

Upcoming CoML Cruises: Watch the project websites for cruise diaries!

10-30 April: [CMarZ](#) cruise to study zooplankton diversity in the tropical/sub-tropical Atlantic
27 April-2 June: [ChEss](#) cruise to the southern Mid-Atlantic Ridge
26 May-10 June: [CenSeam](#) cruise to survey New Zealand seamounts

Scientific Steering Committee (SSC)

The SSC is pleased to announce Ian Poiner has accepted our invitation to serve as a Vice Chair of the committee, along with Victor Gallardo, who has served as SSC Vice Chair since 2004.

The SSC met 23-24 February in Honolulu, Hawaii, in conjunction with the AGU/ALSO/TOS Ocean Sciences meeting. A renewal proposal for continued support of the SSC and the Secretariat at CORE provided opportunity for the SSC to carefully consider its plans for the next few years, focusing on increased support for national and regional activities and improved program management. As a follow-up to the success of the November 2005 All-Program meeting, the SSC also continued to discuss CoML legacies, broader global representation, an integrative report framework, and other 2010 products. The remaining meetings in 2006 will be held 22-23 June in Reykjavik, Iceland and 13-14 October in Nara, Japan (with the NRIC Chairs).

CoML Steering Committee Chairman Fred Grassle was awarded the prestigious Grand Prix des Sciences de la Mer Albert 1er de Monaco on 15 December 2005 for his major contributions to the ocean sciences. This prominent award is given only one time annually and was presented at Les Salons de l'Ambassade in Paris by Ambassador Jean-Claude Fortuit.

CoML Reporting Framework

A working group, chaired by Paul Snelgrove (Chair of CoML Canada), has been awarded funds to develop a framework for the CoML 2010 report. Participants include: Mark Costello (OBIS), Darlene Crist (E&O), Mike Fedak (TOPP), Pat Halpin (OBIS), Patricia Miloslavich (CoML Caribbean), Mike Sinclair (SSC), Meryl Williams (SSC), and Boris Worm (FMAP). Part of the group's strategy is hold discussions with the CoML projects, as well as various other stakeholder groups, to develop a reporting framework that will synthesize and present the CoML findings in ways useful to anyone who needs or is interested in the information. The working group will present its recommendations to the CoML community in early 2007.

Secretariat

The Secretariat at the Consortium for Oceanographic Research and Education (CORE) welcomes Kelly Droney to the CoML team. As a Research Assistant to CoML, Kelly will be splitting her time between the International and U.S. programs. Kelly is a graduate of The George Washington University where she studied Biological Anthropology and Spanish.

Education and Outreach

Over the past few months, CoML and its projects were featured in prominent monthly and weekly magazines around the world, including: *New Scientist* (UK, 12 November 2005), *La Recherche* (France, November 2005), *Der Spiegel* (Germany, 13 February), *Newsweek Polska* (Poland, 19 February), and *Veja* (Brazil, 22 February). The E&O team at URI has compiled a full list of CoML media coverage from 2005, which can be downloaded at the CoML Portal's (www.coml.org) Census Partner Resources (it's a large file!).

The Smithsonian Institution and French Embassy are sponsoring a festival of films by Jacques Perrin in Washington DC from 25-31 March. In conjunction with this event, on 29 March, the French Embassy in DC will host a symposium on marine life and the challenges of making films in the ocean. From 1:30-3:00 PM, CoML speakers Barbara Block (TOPP), Mike Vecchione (MAR-ECO), and Kevin Raskoff (ArcOD) will present their latest discoveries. Fred Grassle will moderate this session. From 3:30-5:00 PM, Jacques Perrin and colleagues from Galatee Films will discuss the technical aspects of filming marine life in relation to their film, *Oceans*, in production. For more on the festival, see: http://www.la-maison-francaise.org/en_cinejav.htm.

Richard Ellis' book, *Singing Whales and Flying Squid* (Globe/Pequot Press) is now available in stores. The book uses scientific discoveries and the Census of Marine life to explore the unknowns about life in the least well known part of our planet. On March 7, the American Museum of Natural History sponsored a lecture and book signing with Ellis.

Database: Ocean Biogeographic Information System (OBIS)

OBIS and the Inter-American Biodiversity Information Network (IABIN) have signed a memorandum of cooperation to establish a framework for collaboration between IABIN and OBIS to further common goals including, facilitating the development and implementation of technologies and best practices necessary in order to share data, knowledge and information relevant to biodiversity conservation and sustainable management within the Americas. The activities undertaken through this memo will promote the exchange of scientific and technical data and augment scientific and technical information capabilities of both IABIN and OBIS, and our respective constituents. For more information on IABIN, visit: <http://www.iabin.net/>.

In February, with the addition of four new European data sets, OBIS exceeded 9 million records (2 years ahead of schedule). These datasets include Marine Nature Conservation Review (MNCR) and associated benthic marine data held and managed by English Nature (EUROBIS), Marine Nature Conservation Review (MNCR) and associated benthic marine data held and managed by Scottish Natural Heritage (EUROBIS), MarBEF Publication Series data (EUROBIS); Pembrokeshire Marine Species Atlas (EUROBIS). More information on these datasets can be found at the EUROBIS website:

<http://www.marbef.org/data/eurobisproviders.php>.

ACON (A CONtouring application) is in beta testing on the OBIS portal. ACON maps result from the number of observations grouped by data source including hot links for sub-selection, alternate groupings, and various graphic formats. ACON is a data visualization application that generates highly interactive maps of biodiversity data. As a web application, the output is a web page passed to the users browser including JavaScript to provide interactive 'hot links' for data sub-selection, alternate data groupings and various graphics formats, including multiple maps, and movies. (Note: there are still some bugs for certain browsers) For more information, visit the ACON website: <http://www.mar.dfo-mpo.gc.ca/science/acon/index.html>. ACON is provided through the Centre for Marine Biodiversity at the Bedford Institute of Oceanography, Canada.

OBIS welcomes feedback about the portal and its services. Please visit <http://www.surveymonkey.com/s.asp?u=591471511868> to complete a survey.

Oceans Past: History of Marine Animal Populations (HMAP)

In March, Poul Holm, HMAP leader and SSC member, began a new position as the new Rector of Roskilde University, Denmark. Poul will bring with him his HMAP staff from Southern Denmark University, including Anne Husum Marboe, Mabritt Bager, and Bo Poulsen. Roskilde University will establish a Danish Center for Environmental History, which will carry out

HMAP's mission to build the discipline of environmental history. Congratulations to Poul on this position and recognition.

Oceans Future: Future of Marine Animal Populations (FMAP)

FMAP is making advancements in state-space modeling techniques used to analyze animal movement data. As those who use tracking devices such as satellite telemeters and radio tags are aware, data derived from such devices are fraught with idiosyncrasies that are extremely difficult to analyze. This is because the animals are not only moving in unpredictable ways, the tracking data contain errors that are not normally distributed and which vary with time. State-space techniques developed by FMAP scientists will enable researchers to model movement behavior in a flexible and reliable manner with robust methods for dealing with the error structure of the data. In papers accepted to Ecology and Environmetrics, FMAP applies these techniques to ARGOS telemetry data derived from tags placed on seals and leatherback turtles. The techniques represent significant advances in state-space modeling that will enable CoML scientists to monitor animal movement, measure changes in behaviours (such as foraging versus migration), and to compare navigation ability of different animals. Upcoming articles:

Jonsen, I.D., J. Mills Flemming, and R.A. Myers. In press. Robust state-space modeling of animal movement data. Ecology. Accepted, June 23, 2005.

Mills Flemming, J.E., C.A. Field, M.C. James, I.D. Jonsen, and R.A. Myers. In press. How well can animals navigate? Estimating the circle of confusion from tracking data. Environmetrics. Accepted, October 2005.

