



The GPNM Update

Chairman's review of the work of the Global Partnership on Nutrient Management

Highlights

GPNM Chair's End of Year Message



As we come to the end of a fairly busy year, I wish to reflect on key GPNM achievements of the past year. I took over as Chair of GPNM midway through the year, from Dr Greg Crosby, under whose effective Chairmanship the GPNM achieved a number of milestones. The leadership of GPNM is now with India, a country that is facing a number of nutrient-related challenges, but it is also in the forefront of related research. In February, we helped launch the

[Laguna de Bay Ecosystem Score Card](#) in Manila, Philippines in partnership with the [Laguna Lake Development Authority](#). In that same month the GPNM Caribbean Platform met in Trinidad & Tobago and agreed on a work plan in cooperation with the [Caribbean Environment Programme](#) supported by UN Environment (UNEP). At the [8th GEF International Waters Conference](#) held in Sri Lanka in May, a [Nutrient Management Roundtable](#) was hosted and also served to showcase the Global Nutrient Management Toolbox. Work is also nearing completion on the first phase of development of the massive open online course (MOOC) on nutrient and wastewater management that is being carried out in partnership with the [Global Wastewater Initiative](#). As I look forward into the New Year, I encourage the GPNM partners in their work in addressing the nutrient challenge and contribution to transitioning to a green economy with emphasis on sustainable development and poverty eradication. The GPNM looks forward to implementing novel strategies that will effectively reduce land based inputs into coastal and marine systems by efficient nutrient use in agriculture. On behalf of the GPNM Steering Committee, I gratefully acknowledge the parent organization, UN Environment, that has been the pillar of support to GPNM's activities and achievements. Wishing you all a very productive 2017. **Ramesh Ramachandran**

The GESAMP considers nutrient pollution issues within its upcoming work agenda

The 43rd session of the [Joint Group of Experts on the Scientific Aspects of Marine Pollution \(GESAMP\)](#) was held from 14-18 November 2016 at UN Environment's headquarters in Nairobi, Kenya. The [GESAMP](#) is an advisory body consisting of specialized experts having the principal task of providing scientific advice on marine pollution problems to UN agencies concerned with management of the marine environment. Representation was made on behalf of the GPNM, with active discussions on nutrient loading and their impacts on the marine environment. Emerging issues were defined and included for future work of the GESAMP, particularly as it concerns nutrient pollution and climate change influences. GESAMP agreed to consider a study on the recent Sargassum proliferation in the mid-Atlantic which would consolidate ongoing research efforts in the Caribbean and West Africa regions on the phenomenon. The GPNM supported a nutrient pollution research scientist from [Yarmouk University](#), Jordan to participate and contribute to deliberations.

The Global Partnership on Nutrient Management (GPNM) is a multi-stakeholder partnership comprising of governments, the private sector, the scientific community, civil society organizations and UN agencies committed to promoting effective nutrient management (with a focus on nitrogen and phosphorus) to achieve the twin goals of food security through increased productivity and conservation of natural resources and the environment. UN Environment (UNEP), through the Coordination Office of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), provides the Secretariat of GPNM. Read more at www.nutrientchallenge.org.

Reactive nitrogen, agriculture and environment in focus at the 7th INI Conference

The [International Nitrogen Initiative \(INI\)](#) concluded its 7th conference in Melbourne Australia under the theme '[Solutions to improve nitrogen use efficiency for the world](#)' from the 5th to 8th December, in partnership with the [Victoria State Government](#) and the [University of Melbourne](#). Over 300 scientific papers and posters were presented. The overarching message from the conference was the need for countries to continue to pay close attention to the issue of excess [reactive nitrogen](#) in the environment and urgently take policy and technical measures to lessen the impact, in consideration of population projections and stressors, notably climate change. The conference culminated with the shaping and announcement of the [Melbourne Declaration](#). At the conference the '[Towards an International Nitrogen Management System \(INMS\)](#)' Project was launched. The 4-year project, implemented by UN Environment and executed by the [Center for Ecology and Hydrology](#) and the INI, is supported by a grant from the [Global Environment Facility](#) to the tune of



Launch of the INMS Project. L-R: C. Howard (CEH), J. Vanderbeck (UN Environment), M. Sutton (CEH), C. Gourley (Victoria Gov't), S. Hansen (GEF Sec)

US\$6 million, with partnership engagements valued at an estimated US\$56 million, though joint research efforts. The GPNM will be engaged in the project through its many partners, and under the aegis of UN Environment, look forward to contributing to regional and global policy efforts in addressing reduction of excess reactive nitrogen in the environment.

