Following the lead of the *International Panel for Climate Change* (IPCC) consensus reporting mechanism, and to complement the World Ocean Assessment, the need has been expressed for a *Global HAB Status Report* compiling an overview of Harmful Algal Bloom events and their societal impacts; providing a worldwide appraisal of the occurrence of toxin-producing microalgae; aimed towards the long term goal of assessing the status and probability of change in HAB frequencies, intensities, and range resulting from environmental changes at the local and global scale. This initiative was launched in April 2013 in Paris by the IOC Intergovernmental Panel on HABs (IOC-IPHAB), and with the support of the Government of Flanders hosted within the IOC International Oceanographic Date Exchange Programme (IODE) and its components Harmful Algae Event Data Base (HAEDAT) and Ocean Biogeographic Information System (OBIS), in partnership with ICES, PICES and IAEA. OBIS focuses on the global distribution of HAB species “toxic to humans and fish” as covered by the IOC-UNESCO Taxonomic Reference list of Harmful MicroAlgae, while HAEDAT has a broader scope of all HAB events that adversely impact on human society whether by high biomass (clogging of fishing nets, beach closures), aquaculture fish kills, or seafood toxin events leading to shellfish farm closures, human poisonings or even human deaths.
As of 1/3/2017 HAEDAT comprises 4528 records, but these are very unevenly distributed around the globe. South American, African and South East Asian records are still largely missing, while the most comprehensive data sets derive from the East and West Coast of North America, Northern and Southern Europe, Mediterranean and North Asia (incl. Japan). Smaller data sets are building up in Australia/New Zealand, the Pacific and Caribbean. Globally, seafood toxins (48%) have by far the greatest impact on human society. In Europe DSP is the dominant problem, replaced by PSP in North America, and ciguatera (CFP) in the Pacific.

Screening regional data sets no conclusive evidence so far emerges for a consistent trend of increase in HAB events. Different regions and countries suffer from different types of HABs, and this is also reflected in the way countries/regions enter their data. North America (ECA, WCA) and Europe (NEU, SEU) operate highly sophisticated shellfish toxin monitoring programs which often report high target species abundances even in the absence of toxin data or shellfish farm closures. The effectiveness of these programmes is well reflected in the fact that only 1.5% of events involve human poisonings. On the other hand, Pacific HAEDAT data exclusively are based on human ciguatera poisonings diagnosed by medical practioners (99% human poisonings) but without any associated microalgal or toxin data being collected. Quality assurance of data to guarantee uniform reporting standards will be a major challenge.
Fig.3. Time series of the number of HAEDAT events in 8 OBIS regions during the period 1985-2015. Region codes as above. Compiled by L. Schweibold & G.Hallegraeff.

OBIS HAB species occurrence data are even more incomplete, and heavily biased by European records. It is noted that only 2 *Gambierdiscus* records so far are included. Available data for the key target species *Alexandrium*, *Dinophysis* and *Pseudo-nitzschia* exhibit an increase in frequency over the past 10-20 years, undoubtedly reflective of increased awareness and increased monitoring.
While the jury is still out, there does exist agreement however that **HAB-related costs to human society have increased simply because of our (1) increasing human population and (2) ever increasing need to exploit marine resources.** With this has come (3) an increased awareness of harmful species, as reflected in the exponential increase in HAB literature. In some coastal regions of the world evidence is building up of changes in HABs possibly related to: (4) Stimulation of algal blooms by cultural eutrophication and/ or (5) Extreme or changing climatological conditions; and (6) Transport of dinoflagellate resting cysts either in ships’ ballast water; or (7) Associated with translocation of shellfish stocks from one area to another. The relative importance of these drivers is debated on a case by case basis. In a continuing series of HAB Status reports, we will describe and reassess iconic regional cases of changes in HABs, but once the data base expands in global coverage the
focus will increasingly switch to analysing global trends as covered by SCOR Working Group 137 and now continued with IOCWG TrendsPO.

Fig. 5. Examples of long-term toxin or HAB species data sets from Bay of Fundy (US), Scotland, New Zealand, and Uruguay. Data contributed respectively by J. Martin, K. Davidson, L. MacKenzie and S. Mendez.

A GHSR editors meeting was convened in Monaco in April 2016; a GHSR information session was scheduled during ICHA17 in Brazil in Oct 2016; A special issue of the journal Harmful Algæ is planned for 2018.

We encourage all nominated country/region task team members, and representatives of the regional IOC groups ANCA, FANSA, HANA, WESTPAC/HAB, and those of IAEA and PICES etc. to contribute to data compilation, notably for areas that are currently poorly covered. Whether an apparent global increase in distribution, frequency and intensity of harmful algal blooms is occurring, has been a recurrent topic of discussion at conferences dealing with harmful algal blooms. We hope that the establishment of above data bases will settle this question once and for all, and identify the key environmental drivers for HABs.