Ocean Realm Field Projects

Near-Shore: Natural Geography In Shore Areas (NaGISA)

NaGISA will hold its first open scientific symposium in Kobe, Japan, 15-18 October 2006, and all are welcome. The conference has three primary goals: to facilitate the interaction of near shore benthic ecologists and taxonomists; to strengthen the connection between NaGISA and complementary projects; and to present research and results from the NaGISA project. The Conference Circular is available on the NaGISA web site (<http://www.nagisa.coml.org/downloads/NaGISAcircular.pdf>) and the registration information will follow at the end of March.

NaGISA's European network has expanded to include an initiative in Crete, Greece. The new initiative will be lead by Dr. Christos Avanitidis and Prof. Tasso Eleftheriou from the Institute of Marine Biology and Genetics (IMBG/HCMR).

NaGISA hosted its first workshop of the year in January. Simon Bolivar University (Venezuela) hosted a protocol workshop for the South American Region, at which more than 15 countries were represented.

An introduction to Marine Algae taxonomy will be held in May in Vancouver, Canada hosted by the University of British Columbia. Registration for the taxonomy workshop will open 20 March.

The Indian Ocean Region has scheduled its first regional meeting and protocol workshop to be held in Mombassa at the end of May.

Reefs: Census of Coral Reefs (CReefs)

CReefs welcomes Mary Wakeford as its new Australia Node Coordinator at the Australian Institute of Marine Science (AIMS). Mary has been working for AIMS since 1995. She has a diverse background inclusive of, but not limited to, work with coral taxonomy, marine bio-products, coral reef ecology and biodiversity, crown of thorns and bleaching studies/modeling, and has written and maintained multiple databases. AIMS is responsible for the CReefs data management and OBIS interoperability.

In January, CReefs formally announced its initiation with a news release. The release, which was covered internationally from Australia to Norway, highlighted the collaborative effort between AIMS, Scripps, and the Pacific Island Fisheries Center (NOAA) and made a clear case for the importance of learning more about the biodiversity of coral reef ecosystems.

Nancy Knowlton, one of the principal investigators of CReefs, was featured as a plenary speaker at the Ocean Sciences Conference (Honolulu, February 2006). Using coral reefs as the basis for her talk, Nancy discussed biodiversity and biocomplexity and made a strong case for needed research. CReefs convened a special session on the “Biodiversity of Coral Reef Ecosystems” at the meeting. Papers included taxonomic focus in the biodiversity of such understudied groups as sponges, octocorals, mollusks, polychaetes, crustaceans, echinoderms, tunicates, seagrasses, macroalgae (red, brown, and green macroalgae), coralline algae, turf algae, and cyanobacteria, as well as advancement in technology and sampling strategies relative to these foci.

Following the Ocean Sciences Conference, CReefs held its own workshop and database meeting in Hawaii from 27 February – 1 March.

Regional Ecosystems: Gulf of Maine Area Program (GoMA)

The Gulf of Maine Area Program has received renewal fund to continue its efforts for another two years. Congratulations to Evan Richert, Lew Incze and the rest of the team at the University of Southern Maine and throughout the Gulf of Maine.

In January, GoMA, with the Huntsman Maine Science Center of St. Andrews, New Brunswick, released the first count of known marine species in the Gulf of Maine region – more than 50% larger than previous estimates. The count – 3,317 species including both year-round species and those that migrate to the region seasonally – comes from the new Gulf of Maine Register of Marine Species, the first register of its kind for the region. Among the species are 652 kinds of fish, 184 species of birds, and 32 species of mammals. Microscopic plants, including algae, alone account for an impressive 733 different species, or more than one of every five species in the Gulf of Maine region. For the complete story, visit: <http://www.usm.maine.edu/gulfofmaine-census/Docs/PressRelease30Dec05.pdf>.

In February, Nick Makris, a collaborator in GoMA through his NOPP-funded research in the Gulf of Maine, published work on a new technology for looking beneath the ocean surface that could help definitively determine whether fish populations are shrinking. The remote sensor system developed by Makris and his colleagues at Massachusetts of Technology makes it possible to track enormous fish populations or shoals over a 10,000-square-kilometer area - a vast improvement over conventional technology. Makris compared the dramatic improvement to the difference between seeing everything on a television screen and seeing only one pixel. The new sensor system was reported in *Science* and *Nature*. Read the press release at: http://www.coml.org/medres/mit/MIT_News_Release.pdf.

Continental Shelves: Pacific Ocean Shelf Tracking (POST)

POST announces its new Senior Scientists, Dr. George Jackson (University of Tasmania) and Dr. Charles Greene (Cornell University). While maintaining their association with their home institutes, George and Charles will jointly lead the POST science program, driving it forward into its implementation phase. Along with their enthusiasm and support for the project, they will contribute their contacts and expertise to make POST a truly international program useful for tracking of a wide variety of marine animals. Dr. George Jackson is a senior lecturer at the University of Tasmania and has been serving as a member of the POST Scientific Advisory Committee. He has helped POST develop questions on salmon research and is working on the POST manifesto with David Welch. His research on cephalopods involves acoustic tracking, which allows POST to expand its usability to invertebrates. Dr. Charles Greene, Director of the Ocean Resources and Ecosystems Program at Cornell University, is a recognized expert in bioacoustical oceanography. He has a long track record in the development of innovative bioacoustic technology, the use of that technology in advancing biological oceanographic research, and the training of students from around the world in bioacoustical oceanographic methods. Dr. Greene is collaborating with POST on the development of undersea listening arrays in the Pacific Northwest and Hawaii to track a variety of animals, ranging from pelagic fishes to marine mammals to sea turtles. Dr. Jackson and Dr. Greene will work closely with POST project founder Dr. David Welch, who is now focusing his efforts on the technology development and the deployment and operation of the physical array. David is credited with the success of the large-scale demonstrations in 2004 and 2005 and, as President of Kintama Research Corporation, will continue to be a vital part of the POST operation in being the driving force in POST technology.

Continental Margins: Continental Margin Ecosystems on a Worldwide Scale (COMARGE)

In February, COMARGE disseminated a document describing the aims, the rationales and the main questions addressed by the project to a list of about 60 scientists around the world. Owing to their research interests and areas of predilection, these scientists, together, cover all oceanic basins where continental margins have been studied or will be studied in the near future. They also cover a wide range of skills, from geochemistry to biology and taxonomy, as well as all major components of the benthic fauna in the various benthic habitats of the continental slopes. The document is intended to (1) foster discussion on the questions addressed by COMARGE, (2) census existing and planned projects on continental margins and (3) encourage contributions and participations in COMARGE. All contributions and reactions to this document will be summarized and incorporated into a revision to be issued in May 2006. It will include a map of knowledge indicating the location of past and ongoing studies relevant to the project and some cataloguing of parameters measured and planned. This revision will then serve as a basis for discussions during a COMARGE workshop to be held at the Oceanographic Institute in Paris, 6-7 July 2006, bringing together the scientists willing to contribute to COMARGE. The objective of the workshop will be to stimulate collaborative frameworks, on a regional basis, in order to increase our understanding of how habitat heterogeneities, from small to large spatial scales, shape biodiversity patterns on continental margins.

The 17,163 OBIS records of benthic species sampled between 200m and 4000m depth, which come from the Ifremer BIOCEAN database and the REVIZEE program in Brazil, will soon be significantly increased by 53,595 records coming from the Deep Gulf of Mexico Benthos program, funded by the US Mineral Management Service. The dataset submitted to OBIS by Dr. Gilbert Rowe from Texas A&M contains records for about a thousand species: 119 demersal fishes, 185 megafaunal species, 973 macrofaunal species as well as a number of meiofaunal species.

