this should enable much more accurate estimates to be made.

5.4.11 To undertake this new activity WG 38 members who had expertise in nitrogen were retained and several additional experts were added to participate in the workshop that would address the above five issues (refer to Section 11.4).

5.4.12 A workshop has been scheduled at the University of East Anglia in Norwich, United Kingdom, from 11-14 February 2013. The tentative plans for the organisation of the workshop is to base it on the five new terms of reference outlined above, designating at least 2 individuals to prepare background material before the workshop on each charge and lead the discussion and subsequent modelling or other effort related to it. It is expected that likely several papers will result from this effort.

Action taken by GESAMP

5.4.13 GESAMP noted that:

.1 WG 38 had completed the three tasks contained in its original (2007) ToR as well as additional tasks of the amended ToR (2010) on schedule and to the satisfaction of WMO;

.2 the activity of WG 38 under 1. resulted in three scientific peer-review papers (two published; one in the phase of final review), and to a scientific paper (submitted) related to the amended ToR (2010); and

.3 WMO, as the lead organization, and IMO, the US National Science Foundation, and SCOR continue supporting of the WG38 activity with focusing to examining anthropogenic atmospheric nitrogen inputs to the oceans.

5.4.14 GESAMP instructed the Working Group to:

.1 Finalise a new Terms of Reference for the continued examination by the group of anthropogenic atmospheric inputs of Nitrogen to the oceans for approval, intersessionally, by GESAMP; and

.2 Organise and report on the results of a workshop on this topic in early 2013.

.5 Establishment of trends in global pollution in coastal environments (WG 39)

A report of the activities of WG 39 was given by Mrs. Ana Carolina Ruiz-Fernández, Co-Chairperson of the Working Group.

Introduction and background

5.5.1 The Working Group (WG) met for the first time back to back on the occasion of the International Symposium on Isotopes in Hydrology, Marine Ecosystems, and Climate Change Studies in Monaco beginning of April 2011. The Group is co-chaired by Ms. Ana Carolina Ruiz Fernandez (Mexico) and Mr. Fernando Carvalho (Portugal). Terms of Reference (ToR), set out in Annex V, were given to the WG and agreements were taken regarding the work methodology and distribution of tasks among the WG members. A report of this meeting was submitted to the 38th session of GESAMP, held in May 2011. The WG stated that additional financial support was needed to continue working with the tasks included in the ToR.

Activities since 2011

5.5.2 The WG did not meet since 2011, due to other priorities at the IAEA in relation to the Fukushima accident in March 2011, and thus limited progress has been achieved. At its initial meeting tasks to conduct literature surveys for classifications on Large Marine Ecosystems (LMEs), including a list of substances to be taken into account, were formulated. Part of this literature survey has been completed and is available from Ms. Ruiz Fernandez. However, it was stressed during the discussions that much more work needs to be carried out, which could be performed by internships or students to be funded by the IAEA via its Technical Co-operation Programme.

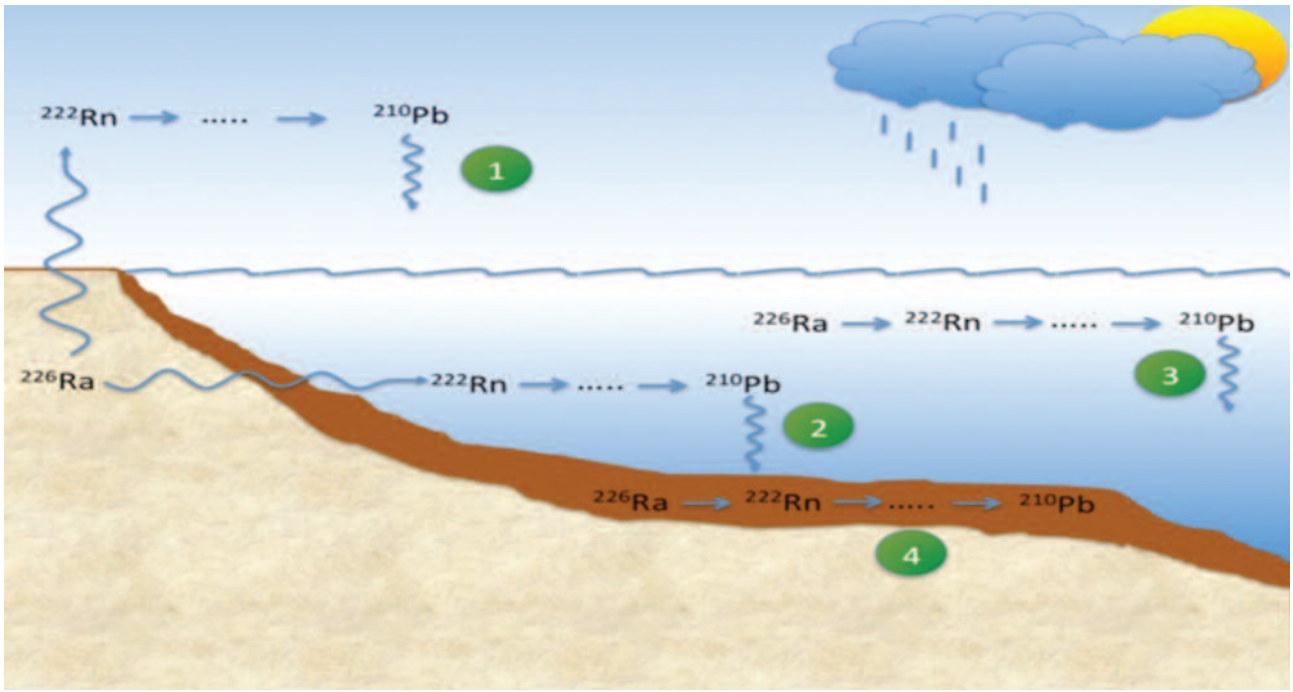
5.5.3 GESAMP viewed this activity as important and strongly agreed to the continuation of the working group. However, it was noted that the activities must be in accordance with the ToR and any change of ToR should be submitted and approved by GESAMP.

5.5.4 Ms. Ruiz Fernandez provided GESAMP with several examples where dating of sediments indicated clear temporal trends of pollution over a time frame of about 100 to 150 years. In one example the 22.3 years half-life

natural radionuclide Pb-210 was used, but also Cs-137 (30 years half-life) from atmospheric nuclear weapon testing global fallout and from the Chernobyl accident in 1986 was used as a second tool for dating. The general procedure is indicated in Figure 1, below.

5.5.5 GESAMP asked IAEA to contact the chairman Mr. Fernando Carvalho, to establish whether he would still be willing to continue his mandate as co-chairman under the agreed ToR. In addition the new member of GESAMP (Ms. Roberta Delfanti (ENEA, Italy)) would join this WG in the future.

Figure 1. Principle of sediment dating with the natural radionuclide Pb-210 (half-life of 22 years).[7]



5.5.6 UNIDO expressed its willingness to continue to co-sponsor this WG. The two Technical Secretaries of IAEA, Mr. Hartmut Nies, and of UNIDO, Mr. Ludovic Bernaudat will maintain contact in this regard. Mr. Nies will get in contact with its Technical Co-operation Department to find a solution to potentially fund internships and students for further literature surveys and to get funding to assure meetings of the WG for the next two years.

5.5.7 GESAMP noted that:

.1 The database was initially created in Access but not all participants have this software available/ Performance problems due to differences in software versions; and

.2 The current data base was developed in MSExcel format and it is already functional and being used by some WG 39 members through a file-sharing web-site (e.g. DropBox).

5.5.8 Work has been assigned to the members for geographical definition of the LMEs. GESAMP advised that a geographical reference framework based on both LME's and the UNEP Regional Seas Programme might be more effective in the long run.

5.5.9 GESAMP also noted information concerning the EU IP PERSEUS, Policy-oriented marine Environmental Research in the Southern European Seas are available at http://www.perseus-net.eu. This project started on Jan 1st, 2012 and builds on the work done in the EU IP SESAME (southern European Seas: assessing and modelling ecosystem changes), 2006-2011. One of the objectives of PERSEUS is "to identify the interacting patterns of natural and human-derived pressures on the Mediterranean and Black Seas, assess their impact on marine ecosystems and, using the objectives and principles of the Marine Strategy Framework Directive as a vehicle, to design an effective and innovative research governance framework based on sound scientific knowledge". Radiotracer techniques will

7 García-Orellana J., Sanchez-Cabeza J.A., 2012. EL 210Pb COMO TRAZADOR DE PROCESOS AMBIENTALES. In: Radiocronología de Sedimentos Costeros Utilizando 210Pb: Modelos, Validación y Aplicaciones. Joan-Albert Sanchez-Cabeza, Misael Díaz-Asencio, Ana Carolina Ruiz-Fernández, Eds. OIEA, VIENA, 2012, pp. 4-9.

be used in the Eastern Med, Aegean and Marmara Sea to reconstruct pollution history. But the work that will be carried out by WG 39 is certainly of interest to PERSEUS and may be a source of support for the work of WG 39. It was further noted that the web site, offers other possible connections to GESAMP. The Coordinator is Mr. Vangelis Papathanassiu, Hellenic Centre for Marine Research Anavissos, 19013, Greece, e-mail: vpapath@hcmr.gr.

Action taken by GESAMP

5.5.10 GESAMP noted and confirmed the following:

.1 The co-chairs will propose and organise the next meeting of the WG 39 as soon as funding is secured by IAEA and UNIDO;
.2 In the coming period members of the WG would aim to request:
support for technician work (capture of information and database management)
acquire appropriate software for storing and sharing the data
access to scientific data bases for information research; and
.3 The two co-chairpersons and the Agencies´ secretaries will report to GESAMP 40 on the progress achieved during the coming year.

.6 Sources, fate and effects of micro-plastics in the marine environment – a global assessment (WG 40)

Introduction and background

5.6.1 The potential influence of micro-plastic particles on the transfer of pollutants was raised as an emerging issue within GESAMP, leading to the preparation of a scoping paper that was reviewed and approved at GESAMP 37 in Bangkok. Since then GESAMP has been involved in a number of initiatives related to marine plastics, marine micro-plastics and associated contaminants that have been supported by several of the Sponsoring Organisations. Following approval by GESAMP 37, an International Workshop on *Plastic particles as a vector in transporting persistent, bio-accumulating and toxic substances in the oceans*, was hosted by UNESCO-IOC in Paris in June 2010 (GESAMP 2010).

5.6.2 One of the main recommendations of the Paris workshop was that there was a need for a global assessment to explore the extent to which micro-plastics represented a hazard to the marine environment. The ToR and overall draft work programme for WG 40 were approved at GESAMP 38 in Monaco in May 2011. At this point the size of the available budget was unknown, and so the scope, size and time-scale of the potential WG 40 work programme was uncertain, and the ToR were divided into 3 phases with a staggered start time. A period of consultation with additional non-UN sponsors allowed the work programme to be consolidated. GESAMP was very fortunate to attract support from NOAA and the plastics producers, as represented by Plastics Europe and the American Chemistry Council (ACC), in addition to support from the UN Agencies UNESCO-IOC, IMO, UNIDO and UNEP.

Activities of the Working Group

5.6.3 The main activity was the Inception Meeting, held in Paris on 13th – 15th March 2012, and hosted by UNESCO-IOC. It was attended by ten Members, representatives of sponsoring Agencies and a number of invited Observers. Confirmation of the meeting dates was only possible about 3 weeks before the event, because of difficulties in finalizing the contractual arrangements. This delay, combined with prior commitments, meant that the number of Members and Observers was fewer than had been intended. Despite the missing participants, the Inception Meeting proved to be a lively and challenging event, consisting of a number of invited presentations, break-out groups and feedback sessions. Edited versions of the presentations will be made available on-line and a summary of the discussions, conclusions and recommendations will be included in the Inception Report.

5.6.4 Three invited Members gave overviews of the current state of knowledge and knowledge gaps on; i) sources, distributions and trends of micro-plastics; ii) properties and degradation of polymers; and, iii) physical and chemical effects of micro-plastics. These followed by several shorter presentations on related programmes (e.g. NOAA, Gulf of Mexico LME, UNEP, ACC/PE, NCEAS working group) before the meeting split into two break-out groups to consider the scope and approaches required to conduct an assessment: i) sources, distribution and trends; and, ii) properties and effects. Periods for discussion and feedback were included in the meeting timetable, with rapporteurs appointed to record the key points.

5.6.5 There was agreement on the need to set the assessment in a recognized assessment framework, and a number of options were described. This needed to be placed in an appropriate Road Map and a revised time-line was recommended for approval by GESAMP 39, reflecting the increased support that will allow all the ToR to be initiated at the start. The meeting also agreed that there was a need for an additional ToR, to consider how to address social concerns, including public awareness. This reflected the perceived role of NGOs, the media and the public in raising the profile of microplastics as an issue that policy makers needed to address, without there necessarily being solid scientific evidence to justify this.

Discussion

5.6.6 In the ensuing discussion GESAMP agreed to a minor modification to the ToR to emphasize the focus on assessment and remove any ambiguity that the group was intending to carry out new modelling. It was also agreed that a 6th ToR, to take into account social aspects, should be included at an early stage and it was suggested SCOPE may be able to provide links to suitable Corresponding Members. UNEP and IOC have a great deal of expertise to advise the group on the assessment process, and producing suitable outputs to benefit decision makers, and making

recommendations. They are considering a policy brief on marine debris to which WG 40 can contribute. Several other organisations are likely to be interested in micro-plastics including UNEP DTIE, UNEP Chemicals, AMSA, Environment Australia, Basel and Bern Conventions, IMO Hong Kong Convention (ship recycling; Working Group on the inventory of harmful substances).

Future activities of the Working Group

5.6.7 The Inception Report will be circulated for comment and approval by WG 40, after which it will be placed on the GESAMP website and circulated to those on a distribution list, to be maintained by IMO and the Co-Chairs. The Report will include a detailed outline of roles, responsibilities, scope, expectations and intended outputs. A series of telephone-conferences will be held, to include those Members who were unable to attend the Inception Meeting. Options for setting up a remote office will be explored (e.g. IOC IWLEARN, UNEP websites) for maintaining working documents.

5.6.8 A second WG meeting will be held within 12 months, with the period 3rd – 14th December being considered the preferred option at present. UNIDO will investigate the possibility of hosting a WG 40 workshop in Manila or Mexico.

5.6.9 Additional 'Corresponding Members' will be identified as appropriate to cover gaps in expertise and regional coverage, and opportunities will be taken to link with related organisations and events. For example, an informal side event will take place at the 2012 SETAC Congress in Berlin, on 22nd May, 2012, in association with a special session on micro-plastics being co-convened by Courtney Arthur (NOAA), and several WG40 Members are expected to attend. It will be critical to keep the ToR under review and re-define the aims, content and intended audience of the various assessment outputs.

Action taken by GESAMP

5.6.10 GESAMP reviewed the terms of reference of the WG and approved the amended terms of reference as contained in Annex V.

5.6.11 GESAMP also instructed the Working Group to:

- Complete the report of the inception meeting by 31 May 2012;
- Prepare for its next meeting/workshop in late 2012;
- Provide a brief annual summary of its activities and particularly its achievements (by letter) to the Sponsoring agencies and the external sponsors; and
- Identify corresponding members including socio-economists making use of established bodies (e.g. SCOPE); and
- Organise one or more teleconferences with Working Group members.

6A CONTRIBUTIONS TO THE UN REGULAR PROCESS

Regular Process for Global Reporting and Assessment of the State of the Marine Environment including Socio-economic aspects.

6A.1 Mr. Alan Simcock, Joint Coordinator of the Group of Experts of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-economic Aspects, provided GESAMP with an overview of the developments concerning the Regular Process that had occurred since GESAMP38 in May 2011. In particular, he touched upon institutional arrangements, funding, past and future work of the Regular Process, its methods of work as well as the outline of the First Global Integrated Marine Assessment.

Institutional arrangements

6A.2 Mr. Simcock recalled that in 2010 the General Assembly decided that the Regular Process would be overseen and guided by an Ad Hoc Working Group of the Whole (AHWGW), whose meetings are open to all United Nations Member States and Observers, competent international organisations and to non-governmental organisations with consultative status with ECOSOC. He also recalled that DOALOS had been designated as the secretariat of the Regular Process, and that other competent UN agencies and programmes had been invited to give technical and scientific support. IMO, UNEP, UNESCO/IOC and FAO had nominated focal points, and other agencies were expected to do the same.

6A.3 Mr. Simcock also informed GESAMP that:

.1 A Bureau of the AHWGW, consisting of two Co-Chairs and three members from each of the five GA regional groups, had been established to put in practice the decisions and guidance of the AHWGW. Its exact functions remained to be agreed, but the expectation was that the Bureau would take certain decisions on behalf of the AHWGW.

.2 The Group of Experts of the Regular Process had been appointed until the end of 2012, with 22 of the 25 experts already in place. The AHWGW had considered the terms of reference and methods of work of the Group of Experts, but a final decision on them had not been taken yet. The Group of Experts would be responsible for managing the production of the First Global Integrated Marine Assessment, subject to the approval of major decisions by the AHWGW or its Bureau. Each chapter of the First Global Integrated Marine Assessment would be under the responsibility of one or more members of the Group. The Group would then be collectively responsible for the Assessment as a whole; and

.3 A Pool of Experts to work with the Group of Experts had also been established. States had started appointing experts to the Pool, in fields suggested by the Group of Experts and in accordance with the criteria approved by the General Assembly.

Funding

6A.4 Mr. Simcock informed GESAMP that members of both the Group of Experts and of the Pool of Experts would have to work largely on a pro bono publico basis. Their institutions would need to grant them time and support to do so. Financial support might be available for experts from developing countries.

6A.5 He also drew attention to the fact that funding was still needed to support the first cycle of the Regular Process. Some States had indicated their readiness to provide funding as and when a clear and effective set of arrangements had been agreed and general progress had been made, and some UN agencies and programmes had indicated their readiness to support the Regular Process in various ways. So far, however, only IOC and UNEP had done so.

