

W5 Workshop Abstracts

PICES XIII W5-2159 Oral

Use of the ICES harmful algal event meta-database to archive data from the west coast of the United States

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To develop a common data resource that could be used by PICES member nations, it was agreed that each nation would use report forms designed for the ICES Harmful Algal Event (HAE) meta-database and enter one year's data. We decided to enter data from 1998 for the west coast of the United States. Previous records that have been entered into the ICES database for 1998 do not contain detailed information regarding location, toxin, and phytoplankton assemblage that better represent the number, magnitude, and duration of HAEs. For example, in Puget Sound, Washington shellfish harvest closures occur annually and there are many inlets in Puget Sound where shellfish harvesting occurs. However, multiple closures in Puget Sound in a given year are currently considered to be a single closure in the ICES database format. To better understand the extent of closures in 1998, we analyzed monitoring data and listed the sites where toxin levels exceeded the regulatory safety limits. At each of these sites we recorded the magnitude of the toxic event as well as its duration. Maps were then made of the number of samples that exceeded the regulatory limits, the magnitude of toxicity, and the duration of HAEs. From these data we formulated suggested modifications to the current ICES HAE report forms that may better suit the needs of PICES member countries.

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Data integration issues within the Gulf of Mexico

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The Harmful Algal Blooms Observing System (HABSOS) is a collaborative project between the Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration's (NOAA) National Coastal Data Development Center (NCDDC), and over 30 federal, state, academic and industry organizations. Within the past year, the Mexican Gulf States have joined HABSOS resulting in an international collaboration to monitor HAB events and response without regard to political boundaries.

HABSOS encountered difficulties in data collection and integration in the formative stages. Communication pathways within the five U.S. Gulf of Mexico coastal states were non-existent or only partially developed. NCDDC found that not all data was publicly accessible, different units of measurement were used in the region for the collected data, and the information was stored in different formats. A data storage system was developed to incorporate the five individual coastal states data into one comprehensive database facilitating the ability to perform the time series function built into the HABSOS ArcIMS site.

Currently, an on-line data entry tool is being finalized to aid in the continuation of data collection and storage. Each of the five coastal states and the Mexican Gulf States will be able to use this on-line data entry tool to upload data or individually enter data that will be utilized by the NCDDC HABSOS Near Real-Time ArcIMS site.

PICES XIII W5-2179 Oral

The joint IOC-ICES-PICES Harmful Algal Event Data-base, HAE-DAT

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The IOC and ICES have jointly developed the Harmful Algal Event Data base HAE-DAT with the view to expand the partnership and thereby build a global harmful algal event database. At present the HAE-DAT covers the North Atlantic. IOC and ICES have invited PICES to become partner in HAE-DAT and to that effect PICES is testing the reporting format during 2004. In parallel, the IOC is developing a new software platform for HAEDAT which will ease input of data and generation of maps. The progress will be presented for comments and discussion in conjunction with the evaluation of PICES experience in using the data input format.

PICES XIII W5-2192 Oral

HAB data in Japan and a trial for joining PICES database

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In Japanese coastal areas, HABs have been monitored by many prefectural research organizations regularly to avoid mass mortalities of aquaculture fish and bivalves, to maintain the safety of marine foods, and to detect abnormal changes of coastal environments. The type and intensity of monitoring varies depending on purpose, area and season. HAB monitoring is one of the most important undertakings on the Japanese coast, because Japanese people value the importance of marine resources. Intensive monitoring has been carried out and extremely abundant data have been accumulated. These HAB monitoring data are all described in Japanese. Consequently, there is an inherent difficulty for Japan in joining the PICES database effort. However, for the purpose of international cooperation, we have translated and input the data into an English style database limiting the HAB events to those with fishery damage such as mass mortalities of fish and bivalves, shellfish poisoning, and color-bleaching damage of *Porphyra* (Nori). Trial entries were made for HAB data from the year 2000. The Japanese coast was divided into 7 regions. Total incidence of red tides were 292 in 2000, and those with fishery damage, hence qualifying for data input, were 45. The most severe damage occurred in the Kyusyu area (Yatsushiro Sea) with a fish kill valued at ca. 4 billion yen caused by the dinoflagellate *Cochlodinium polykrikoides*, and color bleaching of Nori valued at ca. 14 billion yen (Ariake Sea) caused by long-lasting diatom red tides. Paralytic shellfish poisoning (PSP) caused 18 closures of shellfish harvesting in 2000, and most of them occurred in west Japan. Diarrhetic shellfish poisoning (DSP) caused 21 closures of shellfish harvesting in 2000, and most of them occurred in north and east Japan (Tohoku and Hokkaido). As a result of the year 2000 HAB data trial, the total number of HAB incidents qualifying for data input reached as many as 84. The input of HAB data, restricted to the incidents resulting in fishery damage, is a practical and realistic treatment for Japan HAB data. Although HAB events with no fishery damage are excluded, the above data treatments could contribute to the establishment of an international cooperative PICES database.