Abyssal Plains: Census of the Diversity of Abyssal Marine Life (CeDAMar)

A CeDAMar grant is helping Dr. Olga Kamenskaya (P.P. Shirshov Institute of Oceanology, Russia), Dr. Tomas Cedhagen (Aarhus University, Denmark), and Dr. Andy Gooday (National Oceanography Centre, UK) to describe komokiacean foraminifera from the Weddell Sea and adjacent basins, collected during the 2005 ANDEEP III expedition. These strange protists (protozoans) are abundant in the deep sea, but remain poorly known from only a handful of papers published on them since their discovery in the 1970s. The ANDEEP samples, particularly those from the epibenthic sledge, are providing the first view of komoki from the deep Southern Ocean, substantially increasing our knowledge of the group. A total of more than 90 komoki and komoki-like species were recognized during the ANDEEP III campaign. The collection includes three novel forms, including a new species of *Ipoa* with strange, feather-like branches, a 'skeleton-like' species that certainly represents a new genus, and a small species with a few short fat branches, which may be another new genus.

Mid-Ocean Ridges: Mid-Atlantic Ridge Ecosystem Project (MAR-ECO)

An international team of MAR-ECO researchers, led by Monty Priede at the University of Aberdeen, have revealed that sharks have failed to colonise at depths greater than 3,000 metres, meaning that the deepest oceans of the world appear to be shark free. Scientists do not know why sharks are absent from the deep but suggest one possible reason could be due to lack of food. Their findings published in the Proceedings of The Royal Society, Biological Series were on a wide range of data, including information gathered during a major month long MAR-ECO expedition along the Mid-Atlantic Ridge in 2004. The scientists who collaborated on the paper are from Oceanlab, University of Aberdeen; Leibniz-Institut für Meereswissenschaften, Germany; Marine Biology Research Division, Scripps Institution of Oceanography, USA; Institute of Marine Research, Norway; British Antarctic Survey, Natural Environment Research Council, Cambridge; Møre Research, Norway and FRS Marine Laboratory, Aberdeen. For the full news release, visit: http://www.coml.org/medres/sharks/absence_of_sharks_from_abys.pdf.

At the February *Ocean Sciences* Conference in Honolulu, MAR-ECO was well represented with a special session, five talks and three posters. Franz Uiblein and Tracey Sutton convened a special session on "*Deep-Sea Fish Diversity and Ecology in the Benthic Boundary Layer*" with a total of 12 talks and nine posters covering a great variety of study methods and habitats. Presentations in this session with special relevance for MAR-ECO were the invited keynote lecture "*What do Food Webs Tell us About the Abundance and Diversity of Slope Dwelling Fishes?*" by John Gordon and talks by Nikki King, Tracey Sutton, and Franz Uiblein featuring results of the lander deployments, fishes collected with pelagic trawls, and ROV in situ observations during the 2004 *G.O. Sars* expedition, respectively. Poster presentations by Chip Cotton on longlining results and Guro Gjelsvik on roundnose grenadier food selection completed the strong appearance of MAR-ECO in this session.

Recent results from MAR-ECO are shedding new light on a theory scientists have held for centuries, based on limited information, that deep-sea pelagic fish are nomadic wanderers. MAR-ECO's results indicate that these fishes may in fact be gathering at features such as ridges or seamounts to spawn. The research has important implications for how deep-sea ecosystems should be managed to prevent devastation by deep trawling activities. MAR-ECO research expeditions have also led to the discovery of as many as six fish species new to science and the collection of some unusually large deep-sea fish specimens.

MAR-ECO held a satellite telemetry workshop, 30-31 January in Horta, the Azores, aiming to establish a large-scale tagging program. Situated in the middle of the Atlantic Ocean, with many

species of baleen whales swimming close to the islands, the Azores is a unique location for satellite tagging. Participants from Canada, Denmark, England, Norway, Portugal and USA met in the historical whaling museum to discuss issues of telemetry on a wide variety of marine animals including large baleen whales, seabirds, large pelagic fish, sharks, sea turtles and cephalopods. Among the main objectives of the workshop were to present, discuss and evaluate the scientific needs and strategies for developing a large-scale integrated program on satellite and acoustic tagging of these organisms along the Mid-Atlantic ridge off the Azores.

In January, at a five-day workshop at the University of Bergen field station at Espegrend, MAR-ECO scientists made significant progress on post-cruise analyses of the data from echosounders. The post-processing involves combining data from the echosounders with observations made by samplers, e.g. plankton nets and trawls, or optical instruments. When observing life beneath the surface of the sea, echosounders are the “eyes” of the marine scientists. Echosounders utilize sound in much the same way as our eyes or cameras use light. The reason for preferring sound to light is that sound travels well in water and many animals reflect sound. This reflected sound, actually the echo, is recorded by the echosounders. Post-processing of these signals facilitates studies of distribution and abundance of the sound-reflecting animals ranging from small zooplankton to marine mammals. Scientists at the meeting included John Horne, Tone Falkenhaus, Anders Opdahl, Kirsty Anderson, Stein Kaartvedt, Olav Rune Godø, Henrik Sjøiland, Kristina Arianson, Leif Nøttestad, and Odd Aksel Bergstad. The Espegrend meeting stimulated further work of scientists and students and facilitated progress towards a number of scientific reports containing exciting news on the patterns of distribution and behavior of marine life on the Mid-Atlantic Ridge.

MAR-ECO is planning a workshop for 6-7 September 2006 in Camboriú, Brazil, to coordinate the extension of the project to the South Atlantic. This effort will include participation from CoML regional committees in South American and Sub-Saharan Africa.

For more on these and other stories, visit the MAR-ECO website: www.mar-eco.no. Please also visit the MAR-ECO website to download its new multimedia presentation (under “Resources” then “Video” on the left-side menu).

Seamounts: Census of Marine Life on Seamounts (CenSeam)

CenSeam will have its first cruise to the New Zealand Seamounts on 26 May to 10 June. Watch <http://censeam.niwa.co.nz> for a cruise diary.

The CenSeam community as a whole continues to grow and many taxonomists have recently joined the network, lending their expertise and enthusiasm to CenSeam. Current work by CenSeam scientists ranges from developing and further populating the SeamountsOnline database to data mining to field work - including tracking the foraging of seabirds around seamounts using miniature GPS data loggers (David Thomson, March) as well preparing for the first CenSeam voyages. Research vessels will visit areas including New Zealand’s Graveyard seamount complex, Antarctica as well as venturing to previously un-sampled regions in the Pacific. Associated with these trips will be a substantial Education and Outreach effort including voyage diaries and television cameras. Other exciting news is that CenSeam scientist Bertrand Richer de Forges will publish this month the discovery of a new "living fossil" on the Lord Howe seamounts (in the French review *Zoosystema*). CenSeam also continues to seek linkages with other field projects and will liaise with CAML in the upcoming IPY.

To further develop seamount research around the world CenSeam advertised mini-grants and received a significant number of applications. These are currently being assessed and money will be awarded in the coming months.

Several CenSeam scientists will be presenting work to the International Seabed Authority in March and will be discussing the distribution and diversity of seamount fauna related to cobalt-crusts.

The CenSeam Data Analysis Working Group (DAWG) held its first meeting in February, hosted by New Zealand's National Institute of Water and Atmospheric Research (NIWA, Wellington), which also hosts the CenSeam secretariat. The workshop was funded by the Netherlands' Department of Nature, Ministry of Agriculture, Nature and Food Quality). The DAWG is currently analyzing data examining the biodiversity and vulnerability of deep-sea corals on seamounts beyond areas of national jurisdiction. A final report will provide clear scientific information to inform decision making related to the conservation of biodiversity and the management of seamount resources on the high seas. The report is due to be published by CBD, UNESCO/IOC and UNEP in August 2006. The next meeting of the DAWG, as well as the CenSeam Steering Committee (SC) will be in July - coinciding with the 11th International Deep Sea Biology Symposium. The SC will start to plan proposal submission for continuation of CenSeam funding.