Workshops

6A.6 Mr. Simcock informed GESAMP that Guidelines had been adopted for regional workshops to engage experts in the different regions and create a dialogue between them and the Group of Experts. Regional workshops had been held in Santiago, Chile, for the South-Eastern Pacific, and Sanya, China, for Eastern and South-Eastern Pacific Seas. Workshops were also being planned for the North Atlantic and the Baltic, Black and Mediterranean Seas (in Belgium 27-29 June, 2012), for the South-Western Pacific (in Australia, probably in July, 2012), and for the Wider Caribbean (probably in Miami, USA, in July/August, 2012). Further workshops were also probable, including one for the Eastern Indian Ocean. No workshops were planned for the Arctic and Antarctic but relevant regional organisations would be consulted on this matter by correspondence.

Methods of work

6A.7 Recalling that a final decision on the terms of reference and methods of work of the Group of Experts of the Regular Process was still pending, Mr. Simcock noted that progress was needed on the methods of work suggested in February and June 2011 by the Group of Experts, which he had described at GESAMP 38 (see Report of GESAMP 38, Section 6A.3).

Outline of the First Global Integrated Marine Assessment

6A.8 Mr. Simcock informed GESAMP that part of the Set of Options produced by the Group of Experts for the February 2011 meeting of the AHWGW included a possible outline for the First Global Integrated Marine Assessment. The AHWGW had agreed in February 2011 that States should comment on the possible outline by 30 April 2011 and that the Group of Experts should produce a revised version by the end of May 2011. A revised version of the outline had been considered by the AHWGW in June 2011. States had a further opportunity to comment and a new revision of the outline was then drafted and would be considered at the third meeting of the AHWGW from 23 to 27 April 2012
(see: www.un.org/depts/los/global_reporting/global_reporting.htm).

6A.9 At the upcoming third meeting of the AHWGW, the following five main general issues would be discussed:

.1 scope of the First Global Integrated Marine Assessment: whereas some States believe that the outline should be restricted to a smaller range of issues, in order to facilitate the production of the Assessment, other States consider that all relevant issues should be considered, even if at a very high-level, in order to give an indication of priorities;

.2 structure of the First Global Integrated Marine Assessment: whereas some States want a single integrated assessment and question the value of looking separately at ecosystem services, human activities that impact on the marine environment and species and habitats, other States seem not to want the Group of Experts to attempt an overall assessment;

.3 treatment of responses to the state of the marine environment: States do not want any analysis of marine environmental policies in the Assessment. Some States also want to see the use of the analytic approach of Drivers – Pressures – State – Impact – Response (DPSIR), which implies looking at the way in which responses have had consequences for the marine environment. It is not clear how these different approached could be reconciled;

.4 capacity-building: with regards to assessing capacity-building needs, whereas some States want such assessment to be restricted to needs for capacity-building for assessment (including integrated assessment), others would also like to see assessment of capacity-building needs for management; and

.5 treatment of economic and social aspects: there is concern whether the assessment of economic and social aspects is being given sufficient emphasis.

6A.10 In concluding his remarks, Mr. Simcock stated that the Regular Process continued to be slow and that a number of structural issues remained to be resolved. He recalled that, however, progress was being made in regard to the regional workshops and the recruitment to the Pool of Experts.

6A.11 He also noted the possible need to allow a later completion of the First Global Integrated Marine Assessment, even though the overall target of delivering it by the end of 2014 still seemed achievable, provided that agreements on the remaining major issues could be reached at the third meeting of the Ad Hoc Working Group of the Whole to be held from 23 to 27 April 2012.

6A.12 In closing his remarks, Mr. Simcock expressed gratitude to GESAMP for its interest in the work of the Regular Process.

6A.13 Following the presentation by the Joint Coordinator of the Group of Experts of the Regular Process, the representative of DOALOS provided information concerning the financing mechanisms and contributions to the Regular Process. He explained that a Trust Fund for the Regular Process had been established by resolution 64/71 of the General Assembly to support the activities of the Regular Process. Contributions had been made to the trust fund on an annual basis and these contributions were reported by the Secretary-General and announced during meetings of the Ad Hoc Working Group of the Whole. He added that assistance in kind had also been provided, for example, by Australia for the development of the website of the Regular Process. UNEP had provided support for the participation of experts in the Workshops organised to date and UNESCO/IOC would be providing such support for the Workshop to be held in Belgium (refer also to paragraphs 6A.18 and 6.A.19, below). In regards to the Pool of Experts, he informed that approximately 170 experts had been appointed to the Pool, but that represented roughly 10% of the number of experts expected to comprise the Pool. The names of experts participating in both the Group of Experts and the Pool of Experts were available on the website of the Regular Process.

6A.14 During the discussion of this agenda item, the Chairman of GESAMP provided Mr. Simcock with an overview of the work being carried out by GESAMP's active Working Groups. He also drew attention to the New and Emerging Issues Programme discussed at this meeting (see Section 7, below). In this connection, Mr. Simcock expressed the view that the Regular Process might indirectly provide inputs in GESAMP's work by suggesting issues that would be worth considering by the scientific community. It was pointed out that, however, during this cycle the Regular Process was aiming at collating the information available in the scientific world and building on and integrating the existing assessments, rather than generating new information or interpreting new raw data.

6A.15 The representative of UNEP emphasised the importance of ensuring the presence of experts from developing countries and of ensuring that they receive the fund necessary to ensure their full participation in the process.

6A.16 The representatives of IMO expressed interest in becoming more involved in the work of the Regular Process and confirmed their availability to confer with the Group of Experts, as needed, on issues within the mandate of IMO.

Action taken by GESAMP

6A.17 GESAMP took note of the report of the Joint Coordinator of the Group of Experts of the Regular Process and of the information provided by DOALOS. GESAMP also decided that it would keep the Group of Experts informed about its projects as well as new and emerging issues. GESAMP looks forward to being informed from the Group of Experts as to their activities, and for this purpose it will continue inviting the Joint Coordinators of the Group of Experts of the Regular Process at its meetings and it will consider inviting experts from the Group of Experts, in their individual capacity, to its meetings. This would provide positive synergies and cross-fertilization between the two bodies. In this way, the two bodies could act in a complementary manner, as appropriate.

Activities of UNEP and UNESCO-IOC

6A.18 GESAMP noted that in accordance with UNGA resolution 65/37 (section XII) UNESCO-IOC and UNEP was invited by the Secretary General in December 2010 to provide technical and scientific support to the UN Regular Process. Both agencies have been supporting the process through its established programmes related to scientific assessments, communication and capacity building:

A. In the area of Communication: In cooperation with UNEP/GRID-Arendal, a communication portal and a dedicated website – including a document management system has been developed and ready for testing. The purpose of this project is to build a new web portal to assist with delivering the first Global Integrated Marine Assessment Report, which is scheduled for completion by 2014. The portal will include the GRAME database. The GRID project team is supported by one member of the GoE and is currently building the website and uploading the content. The draft website is on track to be finalised soon.
B. In the area of Assessments: UNEP through its contribution to the Regular Process Voluntary Trust Fund (as requested in the last UNGA Resolution) has provided financial supports to enable developing countries participate fully in the development of the first Global Integrated Marine Assessment Report.
C. In the area of Capacity building: Technical and financial support has been provided to member states for the organisation of Regional Capacity Building Workshops on the Regular Process.

6.A.19 The first UN Regular Process Workshop hosted by the Government of Chile was held from 13 to15 September in Santiago, Chile, facilitated by the Comisión

Permanente del Pacífico Sur (CPPS), a Regional Seas Convention and Action Plan for the South Pacific. The second Workshop was hosted by the Government of the People's Republic of China in Sanya, China from 21 to 23 February 2012 for the Eastern and South Eastern Asian Seas with the support of the Coordinating Body on the Seas of East Asia (COBSEA) and North West Pacific Action Plan (NOWPAP). Through these two capacity building workshops, 28 member states have been engaged in the Regular Process. Further capacity building Workshops are planned for the third Quarter of 2012; namely:

.1 Workshop to be held in August 2012 for the Western Indian Ocean Region, to be hosted by the Government of Mozambique, in Maputo, Mozambique, facilitated by the Nairobi Convention;
.2 Workshop in September 2012 for the Wider Caribbean Region, to be hosted by the Government of the United States of America, facilitated by the Cartagena Convention;
.3 Proposal by the Government of Côte D'Ivoire to host a workshop for the Abidjan Convention Countries in Abidjan in 2012; and
.4 Belgium has requested IOC to assist with the organisation of the Regional Workshop for Europe (NE Atlantic, Mediterranean and Black Sea) to be held in June 2012.

6B GEF TRANSBOUNDARY WATERS ASSESSMENT PROGRAMME (TWAP)

6B.1 With the support of the Global Environment Facility (GEF), UNEP and partners coordinated a Medium Sized Project (MSP) "Development of the Methodology and Arrangements for the GEF Transboundary Waters". To facilitate a global assessment, TWAP defines five categories of transboundary water systems: aquifers, lake/reservoir basins, river basins, LMEs and the open ocean. The results of the MSP, the assessment methodologies of the five water systems and partners and institutional arrangements are presented in a six volume report available at the project website http://twap.iwlearn.org/publications/databases.

6B.2 As a follow up, the GEF Chief Executive Officer (CEO) gave approval in February 2012 to the concept for a Full Size Project (FSP) TWAP: Aquifers, Lake/Reservoir Basins, River Basins, Large Marine Ecosystems, and Open Ocean to catalyze sound environmental management. The objective of the FSP is to undertake a global assessment of transboundary water bodies, through a formalized consortium of partners, to support informed investments by the GEF and other international organisations. It also expected that such an assessment will be sustained through a periodic process in partnership with key institutions aiming at incorporating transboundary considerations into regular assessment programmes. The assessment will establish a baseline environmental, governance, socio-economic and natural resource overview of the five types of transboundary water systems.

6B.3 This global assessment of the five types of transboundary water systems will utilize networks and globally available information and data sets. Newly- collected information (from observation networks and modelling) will complement the assessment where needed to address crucial data gaps. This will include evaluation of existing environmental and natural resource status of transboundary waters, human and natural drivers and related stress, human dependency and vulnerability to the extent possible, and the current status of governance arrangements.

6B.4 A project preparation for the FSP is expected to commence with a meeting to be held from 3 to 4 May 2012 and hosted by UNESCO at the Headquarters in Paris, France. In view of the fact that preliminary assessment results from the TWAP FSP will be needed to inform the International Waters (GEF6) strategy formulation which would start in October 2013, it is expected that there will be a submission of the TWAP FSP documentation for CEO approval latest by end of September 2012. It is estimated that the FSP execution would start latest by December 2012 for a two years implementation (2013/2014).

Discussion

6B.5 GESAMP proposed 10 potential indicators of pollution of which Hg to be considered as a cross-cutting indicator. Concern was also raised whether 'shipping density' as such was a useful indicator – other (related) IMO performance indicators may be better e.g. amount of oil from shipping incidents might be a better measure of stress? The introduction of Emission Control Areas might be considered; this issue needs to be assessed by GESAMP during the implementation of the next TWAP/FSP.

Action by GESAMP

6B.6 In view of TWAP Full Sized Project Dec 2012-2014, with interim reporting in September 2013, GESAMP recommended that:

.1 GESAMP to be involved in the LME and Open Ocean modules;
.2 A selection of final indicators for LME's still needs to be made in communication with UNESCO-IOC;
.3 An Open Ocean re-assessment to be assigned to GESAMP; and
.4 To take part at the inception meeting in Paris from 3 to 4 May 2012, if resources were available. GESAMP recognized the need to have up to three meetings with the relevant Task Force on these matters, noting that these could be back to back at the 40th session of GESAMP (2013) to be looked at with – if resources allow - possible sponsoring for 2 other meetings by IOC as part of the TWAP project.

7 IDENTIFICATION OF NEW AND EMERGING ISSUES REGARDING THE DEGRADATION OF THE MARINE ENVIRONMENT OF RELEVANCE TO GOVERNMENTS AND SPONSORING ORGANISATIONS

7.1 The GESAMP agenda item entitled "New and Emerging Issues" has a long history and is intended to bring new topics related to the status of the marine environment to the attention of the Sponsoring Organisations. Discussion held during informal Sunday meeting on this topic was summarized.

7.2 At GESAMP 38 the need for a more efficient process for identifying new and emerging issues of potential interest was extensively discussed and a new strategy had been agreed that would make more use of existing foresight initiatives, such as the UNEP foresight process for identifying emerging issues facilitated by ICSU-SCOPE (International Scientific Unions, Scientific Committee on Problems of the Environment; www.icsu-scope.org). This would allow Members to keep a watching brief in a more structured manner and raise emerging issues at appropriate intervals. It was agreed that at present GESAMP has a full programme of topics under consideration (see sections 8 and 9 below). Therefore, it may be advisable to discuss only very urgent and new issues in this session.

8 GESAMP SIDE EVENT "THE GLOBAL IMPLICATIONS OF HYPOXIA – CAUSES AND EFFECTS?"

8.1 A scoping paper on 'Hypoxia: new insights on an old pressing environmental problem' was presented at GESAMP 37 in 2010 and subsequently published in GESAMP Reports and Studies No. 81, Annex VIII. It had been intended to conduct a workshop in the following year but this had been delayed. Subsequently, it was decided at GESAMP 38 to continue to seek an opportunity to organise a workshop and UNDP offered to host this as a side event during GESAMP 39 (Section 8). The side event was attended by representatives from a number of UN-related bodies and a webcast was broadcast and will remain available on-line.

8.2 The new insights presented at the side event helped to focus the discussion on how GESAMP might take this forward. It was agreed that the specific topic of the endocrine-disrupting effects of hypoxia needed to be placed in the wider context of hypoxia in coastal seas. It was important to distinguish natural hypoxic zones from human-induced. National, regional or international fisheries statistics may yield valuable information on sex ratios of fish and fish landings that could provide an indicator of large-scale effects. It is thought that hypoxia-induced effects would overwhelm those due to endocrine-disrupting synthetic

chemicals in the environment. Field data are becoming available that confirm the biochemical transformations observed in laboratory experiments.

8.3 On Wednesday, April 18 GESAMP and UNDP organised and UNDP hosted a special side event entitled "Ocean Hypoxia and its Impacts on Ecosystems and Economies". The side event was chaired by Mr. Manmohan Sarin, Vice Chairman of GESAMP. Approximately 35 people attended the side event and it was 'webcast' live (and made available on-line afterwards, including Powerpoint presentations) via UNDP Teamworks and Ustream.tv. Five expert panelists and their presentations included:

- Rudolf Wu, University of Hong Kong – *Hypoxia: Problems and Scientific Challenges*
- Robert Howarth, Cornell University – *Nutrient Pollution of Coastal Waters: Trends, Drivers and Potential Solutions*
- Peter Thomas, University of Texas, Austin – *Disruption of Fish Reproduction in Hypoxic Coastal Waters: Potential Impacts on Coastal Fisheries World-wide*
- Nancy Rabelais, Louisiana Universities Marine Consortium – *Ocean Deoxygenation and Coastal Hypoxia in a Changing World*
- Andrew Hudson, UNDP Water & Ocean Governance Programme, *Reversing Ocean Hypoxia through Application and Scaling up of Innovative Policy, Economic and Financial Tools*

8.4 Nutrient burdens to the oceans from continents have roughly tripled since pre-industrial era and are projected to further double or triple in the 'business as usual' scenario; this has led to a geometric increase in the occurrence of coastal hypoxic zones, now numbering over 400 and becoming increasingly common in the emerging economies. The economic impacts of nutrients on coastal economies are already estimated to be in the many tens of billions of dollars per year.

8.5 The panelists highlighted the significant ecosystem and economic impacts of hypoxia on coastal areas, in particular the more recent understanding of the role of hypoxia as an endocrine disruptor which can have impacts on various development and reproductive functions in a range of organisms. Such impacts can impair marine organismal populations with associated impacts on the broader ecosystem and livelihoods that depend upon such organisms.

8.6 A range of strategies for addressing hypoxia were explored, including improved fertilizer management and use efficiency, manure management, and tertiary wastewater treatment. Key drivers including the impact of the rapid growth of biofuels (in the US especially) and changes in eating habits (increased consumption of meat) were also identified. A range of innovative policy, economic and financial tools for nutrient reduction were also reviewed, such as tradeable nutrient emission permits, feed-in tariffs for fertilizer recovered from (human and livestock) waste, fertilizer taxes, etc.

8.7 The webcast of the side event will be included as content on the Rio+20 Oceans 'virtual' dialogues site on Teamworks managed by UNDP, to expand the awareness of this increasingly urgent ocean issue to Rio+20 stakeholders. The publicly available web link is www.ustream.tv/channel/undp-oceans. For UN participants, go to https://undp.unteamworks.org/node/217443.

Action taken by GESAMP

8.8 GESAMP agreed that the issue of hypoxia and effects on fish reproduction was of global significance and likely to increase in importance due to a combination of continuing population growth, coastal development, pressure for increased food production and climate change. Two of the invited presenters agreed that there was a need for the type of assessment being proposed and indicated a willingness to assist in this process.

8.9 The Correspondence Group will develop a focused plan for taking this forward and communicate with potential sponsoring Agencies. This issue is of great interest to both UNDP and UNEP (Nutrients Partnership Programme), but there a several other bodies who should be considered, for example: WHO, the Global Partnership on Nutrient Management, ICES, IUCN, HELCOM, FAO, National Fisheries Authorities, World Fish Centre.

9 SCOPING ACTIVITIES

Correspondence Group to further the understanding of endocrine disruption as a result of hypoxia in the marine environment

This topic from the New and Emerging Activities programme has been described above under Agenda item 8 and is not further considered here.