Marine issues, nutrients and sargassum discussed in special session on at the 68th GCFF Conference

The 69th [Gulf and Caribbean Fisheries Institute \(GCFFI\)](#) Conference was held from the 7th to 11th November 2016 in Grand Cayman, Cayman Islands. The conference focused on applying fishers' knowledge and marine science to solve problems by bringing multiple users of ocean resources together to make informed and coordinated decisions. As part of the conference, UN Environment's [Caribbean Environment Programme \(UNEP-CEP\)](#) led a session on '[Understanding and management of the pelagic Sargassum influx in the Caribbean](#)'. This session aimed to share advances in research on origins of Sargassum arrivals in the Caribbean and West Africa, land-based influences on the phenomenon, and remote sensing applications to track sargassum arrivals. The GPNM supported a research scientist from the Oceanography Faculty of the [Federal University of Pará](#) in Brazil to attend the event and discuss sargassum ecology and role of land-based influences (nutrient loading) on sustaining sargassum blooms. The session summary can be accessed [here](#); the [summary video](#) provides insights from the researchers on the status of Sargassum science and management.



Participants at sargassum session

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News & Emerging Issues

Nutrient pollution - changing the sounds in the sea

Source: University of Adelaide

A [University of Adelaide](#) article reports "Nutrient pollution emptying into seas from cities, towns and agricultural land is changing the sounds made by marine life – and potentially upsetting navigational cues for fish and other sea creatures" in a new study from the university published online in the journal *Landscape Ecology*. The study on kelp forests and seagrass beds in [South Australia's St Vincent's Gulf](#) suggest that as eutrophication resulting from nutrient run-off from adjacent metropolitan areas of Adelaide degrades marine ecosystems, the marine soundscape diminishes. The research "compared audio recordings of these polluted waters with audio recordings at natural high-CO₂ underwater volcanic vents, which show what water conditions are predicted to be like at the end of the century under global ocean acidification. They found the same pattern of sound reduction in both locally degraded ecosystems and those that show what oceans are expected to be like under climate change." In general, degraded marine environments were found to be more silent than healthy ecosystems. The approach in this study suggests its utility as a new cost-effective monitoring tool. Read the full article [here](#).

Worm liquid offers crops more nutrients than conventional fertilizers?

Source: Farm Biz Africa

[Real IPM](#), a company supporting innovation in alternative agricultural solutions based in Kenya, claims that local farmers using 'vermiculture liquid' as fertilizer can realize higher and a wider mineral range compared to synthetic fertilizers. [Vermiculture](#) employs worms to decompose organic waste, turning it into a nutrient-rich material capable of supplying necessary nutrients to help sustain plant growth. 'Vermiculture liquid' or 'vermiliquid' is the leachate collected from the worms as they process the organic waste. Citing an article featured in [Farmbizafrika.com](#), "Whilst common fertilisers are specific in nutrient supply - NPK, diammonium phosphate (DAP), calcium ammonium nitrate (CAN), 'vermiliquid' has more than 15 micro and macro-elements, making it a 'single dose' application", supplying a more comprehensive range of nutrients. The article goes on to state, "...to have such a rich mineral resource, a mix of substrates from various families of crops has to be included. For instance legume, which are known to contain nitrogen and pumpkins and squash for zinc and phosphorus, are included". The vermiliquid can be applied like any other foliar fertilizer to the leaves and absorbed into plant system. Read the full article [here](#).



Source: FAO

Methane surge needs 'urgent attention'

Source: Jonathan Amos, BBC Science Correspondent

A recent BBC article notes the concern over the rate at which methane in the atmosphere is now rising. Whereas "global CO₂ emissions have flattened somewhat of late, methane concentrations in the atmosphere ticked upwards from 2007, and then jumped sharply in 2014 and 2015, rising rapidly by 10 or more parts per billion (ppb) annually. It is now just above 1,830 ppb." The reasons for the sudden spike are not well understood and according to [Prof. Robert Jackson, Stanford University](#) there needs to be a call to the scientific community to address the knowledge deficit that surrounds CH₄. It is noted that "efforts to tackle climate change will be undermined unless CH₄ is also brought under tighter control." Methane has a significantly higher greenhouse gas potential than CO₂. "Methane has many sources, but the culprit behind the steep rise is probably agriculture" according to Prof Jackson; this includes cattle and other ruminants, as well as rice paddies." Fossil fuel emissions are also key. There is need to understand how changes in atmospheric chemistry is contributing to this change in balance. Read the full article [here](#).



GPNM Partners Corner



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission

GO₂NE

Global Ocean Oxygen Network

The Global Ocean Oxygen Network (GO2NE) is a new working group of the Intergovernmental Oceanographic Commission (IOC) of UNESCO. GO2NE assembles coastal and open ocean scientists, modelers, and biological, chemical and physical oceanographers to integrate global research efforts on deoxygenation in the open ocean and coastal areas. Learn more about GO2NE at <http://www.unesco.org/new/en/natural-sciences/ioc-oceans/sections-and-programmes/ocean-sciences/global-ocean-oxygen-network/>

The GPNM Secretariat at the UN Environment's GPA Programme in Nairobi, Kenya wishes all its partners and collaborators, the very best for the festive season and the New Year. As always we look forward to your feedback and contributions to our newsletter.



Photo: cincynorthhealingrooms

- IFA Joint Agriculture & Communication Meeting, 23-24 January, Rome, Italy.
- Fourth World Ocean Summit, 22-24 February, Bali, Indonesia.
- Preparatory Meeting UN Conference to Support the Implementation of SDG 14, 15-16 February, New York.