Another CenSeam assisted publication this year will be the Blackwell Science Fish and Aquatic Resources Series book "Seamounts: ecology, fisheries and conservation" (eds. T. Pitcher, P.J.B. Hart, T. Morato, M. Clark and R.S. Santos).

A team of scientists from the National Oceanic and Atmospheric Administration's (NOAA) Monterey Bay National Marine Sanctuary, the Monterey Bay Aquarium Research Institute (MBARI), and Moss Landing Marine Laboratories, along with BBC filmmakers, participated in a cruise aboard MBARI's research ship Western Flyer to explore Davidson Seamount (26 January – 4 February). Davidson Seamount is a huge undersea mountain 120km from Monterey Bay, California that harbors a variety of spectacular marine life, including large, ancient, and fragile coral gardens. The cruise was funded by NOAA's Office of Exploration and contributes to CenSeam. Visit the NOAA Ocean Explorer website for the daily logs from this cruise: <http://oceanexplorer.noaa.gov/explorations/06davidson/welcome.html>.

Vents & Seeps: Biogeography of Deep-water Chemosynthetic Ecosystems (ChEss)

NOAA-Ocean Exploration announced the success of a bid for the U.S. component of a ChEss/CoML collaboration between Woods Hole Oceanographic Institution (Chris German) and the Deutsche Ridge program (Colin Devey, Germany) worth about \$2.5M to continue hydrothermal exploration of the southern Mid-Atlantic Ridge in 2006. First discovery of venting anywhere in the South Atlantic was made in Spring 2005 as a result of joint UK-US and German investigations where ~400°C vents were found in a site of apparently very fresh lava-flows. On 27 April 2006, ChEss' international team will set sail once more, out of Barbados, to revisit this first known site and locate three more actively venting areas, returning to port in Brazil on 2 June.

On the 8-10 March 2006, ChEss held a workshop at the Institute of Marine Sciences (CSIC, Barcleona) on "Exploration and Biogeography of Deep-Water Chemosynthetic Ecosystems on the Atlantic Equatorial Belt region: First Results and Planning for Future Research." Forty participants attended from research institutes, universities, and engineering and oil companies from several countries. The reports and results of the workshop will be available on the ChEss website (<http://www.noc.soton.ac.uk/chess/>) shortly.

The European Science Foundation (ESF), InterRidge, ChEss and Ridge2000 are co-funding an InterRidge Polar Ridges Meeting and Workshop to be held in Sestri-Levante (Italy) on 20-22

September 2006. The meeting and workshop will address various aspects of Polar Ridge science and will comprise two days of scientific talks followed by a one-day plenary workshop.

ChEss has started a pilot project with Chuck Fisher's lab at Pennsylvania State University to include data on available samples and collections into ChEssBase. When the system is ready, it will allow the inclusion of samples from laboratories around the world that wish to contribute their data.

ChEss is restructuring its educational web site. The new English pages are now available (http://www.soc.soton.ac.uk/chess/education/edu_home.php) and translations into French, Spanish and Portuguese will be available soon.

ChEss is creating a Training Award for Young Investigators (TAWNI). The aim of the TAWNI programme is to support training and mobility of young investigators in research activities related to samples, collections and taxonomy of deep-water chemosynthetic ecosystems. The first call will be published on the ChEss website and distributed through the mailing lists of other international programmes (CoML, InterRidge and Ridge2000) in April-May 2006.

ChEss is also discussing about activities related to School Networks with other international programmes such as the DESEO group and Ridge 2000.

Arctic: Arctic Ocean Diversity (ArcOD)

ArcOD, with the support of its SSG and PIs of collaborating Expressions of Intent (EoI), submitted its full International Polar Year (IPY) proposal to the International Council for Science (ICSU) for the 31 January 2006 deadline. The proposal, along with a list of EoIs interested in collaborating, was assigned the activity ID# 333 and can be viewed at <http://www.ipy.org/development/eoi/proposal-details.php?id=333>. The proposal brings together 20 EoIs that focus on Arctic biodiversity questions. The ICSU/WMO Joint Committee for the International Polar Year 2007-2008. On 7 March, the Joint Committee endorsed the proposal “as a prominent and valued part of the IPY program”. The IPY approval stamp *per se* does not come with any funding, but several nations require the approval in order to be able to submit IPY-related proposals to their national funding agencies. The duration of IPY will be March 2007-March 2009. Goals and objectives of IPY can be found at www.ipy.org.

University of Alaska Fairbanks faculty members, including ArcOD Fairbanks office staff, led by Russ Hopcroft, convened an “Arctic Synthesis” workshop 17-18 February at the Hawaiian Institute of Marine Biology on Coconut Island, Oahu. Jo-Ann Leong (Director of HIMB, CReefs & US National Committee member) kindly served as a sponsor for the event. Thirty-five Arctic experts from four nations spent two days in plenary and break-out groups discussing advances and gaps in knowledge in the Chukchi and Beaufort Seas in the western Arctic. Participating scientists covered physical, chemical, and biological oceanography and marine biology with topics ranging from ocean currents to marine mammals. The workshop was funded by the North Pacific Research Board (NPRB) and will result in a report to NPRB summarizing the known, outlining the unknown, and recommending future research directions for NPRB. Several working groups also discussed manuscript ideas. Following this workshop, ArcOD held its second SSG meeting on 19-20 February in Honolulu, Hawaii, in association with the Ocean Sciences Meeting. Agenda items included status reports, IPY opportunities and plans, mini-grant format etc.

ArcOD researchers presented the ArcOD overview poster, as well as Arctic biodiversity-related research results, at the Alaska Marine Science Meeting in Anchorage in January 2006 and at the Ocean Sciences Meeting in Honolulu in February 2006.

ArcOD has begun supporting a database on ‘Western Arctic Fishes’ compiled from museum and field records by Kitty and Tony Mecklenburg (Pt. Stephens Research, Alaska) with Natalia Chernova and Boris Sheiko (Zoological Institute, St. Petersburg, Russia). Ksenia Kosobokova and colleagues (P.P. Shirshov Institute of Oceanology, Moscow, Russia) have joined the efforts of the Russian ArcOD center, led by Andrey Gebruk and Boris Sirenko, to include database work on zooplankton collections by Russian scientists and enhance taxonomic resolution of zooplankton samples.



Fairbanks artist Susan Farnham created the ArcOD logo, which was designed to reflect ArcOD’s three realm approach (sea ice, water column and sea floor) and highlight the traditionally ‘non-charismatic’ fauna. The Fairbanks office has been working with UAF communications officer Carin Bailey on an ArcOD brochure, which will be printed shortly.

Antarctic: Census of Antarctic Marine Life (CAML)

CAML is gearing up for the main fieldwork season during the International Polar Year (IPY) in 2007/08. At this stage, CAML is coordinating research aboard more than a dozen ships from a similar number of nations, with the potential to be the largest project yet undertaken in Antarctic marine biodiversity. In the collaborative ethos of the IPY, the Joint Committee has endorsed CAML as a major initiative, assessing the CAML lead proposal and its 23 clustered projects as having the potential contribute to significant international scientific advances.

Sampling protocols for the pelagic and benthic realms have been drafted by the CAML steering group and invited experts. Protocols for microbes, habitat mapping, top predators and barcoding are underway. The logistic and scientific coordination for IPY will be discussed at the next CAML steering group meeting in Bremerhaven in June 2006, in conjunction with the SCAR-MarBIN workshop to develop the Antarctic node of OBIS.