Correspondence Group on the biomagnification of contaminants in marine top predators and its ecological and health implications.

9.1 A scoping paper on this topic was presented and discussed at GESAMP 38 in 2011. It was agreed to continue to look for options to take this forward with the

intention to conduct a workshop in 2012 in close collaboration with and hosted by CIESM in Monaco. It was suggested that a two-phase approach might be appropriate: the first dealing with the development of indicators in top predators (possibly linked to the TWAP assessment); and, the second dealing with the implications for human health. It was also intended to conduct exploratory talks with FAO and WHO in the intercessional period with the hope of encouraging their involvement in the workshop and the provision of additional support, both in-kind and financial, focused on the 2nd phase activities.

9.2 Progress towards the organisation of the workshop by CIESM, during the intercessional was interrupted by the volatile political situation in several of the north African Member States served by CIESM. However, the subject was raised during the 2010 PICES (North Pacific Marine Science Organization) annual science conference in Khabarovsk, Russia. This was the third consecutive year that GESAMP had been represented and that biomagnification had been discussed as a topic of mutual interest. This led to the drawing up of a short-list of experts as potential contributors to a CIESM/GESAMP-led initiative. Positive responses have been received from those approached (University of Connecticut; Sea Mammal Research Unit St. Andrews Scotland; DFO Canada). Contact had also been made with World Fish.

9.3 A recent review has confirmed the widespread practice of human consumption of marine mammals, which in many cases represent top predators. However, fish consumption can also lead to relatively high inputs of contaminants in the human diet, leading to recommendations to alter feeding patterns, especially for children and pregnant or nursing women (e.g. Japan). Evidence is emerging of epigenetic cross-generational effects in both humans and in animal models.

9.4 Evidence for ecological effects in top predators is increasing. Contamination in some regions (e.g. Arctic) is increasing as a result of human activity (e.g. PAHs from fossil fuel and biomass burning; mercury from coal-fired power production) with the potential to biomagnify. It has been suggested that methylation of 'legacy' mercury is increasing as a result of climate-induced warming at high latitudes, with the potential for increasing the body burdens of both top predators and human consumers.

9.5 In addition to FAO and WHO, several Agencies have a potential interest in biomagnification: UNEP DEPI, DEWA and DTIE; the GPA LBA implementation phase; MedPol, Caribbean, ROPME monitoring programmes; and, UNIDO.

Action taken by GESAMP

9.6 GESAMP re-affirmed the intention to organise a workshop in 2012, with the initiative being led by CIESM with close GESAMP support. A small writing group will prepare a more focused proposal for a workshop, based on the G38 scoping paper and discussions at G39, taking into account the dialogue with third parties who have already been approached (e.g. AMAP). This group will work closely with CIESM to clarify the aims of the workshop and potential participants.

9.7 Potential sponsors will be approached once the focused proposal has been prepared. These will include FAO, WHO, UNEP, UNIDO and the European Union (initially through DG Environment). It is envisaged that the workshop will provide a platform for a limited number of scientific presentations by leading experts about the current state of knowledge and setting priorities for filling knowledge gaps. This would be followed by a stakeholder forum.

Correspondence Group on disinfection by-products

9.8 It had been suggested at GESAMP 38 that the data and expertise on disinfection by-products, represented by the BWWG, might be relevant when considering the potential impact of cooling water systems used in power generation and de-salination plants. Consequently, a scoping paper was produced and presented at GESAMP 39. In addition, a 2011 paper on disinfection by-products in power station cooling waters, produced by a UK Expert Panel (BEEMS[8]), was reviewed during the session.

9.9 When active species such as chlorine interact with organic matter in seawater, a range of halogenated by-products can be produced. The possible cumulative effect of such substances poses the question whether this is an emerging issue deserving further consideration (refer Report of GESAMP 37, paragraph 7.6, which is reproduced below and to the Four Step Process for identifying New and Emerging Issues as set out in paragraph 7.3 of Report GESAMP 37, see Annex VI, below).

9.10 It was noted the rapid expansion of coastal energy generating stations, industrial cooling units and desalination plants in many developing countries, most of which rely on electrolytic chlorination to prevent fouling. Attention was drawn to substances of concern such as Total Residual Oxidants (TRO) as well as halogenated disinfection by-products, which occur when chlorine interacts with organic matter. It was pointed out that GESAMP's WG 34 was in possession of a growing body of data on the composition and concentrations of chlorination by-products such as

8 British Energy Estuarine and Marine Studies (BEEMS) programme is an integrated suite of marine environmental studies funded by EDF Energy (formerly British Energy) to provide authoritative scientific information on the marine and transitional waters in the vicinity of potential new-build nuclear power stations in the UK. (http://www.cefas.defra.gov.uk/our-services/programme-management/beems-programme.aspx).

halomethanes, e.g. bromoform and haloacetic acids as well as standardised environmental hazard data, which might be of use to other organisations when assessing the potential environmental impact of electrolytic antifouling systems. Recommended standards for Total Residual Oxidants (TRO) differ nationally and regionally; the World Bank discharge standard being 0.2 mg/L but which allows up to 2mg/L for shorter periods within 24hrs"

9.11 The aim of the investigation could be that based on data available in the scientific literature on disinfection by-products (DBP), the growing body of data available on ballast water management systems (BWMS) as well as industrial cooling units and desalination plants, an overview may be prepared on the scope and relative importance of the introduction of these substances to the marine environment (document GESAMP 39/7)

9.12 Each of the emission routes (ballast water, desalination, power generation and industrial cooling) would need to be further analyzed with respect to the amounts and environmental significance, especially with respect to the natural production of DBP-related chemicals, the most important of which is bromoform. Some useful information in DBP is given below. Industrial cooling units and desalination plants use chlorine concentration between 0.1 and 0.5 mg Cl2/L, incidentally up to 0.7 mg Cl2/L and generally produce bromoform concentrations in the order of 15 µg/L. According to Grimvall and de Leer (1995), the annual production of a number of organohalogens is:

Substance	Amount naturally produced
chloromethane	5.000.000 t
bromomethane	300.000 t
iodomethane	300.000 t to 1.200.000 t
chloroform	90.000 t to 360.000 t
bromoform	500.000 t to 1.000.000 t
iodoform	Not detectable in sea water

9.13 Bromoform is the most common CBP (chlorinated by-product) produced by both BW and cooling water (CW) treatment systems. It is a carcinogen, is semi-volatile and relatively persistent in water. The present BWWG assessment considers single systems for single ships in an idealized harbor. There is a concern that cumulative effects of multiple ships in relatively enclosed water bodies may produce effects. In contrast, CW volumes are several orders of magnitude higher but the receiving environments can be more dispersive. BW systems aim to kill 100% of viable cells, whereas CW systems aim to inhibit colonization. There is some uncertainty about the total quantities of CBPs discharged globally compared with the natural production of halogens in the marine environment.

9.14 Increased demand both for power generation in coastal regions and for de-salinated water is going to be most evident in developing countries. UNIDO (energy), UNDP and WHO all have potential interests in this topic.

Action taken by GESAMP

9.15 GESAMP agreed that a Correspondence Group should be set up to further investigate the topic. The Group should seek additional non-GESAMP participation to provide expertise on cooling water chlorination (e.g. BEEMS Expert Panel; EU Technical Group on biocides), as well as expertise on natural sources of halogens to provide a context. The Group will assist UNIDO, as required, in the organisation of a side-event on this topic proposed for GESAMP 40 in 2013.

9.16 The ToR will be considered intersessionally and feedback will be requested from UNIDO and UNDP.

10 DATE AND PLACE OF GESAMP 40

GESAMP accepted the kind offer of UNIDO to host the 40th session of GESAMP at the UNIDO Headquarters in Vienna, to be held from 9 to 13 September 2013. Tentatively, a side event on cooling water discharges from power plant will be organised.

11 FUTURE WORK PROGRAMME

GESAMP Working Groups, correspondence groups and task teams

11.1 Evaluation of the hazards of harmful substances carried by ships

(Working Group 1)

Lead Agency:	IMO
Co-sponsors:	None
Chairperson:	C. T. Bowmer (Netherlands)
Members:	S. le Floch (France), T. Höfer (Germany), D. James (U.K.), W. Jiang (China), M. Morrissette (USA), H. Saito (Japan), (two vacancies), N. Soutar (consultant)
Products:	a) Hazard profiles of new substances & correspondence with the chemicals industry b) Maintenance and update of 900 GESAMP hazard profiles c) GESAMP Reports and Studies 64, 2nd edition
Planning:	49th Session, 25 to 29th June 2012 at IMO in London First draft of R&S 64 2nd edition by EHS 49 Peer Review by GESAMP intersessionally prior to GESAMP 40

11.2 Review of applications for "Active Substances" to be used in ballast water management systems

(Working Group 34)

Lead Agency:	IMO
Co-sponsors:	None
Chairperson:	J. Linders (Netherlands)
Members:	T. Borges (Portugal), S. Gollasch (Germany), S. Hanayama (Japan), K. Rhie, F. Stuer-Lauridsen, D. Tongue (U.K.), E. Oyewo (Nigeria), (3 vacancies)
Consultants:	A. Craven, John Crayford
Products:	Evaluation of the risks to the environment, human health and the ships' crew from ballast water management systems Completion of the methodology in R&S following external and GESAMP peer review
Planning:	A minimum of four meetings are planned before GESAMP 40 in 2013

11.3 Metals (formerly mercury)

(Working Group 37)

Lead Agency:	UNEP
Co-sponsors:	None
Chairperson:	H. Keenan (United Kingdom)
Members:	Technical editing: M. Huber (Australia) Organization of peer-review: T. Bowmer (Netherlands)
Products:	Completion and peer review of GESAMP Reports and Studies No.86 on "Mercury in the Marine Environment".
Planning:	Final drafting to be completed by end June 2012 External peer review to be completed by Sept. 2012 Review and approval by GESAMP intersessionally online publication end Oct 2012

11.4 Atmospheric input of chemicals to the oceans

(Working Group 38)

Lead Agency:	WMO
Co-sponsors:	IMO, US National Science Foundation
Chairpersons:	R. Duce (United States), P. Liss (United Kingdom)
Members:	K. Altieri (United States), K. Arrigo (United States), A. Baker (United Kingdom), D. Capone (United States), F. Dentener (European Commission), R. Duce (United States), K. Fennel (Canada), J. Galloway (United States), N. Gruber (Switzerland), T. Jickells (United Kingdom), M. Kanakidou (Greece), J. LaRoche (Canada/Germany), K. Lee (Republic of Korea), P. Liss (United Kingdom), J. Middelburg (Netherlands), K. Moore (United States), S. Nickovic (WMO), G. Okin (US), A. Oschlies (Germany), J. Prospero (United States), M. Sarin (India), S. Seitzinger (Sweden), J. Sharples (United Kingdom), P. Suntharalingam (United Kingdom), M. Uematsu (Japan), C. Zender (United States)
Products:	a) Completion of peer reviewed paper in the scientific literature on atmospheric dust deposition b) Publication of GESAMP Reports and Studies No. 84 on "The Atmospheric Input of Chemicals to the Ocean" c) ToR for a reconstituted Working Group 38 on the atmospheric input of Nitrogen to the ocean

Planning: ToR to be completed by the working group and approved by GESAMP inter-sessionally.

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

(Working Group 39)

Lead Agency: IAEA
Co-sponsors: UNIDO
Chairpersons: A.C. Ruiz-Fernandez (Mexico), F. Carvalho (Portugal)
Members: P. Alvarez-Torres (Mexico), D. Dang (Vietnam), E. Nyarko, J. Sanchez-Cabeza (Spain), M. Sarin (India), J. Sericano (USA), E. Sombrito (Philippines), N. Theobald (Germany), A. Wagener (Brazil)
Products: Report on work items 1 and 2 of Terms of Reference
Planning: Report to GESAMP 40

11.6 Sources, fate and effects of micro-plastics in the marine environment – a global assessment

(Working Group 40)

Lead Agency: UNESCO-IOC, UNEP,
Co-sponsors: IMO, UNIDO, IAEA, Plastics Europe, American Chemistry Council, NOAA
Co-chair: P. Kershaw (U.K.), H. Leslie (Netherlands),
Members: T. Andrady (United States), J. Baker (United States), V. Rios (Mexico), P. Huidobra (Mexico), A. Koehler (Germany), K. L. Law (United States), N. Maximenko (United States), O. Osibanjo (Nigeria), W. Joon Shim (Korea), H. Takada (Japan), R. Thompson (United Kingdom), A. Turra (Brazil), R. Venkatesan (India)
Products: Inception report (end May)
Planning: a) Global assessment report within 3 years (2014)
b) Virtual conferences to prepare Task Teams over the summer
c) Workshop: late 2012 or mid 2013

The standing Task Team on the Trans-boundary Waters Assessment Programme

Lead Agency: IOC, UNEP
Co-Chair: C. T. Bowmer (Finland), M. Huber (Australia)
Members: WG Chairs (37, 38, 39, 40), plus Correspondence Group leaders (hypoxia, biomagnification)
Products: A work plan and budget for participation in the TWAP indicator-based assessment (2012-2014)
Planning: The Chairman of GESAMP to visit the TWAP team at UNESCO-IOC (3/4 May 2012)

The following activities will continue during the intersessional period:

Correspondence Group to further the understanding of endocrine disruption as a result of hypoxia in the marine environment

The Correspondence Group would continue to identify sources of funding. UNDP would be the lead agency in this respect.

Lead: Rudolf. Wu (Hong Kong)
Members: M. Huber (Australia), P. Thomas (United States)

Correspondence Group on the biomagnification of contaminants in marine top predators and its ecological and health implications

The Correspondence Group will continue, on the basis of the scoping paper provided (see GESAMP 38, Annex VIII), develop a) ToR and a programme for an international workshop on the ecological consequences of bioconcentration, b) prepare with CIESM a high level meeting with stakeholders on the human health issues of biomagnification and c) establish contacts with FAO/WHO.

Lead: Frederic Briand CIESM
Members: C. T. Bowmer (Finland), P. Kershaw (United Kingdom

Correspondence Group on disinfection by-products

The Correspondence Group will prepare a scoping document. The issue is that based on the disinfection systems for ballast water to avoid bio-invasion of organisms, an additional amount of disinfection by-products will be discharged into the marine environment compared to the amounts discharged by cooling systems using disinfection as well.

Lead: J. Linders (Netherlands)
Members: M. Huber (Australia), C. T. Bowmer (Netherlands), P. Kershaw (United Kingdom)

12 ANY OTHER BUSINESS

12.1 In the light of the absence of several members, GESAMP decided that the Chairman would ascertain the reasons for non-attendance and provide advice to ExCom.

12.2 It was also agreed that Sponsoring Organisations would nominate in the intersessional period, new members for the next session of GESAMP, and some additional nominations whom could be placed on a reserve list and be invited when members might not be available. It was also recognized that more members were needed from developing countries and, in particular, more female experts should be encouraged to join providing a better gender balance.

12.3 In discussing this issue further, it was acknowledged that in searching for new members of GESAMP, the Pool of Experts could provide for useful initial contacts, in this regard (note that the self nomination requests still come in regularly despite the temporary disabling of the Pool of Experts internet facility– see paragraph 2.9. above). it was recognized that while the GESAMP Pool of Experts was useful for identifying members for working groups and peer reviews, it would not be the only source for future members to the GESAMP. Such experts would need to command expertise on a broad range of fields and be highly respected scientists in their own field.

13 ELECTION OF CHAIRPERSONS

Mr. Tim Bowmer was elected for chairman for two sessions during GESAMP 38 and will therefore remain as chairman for this session. Mr. Peter Kershaw and Mr. Manmohan Sarin were re-elected, unanimously, as 1st and 2nd Vice Chairman for the intersessional period and the 40th session of GESAMP, respectively.

14 CONSIDERATIONS AND ADOPTION OF THE REPORT ON GESAMP 39

The report of the thirty-ninth session of GESAMP was considered and approved by correspondence.

15 CLOSURE OF THE SESSION

The Chairman of GESAMP, Mr. Tim Bowmer, closed the thirty-ninth session of GESAMP on Friday, 20 April 2011 at 13:00 hrs.

ANNEX I – AGENDA

39th session of the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) held at the UNDP FF Building, New York, from 15 to 20 April 2012

Sunday, 15 April, 13:30 – 17:30 p.m.
(closed sessions)

1 Informal meeting of the members of GESAMP
2 First meeting of the Executive Committee of GESAMP (ExCom)

Monday, 16 April

Opening of the session
1 Adoption of the agenda
2 Report of the Chairperson of GESAMP
3 Report of the Administrative Secretary of GESAMP
4 GESAMP Office matters
5 Planning of GESAMP activities:
  .1 Evaluation of the hazards of harmful substances carried by ships (WG 1: IMO leading)
  .2 Review of applications for 'active substances' to be used in ballast water management systems (WG 34: IMO leading)
  .3 Expanded scientific review of mercury and its compounds and threats to the marine environment (WG 37: UNEP leading)

Tuesday, 17 April

  .4 Atmospheric input of pollutants to the oceans (WG 38: WMO leading)
  .5 Establishment of trends in global pollution in coastal environments (WG 39: IAEA leading)
  .6 Sources, fate and effects of micro-plastics in the environment – a global assessment (WG 40: IOC leading)
6 Contributions to the UN Regular Process/GEF Transboundary Water Assessment Programme

Wednesday, 18 April

7 Identification of new and emerging issues regarding the degradation of the marine environment of relevance to governments and sponsoring organisations
8 Scoping activities:
  • Hypoxia
  • Biomagnification
  • Byproducts of discharged disinfection and anti-fouling agents
  • Others - discussion

Thursday, 19 April

9 GESAMP Side event: Ocean Hypoxia and its Impacts on Ecosystems and Economies.

Friday, 20 April, 09.00 a.m. to 1.00 p.m.

