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**Seventeenth Session of the IOC-FAO Intergovernmental Panel**

**on Harmful Algal Blooms**

Paris, 18-20 March 2025

Item 4.4.4 of the Provisional Agenda

**REPORT OF TASK TEAM ON HARMFUL ALGAE AND DESALINATION OF SEAWATER**

At IPHAB-XVI, the decision was made to continue the Task Team on HABs and Desalination of Seawater, chaired by Dr Donald Anderson (USA), and comprising M. Wells (PICES), P. Hess (France), B. Karlson (Sweden), A. Bennouna (Morocco), and E. Jamali, H. Ali Saeed Bin Subaih Al Ali and M. Bin Alqadri Allegue (United Arab Emirates). The Task Team is supplemented by international advisor and expert M-Y Dechraoui Bottein, and by Esther Garrido Gamarro (FAO) and may be expanded as required to fulfill the terms of reference.

**Intersessional activities**

**TOR (i): Assess and explore interest within the HAB and desalination communities for special HAB sessions or satellite workshops during regular international desalination conferences**

During the intersession, the TT Chair initiated discussions with Shannon McCarthy, Secretary General and Executive Director, International Desalination and Reuse Association to discuss increasing HAB community interactions with the desalination industry. A number of different approaches to increasing interactions between the HAB Community and the desalination industry were discussed. Possibilities including seeking an invitation to give a plenary presentation at one of the major desalination conferences, or to host a special HAB session. One possible venue for this type of activity is the IDRA Reykjavik Summit on Water and Climate Change in Iceland in October 2025. Although there is some interest in pursuing this interaction, and discussions are ongoing at this time, concerns have been raised as well. One comment from the desalination industry was that *“Over the last 5 years there has been very little discussion on HABs during our sessions. As far as I've seen, there have been very few major HABs, if any. Between 2018 and 2024 I worked very closely with a number of plants in Chile, Middle East and Australia, where we have seen blooms before. In these locations I haven’t heard of any recent HAB issues. So it seems interest in HAB impacts has waned.”*

In terms of follow-up activities, we recommend that new members of the task team be considered from countries with significant desalination plant capacity (e.g., Saudi Arabia) and that discussions be held during IPHAB XVII and subsequently, to explore other options for the communication of current HAB science to the desalination industry.

Another intercessional activity under this TOR was a presentation by the TT chair at the 24th meeting of the United Nations Informal Consultative Process on Ocean’s and the Law of the Sea (ICP-24) in New York, 17-19 June, 2024. This event featured individual presentations and panel discussions with UN delegates. Anderson’s presentation was on new technologies in HAB management, and included material on desalination plant impacts from HABs and possible mitigation strategies.

**TOR (ii): Formulate a proposal for a joint FAO/WHO water safety risk assessment (or what available data allow) for toxins in drinking water coming from desalination plants, working closely with the appropriate FAO division, including on aspects of chronic, low-level toxicity.**

**TOR (iii): In the context of HABs being detrimental to water security (either to public health or to freshwater production procedures), request cooperation with the FAO Land and Water Division for support to evaluate the increased needs for freshwater production through desalination for both secure drinking water and freshwater for agricultural use.**

Relatively little progress was made on these two closely related TORs for several reasons, suggesting that discussion is needed during IPHAB XVII to explore options for moving forward. At the last IPHAB session, the TT noted that [IOC Manuals and Guides, 78](https://unesdoc.unesco.org/ark%3A/48223/pf0000259512.locale%3Dfr): *Harmful Algal Blooms (HABs) and Desalination: A Guide to Impacts, Monitoring and Management* was published in 2017, with more than 3,000 copies provided to the international community, and that this manual includes a chapter that covers water safety risk assessment in detail, The relevant chapter is: Soltani, A., Hess, P., Dixon, M.B., Boerlage, S., Anderson, D.M., Newcombe, G., House, J., Ho, L., Baker, P., and Burch, M. *World Health Organization (WHO) and international guidelines for toxin control, harmful algal bloom (HAB) management, and response planning*. There has not been a request from the desalination industry for something newer and more official.