At the Cephalopod International Advisory Committee conference in Hobart, Australia 6-10 February, CAML presented a paper to introduce the Antarctic Census. Discussions about barcoding squid, cuttlefish and octopus included representatives of CAML, MAR-ECO, NaGISA and POST projects, led by Ron O’Dor.

In March, Antarctic microbes will receive special attention at a CAML workshop organized by steering group member Dr. Alison Murray. Held in conjunction with the Polar Microbes workshop in Innsbruck, Austria, the workshop will bring together about 30 international experts to discuss sampling protocols and research coordination. A major Antarctic science meeting (SCAR/COMNAP www.scar2006.org) will be held in Hobart, Australia during July. CAML will host a workshop with the title “Processes of Colonization and Dispersal—how they shape the Biodiversity of Antarctic Marine Ecosystems.”

CoML will join with the Partnership for Observation of the Global Oceans (POGO) and the Scientific Committee on Antarctic Research (SCAR) in a workshop on Southern ocean observing systems in Hobart, Tasmania, on Saturday, 15 July.

Top Predators: Tagging of Pacific Pelagics (TOPP)

During the last 6 months, TOPP has made some significant advances, the highlights of which are outlined below.

Pinnipeds: The pinniped team had impressive success with deployments on elephant seals and sea lions. Seals were and continue to be tracked from two colonies, San Benitos Islands, Baja, Mexico and at Año Nuevo, California. There were some distinct differences in behavior between

seals at the two colonies. For example, some seals from the southern rookery remained near the tagging location and avoided the long northward migration. The animals that do make the long trip north gain less weight than their counterparts from the northern rookeries, which is undoubtedly linked to the longer foraging migrations.

In fall 2005, researchers deployed 34 tags on adult male and female California sea lions at three locations within the California Current system including adult males in Monterey Bay, and adult females on San Nicolas and San Miguel Islands. Given our previous tracking effort over the last 3 years, it is now possible to make inter-annual comparisons. In winter 2003-2004, adult male sea lions remained close to the California coast and the durations of their foraging excursions averaged 12 hours. This pattern markedly contrasts with that of the 2004-2005 season, where male sea lions traveled 300-500 km offshore for durations of 2 days on average. The change in foraging behavior corresponded with a shift in diet from one dominated by market squid to one dominated by sardines and possibly a reduction in near-shore upwelling and regional productivity.

Exciting ecological insights are emerging from inter-specific comparisons. Using a novel fractal analysis developed by Yann Tremblay, it is possible to identify areas where elephant seals and albatrosses are likely foraging and then link these foraging events to meso-scale oceanographic features. Albatrosses and elephant seals appear to use the same meso-scale features in the North Pacific Current, albeit over different temporal scales. The albatross associate with these features for a matter of days, whereas elephant seals stay for weeks.

Seabirds: This fall, seabird researchers recovered 15 archival tags from sooty shearwaters following a 10-11 month deployment. The tags were deployed on breeding shearwaters in New Zealand, however, each bird migrated north to either the western Pacific, Alaska, or coastal California and Mexico. Overall, sooty shearwaters spent nearly half the year over-wintering in the northern hemisphere before returning back to New Zealand. Shearwaters traveled over 60,000 km roundtrip on this incredible journey that is one of the longest animal migrations ever recorded. This strategy of breeding in New Zealand during the austral summer and feeding in the northern hemisphere during the boreal summer allows sooty shearwaters to enjoy an endless summer while exploiting oceanic resources on a global scale.

In Mexico and Hawaii seabird researchers conducted a fourth consecutive tagging season using satellite and archival tags to track albatrosses. These results will provide new insight into how albatrosses respond to the interannual dynamics of oceanic conditions. The team also recovered more than 90% of its archival tags deployed on albatrosses during the previous year. These results detail the movement patterns of the birds during the much elusive post-breeding dispersal period which is more difficult to study with satellite tags because the albatrosses molt their feathers after breeding.

Sharks: The shark working group is actively tracking 3 species of sharks, salmon (25), mako (3) and blue (10). With the large number of multi-year records (n=9) for the salmon sharks we can make inter-annual comparisons. Interestingly when the sharks migrate south, they return to the same areas as in previous years moving along the same general path. Thus, while the geographic range of female salmon sharks extends across the eastern North Pacific, individual ranges are much smaller.

The last six months were very productive for the white shark team. This fall, two teams working at Año Nuevo State Park and Farallones National Marine Sanctuary deployed 28 PAT tags. In addition, one PAT was recovered providing a 5-month archival record. This shark moved from the west coast all the way to Hawaii, traveling nearly 2000 Nm in less than 40 days. The tag was

ultimately found on a central California beach indicating the shark returned to the area in which it was tagged.

Tunas: Using archival tags, the tuna team has amassed an impressive dataset on yellowfin, bluefin, and albacore tuna having now recovered over 273 tags for the three species including approximately 50,000 days of data on tuna movements in the North Pacific. From these data, a flood of new biological insights are pouring in about movements and habitat use. Analyses of the trans-Pacific migrations of bluefin tuna are allowing us to define their migratory corridor. The westward migrations, initiated in the winter and early spring, occur on a narrow corridor bounded to the north by the 13°C isotherms and to the south by the chlorophyll *a* front at the northern edge of the North Pacific Gyre. The bluefin travel rapidly across the Pacific (~ 2,500 nm in 31-45 days) before they slow down just east of Hawaii near the Shatsky and Hess rise. The timing of their arrival in this area corresponds to the spring pulse of productivity. This same area is also popular with loggerheads and albatross.

Humboldt Squid: Recent deployments on Humboldt squid in the Sea of Cortez, Mexico focused on movements in relation to the shallow oxygen minimum layer (OML), which occurred at 200-250m. The three short-term tag deployments showed surprising individual differences. One squid showed the typical diel pattern, spending most of daytime below 200-300 m (i.e. at depths associated with the OML) and the nighttime at 100 m or less. The second squid showed a similar but less marked diel pattern. The third squid showed virtually no diel pattern and essentially remained at 300 m for the entire 3 day deployment, during which it had migrated 70 miles. This squid was apparently actively swimming in hypoxic depths associated with the OML during the migration.

Sea Turtles: Through the considerable efforts around the Pacific basin, the turtle team is simultaneously tracking leatherbacks tagged in three different locations, Jamursba-Medi (West Irian Jaya-Indonesia), Monterey Bay, California and Costa Rica. In a complimentary effort, Bryan Wallace linked field metabolic rates to activities recorded by the tags for the first time. His results reveal that female leatherbacks appear to conserve energy during the inter-nesting intervals and this in combination with movements into cooler waters help leatherbacks avoid overheating in warm tropical waters.

In addition to the leatherback sea turtles, TOPP research partners are still tracking the four loggerhead turtles tagged this fall off Mexico. One turtle moved directly east towards Hawaii after spending some time in and around Magdalena Bay. The remaining 3 animals are within a few miles of each other in the productive waters just to the north of Magdalena Bay. These three turtles have not traveled far from the initial tagging location.

Education and Outreach: In January 2006 the TOPP web site received a Level 2 Ultraweb Award. Of the nearly 5,600 applicants in 2005, fewer than 100 achieved this level. In January we also launched the “TOPP Communication Network,” a phone-based web site designed to facilitate information sharing within TOPP. Visit the award winning website at: <http://www.toppcensus.org/>.

TOPP Hotspot Workshop and SSC meeting: In late 2005, TOPP convened an international workshop on Biological Hot Spots at Hopkins Marine Station, in conjunction with the TOPP SSC meeting. More than 70 scientists from eight nations participated, with expertise in biologging science, physical and biological oceanography, remote sensing, and ecological modeling. The objectives were to determine how to better define and identify hot spots, which constitute essential habitat for top marine predators, and to classify these features by ecological function and level of biodiversity.