10 Date and place of GESAMP 40
11 Future work programme
12 Any other business
13 Election of chairpersons
14 Consideration and adoption of the report of GESAMP 39
15 Closure of the session

Friday, 16 April, p.m. (closed session)

Second meeting of the Executive Committee of GESAMP (ExCom)

ANNEX II – LIST OF DOCUMENTS

GESAMP 39/1	Admin. Secretary	Provisional Agenda
GESAMP 39/1/Rev.1	Admin. Secretary	Provisional Agenda revised
GESAMP 39/1/1	Admin. Secretary	Annotations to the Provisional Agenda
GESAMP 39/2	Chairman	Report of the Chairman of GESAMP
GESAMP 39/3	Admin. Secretary	Report of the Administrative Secretary of GESAMP
GESAMP 39/5	Chairman of WG 34	Report of the GESAMP Ballast Water Working Group (WG 34)
GESAMP 39/5/1	Chairperson of WG 37	Planning of GESAMP activities: Expanded scientific review of metals (formerly mercury) in the marine environment
GESAMP 39/5/2	Chairman of WG 40	Report of the GESAMP Microplastics Working Group (WG 40)
GESAMP 39/5/3	Chairman of WG 1	Planning of GESAMP activities: Evaluation of the hazards of harmful substances Carried by ships
GESAMP 39/6	L. Inniss and A. Simcock, Joint Co-coordinators Group of Experts on the Regular Process	Contributions to the Regular Process
GESAMP 39/7	Chairman of WG 34	New and emerging issues: By-products of discharged disinfection and anti-fouling agents
GESAMP 39/8	UNDP	Workshop on “The global implications of Hypoxia – causes and effects”
GESAMP 39/INF.1	GESAMP Office	Draft List of Participants
GESAMP 39/INF.2	UNEP	Contributions to the UN Regular Process/GEF Transboundary Water Assessment

ANNEX III – LIST OF PARTICIPANTS

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ANNEX IV ACTIVITIES AND ACHIEVEMENTS BY THE SPONSORING ORGANISATIONS OF GESAMP DURING THE INTERSESSIONAL PERIOD

This annex provides a summary of the Organisations' achievements since GESAMP 38 (May 2011) from IAEA, IMO, IOC/UNESCO, UN/DOALOS, UNEP, and UNIDO. FAO has not been able to submit a contribution this time.

IAEA

Fukushima Daiichi Nuclear Power Station Accident on 11 March 2011

For the IAEA the year 2011 was marked by the major nuclear accident at the nuclear power stations Fukushima Daiichi in Japan after a major earthquake of the magnitude of 9.0 and the effect of the subsequent tsunami on 11 March 2011. About 40 minutes after the Fukushima Daiichi reactors were shut down, several massive tsunami waves crashed over the six-Unit plant's protective wall, forcing seawater deep into the plant. Emergency generators and some of the associated electrical equipment were flooded and only one emergency generator survived the onslaught, providing power to Units five and six. The combined effects of the earthquake and tsunami devastated the coastal area, exacting a dreadful toll: almost 16 000 lives were lost, over 8 000 people remain missing, and more than 679 000 homes were destroyed or damaged and about 160 000 people had to be evacuated from their homes due to the high deposition of radioactive contamination on land. However, it needs to be emphasised that up to now nobody died from radiation after this accident.

IAEA Emergency Response

In Vienna, Austria, the IAEA's International Seismic Safety Centre (ISSC) received a notification from a US Geological Survey system that an earthquake in Japan had occurred. The emergency response staff at the IAEA's Incident and Emergency Centre (IEC) was alerted and went into "full response mode" and offered the Japanese Government assistance on behalf of the IAEA. Experts in nuclear safety and radiation protection from throughout the Agency converged to support the IEC response. Member States offered technical support, which the IEC coordinated. From the early hours of the accident, the Agency also delivered briefings and updates to IAEA Member States, international organisations, the media and the public. The Terrestrial Environment Laboratory (TEL) in Seibersdorf of the IAEA received hundreds of samples (snow, soil, plants, food, water) from Japan for analysis to assist Japanese authorities in assessing the radiological consequences for the population.

Marine Survey

As a consequent of the accident, significant amounts of radioactively contaminated cooling water escaped from the Fukushima Daiichi reactor buildings through cracks caused by the earthquake into the sea, raising concern about the radioactivity's harmful effects on marine life and on seafood destined for human and animal consumption. Japan initiated an intense programme to monitor both coastal and off-shore levels of seawater contamination at the discharge area, as well as at distances 10 and 30 kilometres from the reactors. At Japan's request, an IAEA expert in marine monitoring programs joined the Japanese team aboard the R/V MIRAI for advice. Experts of the Marine IAEA Laboratory in Monaco were involved in the briefings to the Member States by reviewing the measurements and monitoring results of Japanese authorities for the consequences for the marine environment.

Studying Marine Contamination

Since the accident, the Japanese authorities monitored the marine radioactivity near the Plant site. Countries in the Asia and Pacific region requested the IAEA's support, worried that the considerable releases of radioactively contaminated water could reach their coasts, with possible damaging consequences for those communities and their economies. In June 2011, the IAEA Board of Governors approved an IAEA Regional Cooperation project to support countries in the Asia and Pacific region. Twenty-four countries are participating in the multi-year project "Marine Benchmark Study on the Possible Impact of the Fukushima Radioactive Releases in the Asia-Pacific Region". The project started 1 July 2011 and is supported by extra-budgetary contributions from the USA, Australia, New Zealand and Japan and is planned to be completed by end of 2014.

The project will harmonize the analyses of various radioisotopes in marine waters, marine plant and animal life, sediments and suspended matter. The uniform measurement of the radioisotopes in the ocean will ensure that any impact assessment is comparable and verifiable across the enormous volume of the Pacific Ocean. Quality Assurance by means of proficiency tests and interlaboratory exercises will ensure a high standard of the produced results. A first training on this issue was organised in November 2011 in the premises of the IAEA in Monaco.

The IAEA received water samples from a cruise organised by the Woods Hole Oceanographic Institution in June 2011 in order to study the dispersion and levels of radionuclides mainly in the Kuroshio Current. As expected, transport of water masses and dilution has decreased the extremely high levels at the discharge points of the Fukushima Daiichi reactors already to concentrations

which are below any alarming levels, even at the area about 600 km off-shore, where the highest concentrations were detected. It is expected that this contamination will be transported by the Kuroshio Current in the Pacific Ocean and can be used to trace the labelled water masses for the coming years.

Modelling activities of the Fukushima releases

The Environment Laboratories in Monaco were also in contact with a number of centres to set up models in order to simulate the dispersion of the discharges. The centre SIROCCO of the University of Toulouse was chosen, because this centre was able to set up rapidly an oceanographic hydro-dynamic model for the Pacific. The necessary bathymetric data of the Japanese coast were provided by the International Hydrographic Bureau in Monaco (BHI – IHB) to the IAEA and forwarded to the SIROCCO group. The simulation both of the aerial deposition and from the discharge and the propagation of the contamination plume in the Pacific is available in the Internet by their Fukushima Forecast Bulletin: (http://sirocco.omp.obs-mip.fr/outils/Symphonie/Produits/Japan/SymphoniePreviJapan.htm).

Harmful Algal Blooms

Within the IAEA Coordinated Research Project (CPR) "Applications of Radiotracer and Radioassay Technologies to Seafood Safety Assessment" a framework of collective dataset was prepared of quality-assured measurements of contaminants in selected seafood of value to developing countries. These data were used in the recent Cd risk assessment for CODEX ALMENTARIUS. They contribute to the overall picture on occurrence which then feeds into the exposure assessment. The Joint FAO/WHO Expert Committee on Food Additives (JECFA) and/or related expert committee assessments of seafood contaminants based on the CRP data provided, are expected to lead to the potential establishment of Codex maximum levels in seafood, and the facilitation of greater export in seafood particularly from developing to developed countries (further information is available at www-crp.iaea.org/html/rifasearch-crpbycrp.asp? and www-naweb.iaea.org/nafa/fep/public/fep-nl-12-2.pdf).

Ocean Acidification

Conclusions and recommendations for decision makers were published from the outcomes of the 2010 workshop entitled "Bridging the Gap between Ocean Acidification Impacts and Economic Valuation" which was held at Oceanographic Museum in Monaco. The successes of the workshop included establishing a baseline of scientific and economic information, integrating the language and concepts of natural science and economics, and initiating collaborations among researchers in dissimilar but complimentary fields of study. The 2nd International Workshop on Environmental and Economic Impacts of Ocean Acidification has been scheduled for 11 to 13 November, 2012. Further information is available about the Monaco Environment and Economic Group and the ocean acidification workshop at www.iaea.org/monaco/page.php?page=2251.

A consultancy meeting of 15 scientific and economic experts from the IAEA, CSM, FAO, IOC, CIESM, the UBC Fisheries Centre, and the Kiel Institute for World Economy was held in Monaco from 10 to 14 October, 2011, and produced 17 recommendations for priority research in socio-economics of ocean acidification. A Coordinated Research Project in developing countries has been approved by the IAEA, and an initial research coordination meeting is scheduled for 9 to 11 July, 2012. Three themes of ocean acidification will be investigated to address gaps in knowledge and enhance capacity in developing countries: (1) socio-economic vulnerability assessments (2) coupled regional bio-economic model scenarios (3) biological impact information analysis and development through multi-factorial, high CO2 experiments with economically relevant species.

In parallel, IAEA-EL develops tools and studies in assessing biological effects of variable CO2 on the growth, survival and pollutants bioaccumulation in organisms of high ecological and economic interests.

Capacity Building and support to Member States on Quality Assurance Issues

All three marine laboratories located in Monaco of the IAEA Environment laboratories (Radiometrics Laboratory (RML), Radioecology Laboratory (REL), and Marine Environment Studies Laboratory (MESL)) as well as the Terrestrial Environment Laboratory in Seibersdorf, Austria support the Member States in the improvement of their marine and terrestrial monitoring programmes and research. The application of basic metrological concepts (traceability, validation, uncertainty) is an integral part of the analytical work.

Trainings and Education Activities in 2011 include:

- Regional Training Course on "Impact of Oil Spill on Marine Environment", IAEA (Ref: C7-RAS-7.020-001). The primary target of this training course was to establish a networking for oil-fingerprinting identification with of the ARASIA countries;
- Within the TC-project INT/7/018 Inter-regional Technical Co-operation Project for Supporting Capacity Building in Marine Environmental Protection an "Interregional Advanced Training Course on Marine Radioactivity: Analytical Techniques and Quality Management" was held at the Karlsruhe Institute of Technology (KIT) attended by 22 participants from 15 countries;
- Within the TC-Project RCA 07/021 "Marine Benchmark Study on the Possible Impact of the Fukushima Radioactive Releases in the Asia-Pacific Region" training on Quality Management and Assurance and data Management was held in Monaco;
- Workshop on "Marine Environmental Radioactivity

Data Reporting" with participants from the OSPAR laboratories in February 2011. The IAEA Marine Date Base MARiS is the data base for OSPAR of concentration of radioactive substances;
- Joint EC/IAEA Training course on nuclear Science with Nucleonica in Monaco in November 2011; and
- Technical Visit on "Measurement of natural radionuclides in environmental samples, NORMS and TENORMs[9] by gamma spectrometry: experimental challenges and methodologies".

ALMERA[10]

Methods for the measurement and assessment of marine radioactivity were introduced to the network by representatives of the regional networks of marine radioactivity monitoring laboratories on the occasion of the 8th ALMERA coordination meeting held in Vienna, 5-7 September 2012.

Provision of reference products for the marine environment and laboratory performance support by Proficiency Tests and Interlaboratory Comparison Exercises

Several certified Reference Materials from marine origin were produced in the last two years as well as proficiency tests. Those were mussel tissue, marine sediment and a seaweed sample. The Certification Committee ensures the high level standards of the analytical capabilities in the Member States. Information on RM can be obtained in the IAEA website: http://www.iaea.org/programmes/aqcs/.

IMO

Implementation of the Anti-Fouling Systems Convention

The IMO Anti-Fouling Systems (AFS) Convention, which entered into force on 17 September 2008, prohibits the use of harmful organotin compounds in anti-fouling paints used on ships and establishes a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems. To date, the Convention has 59 Parties, representing 79.17% of the world's gross tonnage. Standardised adherence to the Convention's guidelines is required for its effective implementation and enforcement, however, in order to achieve this; all the interested stakeholders require a clear understanding of the process of inspection of ships. Therefore, in July 2011, MEPC 62 adopted the Guidelines for inspection of anti-fouling systems on ships (MEPC.208(62)).

Implementation of the Ballast Water Management Convention

The Ballast Water Management Convention was adopted in February 2004 and aims to prevent, minimise and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments. The Convention will enter into force 12 months after the date on which not less than 30 States, the combined merchant fleet of which constitute not less than 35% of the world's gross tonnage, have ratified it. By end February 2012 a total of 33 states, representing 26.46% of the world merchant fleet tonnage, have ratified.

In July 2011, MEPC 62 adopted the Procedure for approving other methods of ballast water management in accordance with regulation B-3.7 of the BWM Convention (MEPC.206(62)). A new guidance document on Scaling of ballast water management systems was also approved by the meeting and has been disseminated as BWM circular BWM.2/Circ.33. MEPC 62 also agreed to grant final approval to two additional ballast water management systems.

In March 2012, MEPC 63. granted basic approval to three, and final approval to five ballast water management systems that make use of active substances, after considering the reports of the 18th, 19th and 20th meetings of the Joint Group of Experts on the Scientific Aspects of Marine Environment Protection (GESAMP) Ballast Water Working Group, which took place 2011. MEPC noted that there were now 21 type-approved systems available. MEPC also adopted the revised Guidelines on design and construction to facilitate sediment control on ships (G12), one of the 14 sets of guidelines developed to assist in the implementation of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention). The revised Guidelines (G12) update the previous version adopted in 2006.

International measures to minimising the transfer of invasive aquatic species through biofouling of ships

In July 2011 MEPC 62 adopted resolution MEPC.207(62) Guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species. In adopting the Guidelines Member States of the IMO made a clear commitment to minimising the transfer of invasive aquatic species by shipping. Studies have shown that biofouling is a significant vector for the transfer of invasive aquatic species. Biofouling on ships entering the waters of States may result in the establishment of invasive aquatic species which may pose threats to human, animal and plant life, economic and cultural activities and the aquatic environment.

9 NORM and TENORM: Natural Occurring Radionuclides Material and Technically Enhanced NORM

10 ALMERA: Network of Analytical Laboratories for the Measurement of Environmental Radioactivity

Ship recycling

The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (Hong Kong Convention) opened for signature until 31 August 2010. France, Italy, Netherlands, Turkey and Saint Kitts & Nevis signed the Convention, subject to ratification. In 2011 MEPC 62 amended the "2011 Guidelines for the Development of the Inventory of Hazardous Material" (resolution MEPC.197(62)) and adopted the "2011 Guidelines for the Development of the Ship Recycling Plan" by resolution MEPC.196(62).

In 2012 MEPC 63 adopted the 2012 Guidelines for Safe and Environmentally Sound Ship Recycling and the 2012 Guidelines for the Authorization of Ship Recycling Facilities. Work on two further documents: (1) Guidelines for Survey and Certification under the Hong Kong Convention", and (2) Guidelines for Inspection of Ships under the Hong Kong Convention is expected to be completed in October 2012 (MEPC 64) or by the summer of 2013 (MEPC 65).

Implementation of the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), and the Protocol on Preparedness Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances (OPRC-HNS Protocol)

Manuals and guidance documents

At MEPC 63, four manuals, developed to through the OPRC-HNS Technical Group to provide guidance to countries in improving their national and regional systems of pollution preparedness and response. These are the Guidance on sensitivity mapping for oil spill response, to be published as joint IMO/IPIECA publication, as part of the IMO/IPIECA Report Series; the Guideline for oil spill response in fast currents; an Operational guide on the use of sorbents for spill response; and Oil spill waste management decision support tool.

Training

Further to the development of two model courses for preparedness and response to HNS incident, the OPRC-HNS Technical Group has commenced work on the revision of the OPRC Model Courses, levels 1 to 3. These courses form the basis for training programmes for improved preparedness and response to oil pollution incidents around the world. The revision aims to update the information based on recent technological developments and modernise the course materials and audiovisual aids.

Promoting R&D, technological development and international best practice

IMO, as a regular contributor to the triennial conference series on management of marine pollution incidents, most recently co-sponsored Interspill 2012, which took place in March 2012. The conference, which is one of the three triennial international oil spill conferences, brought together practitioners, technical experts, and regulators from around the world to share information on the state of the are in oil pollution preparedness and response. To this end, IMO, through its Integrated Technical Cooperation Programme, sponsored the participation of eight individuals from developing nations to attend, and organised a short course on response to HNS in the marine environment.

Sharing of best practices and lessons learned

The OPRC-HNS Technical Group has, as a regular part of its agenda, a review of recent cases of pollution incidents, with a view to sharing lessons learned and best practice in the response to pollution incidents. At its thirteenth session, the Group considered information on a series of cases, notably, the Costa Concordia incident and follow-up actions, the MT Rena incident, which occurred off the coast of New Zealand and resulted in a major oil spill and the loss of numerous containers, and the Golden Trader incident, that occurred off the coast of Denmark resulting in a spill that impacted the Swedish coastline.

Major Projects

GEF-IBRD-IMO Marine Electronic Highway (MEH) Demonstration Project

The Project has progressed significantly over the past several months with the establishment and operation of the MEH Data Centre IT System (MIS). At present, the MIS is undergoing testing on data feed and exchange linked to remote island stations for data on tides, wind and current. Registered users can access those data from www.mehsomes.com. In terms of Environmental Marine Information Overlays, the MIS is currently being upgraded to enhance its technical functionalities, particularly to display maps and carry out basic mathematical and topological operations.