Furthermore, TT members Bottein, Garrido Gamarro, and Anderson have been preparing a manuscript “*Health risk of marine harmful algal bloom biotoxins on desalinated drinking water: a review*”. This paper, once completed, will address some of the issues in this TOR.

Finally, the TT representative from FAO points out that  it has been difficult to find an individual in the FAO Water department willing to support the oncept of a risk assessment, noting that work on drinking water mostly comes from WHO:  [https://www.who.int/teams/environment-climate-change-and-health/water-sanitation-and-health](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.who.int%2Fteams%2Fenvironment-climate-change-and-health%2Fwater-sanitation-and-health&data=05%7C02%7Cdanderson%40whoi.edu%7C563561e7a9aa47fb5cf308dd5bc5408e%7Cd44c5cc6d18c46cc8abd4fdf5b6e5944%7C0%7C0%7C638767624942895688%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=%2Fw0bbKFauoezUD%2BMdKQqUJi2y8PPqhLZeaZwuZHwfhI%3D&reserved=0)

The TT thus suggests that discussions be held during IPHAB XVII to decide what additional steps to take, and in particular, how best to contact FAO and WHO if it is still deemed desirable to pursue a risk assessment or to evaluate the needs for increased freshwater for drinking water and agricultural use. We believe it will be necessary to contact managers at high levels to pursue these topics, and that may require intervention by other members of IPHAB or its staff. Nevertheless, without a push from the desalination industry, it will be difficult to proceed.

**TOR (iv): In coordination with the IPHAB Task Team on Early Warning Systems for HABs, explore opportunities to work with the desalination industry and its academic partners to communicate and implement capabilities for HAB early warning systems through scientific presentations, workshops, pilot projects, or other joint activities;**

The TT Chair is a member of the TT on Early Warning Systems, so potential interactions between the two task teams has been discussed on multiple occasions. The TT believes that desalination plants are prime candidates for early warning systems, and this has been borne out by enthusiasm for the topic expressed at an EWS workshop in Namibia as well as at the IOC Assembly. Despite this enthusiasm, few specific activities can be reported at this time. An exception is a pilot project in the Baltic Sea where desalination plants are operated on some of the larger islands. A Swedish pilot project *Forecast framework for algae blooms to secure water supply on Gotland* is underway. Oceanographic modelling is combined with automated *in situ* observations, manual sampling, satellite remote sensing of ocean color and analyses of cyanotoxins to provide early detection and ultimately early warnings of toxin-producing cyanobacteria. During the project no problems with cyanobacteria and the desalination plants have occurred.

It is recommended that as activities for the EWS test team are discussed during IPHAB XVII, that efforts be made to develop concepts that could further this TOR. For example, if additional Pilot Projects or workshops are anticipated, it would be worthwhile to include an element demonstrating the value of automated HAB detection and monitoring instrumentation for desalination plants.

**TOR (v): Engage with desalination plant operators, drinking water suppliers and authorities managing water supplies for agricultural uses on the potential impacts of HABs on the capacity for desalination to provide adequate freshwater supplies under a range of climate scenarios including increased periods of drought.**

No progress was made on this TOR as it is unclear how to approach this request.

**TOR (vi): When appropriate, provide newsworthy articles on HABs and desalination for publication in *Harmful Algae News*.**

The task team is not aware of HAB events that have affected desalination plants in recent times, so no HAN articles have been suggested.

**TOR (vii): Invites WHO and ROPME to nominate a representative to participate in the Task Team**

No action needed.

The future of the Desalination Task Team should be discussed at IPHAB XVII. Many IOC member states have an interest in the topic given increasing water scarcity globally, but new activities need to be formulated to justify the continuation of the Task Team going forward. In this regard, it seems particularly important for members of the task team from countries with significant desalination plant capacity to suggest ways in which that industry can be better trained into task team activities.