Zooplankton: Census of Marine Zooplankton (CMarZ)

CMarZ welcomes three new program manager post-docs: Dr. Astrid Cornils (European Project Manager for CMarZ, Alfred Wegener Institute, Germany), Dr. Robert Jennings (N. American Project Manager for CMarZ, University of Connecticut, USA), and Dr. Ryuji Machida (Asian Project Manager for CMarZ, University of Tokyo's Ocean Research Institute, Japan). Through CMarZ, Astrid's research will focus on the taxonomy and ecology of Calanoid copepods, in particular the Paracalanidae. She received her Ph.D. from the University of Bremen in April 2005, working with Sigrid Schiel (AWI) and Claudio Richter (Center of Marine Tropical Ecology in Bremen). Working with Ann Bucklin, Rob's research will focus on molecular systematics of marine zooplankton, including molecular species identification, phylogeography, and phylogeny. Rob brings broad experience and expertise in molecular genetic techniques, data analysis, and modeling. Rob received his Ph.D. from the Woods Hole Oceanographic Institution/Massachusetts Institute of Technology Joint Program, working with Ken Halanych (now at Auburn University), Lauren Mullineaux, and Tim Shank. Ryuji has worked on the genetics of copepods, krill and prawns in his pursuit of understanding into the phylogeny and evolution of these groups. He has also studied plankton distribution and the reproductive cycle of *Euphausia pacifica* and is interested in how geographical distributional patterns may be attributable to distinct evolutionary processes and the creation of diversity.

Several CMarZ papers/posters were presented at the Ocean Sciences meeting in Honolulu, Hawaii in February: *Deep-Sea Planktonic Biomass and Biodiversity Using Complementary Methodologies* (S.H. Haddock, E.V. Thuesen), *Global Assessment of Zooplankton Species Diversity Using Integrated Molecular and Morphological Approaches* (A. Bucklin, S. Nishida, S. Schiel, P. Wiebe), *Exhaustive Analyses of Zooplankton Mitochondrial COI Genes-Census of Marine Zooplankton* (R.J. Machida, M. Nishida, S. Nishida), *Use of Mitochondrial COI and Nuclear 28S rDNA Sequence Variation for Species Identification and Phylogenetic Reconstruction Within the Siphonophora (Cnidaria: Hydrozoa)* (B.D. Ortman, A. Bucklin, F. Pages, M. Youngbluth).

CMarZ has organized several zooplankton taxonomic identification workshops to address the need for taxonomic expertise for the 15 phyla of animals occurring in the plankton. CMarZ prepares graduate students by providing training in species identifications, including molecular systematic approaches to understanding species diversity. These workshops have taken place in Vietnam, the Philippines, Indonesia, India, and the Pacific USA. Emphasis is on comprehensive knowledge on the biology, ecology, and taxonomy of marine zooplankton and methods dealing with these subjects, with emphasis on the practical aspects of sample analysis and species identification.

CMarZ is going to sea in April in the NW Atlantic to collect zooplankton from great depths. The cruise aboard the NOAA ship Ronald H. Brown will be led by Peter Wiebe and take place from 10-30 April 2006. The cruise will run from Charleston, South Carolina, USA to the San Juan, Puerto Rico in the Caribbean Sea. Sampling will take place in tropical and subtropical water west of the mid-Atlantic ridge in order to collect and identify the zooplankton distributed throughout the entire water column, with a particular focus on the under-sampled mesopelagic, bathypelagic, and abyssopelagic zones. Scientists aboard the cruise seek to explore under-sampled deep ocean pelagic environments and to document zooplankton species diversity across the 15 phyla comprising the holozooplankton. The cruise will assemble CMarZ researchers, expert taxonomists, and students. Graduate level student training in morphological and molecular systematic approaches will be provided by an At-Sea Zooplankton Taxonomy Workshop. Samples will be analyzed at sea using traditional taxonomic approaches and molecular

systematic analysis, including DNA sequencing of a target gene portion for each species. Protocols for molecular analysis of bulk zooplankton samples will be tested at sea. Follow-up molecular analysis, species counts, and expert taxonomic evaluation and description of any putative new or undescribed species will be done in association with the CMarZ Taxonomic Network. The primary objectives of this effort will work toward characterizing pelagic and benthic environments (using CTD/rosette, multi-beam sonar), census the inhabitants (MOCNESS, mid-water trawl) and discover new species (expert taxonomic analysis and DNA sequencing). The results will provide new understanding of species diversity, distribution, and abundance in relation to environmental conditions for bathy- and abyssopelagic zones.

Microbes: International Census of Marine Microbes (ICoMM)

ICoMM is collaborating with talented researchers and photographers of microscopic creatures and representatives from multimedia to explore ways to use visualizations of the microscopic in films, video games, and other media. An initial meeting will take place in March in Boston, MA, potentially followed by a larger workshop in September.

National and Regional Activities

Australia

In a recent press release, the Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO) released initial findings from its Great Barrier Reef Seabed Biodiversity Project, led by Dr. Roland Pitcher. Ten voyages (over 300 days at sea) have resulted in a snapshot of seabed life across the length and breadth of Australia's Great Barrier Reef Marine Park. Pitcher and his team are now processing 15,000 plant and animal samples, 2000 sediment samples, 2200 hours of video footage and 140 gigabytes of echo-sounder data from almost 1400 sites on the continental shelf. Findings from these cruises aboard the Queensland Department of Primary Industries and Fisheries research vessel, *Gwendoline May*, and the AIMS vessel, *Lady Basten*, will form the basis of maps, databases, and management tools to help marine resource managers conserve important habitats and biodiversity and ensure that fisheries are ecologically sustainable. The GBR Seabed Biodiversity is an affiliated project of the Census of Marine Life. Project site: <http://www.reef.crc.org.au/resprogram/programC/seabed/index.htm>. Press release: http://www.coml.org.au:8080/Media/MAR%20Reef%20Snapshot_final.doc.

Canada

Photos from the 2005 Discovery Corridor Cruise, which contributes to the CoML Gulf of Maine project, are now posted online at the Centre for Marine Biodiversity website: <http://www.marinebiodiversity.ca/en/gallery.html> (select "New Discoveries from the Discovery Corridor" from the dropdown menu).

Caribbean

On 16-19 January 2006, CoML Caribbean held a workshop to initiate NaGISA activities in South America and Caribbean regions. During the course of the workshop, participants were introduced to the NaGISA protocols, visited potential NaGISA sites in the Venezuela area, and processed samples. A total of 12 sites in SA and the Caribbean have made the commitment to carry out the NaGISA protocol. Twenty-five participants attended from Venezuela, Colombia, Ecuador, Peru, Chile, Brazil, Uruguay, Argentina, Cuba, Jamaica, Costa Rica, and the Alaska NaGISA Center.

The book *Caribbean Marine Biodiversity: The known and unknown*, which compiles reports presented at the 2004 CoML Caribbean regional workshop, is now available. Patricia

Miloslavich and Eduardo Klein, editors, will present the book to the public on 23 March at the Universidad Simón Bolívar in Venezuela. Contact the [Secretariat](#) for a copy.

China

The Chinese CoML Scientific Steering Committee convened the second CoML meeting on 20 December 2005. More than 30 participants from Chinese ocean research institutions, ocean universities, and relevant governmental departments attended the meeting. The main goal of the meeting was to understand the progress of CoML from the All Program meeting held in Frankfurt in November 2005, to review the progress of CoML China over the past year, and to discuss the developing strategy and working plan of CoML China for the next stage. The meeting focused on the presentation and discussion of scientific problems, infrastructure, plans for training and regional research, and a scientific strategy for regional research.