Sea trials using ships will be carried in late March 2012 for 4 weeks to test the usefulness of data being generated through MIS in the context of navigation as well as the access and remote Internet connectivity between ship to shore facilities. The sea trial will be completed by May to be followed in parallel by user survey and integration of oil spill and hydrodynamic models with the MIS. The Project will be technically closed by 30 June 2012.

GEF-UNDP-IMO GloBallast Partnerships

At the global level two new training packages were finalised. One package focuses on the compliance monitoring and enforcement (CME) aspects of the BWM Convention and was developed in cooperation with the World Maritime University (WMU) and the International Union for the Conservation of Nature (IUCN), with support from the ITPC, the Total Foundation and the Maritime and

Port Authority of Singapore. In addition, an advanced training course on the operational aspects of BWM, funded by the GloBallast Partnerships Project, the Global Industry Alliance, and the IMO TC Programme, has been finalised and is currently being translated into Russian for its first delivery later this year, in the framework of the partnership between IMO and the European Bank for Reconstruction and Development (EBRD).

At the regional level, several training activities have been carried out, in most cases with a substantial support from the IMO TC Programme and in partnership with the Regional Coordinating Organisations. A regional training course on the legal implementation of the BWM Convention, with particular focus on CME, was delivered in the South Pacific region in cooperation with SPREP. The training was held in Fiji from 16 to 18 May 2011. The finalised training package on CME was delivered twice, from 13 to 14 September in Togo for the Guinea Current Large Marine Ecosystem (GCLME) sub-region (in cooperation with the Interim Guinea Current Commission) and from 14 to 15 November in Jamaica for the Wider Caribbean region (in cooperation with RAC/REMPEITC-Caribe and the Caribbean Environment Programme of UNEP).

The fourth IMO-GloBallast Research and Development (R&D) Forum was hosted by Turkey in Istanbul from 26 to 28 October 2011. The Forum, gathering around 150 experts, focused on the challenges of compliance monitoring and enforcement from an R&D perspective. Back-to-back with this Forum, the second GloBallast-IMarEST Shipbuilders' Forum was convened, as well as the third meeting of the test facilities involved in testing of ballast water treatment technologies.

A further focus of the GloBallast Partnerships Project in 2011 was to make progress at the national level. By joining the fast-track of the Project, Panama became the fifteenth LPC of the Project and the fifth in the Wider Caribbean region. The LPCs have been given the financial support for a number of tasks, in order to facilitate the domestication and implementation of the BWM Convention. These activities include a national ballast water status assessment, an economic assessment of the implementation of the Convention, the development of a national BWM strategy, and a review and drafting of national BWM legislation. Most LPCs are on track to adopt their national strategies during late 2012.

Amendments to MARPOL Annex I (Oil) - Development of a mandatory Polar Code

Recognizing the increased interest in the polar regions with the projected growth in shipping traffic therein and the need to further promote the safety of navigation and prevention of pollution from ship operations, IMO has decided to develop a mandatory Code for ships operating in polar waters. The work is currently being undertaken by the DE Sub-Committee and is aimed to cover the full range of design, construction, equipment, operational, training, search and rescue and environmental protection matters relevant to ships operating in the inhospitable waters. MEPC 63 discussed various options of how best to make the Code mandatory in the legal framework of the Organization's conventions, which should be of great interest to all parties involved in this work.

Amendments to MARPOL Annex IV (Sewage)

MEPC 62 adopted amendments to MARPOL Annex IV by resolution MEPC.200(62), designating the Baltic Sea as a Special Area and prohibiting the discharge of sewage effluent from passenger ships within those areas, unless there is a sewage treatment plant in operation that is type approved by the Administration in accordance with standards and test methods to be developed by the Organization, implementing additional effluent standards to those applicable to other ships regarding the nitrogen and the phosphorus concentration. In view of these new requirements the revised Guidelines on Implementation of effluent Standards and Performance Tests for Sewage Treatment Plants (resolution MEPC.159(55)) needed updating and DE 55 established a correspondence group to accomplish this task. The correspondence group made good progress on the development of the guidelines and the amendments to the guidelines will most likely be finalised at DE 56, in which case they will be submitted to MEPC for approval and adoption at its 64th session.

Review of MARPOL Annex V (Garbage)

The revised MARPOL Annex V which was adopted by resolution MEPC.201(62), with an entry into force date of 1 January 2013, establishes a prohibition on the discharge of all types of garbage into the sea except in the cases explicitly permitted under the Annex. The 2012 Guidelines for the Implementation of MARPOL Annex V and the Guidelines for the Development of Garbage Management Plans were adopted at MEPC 63, following resolution of issues related to the loss of fishing gear, the discharge of animal carcasses, the management of cargo residues, and with regard to the question what constitutes harmful to the marine environment for cleaning agents and additives and cargo residues.

MARPOL Annex VI (Prevention of air pollution from ships)

MEPC 62 adopted amendments to MARPOL Annex VI to designate the coasts of the Commonwealth of Puerto Rico and the United States Virgin Islands as an Emission Control Area for NOx and SOx with expected entering into force on 1 January 2013.

Following consideration of various fuel oil quality issues, MEPC 62 noted that there remained concerns related to fuel oil sampling and agreed that the matter should be re-considered by the BLG Sub-Committee with 2012 as the target completion year. It also agreed a work plan for the BLG Sub-Committee on the impact on the Arctic of emissions of Black Carbon from international shipping, in particular, to develop a definition and consider measurement as well as investigating the most appropri-

ate abatement technologies with the aim of submitting a final report to MEPC 65 for action.

Promotion of energy efficiency in international shipping

MEPC 62 adopted amendments to MARPOL Annex VI Regulations for the prevention of air pollution from ships, added a new chapter 4 to Annex VI on Regulations on energy efficiency for ships to make mandatory the Energy Efficiency Design Index (EEDI), for new ships, and the Ship Energy Efficiency Management Plan (SEEMP) for all ships. Other amendments to Annex VI add new definitions and the requirements for survey and certification, including the format for the new International Energy Efficiency Certificate. The EEDI is a non-prescriptive, performance-based mechanism that leaves the choice of technologies to use in a specific ship design to the industry. As long as the required energy-efficiency level is attained, ship designers and builders would be free to use the most cost-efficient solutions for the ship to comply with the regulations. The SEEMP establishes a mechanism for operators to improve the energy efficiency of ships.

The new chapter 4 of MARPOL Annex VI represents the first ever mandatory global and legally binding energy efficiency standard for an international industry sector and was also the first global climate treaty to be adopted since the Kyoto Protocol in 1997. The new regulations apply to all merchant ships of 400 gross tonnage and above, regardless of the national flag they fly or the nationality of the owner, and are expected to enter into force globally on 1 January 2013. However, an Administration that considers that its industry needs more time to comply may waive the requirement for new ships to comply with the EEDI for up to four years.

The adoption of mandatory reduction measures for all new ships built from 2013 onwards will lead to significant emission reductions. By 2020, up to 150 million tonnes of CO2 reductions are envisaged from the introduction of the EEDI for new ships, a figure that, by 2030, will increase to 330 million tonnes of CO2 annually. In addition, a 20% improvement in energy efficiency by 2020, on a tonne mile basis, is envisaged from introduction of the operational measures (the SEEMP).

In 2012, MEPC 63 adopted four sets of guidelines intended to assist in the implementation of the mandatory Regulations on Energy Efficiency for Ships in MARPOL Annex VI:

- 2012 Guidelines on the method of calculation of the attained EEDI for new ships;
- 2012 Guidelines for the development of a SEEMP;
- 2012 Guidelines on survey and certification of the EEDI; and
- Guidelines for calculation of reference lines for use with the EEDI.

MEPC 63 also agreed an updated work plan for the development of further guidelines and the development of energy efficiency frameworks for those ships not covered by the current EEDI regulations. Linked to the implementation of energy efficiency measures was the draft MEPC resolution on the Promotion of technical co-operation and transfer of technology relating to the improvement of energy efficiency of ships, where it was agreed to further discuss the draft at the next session.

Market based measure to reduce GHG emissions from ships

Adoption of mandatory technical and operational measures is a very important step in ensuring that the global shipping industry has the necessary mechanisms to reduce its GHG emissions. However, the MEPC has, at several sessions, recognized that these measures would not be sufficient to satisfactorily reduce the amount of GHG emissions from international shipping in view of the growth projections of world trade. Therefore, market-based mechanisms (MBMs) are also being considered by the Committee in line with IMO Assembly resolution A.963(23) and its GHG work plan. A market-based mechanism would serve two main purposes:

.1 providing an economic incentive for the maritime industry to invest in more fuel-efficient ships and technologies, and to operate ships in a more energy-efficient manner (in sector reductions); and
.2 off-setting in other sectors of growing ship emissions (out of sector reduction).

MEPC 63 continued its intensive consideration of proposed market-based measures (MBMs), which would complement the technical and operational measures already adopted. Further debate will continue at the next session (MEPC 64, 1 to 5 October 2012). The MBM proposals under review range from a contribution or levy on all CO2 emissions from international shipping or only from those ships not meeting the EEDI requirement, via emission trading systems, to schemes based on a ship's actual efficiency, both by design (EEDI) and operation (SEEMP).

London Convention and Protocol (LC/LP)

Progress to regulate ocean fertilization

As reported to previous sessions of GESAMP, the governing bodies under the London Convention and Protocol started regulating ocean fertilization activities in 2008. In 2011 the governing bodies reviewed four remaining options to regulate ocean fertilization, as follows: an amendment to the Protocol to permit ocean fertilization as placement, with either a single or multiple new annexes; further implementation of, and gathering of experience from, the Ocean Fertilization Assessment Framework, under resolution LC LP.2(2010); and further development of an interpretative resolution. The Meetings also considered, without resolution, whether the proposed regulation of placement is intended to be restricted to placement activities that are a subset of dumping, or whether the intention is to broaden the scope of the Protocol with respect to other types of placement and whether and how to develop a potential generic placement assessment framework.

The governing bodies agreed that further work should be undertaken, intersessionally, (scheduled to be held from 3 to 6 July 2012 in Bonn, Germany), with the mandate to continue its work to "establish a global, transparent and effective control and regulatory mechanism for ocean fertilization activities and other activities that fall within the scope of LC and LP and have the potential to cause harm to the marine environment". The working group would report to the governing bodies in 2012.

CO_2 sequestration in sub-seabed geological formations

In 2011 the Meeting of Contracting Parties considered the results of intersessional work to review the "Specific Guidelines for Assessment of Carbon Dioxide Streams for Disposal into Sub-seabed Geological Formations" to take into account the 2009 amendment of Article 6 of the London Protocol allowing export of CO2 waste streams and transboundary movement within reservoirs. The Meeting, having noted that a number of scientific issues needed to be resolved and also that a significant number of policy and legal matters existed that were much broader than transboundary issues, re-established the correspondence group, under the leadership of the Republic of Korea, to continue the review of the scientific and technical aspects of the Guidelines with a view to submit advice for consideration by the Meeting of Contracting Parties in 2012.

Co-operation with UNEP-GPA

The governing bodies, in reviewing progress on co-operation with UNEP-GPA regarding "Riverine and sub-sea disposal of tailings and associated wastes from mining operations", agreed to contract a consultant for collection and analysis of publicly available information on type and extent of this issue, with the aim of delivering a report to the next joint session of the governing bodies. The overall aim of this activity is the preparation for a policy decision at a future session and possibly for the development, from a regulatory perspective, of a general guidance document.

IOC of UNESCO

The UN Regular Process for global reporting and assessment of the state of the marine environment, including socio-economic aspects[11]

IOC has continued to support the UN Regular Process (RP) through technical and financial support. In June 2011, IOC and UNEP, in collaboration with Grid-Arendal presented a proposal to support the information and communication needs of the regular process. IOC has provided a contribution of 20,000USD to Grid-Arendal to initiate this work. The Ad Hoc Working Group welcomed the proposal and at the end of the biennium, Grid-Arendal started the development of the RP Clearing House mechanism which will:

- provide information to the public on the Regular Process, access to relevant documents and links to other existing web pages and support for drafting the first integrated assessment;
- establish a web-based editorial system to assist experts involved with drafting chapters for the RP Report, including support for editors to track the progress of chapters through the peer review process;
- produce of GIS map products to illustrate and synthesize spatial information relevant to the range of themes covered by the RP report; and
- expand and maintain the content management system for a range of data related to the Regular Process (including the already established GRAME database).

IOC also contributed to the RP Regional Workshop and participated in the Chile and China hosted workshop. Belgium has requested IOC to assist with the organisation of the Regional Workshop for Europe (NE Atlantic, Mediterranean and Black Sea) to be held in June 2012.

Transboundary Waters Assessment Programme (TWAP)

From 2009 to 2011 the IOC in partnership with UNEP and several other organisations, executed a GEF-funded Medium-Size Project (MSP) as a precursor to a Transboundary Waters Assessment Programme (TWAP). The IOC coordinated the LMEs and Open Ocean components of TWAP, and established two Working Groups (WGs) consisting of experts and institutional partners for development of the assessment methodologies for these two water systems. The full report on the different methodologies was recently published and is available at: http://twap.iwlearn.org/publications/databases/viewMethodologies .

Joint action with ICES and IMO on Ballast and other Ship Vectors

The ICES/IOC/IMO Working Group on Ballast and Other Ship Vectors (WGBOSV) has as a long- term task to critically reviews and reports on the status of shipping vector research with an emphasis on new developments in ballast water treatment technology, risk assessment, ballast water sampling devices, and selection of ballast water exchange zones to contribute to guidelines currently in preparation by IMO, and to address areas of specific interest, (e.g., chemical contaminants and microbiology in ballast water and sediment). WGBOSV met from 14 to 16 March 2011 in Nantes, France, and its report is available at: http://www.ices.dk/workinggroups/ViewWorkingGroup.aspx?ID=16

11 The Assessment of Assessments (AoA) report and its Summary in six UN languages are available at http://www.ungaregular-process.org.

Ocean Fertilization

In January 2011 the IOC jointly with the International Surface Ocean Lower Atmosphere Study Project (SOLAS), finalised a summary for policymakers on ocean fertilization. The summary was prepared in response to a request from the IOC Member States. The summary considers the practicalities, opportunities and threats associated with large-scale ocean fertilization. It summarizes activities and issues surrounding the use of ocean fertilization as deliberate interventions in the Earth's climate system that might moderate global warming. These activities are controversial, and have attracted scientific and public criticism. The Convention on Biological Diversity (CBD) decided in 2008 to ban all ocean fertilization activities in non-coastal waters until there was stronger scientific justification, assessed through a global regulatory mechanism. This overview of the current scientific understanding of Ocean Fertilization will assist the regulatory framework through the London Convention and London Protocol (LC/LP). The Summary Publication is available at
http://unesdoc.unesco.org/images/0019/001906/190674e.pdf .

Nitrogen

The IOC has adopted a work plan for an integrated focus on coastal research. The main activity was revised in 2011 under the title, "Nutrients and Coastal Impacts Research Program" (N-CIRP), aims to address the need for more quantitative analysis of impacts of nutrient loading and changing nutrient stoichiometry in coastal ecosystems. It will explore relationships between nutrient inputs, coastal chlorophyll, the occurrence of harmful algal blooms (HABs) and hypoxia, and related effects on coastal fish and fisheries, with the ultimate goal of developing novel datasets and innovative, predictive models, which will be shared with stakeholders.

N-CIRP is part of IOC's input to the Global Partnership on Nutrient Management (GPNM). The GPNM which is coordinated by UNEP/GPA is a global partnership of scientists, policy makers, the private sector, NGOs and international organisations to address the growing problem of nutrient over-enrichment. N-CIRP is closely related to a GEF full scale project entitled "Global foundations for reducing nutrient enrichment and oxygen depletion from land-based pollution, in support of the Global Nutrient Cycle" which was launched 25 January 2012 during the 3rd Intergovernmental Review meeting of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA/IGR3) in Manila, Philippines.

Plastics and microplastics

The inception meeting of the new GESAMP Working Group on 'Sources, fate and effects of micro-plastics in the environment – a global assessment' was held at IOC-UNESCO Headquarters in Paris, France, from 13 to15 March 2012. The meeting was attended by experts covering a wide scope of aspects related with fate and effects of microplastics in the environment. Decisions were made on the content, timeline, expected products and audience. For the outcome of this first meeting, please see the separate report under agenda item 5.6 of this session.

UN-DOALOS[12]

United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea

Twelfth meeting

The twelfth meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea took place from 20 to 24 June 2011 and focused its discussions on the topic entitled "Contributing to the assessment, in the context of the United Nations Conference on Sustainable Development, of progress to date and the remaining gaps in the implementation of the outcomes of the major summits on sustainable development and addressing new and emerging challenges". Discussions were facilitated by the report of the Secretary- General on oceans and the law of the sea (A/66/70/Add.1). The meeting also had before it submissions from the European Union (A/AC.259/20) and the Pacific small island developing States (A/AC.259/21). The report on the work of the Informal Consultative Process at its 12th meeting, contained in document A/66/186 and available at http://ods.un.org, was welcomed by the General Assembly in resolution 66/231, Section XIV.

Thirteenth meeting

At its thirteenth meeting, the Informal Consultative Process will focus its discussions on the topic entitled "Marine renewable energies". Background documents of the meeting, including the reporting material of the Secretary-General, is posted on the Division's website at
www.un.org/depts/los/consultative_process/consultative_process.htm . An informal Preparatory Meeting for the thirteenth meeting was held on 3 April 2012.

The document containing the format and the annotated provisional agenda for the thirteenth meeting of the Informal Consultative Process (A/AC.259/L.13), the advance and unedited reporting material of the Secretary-General, as well as other background information, will also be posted on the same website as they become available.