CoML China will soon have a new website (<http://www.coml.org.cn>), as will the OBIS Regional Node in China (<http://www.iobis.org.cn>). The hardware and database software required for the Chinese OBIS RON have been set up in the Marine Biological Museum of the Chinese Academy of Sciences, and temporary staffs were employed for the digitalization of Chinese marine specimen and species information. More than 150,000 records are currently estimated in the Chinese OBIS database. Chinese OBIS is preparing for interoperability with the international OBIS portal.

Europe

EuroDEEP, a common effort between all the CoML deep-sea projects (ChEss, MAR-ECO, CoMargE and CeDAMar) and a number of scientists and managers from different nations, is a program concept initiated and led by Carlo Heip and co-coordinated by Eva Ramirez (ChEss). In February 2006, EuroDEEP was accepted as an ESF EuroCORES programme and the Call for Proposals is out. See:

www.esf.org/esf_article.php?language=0&activity=7&domain=3&article=522&page=1311.

On 26-27 January, EuroCoML funded a deep-sea Education & Outreach meeting at NOC, Southampton. ChEss organized this meeting, which was also attended by representatives of MAR-ECO, CeDaMAR, CoMargE and EuroCoML. The aim of the meeting was to ascertain how the groups could link together and develop common initiatives in terms of E&O. The meeting was a real success with the establishment of excellent collaborations amongst all the partners, leading to the creation a CoML Deep Seas Education and Outreach group (DESEO, which means "wish" in Spanish). A number of suggestions have been made ranging from joint traveling exhibitions to integrating deep-sea ecosystems into the science/geography curricula within European schools, and funding is being applied to develop these ideas. More detailed information will be available in the next newsletter.

EuroCoML Chair, Graham Shimmiel is in communication with Bodil Bluhm from ArcOD to looking at ways to bring more interest from Europe into the ArcOD project.

EuroCoML and international SSC member Carlo Heip represented both the international and European CoML programs at the 3rd International Meeting – Acting together for the future of the Blue Planet, held 29 January – 1 February 2006 in Paris.

EuroCoML is aiming to expand the membership of its scientific steering committee, particularly to balance geographic representation, discipline and gender. A sub-group is undertaking this effort and will report to the Executive Committee before its next meeting, which will be held 30 March 2006.

Three European workshops have been funded for this forthcoming year:

- 1) Invasive species - Alien species and their contribution to biodiversity in pristine parts *vs.* anthropogenically impacted parts of European seas coordinated by Erkki Leppäkoski (Finland) and Stephan Gollasch (Germany). This workshop is being held on 10 – 11 March in Oostende, Belgium with scientists from 14 countries attending.
- 2) EMBED - Environmental Modulation of Biodiversity and Ecosystem Dynamics coordinated by Lisandro Benedetti-Cecchi (Italy) and the EuroNaGISA team. This workshop is being held 27 – 29 April in Pisa, Italy.
- 3) EUTOPIA - European Tracking of Predators in the Atlantic coordinated by David Sims and Julian Metcalfe (UK). It is proposed that this workshop will be held later in the year.

Indian Ocean

The Indian Ocean Regional Implementation Committee has been awarded renewal funds to continue to support and strengthen CoML activities in the region. These funds will also enable Indian Ocean contribution to global expansion of – and potential capacity building efforts through – the CoML projects. Congratulations to Mohideen Wafar, P.A. Lokabharathi, and their colleagues.

In February, the Indian Ocean (IndOBIS) node provided a new dataset to the OBIS Portal. The IndOBIS Dataset 1 is the marine subset of IndFauna - which has been extracted, and then subjected to scrutiny by a group of editors that forms the core team of IndOBIS. IndOBIS Dataset 1 contains detailed taxon hierarchy, synonyms, common name, and occurrence data for about 15,000+ faunal species that are marine in origin, including many Scarabaeidae (Insecta) and Gobiidae (Pices). IndOBIS Dataset 1 is also accessible through IndOBIS CoL search interface at www.indobis.org.

IO-CoML participant, Baban Ingole (National Institute of Oceanography, India), was interviewed in January by India's *The Financial Express*. The article presented Baban's perspective on the Sumatran Earthquake and Tsunami Offshore Survey, which took place off Phuket in May 2005. The BBC and Discovery Channel premiered documentaries about this expedition in December. For Baban's story, visit:

http://www.financialexpress.com/fe_full_story.php?content_id=115288.

South America

On 26 February, Brazilian local Education TV Broadcast System 'TV Cultura', a network covering most parts of Brazil, presented a short interview with BRAZIL-OBIS Manager Fabio Lang da Silveira about the development of CoML and OBIS to the Brazilian audience. The broadcast is available at: <http://www.tvcultura.com.br/reportereco/materia.asp?materiaid=369>.

OBIS South America has made several datasets from Argentina (AR-OBIS) and Brazil available through the OBIS Portal. The AR-OBIS Database contains records of 35 species of demersal and pelagic fishes and squid on the Patagonian continental shelf collected from bottom trawls. In Brazil, the REVIZEE program provided records of pelagic and demersal fish collected off the southern Brazilian coast. Six oceanographic cruises were carried out from 1996 to 1999 between Cape of São Tomé and Chuí. Pelagic fish distribution was investigated with acoustic methods and fish were collected with a mid-water trawl at stations with high target strength, mainly within 100 and 500m depth. Demersal fish were investigated to assess the fishing potential of catches vulnerable to hooks over both hard and soft bottoms on the outer shelf and upper slope – 80% of captures consisted of commercially valuable species. Brazil is also contributing its Paranaguá Bay, Plankton and Benthos Database. This data source includes information on zooplankton and zoobenthos distribution in different areas of the bay, ranging from oligohaline

to euhaline sectors. Time-series observations are also available for zooplankton data, in a sampling program carried out from 1993 to 1996 at weekly intervals.

The South American Regional Committee is now hosted at Universidad Nacional de Mar del Plata, Argentina, chaired by Diego Rodriguez

Sub-Saharan Africa

The Sub-Saharan African Regional Implementation Committee has been awarded renewal funds to continue to support and strengthen CoML activities in the region. These funds will also enable southern Africa to contribute to the global expansion of – and potential capacity building efforts through – the CoML projects. Congratulations to Charles Griffiths and his colleagues.

The Africa OBIS node (AfrOBIS) and the international OBIS Portal are pleased to announce the publication of the The Natal Museum's Mollusca dataset, which focuses on bivalves and gastropods. The dataset originates from the shell collection and library of Henry Burnup and was later expanded through fieldwork, donation, exchange, and purchase. Its historical value was greatly increased by absorption of important collections from the Transvaal Museum and Albany Museum, the Mutare Museum in Zimbabwe (Rodney Wood collection from the Seychelles), and the Kurt Grosch collection from in northern Mozambique. The mollusc collection now ranks among the 15 largest in the world and is the largest both in Africa and on the Indian Ocean rim. The collection will be updated in the near future.

Efforts are underway with Michel Claereboudt of Sultan Qaboos University in the Sultanate of Oman to strengthen CoML participation in that region. These discussions were initiated through the CoML Sub-Saharan African Committee.

USA

The U.S. National Committee (USNC) has received renewal funds to continue its activities for an additional two years. Congratulations to Daphne Fautin, Peter Fippinger, and their colleagues. The U.S. Program Office is housed at the Consortium for Oceanographic Research and Education (CORE) in Washington DC.

The USNC is helping to organize a session as part of this year's Capital Hill Oceans Week (CHOW) in Washington DC. The session, "New Views of Ocean Life: Advances in Visualization from the Census of Marine Life" will be held on 14 June from 1:00-2:15 PM. For more information, visit: <http://www.nmsfocean.org/chow2006/>.