12 The mandate of the Division for Ocean Affairs and the Law of the Sea (DOALOS), Office of Legal Affairs, United Nations, is to carry out the responsibilities entrusted to the Secretary-General upon the adoption and the entry into force of the 1982 United Nations Convention on the Law of the Sea (UNCLOS). DOALOS wishes to note that this year marks the 30th anniversary of UNCLOS. This section is intended to provide information on developments and initiatives which have occurred within the General Assembly in the field of ocean affairs and the law of the sea since March 2011.

Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socio-economic Aspects

The first meeting of the Ad Hoc Working Group of the Whole (AHWGW) was held at United Nations Headquarters from 14 to 18 February 2011. It concluded with the adoption of recommendations to the sixty-fifth session of the General Assembly and agreed on a way forward to enable member States to continue discussing, as necessary, issues relating to options to achieve the deadline of 2014 for the completion of the first cycle of the Regular process (A/65/759). The recommendations of the AHWGW were endorsed by the General Assembly in resolution 65/37 B. The second meeting of the AHWGW was held at United Nations Headquarters on 27 and 28 June 2011. On the basis of its discussions, the AHWGW adopted recommendations to be transmitted to the sixty-sixth session of the General Assembly. The AHWGW agreed to establish a Bureau to put in practice the decisions and guidance of the AHWGW during intersessional periods. It also recommended that workshops be organised at the earliest possible opportunity in order to inform the first cycle of the Regular Process (A/66/189). The recommendations of the second meeting of the AHWGW were endorsed by the General Assembly in rsolution 66/231. Workshops in support of the Regular Process were organised in Chile (12-15 September 2011) and China (21-23 February 2012). National experts are being appointed to the pool of experts to assist the Group of Experts in conducting the assessments, in accordance with the Criteria for the appointment of experts (available as Annex I to A/66/189 at http://ods.un.org), and the Bureau of the Regular Process is being appointed as well. The third meeting of the AHWGW will be held at United Nations Headquarters from 23 to 27 April 2012. Further information and documents related to the Regular Process can be found at www.un.org/depts/los/global_reporting/global_reporting.htm.

Mr. Alan Simcock, Joint coordinator of the Group of Experts of the Regular Process, participated in the GESAMP meeting and provided an update (refer to Section 6A, above).

Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction

Fourth meeting

The fourth meeting of the Ad Hoc Open-ended Informal Working Group took place at United Nations Headquarters from 31 May to 3 June 201 1 and provided recommendations to the sixty-sixth session of the General Assembly. The outcome of the meeting and the Co-Chairs' summary of discussions are available as document A/66/119 at http://ods.un.org. The General Assembly endorsed the recommendations of the Ad Hoc Open-ended Informal Working Group in resolution 66/231, Section X, which include a decision to initiate a process within the Working Group to ensure that the legal framework for the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction were effectively addressed. To this end, the General Assembly requested the Working Group to identify gaps and ways forward that may include an implementation of existing instruments and the possible development of a multilateral agreement under UNCLOS. The Working Group may also work through the format of intersessional workshops.

Fifth meeting

The fifth meeting of the Ad Hoc Open-ended Informal Working Group will take place from 7 to 11 May 2012 at United Nations Headquarters. The document containing the advanced, unedited draft agenda, draft format and annotated provisional agenda and organization of work for the meeting are available on the website of the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, www.un.org/depts/los/biodiversityworkinggroup/biodiversityworkinggroup.htm.

World Oceans Day / 30th anniversary of UNCLOS

To reflect the preparations of Rio+20, the theme of World Oceans Day for 2011 was "Our oceans: greening our future". Further information on this event, including the Secretary-General's message for 2011, is available at http://www.un.org/depts/los/reference_files/worldoceansday.htm. In view of the 30th anniversary of UNCLOS, this year theme is: UNCLOS at 30! Information relevant to this commemoration will also be posted on the DOALOS website as it becomes available.

UNDP

UNDP/GEF International Waters projects supported implementation of governance reforms and stress reduction measures to address depleted fisheries in the Caribbean Sea LME, Caspian Sea, Benguela Current LME and Sulu–Celebes Sea LME, and to reduce nutrient and toxics pollution to the Black Sea from the Dnipro River basin and to the Rio de la Plata/Maritime Front. Through PEMSEA, UNDP continued to apply and scale up integrated approaches to coastal area management, and through, the long term GloBallast Partnership with IMO, help to reduce risk of invasive species from ship ballast water.

Foundational ('enabling') UNDP/GEF International Waters projects in the Timor/Arafura Seas, Sulu-Celebes Sea LME, Guinea Current LME, Agulhas/Somali Current LMEs and Caribbean Sea LME reported progress in development and adoption of their Transboundary Diagnostic Analyses and/or Strategic Action Programs.

Several projects tested innovative financial, technical, policy, economic and other mechanisms to reduce nutrient pollution of the marine environment (Caribbean

Contaminated Bays), and apply integrated approaches to watershed and coastal area management in Small Island Developing States (Caribbean SIDS IWCAM, Pacific SIDS IWRM).

Capacity development and knowledge management projects helped to identify and disseminate best practices in nutrient management (Living Water Exchange MSP), codified and transferred GEF and other experience and best practice in putting in place effective transboundary legal and institutional frameworks, and promoted GEF-wide portfolio learning in marine, coastal and island states.

Good progress was made in strengthening and/or operationalizing several existing and/or emerging shared marine waters institutions (commissions and Secretariats) including the PEMSEA Resource Facility, Caspian Convention Secretariat, Interim Guinea Current Commission, and the Benguela Current Commission.

Nearly half the active portfolio represents programming in Africa, followed by Asia/Pacific and LAC, with lesser amounts allocated to Arab States, Europe/CIS and global. Increasingly, climate change risks and building climate resilience are being incorporated into the development and implementation of GEF-supported SAPs in marine as well as freshwater systems. Experience with both the Benguela Current and Guinea Current LME Commissions underscored the value of establishing interim commissions and agreements to allow sufficient time for the often protracted negotiations required to deliver agreed permanent legal and institutional frameworks. Specifically, in the Benguela Current context, the ministerially adopted SAP was adopted as the interim agreement that substantially informed the drafting and final content of the Convention. The BCC also underscored the significant value added by including a data and information sharing agreement within the multi-country legal framework; while the importance of such frameworks have long been recognized and promoted in river basin negotiations, this may be the first established for a shared marine ecosystem.

An increasing proportion of the operational marine and coastal portfolio is now composed of projects at the SAP implementation stage with several already delivering stress reduction results. Knowledge management, with 3 projects, remains a key component of the portfolio and measurable progress was observed in building knowledge base and capacity building tools related to nutrient management, transboundary legal and institutional frameworks, and municipal wastewater management. The UNDP-GEF International Waters portfolio continues to be one of the principal global mechanisms fostering the creation, operationalization, strengthening and sustainability of marine as well as freshwater multi-country transboundary institutions, with 8 regional organisations currently receiving capacity building and other support. Inter-ministerial committees continue to provide a sound mechanism for promoting and ensuring cross-sectoral participation in and commitment to transboundary governance planning processes.

UNDP co-produced and released several major publications (including inputs to Rio+20) related to oceans and coastal areas in 2011-2012 including:

- A Blueprint for Ocean and Coastal Sustainability (IOC/UNESCO, UNDP, FAO, IMO) http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/interagency_blue_paper_ocean_rioPlus20.pdf
- Green Economy in a Blue World – Synthesis Report (UNEP, UNDP, IMO, FAO, World Fish Center, GRID-Arendal, IUCN, DESA) http://www.unep.org/pdf/green_economy_blue.pdf
- Sustainable Development of the World's Large Marine Ecosystems during Climate Change (UNDP, IUCN, Gordon & Betty Moore Foundation, US-NOAA) http://data.iucn.org/dbtw-wpd/edocs/2010-079.pdf
- Towards Recovery and Sustainability of the World's Large Marine Ecosystems during Climate Change (UNDP, IUCN, Gordon & Betty Moore Foundation, US-NOAA) http://www.lme.noaa.gov/LMEWeb/Downloads/book_recoverysustainability.pdf
- Oceans at Rio+20: Summary for Decision Makers (Global Ocean Forum, UNDP, GEF) http://www.globaloceans.org/sites/udel.edu.globaloceans/files/Rio20SummaryReport.pdf

UNEP

UNEP's Marine and Coastal Strategy[13]

The Marine and Coastal Strategy is being implemented under the Division of Environmental Policy Implementation (DEPI) of UNEP. Among the objectives of this strategy is the use of sound science to apply ecosystem management and to address factors causing decline of ecosystem services in marine and coastal areas. A key strength of the marine and coastal ecosystem programme is its ability to facilitate cooperation at global, regional and national levels through the Regional Seas Conventions and Action Plans and the Global Programme of action for the protection of marine environment from land-based activities (GPA).

The key areas of work include environmental aspects of fisheries, integrated management of marine protected areas, marine biodiversity and the economic valuation of marine and coastal ecosystem services, and impacts of climate change on the marine environment.

As the UNEP focal point for coral reefs (tropical and cold-water) DEPI supports concerted action to improve the conservation and sustainable use of coral reefs. This work is implemented through the International Coral Reef Initiative (ICRI), existing networks, and other relevant programmes. DEPI is also UNEP's focal point for Small Islands Developing States (SIDS). It coordinates UNEP's

13 http://www.unep.org

effort in assisting countries to implement the Mauritius Strategy for the further implementation of the programme of action for the sustainable development of SIDS.

UNEP is continuously providing technical support and capacity building on the integrated management of marine and coastal ecosystems within the framework of its Marine and coastal strategy; in particular support is given to member states through the platforms of the GPA and the Regional Seas Conventions and Action Plans; e.g. Barcelona Convention, Cartagena Convention, Nairobi Convention, Abidjan Convention, COBSEA and NOWPAP. Furthermore, UNEP collaborates extensively with UN Agencies such as UNESCO/IOC, UNDP, IMO, FAO, UN DOALOS, UN DESA and the World Bank, amongst others Activities related to Small Island Developing States are being followed closely in particular in the context of RIO +20. As we know, Small Island Developing States (SIDS) are particularly vulnerable to the degradation of coastal and marine ecosystems. International cooperation towards strengthening their adaptive resilience to address such vulnerability is urgently needed. To address SIDS specifically, UNEP has developed a policy paper on Thematic Priority Areas for UNEP's support to the Sustainable Development of SIDS, aligned to the Bali Strategic Plan for Technology Support and Capacity-building, that mainstreams the Mauritius Strategy for the further implementation of the Programme of Action for the sustainable development of SIDS into UNEP´s programme of work, and sets out priority outcomes to be achieved (For more information on the Mauritius Strategy visit: http://www.un.org/en/ga/president/65/issues/sids.shtml0). Furthermore, UNEP is leading a partnership on the Green Economy in SIDS. This area of work analyses what a green economy in the context of sustainable development would mean to SIDS, given their particular socio-economic and environmental settings.

Besides UNEP's continuing's support and provision of technical advice to national authorities on the development of National Programmes of Action for the Protection of the Marine Environment from Land-based Activities (NPAs), several countries have benefited for projects on ecosystem-based management (EBM); e.g. in Southeast & Northeast Pacific and the Wider Caribbean; in West Africa and in COBSEA region. Other UNEP's activities developed with GEF support are related to Blue Carbon Initiative, Marine Litter, Partnership on Nutrient Management and Wastewater.

The 19 regional reports developed in partnership with the Regional Seas Conventions and Action Plans provided a perspective into the current state of marine biodiversity in the areas covered by the Regional Seas Conventions and Action Plans through a series of pressure, state and response indicators. This series of assessments emphasizes the need to support ongoing efforts at the UN Regular Process (for more information visit: http://www.marinebiodiversityseries.org/reports/2-global-synthesis-report.html); UNEP continues to support capacity building through its Regional Seas Conventions and Action Plans – See below paragraph related to the Regular Process.

Third Intergovernmental Review of the Global Programme of Action

The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) was adopted by the international community in 1995. It has been one of UNEP's most visible marine and coastal initiatives for the past 16 years. The GPA requires governments to regularly review their own activities and the nature and extent of their multilateral cooperation, and also the "further development and adjustment" of the GPA itself, taking "into account regular assessments of the state of the marine environment." This is achieved through periodic intergovernmental reviews which adopts the work programme on a periodic basis.

Third Intergovernmental Review Meeting (IGR-3) on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) was held in Manila 25-26 January 2012. Preceding the IGR-3, a Global Conference on Land-Ocean Connections (GLOC) was organised 23-24 January to discuss emerging issues and science-policy interlinkages, feeding results into the IGR-3. The IGR-3 consisting of the representatives of 65 Governments and the European Commission, with the valued support and concurrence of representatives of international financial institutions, international and regional organisations, the private sector, non-governmental organisations, other stakeholders and major groups, adopted the Manila Declaration available at http://www.gpa.depiweb.org/docman/cat_view/39-igr-3.html

Regular Process

In accordance with UNGA resolution 65/37 (section XII) UNEP was invited by the Secretary General in December 2010 to provide technical and scientific support to the Regular Process. UNEP has been supporting the process through its established programmes related to scientific assessments, communication and capacity building.

Through the platform of the Regional Seas Conventions and Action Plans, technical and financial support has been provided to member states for the organisation of Regional Capacity Building Workshops on the Regular Process. The first Regular Process Workshop hosted by the Government of Chile was held from 13-15 September in Santiago, Chile, facilitated by the Comisión Permanente del Pacífico Sur (CPPS), a Regional Seas Convention and Action Plan for the South Pacific. The second workshop was hosted by the Government of China in Sanya, China from 21 to 23 February 2012 for the Eastern and South Eastern Asian Seas under the auspices of the Coordinating Body on the Seas of East Asia (COBSEA) and North West Pacific Action Plan (NOWPAP). Two further capacity building workshops are planned for Q3 2012. Firstly, a workshop in August 2012 for the Western Indian Ocean, hosted by the Government of Mozambique, in Maputo, Mozambique, facilitated Nairobi Convention. Secondly, the Government of the United States of America will be hosting a workshop for the Wider Caribbean Region in July or August 2012, facilitated by the Cartagena Convention. The Government of Belgium and the

European Union are planning to hold a workshop for the North Atlantic, the Baltic Sea and (probably) the Mediterranean and Black Sea in Brussels on 27 to 29 June 2012. The Government of Cote D'Ivoire has expressed the desire to host a workshop for the Abidjan Convention Countries in Abidjan this year.

UNEP has mobilized support for experts from developing countries through the Regular Process Trust Fund, administered by the Regular Process Secretariat (UNDOALOS).

In terms of communications, UNEP has provided support for GRID Arendal to set up a communications portal that includes a data platform to support the work of the Group of Experts (GoE) of the Regular Process (For more details see weblink: http://www.un.org/Depts/los/global_reporting/global_reporting.htm).

GEF Transboundary Waters Assessment Programme (TWAP)

UNEP, under the auspices of the GEF, coordinated over a 2 years period from 2009 to 2011 the implementation of the Medium Size Project (MSP) entitled "Development of the Methodology and Arrangements for the GEF Transboundary Waters Assessment Programme (TWAP)". The main out puts of the project are Assessment methodologies for five water systems (groundwater, lakes/reservoirs, rivers, large marine ecosystems (LME) and open ocean areas) that extend across or lie beyond national boundaries. As well as a partnership among agencies and organisations established with institutional arrangements for conducting a full size project. The Full Size Project "TWAP: Aquifers, Lake/Reservoir Basins, River Basins, Large Marine Ecosystems, and Open Ocean to Catalyze Sound Environmental Management" has a concept approved by the GEF CEO and preparation of the full project document has been planned for 2012.

The results of the MSP are published in a six volume report. Volume one " Methodology for the Assessment of Transboundary Aquifers, Lake Basins, River Basins, Large Marine Ecosystems and the Open Ocean provides an introduction and summary of the detailed methodologies described in volumes 2–6)
(available at http://twap.iwlearn.org/).

Within the framework of RIO+20 preparation, *the Green Economy in a Blue World Report* has been launched by UNEP during the GPA/IGR3 Conference held in Manila in Feb 2012. In order to preserve and mitigate the rapid degradation of the oceans, key sectors must begin a transition towards a green economy, ensuring a viable socio-economic dimension that creates jobs, eradicates poverty, adapts to climate change and embraces environmental management. Oceans should serve as a catalyst to consider the clear need to evolve our current economic model towards one that is more integrated by the acknowledgment of all forms of measurable capital. The economy of the oceans is one that depends on our understanding that truly sustainable economic growth is only achievable when the true wealth of our oceans is accounted for.

The Green Economy in a Blue World Report responds to this 'challenge' by presenting a case into how oceans and coasts would benefit from a transition towards a green economy in key sectors that depend and/or influence the state of marine and coastal environment. Furthermore, the report suggests innovative sectoral approaches that can foster social and economic integration within the context of sustainable development.

Lastly, in order to provide a framework to discuss potential governance implications in the blue world, the following institutions have lead specific chapters of the report:

- Fisheries (small-scale) and aquaculture – Food and Agriculture Organization (FAO) and World Fish Center
- Transport (maritime) – International Maritime Organization (IMO)
- Marine-based renewable energy –IUCN
- Ocean nutrient pollution – United Nations Development Programme (UNDP)
- Tourism (coastal) – Lund University
- Deep-sea minerals – GRID-Arendal

UNIDO

Gulf of Mexico Large Marine Ecosystem Project:

The project "Integrated Assessment and Management of the Gulf of Mexico Large Marine Ecosystem (GoM-LME)" is aimed at setting the foundations for a LME-wide ecosystem-based management approach to rehabilitate marine and coastal ecosystems, recover depleted fish stocks, and reduce nutrient overloading in the Gulf of Mexico. To date the Transboundary Diagnostic Analysis (TDA) has been completed; the TDA analyses the various transboundary environmental problems, major root causes, impacts and consequences in the Gulf. It was developed on the basis of a series of studies and consensus building activities, which in addition strengthened interactions between relevant stakeholders and helped to build synergies among ongoing activities in the region. These efforts have also led to a significant advance on the Strategic Action Plan (SAP) and National Action Plan (NAP), which are currently being developed.

There are three pilot projects within the scope of the project, all located in the Terminos Lagoon, Campeche, Mexico. The ongoing pilot projects are generating practical experience to address a complex situation characterized by overlapping policies and institutional responsibilities relating to the conservation of protected areas, social and economic development, and threats to terrestrial and coastal and marine biodiversity. The development of pilot projects in the same area constitute a cost efficient approach from different perspectives, some focus-

ing on fisheries management and rational use of resources, others in habitat management and restoration, and yet another on building solid monitoring and evaluation tools. These projects have delivered quality information, guidance on the design of specific mechanisms to address problems, broad participation of social groups involved and in general have helped to build awareness of the participants and parties on the fact that specific joint actions can result in significant improvements. More on the GoM-LME project can be found at http://gulfofmexicoproject.org/en/.

Guinea Current Large Marine Ecosystem Project:

This project supports 16 West and Central African countries in ecosystem based cooperation on sustainable natural resource use. The overall development goals of this project are to 1) recover depleted fish stocks, 2) restore degraded habitat, 3) reduce land and ship-based pollution, and 4) create an ecosystem-wide assessment and management framework for sustainable use of living and non-living resources in the GCLME. Priority action areas rely heavily on regional capacity building. Sustainability is derived from this improved capacity, strengthening of national and regional institutions and improvements in policy/legislative frameworks.

In 2010 the National Demonstration Projects on Coastal Erosion (Cote d'Ivoire), Integrated Coastal Zone Management (Cameroon), Establishment of Marine Protected Areas (Benin) and the Conjunctive use of Nipa Palm and the restoration of autochthon mangroves (Nigeria) were completed and the results were disseminated for ecosystem wide up-scaling. National action plans for the implementation of the Strategic Action Plan were finalised and presented in a donors conference. Negotiation meetings towards the transition of the Interim Guinea Current Commission (IGCC) towards a permanent Guinea Current Commission (GCC) were facilitated throughout the year. The third Meeting of the IGCC Committee of Ministers in which the Guinea Current Countries will be facilitated to agree on the institutional shape of the GCC will be held in May 2012.

Collaborative Actions for Sustainable Tourism (COAST) Project:

The UNIDO COAST project aims at reducing the impact of land-based tourism activities on coastal waters and operates in Cameroon, Gambia, Ghana, Kenya, Nigeria, Mozambique, Senegal, Seychelles and Tanzania. Achievements of the project since its inception in 2008 included capacity building at the local level on the UNWTO tool for sustainable tourism for the eradication of poverty, on Environmental Management Systems for tourism operators, on ecotourism and on Integrated Coastal Zone Management.. Although the project suffered delays due to the lost of interest from some partners, a new project strategy developed from the Mid-Term Evaluation has been developed to enable the project team to fully support the local partners.

MED-TEST Project:

The project "Transfer of Environmental Sound Technology in the South Mediterranean Region (MED TEST)" aims at demonstrating the economic and environmental benefits of resource efficiency which industries can achieve through the introduction of best practices and integrated management systems. The project is being implemented in Egypt, Morocco and Tunisia, and has covered a pool of 43 industries, mostly SMEs, across 7 industrial sectors. The project has completed training activities in the three countries, which have allowed for the implementation of the pilot projects on a company by company basis. The project is now in the final phase of dissemination of results, so that the experiences and know-how can be transferred to other industries in the participating countries, as well as throughout the region. Among the project's achievements is the identification of total annual water and energy savings of 9.6 million m3 and 250,000 MWh, respectively. Also, noteworthy is the private sector investments in improved processes and cleaner technology, which amount to 15 M USD, and translates into total annual savings of approximately 16 M USD in energy, water, raw materials and increased productivity.

WMO

Global Framework on Climate Services (GFCS)

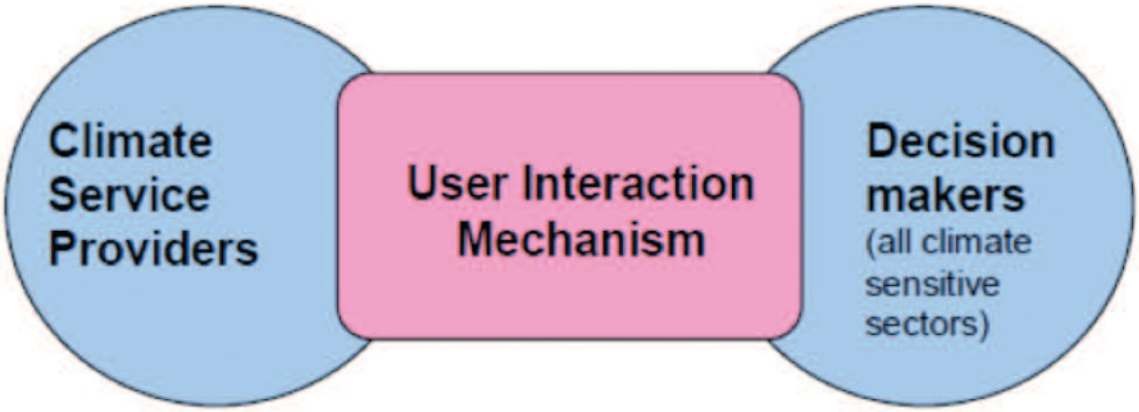
World Meteorological Congress endorsed in 2011 the Global Framework for Climate Services

The main goal of the GFCS is to enable better management of the risks of climate variability and change and adaptation to climate change, through the development and incorporation of science-based climate information and prediction into planning, policy and practice on the global, regional and national scale. WMO is working on a detailed implementation plan and governance structure designed to maximize the full potential of the Framework.

The challenge is provision of adequate and timely climate information by: developing a system for production and delivery of climate information, including information on the ocean state, and spanning global to local scales, and by ensuring an effective uptake of the information by decision makers in different sectors, as schematically shown in the figure overleaf.

A user interaction mechanism at global, regional and national levels would require partnerships amongst the UN agencies, universities, research Institutions, NGOs and the private sector. WMO is calling for closer collaboration and cooperation with other UN agencies, including UNESCO, UNWater, and Intergovernmental Oceanographic Commission (IOC).

Figure 2



WMO Polar Prediction Project (PPP)

PPP was established to improve: understanding of the impact of polar processes on polar weather; assimilation of data in Polar Regions; and prediction of high impact weather over Polar Regions. The "kickoff" meeting of the PPP was held on 30 November 2011 in Geneva. It was recognized that there needed to be full coordination with WMO initiatives on observations under the auspices of bodies such as the Commission for Basic Systems (CBS) and the WMO/IOC Joint Commission for Marine Meteorology and Oceanography (JCOMM). The progress in polar predictability would require crossing disciplinary boundaries to understand the feedbacks between the troposphere and the stratosphere, ocean, land, and sea ice. Sea ice is important for users, particularly in coastal regions, and also integrates the past history of atmospheric and ocean and also integrates the past history of atmospheric and ocean environmental trends.

WMO World Climate Research Programme

The World Climate Research Programme (WCRP) supports a number of high priority scientific research activities with the aim of facilitating analysis and prediction of Earth's climate system variability and change for use in an increasing range of practical applications of direct relevance, benefit and value to society.

WCRP Open Science Conference (OSC)

On 24-28 October 2011 WCRP held a major Open Science Conference (OSC) in Denver, Colorado, USA, under the theme "Climate Research in Service to Society". Through a community synthesis of research findings, the scientists at the conference assessed the current state of knowledge on climate variability and change and identified the most urgent scientific issues and research challenges addressing the existing gaps in this knowledge. Their list includes, among other topics, the need for bridging the physical climate system with biogeochemistry, the socioeconomic and humanity sciences; the increasing importance of establishing the predictability of polar climate, with possible opening of the Arctic and international policy for commercial shipping and extraction of natural resources; the challenges of improved predictions of future sea-level change; and the need to train and empower the next generation of climate scientists. A major emerging theme is the need for actionable science that can guide decision makers. These new directions of climate research have a bearing on GESAMP.

WCRP Coupled Model Intercomparison Project Phase 5 (CMIP5)

More than 22 modelling groups from around the world are currently running the WCRP Coupled Model Intercomparison Project Phase 5 (CMIP5) experiments that represent the most ambitious multi-model inter-comparison and analysis project ever attempted. The CMIP5 consists of four major categories of experiments and analysis based on different model simulations including ones with Atmosphere-Ocean Global Climate Models (AOGCMs, with components of atmosphere, ocean, land and sea ice). Model data are openly available from the Earth System Grid Federation, an international distributed data archival and access system, and more information can be found on the Program for Climate Model Diagnosis and Intercomparison (PCMDI) web page (http://cmip-pcmdi.llnl.gov/cmip5). CMIP5 provides capabilities and new types of climate change information including carbon cycle feedbacks, quantifying sources and sinks of carbon for land versus ocean, allowable emissions for different levels of mitigation in the Representative Concentration Pathway scenarios, ocean acidification, etc. Ultimately, these results will be available through the peer-reviewed publications for use in the 5th IPCC Assessment Report (AR5). They may represent an interest for GESAMP as a source of forcing data for marine pollution studies. The WCRP CORDEX project complements these predictions regionally downscaled information helpful in assessing the impacts of climate change on human and natural systems and enabling the development of suitable adaptation and risk management strategies (please see the following URL for more details: http://wcrp.ipsl.jussieu.fr/SF_RCD_CORDEX.html).

4th International Conference on Reanalysis

Diagnostic studies of marine pollution may benefit from the use of reanalysis data. WCRP continues to promote coordinated expansion of various types of reanalyses. The new webpage http://reanalyses.org provides researchers with detailed data descriptions, data access methods, analysis and plotting tools of reanalysis datasets created by different climate and weather organisations. WCRP is convening the 4th International Conference on Reanalysis in Silver Spring, USA, on 7-11 May 2012, with the objective of fostering communications between reanalysis development centers and the research community with a focus on an Earth System approach.

CLIVAR and SOLAS

More information on WCRP activities relevant to GESAMP can be found at the WCRP website http://www.wcrp-climate.org, at the website of the WCRP CLIVAR project (http://www.clivar.org) that is focusing on the role of oceans in climate, and at the website of the Surface Ocean Lower Atmosphere Study (http://www.solas-int.org), which is cosponsored by WCRP together with IGBP, SCOR and iCACGP.

WMO Marine Meteorology and Oceanography Programme (MMOP)

Marine Meteorology and Oceanography Programme (MMOP) is established under the auspicious of the World Meteorological Organization (WMO) to regulate, coordinate and facilitate the sustained provision of global and regional coverage observational data, products and services to address the continued and expanding requirements of the maritime user community for met-ocean services and information, focusing on safety of life and property at sea, integrated coastal management and societal impacts.

The overall technical guidance and governance for MMOP is provided by the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), jointly sponsored by WMO and the Intergovernmental Oceanographic Commission (IOC) of UNESCO.

In 2011 a number of MMOP events were organised:

Sixth Session of the JCOMM Ship Observations Team (SOT)

The Session was held at the auditorium of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Division of Marine and Atmospheric Research (CMAR), Hobart, Australia, from 11 to 15 April 2011 at the kind invitation of the Government of Australia. The Session was co-sponsored by the Australian Bureau of Meteorology (BOM) and CSIRO.

The Team reviewed requirements for ship-based observations in support of climate applications as expressed by the WMO-IOC-UNEP-ICSU Global Climate Observing System (GCOS) and the Ocean Observing Panel for Climate (OOPC), as well as in support of non-climate applications (e.g. Numerical Weather Prediction, maritime safety). The Team agreed to review the SOT overarching implementation plan that was adopted at SOT-III, and to include in it an SOT strategy for addressing the full range of observational data requirements (drawn essentially from the RRR, and including those of WMO, OOPC, GCOS, operational oceanography and other applications) and gaps in terms of ship observations.

Fourth Session of the JCOMM Observations Coordination Group (OCG)

The Session was held in Hobart, Australia, from 18 to 20 April 2011, at the kind invitation of the Government of Australia. The Session was sponsored by the Australian Bureau of Meteorology (BOM). The meeting focused on issues and actions that would help improve the 'systems' aspects of JCOMM and on collaboration that would appeal and help each individual component. The Group reviewed requirements, refined the implementation goals for the observing networks, and addressed common technical coordination through JCOMMOPS. It noted the need to raise for JCOMM and intergovernmental attention a number of issues relating to the requirements for satellite observations, the fragility of sustained funding for research-supported observing networks critical for weather/seasonal forecasting, the need for the support of navies for deployment in the northwest Indian Ocean, the need to improve high-frequency historical and real-time tide gauge data, and improving support for JCOMMOPS.

Third International Workshop on Advances in the Use of Historical Marine Climate Data

The Workshop was held at the European Space Agency (ESA) Center for Earth Observation (ESRIN), in Frascati, Italy from 2 to 6 May 2011. This workshop follows international marine workshops in Canada (1999), USA (2002), Belgium (2003), UK (2005) and Poland (2008) where MARCDAT alternates with more formal JCOMM Workshops on Advances in Marine Climatology (CLIMAR). These workshops have brought together a wide spectrum of marine data users, and managers of marine data and products, and have included an underlying focus on the continuing evaluation, utilization, and improvement of the International Comprehensive Ocean-Atmosphere Data Set (ICOADS). The workshop provided a showcase and did build on recent advances in marine climatology, including (i) evaluation, utilization and improvement of the over 300-year record of ICOADS (e.g. using satellite data); (ii) development of multi-decadal, homogeneous gridded datasets for climate applications; and (iii) characterization of uncertainty and bias in marine observations and products. The objective of the workshop was to recommend a 10-year action plan for improved integration and accessibility of climatological observations.

WIGOS/JCOMM Training Workshop on Marine Instrumentation for the Asia Pacific Region

The Workshop was held in Tianjin, China, from 11 to 13 July 2011 at the kind invitation of the State Oceanic Administration (SOA) and the National Centre of Ocean Standards and Metrology (NCOSM) of China. The workshop recalled the importance of ocean observations to achieve socio-economical benefits at the global, regional, national, and local (e.g. Tianjin city) levels by addressing the requirements of WMO and IOC Applications, including the Global Framework for Climate Services (GFCS), and working in the multi-disciplinary frameworks of the IOC-WMO-UNEP-ICSU Global Ocean Observing System (GOOS) and the WMO Integrated Global Observing System (WIGOS).

Workshop for a new Marine Climate Data System

The workshop was held at the Deutscher Wetterdienst in Hamburg, Germany, from 28 November to 2 December 2011. The main goals of the meeting were to discuss the vision for a new MCDS in the next 10 years to better address the WMO-IOC-UNEP-ICSU Global Climate Observing System (GCOS), Global Framework for Climate Services (GFCS), and the WMO-IOC-UNEP-ICSU Global Ocean Observing System (GOOS) marine-meteorological and ocean data requirements for climate monitoring, forecasting, and services, and starting by (i) a modernised Voluntary Observing Ship (VOS) delayed-mode data-flow, (ii) the establishment of a network of WMO-IOC Centres for Marine-meteorological and Oceanographic Climate Data (CMOCs) on the model of the trusted ICOADS, and (iii) the integration of the Responsible National Oceanographic Data Centre (RNODC) for Drifting Buoys (RNODC/DB) and the Specialized Oceanographic Centre (SOC) for Drifting Buoys (SOC/DB) to avoid duplication.

ANNEX V – TERMS OF REFERENCES FOR CURRENT GESAMP WORKING GROUPS

The Terms of Reference for each of the currently active Working Groups are reproduced below, with the information on administrative arrangements, background and context, etc.

Working Group 1: GESAMP Working Group on the Evaluation of the Hazards of Harmful Substances Carried by Ships (EHS)

The Terms of Reference of the GESAMP EHS Working Group, as given by GESAMP at its 6th session in Geneva (1974), were amended at its 8th session in Rome (1976). At that time, the rationale for hazard evaluation specified for the Working Group was laid down in GESAMP IV/19/ Supp. 1; this was replaced in 1982 by GESAMP Reports and Studies No. 17, which was in turn superseded by GESAMP Reports and Studies No.35 in 1989. As approved by GESAMP at its 28th session in 1998, the procedure described in GESAMP Reports and Studies No. 64 (2001), replaced all previous versions. GESAMP, at its 38th session in Monaco (2011), agreed to amend the Terms of Reference, as follows, to meet IMO's requirements under the revised MARPOL Annex II with regard to human health and safety issues associated with chemicals on board ships:

> *"To examine and evaluate data and to provide such other advice as may be requested, particularly by IMO, for evaluating the hazards to the environment and human health of harmful substances carried by ships, in accordance with the rationale approved by GESAMP for this purpose," where 'rationale' is understood to mean GESAMP Reports and Studies No.64.**

Working Group 34: Review of applications for 'Active Substances' to be used in Ballast Water Management Systems

Terms of Reference approved intersessionally by GESAMP in November 2005 are:

i. Consideration of development of necessary methodologies and information requirements in accordance with G9 for consideration by MEPC 56.
ii. For Basic Approval, the Group should review the comprehensive proposal submitted by the Member of the Organization along with any additional data submitted as well as other relevant information available to the Group and report to the Organization. In particular, the Group should undertake:
   .1 scientific evaluation of the data-set in the proposal for approval (see paragraphs 4.2, 6.1, 8.1.2.3, 8.1.2.4 of G9);
   .2 scientific evaluation of the assessment report contained in the proposal for approval (see paragraph 4.3.1 of G9);
   .3 scientific evaluation of the risks to the ship and personnel to include consideration of the storage, handling and application of the Active Substance (see paragraph 6.3 of G9);

.4 scientific evaluation of any further information submitted
(see paragraph 8.1.2.6 of G9);
.5 scientific review of the risk characterization and analysis contained in the proposal for approval (see paragraph 5.3 of G9);
.6 scientific recommendations on whether the proposal has demonstrated a potential for unreasonable risk to the environment, human health, property or resources (see paragraph 8.1.2.8 of G9); and .
.7 preparation of a Report addressing the above-mentioned aspects for consideration by MEPC (see paragraph 8.1.2.10 of G9).

iii. For Final Approval, the Group should review the discharge testing (field) data and confirm that the residual toxicity of the discharge conforms to the evaluation undertaken for Basic Approval and that the previous evaluation of the risks to the ship and personnel including consideration of the storage, handling and application of the active substance remains valid. The evaluation will be reported to MEPC (see paragraph 8.2 of G9).
iv. The Group shall keep confidential all data, the disclosure of which would undermine protection of the commercial interests of the applicant, including intellectual property.*

Working Group 37: Metals in the marine environment

GESAMP decided that it should remain in existence, albeit with a reduced role and instructed the Working Group to:

i. Complete the drafting of a final report for Reports and Studies by mid 2012;
ii. Organise an external peer review panel and collate the reviewers comments by September 2012;
iii. Complete electronic publication by October 2012; and
iv. Review and support as appropriate a future role for WG 37 in the TWAP project.*

Working Group 38: Atmospheric Input of Chemicals to the Ocean

GESAMP 39 acknowledged that WG 38 had completed its tasks assigned to it in and furthermore agreed that, at the request of WMO, WG 38 should be continued with the intention of examining atmospheric nitrogen inputs to the ocean. The Working Group would:

i. Finalise a new Terms of Reference for the continued examination by the group of anthropogenic atmospheric inputs of Nitrogen to the oceans for approval, intersessionally, by GESAMP (refer paragraph 5.4.10, above); and
ii. Organise and report on the results of a workshop on this topic in early 2013.