The USNC is planning a workshop on approaches to researching the role of biodiversity in ecosystem services. The workshop is scheduled for 12-15 September 2006 in Washington, DC. The purpose of the workshop is to bring together individuals from a variety of scientific disciplines and from management agencies and backgrounds to share information, ideas and data on the following topics: (1) Understand the roles of marine and coastal biodiversity in sustaining ecosystem function; (2) Understand the direct and indirect values of ecosystems services to human populations; (3) Devise methods for applying this information to support ecosystem-based approaches to management; (4) Identify research priorities; and (5) Identify monitoring needs and methods. Paul Sandifer (USNC), Jo-Ann Leong (USNC, CReefs), and Lew Incze (GoMA) will co-chair the meeting.

The U.S. National Science and Technology Council Joint Subcommittee on Ocean Science and Technology is holding a public workshop on 18-20 April 2006 in Denver, CO, to solicit input and guidance from the ocean science communities on the Ocean Research Priorities Plan (ORPP). Called for in the U.S. Ocean Action Plan, the ORPP, in conjunction with a follow-on

Implementation Strategy, will describe a vision for U.S. ocean science and technology, describe the challenges to be addressed, identify key themes, specify goals for each theme and a time frame for their achievement, and address implications for the use or prioritization of resources. We encourage U.S. CoML researchers to attend. For more information on the ORPP and the workshop, visit: http://ocean.ceq.gov/about/jsost_workshop/welcome.html.

The next meeting of the USNC is 20-22 March 2006 in Washington DC.

Crosscutting and Other Related Activities

SCOR: Panel on New Technologies & Other Events

The SCOR Technology Panel will meet 18-20 October 2006 in Kobe, Japan, in conjunction with the NaGISA international conference and Techno-Ocean 2006. On 18 October, there will be a joint session, as part of the Techno-Ocean 2006 Conference (<http://www.to2006-19thoes.com/>), co-organized with the SCOR TP and NaGISA. We encourage the CoML projects – particularly those with a focus on technology development – to participate in this session. The benefit would be interaction with industry representatives, many of which will be present at the meeting. The abstract deadline is 15 April 2006.

In December 2006, SCOR will host a second summit of international large-scale research and observation projects and programs. The proposed meeting would help CoML to increase its interactions with related efforts, which would benefit both CoML and the other efforts. Areas for cooperation include observational platforms and data management. This is a follow-up to the well received 2004 summit, which took place in Venice.

Barcoding Marine Life

Ann Bucklin (UConn, USA), Paul Hebert (University of Guelph, Canada), and Bob Ward (CSIRO, Australia), are organizing a workshop for 15-17 May in Amsterdam to develop an implementation plan for coordination of a DNA barcoding effort for marine animals and microbes that are the focus of ongoing CoML activities, particularly the Ocean Realm Field Projects. The goal of the meeting is to accurately assess progress toward barcoding all marine life. To speed progress toward this barcoding goal, the organizers are offering no-cost DNA sequencing and barcode submission services for identified fish and marine zooplankton specimens received prior to 15 May 2006. CoML Realm Projects should submit appropriately preserved (i.e., frozen or in alcohol) and identified specimens of fishes to the ongoing [FISHBOL](#) project (contact [Bob Hanner](#)) and marine zooplankton to the [CMarZ](#) project (contact [Rob Jennings](#)). Projects with barcodes for these or other marine species are encouraged to submit them to BOLD (the Barcode of Life Database: www.barcodinglife.org) or the barcode section of GenBank (www.ncbi.nlm.nih.gov/BankIt/barcode). For more information on this marine barcoding initiative, visit: <http://www.barcodingmarinelife.org/>.

ICES 2006 Theme Session

In February, Alasdair McIntyre attended a meeting at ICES headquarters to discuss links between CoML and ICES. There has now been a call for abstracts to the ICES meeting in Maastricht (19-23 September 2006), which will feature a CoML theme session on “Community and species biodiversity in marine benthic habitats from the coastal zone to the deep sea,” organized by international SSC members, Mike Sinclair and Myriam Sibuet. Visit: <http://www.ices.dk/iceswork/asc/2006/index.asp>.

General News

Status of Coral Reefs in Tsunami Affected Countries

The first report on the impact of the 26 December 2004 tsunami on coral reefs in the entire affected region has been published by the Australian Institute of Marine Science (AIMS), in partnership with the Global Coral Reef Monitoring Network, Reef Check, ReefBase and the CORDIO (Coral Reef Degradation in the Indian Ocean) Program. The report, a regional overview including socio-economic impacts, was published 20 February. To download the report, visit: <http://www.aims.gov.au/pages/research/coral-bleaching/scr-tac2005/index.html>.

Funding & Employment Announcements

Information regarding Calls for Proposals and other opportunities (jobs, fellowships, post-docs, etc.) can be found at the CoML Secretariat website: www.comlsecretariat.org, under “Announcements of Opportunity.”

Calendar of Upcoming Events

March

- 20-22** CoML U.S. National Committee Meeting, Washington, DC, USA
- 25-31** Jacques Perrin Film Festival, Washington, DC, USA
- 27-April 1** International Seabed Authority meeting (CenSeam participating), Kingston, Jamaica
- 29** CoML / Galatee Films symposium, Washington, DC, USA
- 30** EuroCoML Executive meeting, Edinburgh, UK

April

- 10-30** CMarZ cruise to the tropical/subtropical Atlantic (North Carolina to Puerto Rico)
- 18-20** Public workshop to address the U.S. Ocean Research Priorities Plan, Denver, CO, USA
- 19-22** HERMES Science Implementation Panel Meeting, Mallorca, Spain
- 27-June 2** ChEss cruise to southern MAR (departs Barbados, returns Brazil)

May

- 15-17** DNA Barcoding Workshop for CoML, Amsterdam, Netherlands
- 21-24** OBIS International and Management Committee meetings, Manila, Philippines
- 22-23** AIBS Annual Meeting on Biodiversity, Washington, DC, USA
- 25-27** OBIS meeting on the development of species pages, Manila, Philippines
- 26- June 10** CenSeam cruise to survey New Zealand seamounts

June

- 6-8** CAML project workshop, Bremerhaven, Germany
- 20-22** FMAP meeting, Reykjavik, Iceland
- 22-23** CoML SSC Meeting, Reykjavik, Iceland
- 23** EuroCoML Executive meeting, Reykjavik, Iceland

July

- 6-7** MAR-ECO project meeting, Aberdeen, UK
- 9-14** 11th Deep Sea Symposium, Southampton, UK
- 9-14** SCAR Open Science Conference, Hobart, Australia
- 15-16** ANDEEP (CeDAMar) workshop, Southampton, UK
- 15** Workshop on Southern ocean observing systems, Hobart, TAS, Australia

August

- 4-8** European Marine Biology Symposium, Cork, Ireland

September

- 12-15** USNC workshop on Approaches to researching the role of biodiversity in ecosystem services, Washington, DC
- 18** EuroCoML Full Committee meeting, Maastricht, The Netherlands
- 19-23** ICES Annual Science Conference, Maastricht, The Netherlands
- 27-29** Microscopic Visualization of the Marine World workshop, RI, USA (tentative)

October

- 13-14** CoML SSC Meeting, Nara, Japan
- 13-21** PICES Annual Meeting, Yokohama, Japan
- 16-18** NaGISA International Conference, Kobe, Japan
- 18** SCOR/NaGISA/Techno-Ocean Joint Session, Kobe, Japan
- 18-20** SCOR Technology Panel meeting, Kobe, Japan
- 18-20** Techno-Ocean 2006 Conference, Kobe, Japan
- 23-26** SCOR General Meeting, Concepcion, Chile
- 24-26** Workshop on oxygen minimum systems in the oceans: distribution, diversity and dynamics, Concepcion, Chile
- TBD** CReefs cruise