Working Group 39: Global Trends in Pollution of Coastal Ecosystems

Terms of Reference approved by GESAMP 38 in May 2011 are:

i. Revise existing methodologies on suitable environmental archives, dating methods, pollution indicators, analytical techniques and trend analysis. Sedimentary environments not deeper than 200 meters would be considered in the analysis, thus including all the ocean borderlands as well as main Islands;
ii. Review existing data, including data quality, on a regional basis. Records of pollution in coastal environments will be used as background information;
iii. Design, implement and maintain, with the help of the leading organization, a database of global trends of pollution;
iv. Disseminate the Working Group activities through the GESAMP website, press releases, preparation of educational materials and presentation at stakeholder meetings. Publish results in scientific journals. International Conference; and
v. Report to GESAMP on all Working Group activities once per year.

Working Group 40: Sources, fate and effects of micro-plastics in the marine environment – a global assessment

Revised Terms of Reference approved by GESAMP 39 in April 2012 are:

i. Assess inputs of micro-plastic particles (e.g. resin pellets, abrasives, personal care products) and macro-plastics (including main polymer types) into the ocean; to include pathways, developing methodology, using monitoring data, identifying proxies (e.g. population centers, shipping routes, tourism revenues);
ii. Assess behavior of surface transport, distribution & areas of accumulation of plastics and micro-plastics, over a range of space- and time-scales;
iii. Assess processes (physical, chemical & biological) controlling the rate of fragmentation and degradation, including estimating long-term behavior and estimate rate of production of 'secondary' micro-plastic fragments;
iv. Assess long-term modelling including fragmentation, seabed and water column distribution, informed by the results of ToR 3;
v. Assess uptake of particles and their contaminant/additive load by biota, as well as their physical and biological impacts at a population level; and
i. Assess the socio economic aspects, including public awareness.

ANNEX VI – FOUR STEP PROCESS TO PROPOSE A NEW AND EMERGING ISSUE

Four step process to propose a New and Emerging Issue (Taken from GESAMP 37 R&S 81, paragraph 7.3)

This starts with a proposal or initial paper to GESAMP which, if approved, is followed by a more detailed scoping paper describing the essence of the issue, the potential need for and scale and feasibility of an assessment, the identification of expert communities, and potential sources of funding. In the third step GESAMP may approve an international workshop to seek external advice and develop the issue further with a view to attracting the attention of the UN Sponsoring Organisations and other interested parties. Finally GESAMP, with the support of the UN Sponsoring Organisations, can launch a global assessment on the issue to advise makers and environmental managers. It was discussed that a wide variety of external bodies could act as informal or formal partners in the foresight process or formal work programme.

ANNEX VII – TEMPLATE FOR NEW GESAMP WORKING GROUPS

BACKGROUND & CONTEXT

- The subject: Brief general background on subject of the study.
- The issue/problem: Why the subject is of concern or interest to the international community from the perspective of marine environmental protection.
- The need: Why a GESAMP study is needed (e.g., synthesis of scattered information, assessment of environmental status/impacts, development of new methodologies, establishment of standards or guidelines, identify requirements for research, monitoring, management, and/or policy development).

TERMS OF REFERENCE

- Specific, concrete, point-by-point tasks to be carried out by the WG, and/or specific information to be included in the report.
- Defined scope: what will and won't be done.
- Not open-ended: focus on a specific product to be produced (usually a report).
- If additional tasks are envisioned they may be identified as future work for the WG, but the TOR should focus on the specific task being proposed.
- Identify expertise required for the WG

WORK PLAN

- Work methods (usually meetings and intersessional work/correspondence)
- Provisional timeline, including:
  - Meeting dates
  - Milestones (drafts, reviews, revisions, etc.)
  - Deliverables and delivery date (usually publication of a report)
- Provisions for peer review
- Provisions for publication, dissemination and outreach (PR)

ADMINISTRATIVE ARRANGEMENTS

- Sponsors
- Budget & funding
- WG Chairperson(s) & members if available at time of proposal
- Technical secretary for the WG

ANNEX VIII – GESAMP REPORTS AND STUDIES

The following reports and studies have been published so far. They are available from the GESAMP website: http://gesamp.org

1. Report of the seventh session, London, 24-30 April 1975. (1975). Rep. Stud. GESAMP, (1):pag.var. Available also in French, Spanish and Russian
2. Review of harmful substances. (1976). Rep. Stud. GESAMP, (2):80 p.
3. Scientific criteria for the selection of sites for dumping of wastes into the sea. (1975). Rep. Stud. GESAMP, (3):21 p. Available also in French, Spanish and Russian
4. Report of the eighth session, Rome, 21-27 April 1976. (1976). Rep. Stud. GESAMP, (4):pag.var. Available also in French and Russian
5. Principles for developing coastal water quality criteria. (1976). Rep. Stud. GESAMP, (5):23 p.
6. Impact of oil on the marine environment. (1977). Rep. Stud. GESAMP, (6):250 p.
7. Scientific aspects of pollution arising from the exploration and exploitation of the sea-bed. (1977). Rep. Stud. GESAMP, (7):37 p.
8. Report of the ninth session, New York, 7-11 March 1977. (1977). Rep. Stud. GESAMP, (8):33 p. Available also in French and Russian
9. Report of the tenth session, Paris, 29 May - 2 June 1978. (1978). Rep. Stud. GESAMP, (9):pag.var. Available also in French, Spanish and Russian
10. Report of the eleventh session, Dubrovnik, 25-29 February 1980. (1980). Rep. Stud. GESAMP, (10):pag.var. Available also in French and Spanish
11. Marine Pollution implications of coastal area development. (1980). Rep. Stud. GESAMP, (11):114 p.
12. Monitoring biological variables related to marine pollution. (1980). Rep. Stud. GESAMP, (12):22 p. Available also in Russian
13. Interchange of pollutants between the atmosphere and the oceans. (1980). Rep. Stud. GESAMP, (13):55 p.
14. Report of the twelfth session, Geneva, 22-29 October 1981. (1981). Rep. Stud. GESAMP, (14):pag.var. Available also in French, Spanish and Russian
15. The review of the health of the oceans. (1982). Rep. Stud. GESAMP, (15):108 p.
16. Scientific criteria for the selection of waste disposal sites at sea. (1982). Rep. Stud. GESAMP, (16):60 p.
17. The evaluation of the hazards of harmful substances carried by ships. (1982). Rep. Stud. GESAMP, (17):pag.var.
18. Report of the thirteenth session, Geneva, 28 February - 4 March 1983. (1983). Rep. Stud. GESAMP, (18):50 p. Available also in French, Spanish and Russian
19. An oceanographic model for the dispersion of wastes disposed of in the deep sea. (1983). Rep. Stud. GESAMP, (19):182 p.
20. Marine pollution implications of ocean energy development. (1984). Rep. Stud. GESAMP, (20):44 p.
21. Report of the fourteenth session, Vienna, 26-30 March 1984. (1984). Rep. Stud. GESAMP, (21):42 p. Available also in French, Spanish and Russian
22. Review of potentially harmful substances. Cadmium, lead and tin. (1985). Rep. Stud. GESAMP, (22):114 p.
23. Interchange of pollutants between the atmosphere and the oceans (part II). (1985). Rep. Stud. GESAMP, (23):55 p.
24. Thermal discharges in the marine environment. (1984). Rep. Stud. GESAMP, (24):44 p.
25. Report of the fifteenth session, New York, 25-29 March 1985. (1985). Rep. Stud. GESAMP, (25):49 p. Available also in French, Spanish and Russian
26. Atmospheric transport of contaminants into the Mediterranean region. (1985). Rep. Stud. GESAMP, (26):53 p.
27. Report of the sixteenth session, London, 17-21 March 1986. (1986). Rep. Stud. GESAMP, (27):74 p. Available also in French, Spanish and Russian
28. Review of potentially harmful substances. Arsenic, mercury and selenium. (1986). Rep. Stud. GESAMP, (28):172 p.
29. Review of potentially harmful substances. Organosilicon compounds (silanes and siloxanes). (1986). Published as UNEP Reg. Seas Rep. Stud., (78):24 p.
30. Environmental capacity. An approach to marine pollution prevention. (1986). Rep. Stud. GESAMP, (30):49 p.
31. Report of the seventeenth session, Rome, 30 March - 3 April 1987. (1987). Rep. Stud. GESAMP, (31):36 p. Available also in French, Spanish and Russian
32. Land-sea boundary flux of contaminants: contributions from rivers. (1987). Rep. Stud. GESAMP, (32):172 p.
33. Report on the eighteenth session, Paris, 11-15 April 1988. (1988). Rep. Stud. GESAMP, (33):56 p. Available also in French, Spanish and Russian
34. Review of potentially harmful substances. Nutrients. (1990). Rep. Stud. GESAMP, (34):40 p.

35. The evaluation of the hazards of harmful substances carried by ships: Revision of GESAMP Reports and Studies No. 17. (1989). Rep. Stud. GESAMP, (35):pag.var.

36. Pollutant modification of atmospheric and oceanic processes and climate: some aspects of the problem. (1989). Rep. Stud. GESAMP, (36):35 p.

37. Report of the nineteenth session, Athens, 8-12 May 1989. (1989). Rep. Stud. GESAMP, (37):47 p. Available also in French, Spanish and Russian

38. Atmospheric input of trace species to the world ocean. (1989). Rep. Stud. GESAMP, (38):111 p.

39. The state of the marine environment. (1990). Rep. Stud. GESAMP, (39):111 p. Available also in Spanish as Inf.Estud.Progr.Mar.Reg.PNUMA, (115):87 p.

40. Long-term consequences of low-level marine contamination: An analytical approach. (1989). Rep. Stud. GESAMP, (40):14 p.

41. Report of the twentieth session, Geneva, 7-11 May 1990. (1990). Rep. Stud. GESAMP, (41):32 p. Available also in French, Spanish and Russian

42. Review of potentially harmful substances. Choosing priority organochlorines for marine hazard assessment. (1990). Rep. Stud. GESAMP, (42):10 p.

43. Coastal modelling. (1991). Rep. Stud. GESAMP, (43):187 p.

44. Report of the twenty-first session, London, 18-22 February 1991. (1991). Rep. Stud. GESAMP, (44):53 p. Available also in French, Spanish and Russian

45. Global strategies for marine environmental protection. (1991). Rep. Stud. GESAMP, (45):34 p.

46. Review of potentially harmful substances. Carcinogens: their significance as marine pollutants. (1991). Rep. Stud. GESAMP, (46):56 p.

47. Reducing environmental impacts of coastal aquaculture. (1991). Rep. Stud. GESAMP, (47):35 p.

48. Global changes and the air-sea exchange of chemicals. (1991). Rep. Stud. GESAMP, (48):69 p.

49. Report of the twenty-second session, Vienna, 9-13 February 1992. (1992). Rep. Stud. GESAMP, (49):56 p. Available also in French, Spanish and Russian

50. Impact of oil, individual hydrocarbons and related chemicals on the marine environment, including used lubricant oils, oil spill control agents and chemicals used offshore. (1993). Rep. Stud. GESAMP, (50):178 p.

51. Report of the twenty-third session, London, 19-23 April 1993. (1993). Rep. Stud. GESAMP, (51):41 p. Available also in French, Spanish and Russian

52. Anthropogenic influences on sediment discharge to the coastal zone and environmental consequences. (1994). Rep. Stud. GESAMP, (52):67 p.

53. Report of the twenty-fourth session, New York, 21-25 March 1994. (1994). Rep. Stud. GESAMP, (53):56 p. Available also in French, Spanish and Russian

54. Guidelines for marine environmental assessment. (1994). Rep. Stud. GESAMP, (54):28 p.

55. Biological indicators and their use in the measurement of the condition of the marine environment. (1995). Rep. Stud. GESAMP, (55):56 p. Available also in Russian

56. Report of the twenty-fifth session, Rome, 24-28 April 1995. (1995). Rep. Stud. GESAMP, (56):54 p. Available also in French, Spanish and Russian

57. Monitoring of ecological effects of coastal aquaculture wastes. (1996). Rep. Stud. GESAMP, (57):45 p.

58. The invasion of the ctenophore Mnemiopsis leidyi in the Black Sea. (1997). Rep. Stud. GESAMP, (58):84 p.

59. The sea-surface microlayer and its role in global change. (1995). Rep. Stud. GESAMP, (59):76 p.

60. Report of the twenty-sixth session, Paris, 25-29 March 1996. (1996). Rep. Stud. GESAMP, (60):29 p. Available also in French, Spanish and Russian

61. The contributions of science to integrated coastal management. (1996). Rep. Stud. GESAMP, (61):66 p.

62. Marine biodiversity: patterns, threats and development of a strategy for conservation. (1997). Rep. Stud. GESAMP, (62):24 p.

63. Report of the twenty-seventh session, Nairobi, 14-18 April 1997. (1997). Rep. Stud. GESAMP, (63):45 p. Available also in French, Spanish and Russian

64. The revised GESAMP hazard evaluation procedure for chemical substances carried by ships. (2002). Rep. Stud. GESAMP, (64):121 p.

65. Towards safe and effective use of chemicals in coastal aquaculture. (1997). Rep. Stud. GESAMP, (65):40 p.

66. Report of the twenty-eighth session, Geneva, 20-24 April 1998. (1998). Rep. Stud. GESAMP, (66):44 p.

67. Report of the twenty-ninth session, London, 23-26 August 1999. (1999). Rep. Stud. GESAMP, (67):44 p.

68. Planning and management for sustainable coastal aquaculture development. (2001). Rep. Stud. GESAMP, (68):90 p.

69. Report of the thirtieth session, Monaco, 22-26 May 2000. (2000). Rep. Stud. GESAMP, (69):52 p.

70. A sea of troubles. (2001). Rep. Stud. GESAMP, (70):35 p.

71. Protecting the oceans from land-based activities - Land-based sources and activities affecting the quality and uses of the marine, coastal and associated freshwater environment.(2001). Rep. Stud. GESAMP, (71):162p.

72. Report of the thirty-first session, New York, 13-17 August 2001. (2002). Rep. Stud. GESAMP, (72):41 p.

73. Report of the thirty-second session, London, 6-10 May 2002. (in preparation). Rep. Stud. GESAMP, (73)

74. Report of the thirty-third session, Rome, 5-9 May 2003 (2003) Rep. Stud. GESAMP, (74):36 p.

75. Estimations of oil entering the marine environment from sea-based activities (2007), Rep. Stud. GESAMP, (75):96 p.

76. Assessment and communication of risks in coastal aquaculture (2008). Rep. Stud. GESAMP, (76):198 p.

77. Report of the thirty-fourth session, Paris, 8-11 May 2007 (2008), Rep. Stud. GESAMP, (77):83 p.

78. Report of the thirty-fifth session, Accra, 13-16 May 2008 (2009), Rep. Stud. GESAMP, (78):73 p.

79. Pollution in the open oceans: a review of assessments and related studies (2009). Rep. Stud. GESAMP, (79):64 p.

80. Report of the thirty-sixth session, Geneva, 28 April - 1 May 2009 (2011), Rep. Stud. GESAMP, (80):83 p.

81. Report of the thirty-seventh session, Bangkok, 15 - 19 February 2010 (2010), Rep. Stud. GESAMP, (81):74 p.

82. Proceedings of the GESAMP International Workshop on Micro-plastic Particles as a Vector in Transporting Persistent, Bio-accumulating and Toxic Substances in the Oceans (2010). Rep. Stud. GESAMP, (82):36 p.

83. Establishing Equivalency in the Performance Testing and Compliance Monitoring of Emerging Alternative Ballast Water Management Systems (EABWMS). A Technical Review. Rep. Stud. GESAMP, (83):63 p., GloBallast Monographs No. 20.

84. The Atmospheric Input of Chemicals to the Ocean (2012). Rep. Stud. GESAMP, (84) GAW Report No. 203.

85. Report of the 38th Session, Monaco, 9 to 13 May 2011, Rep. Stud. GESAMP, (85):118 p.

86. Report of Working Group 37: Mercury in the Marine Environment (in prep.). Rep. Stud. GESAMP, (86).

87. Report of the 39th Session, New York, 15 to 20 April 2012, Rep. Stud. GESAMP, (87):62 p.

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