PICES XIII W5-2193 Oral

Use of Korean HAB data for the joint ICES/PICES HAE-DAT database

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In order to conform to the joint ICES/PICES HAE-DAT database on a trial basis, we decided to enter harmful algal bloom (HAB) data from 1998 especially for the fish killing dinoflagellate, *Cochlodinium polykrikoides* that bloomed and persisted for about 5 weeks from late August to early October in the South Sea of the Korean peninsula. We compiled the data from the initiation stage to subsequent development of this dinoflagellate bloom, which consists of time, location, density of harmful algae species, water quality, especially nutrients, meteorological observations, and fish mortalities. All those HAB and environmental data were produced daily and compiled at the National Fisheries Research & Development Institute (NFRDI). These HAB data are disseminated immediately to the public stakeholders such as aquaculturists, decision-makers, journalists, and scientists for their practical use through paper reports such as Today's HAB News, HAB Year Book and Internet on-line services. We are planning to compile such HAB data at the Korean Oceanographic Data Center (KODC) designated by IOC, the Korea Oceanographic Data Management Center, and the Ministry of Maritime Affairs and Fisheries (MOMAF) and established by NFRDI. The Korean HAB data format differs from HAE-DAT and in some respects, we find that further modifications are needed to encompass the goal of HAE-DAT database network for effective predictive and mitigative strategies of member countries.

PICES XIII W5-2194 Oral

Entry of HAB data from the east coast of Russia into the ICES/PICES HAE-DAT database format

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Report forms designed for the ICES/PICES Harmful Algal Event (HAE-DAT) meta-database were used to enter data from the east coast of Russia. Use of the database format to provide an interim "report card" revealed some difficulties in the delivery of Russian data. We decided to enter data from 2003. According to ICES format recommendations, the Russian coastline was divided into 200 km length sections with longitudinal/longitudinal information. However, this division was not appropriate because of the huge coastline (more than 30,000 km) and because the Russian east coast is mostly an unpopulated area. We suggest instead a division of the coastline into regions which correspond to the Russian Federation administrative territories on the Pacific coast (such as Primorskii Krai, Khabarovskii Krai, Magadanskaya Oblast, *etc.*) with longitudinal/longitudinal information and a central dot as the reference point. Another significant problem with completing ICES format "report card" is the lack of HAE data for the Russia east coast. This is due to the fact that there is no official HAB monitoring in Russian waters. The Russian data on HAE are not sufficient for the completion of many data fields in the recommended ICES-PICES National HAB Report form. Available data mainly include causative organisms, their abundance, location, date and some environmental conditions. There are no data on socio-economic impacts due to the presence of toxic or harmful microalgae and on biotoxin accumulation in seafood. Establishment of permanent Federal program of HAB monitoring in Russian coastal waters is a necessity.

PICES XIII W5-2195 Oral

Testing the ICES harmful algal event meta-database to archive data from the west coast of Canada

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As part of PICES' effort to develop a common harmful algal blooms (HAB) data resource among PICES nations, we used report forms designed for the ICES Harmful Algal Event meta-database to enter data from 2003 for the west coast of Canada. The data were obtained from the Canadian Food Inspection Agency which maintains a shellfish monitoring program of PSP and ASP but does not have a phytoplankton monitoring component. These data have not been previously entered into the ICES database. Our first task was to divide the west coast of Canada coastlines into areas of about 100-200 km in length. Twenty-eight regions were defined based on the existing Pacific fishery management areas for the entire British Columbia Coast. Then, the data were analyzed and those where toxin levels exceeded the regulatory safety limits (80 µg/100 gm for PSP and 20 ppm for ASP) in a region were reported. At each of these sites we recorded the magnitude of the toxic event and when possible its duration. Maps were then made of the number of samples that exceeded the regulatory limits and the magnitude of toxicity.

PICES XIII W5-2197 Oral

HAB data in China

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Harmful algal blooms (HABs) are a serious marine environment problem in the coastal waters of China. Before 1990s, HAB monitoring was coordinated together with routine marine environment monitoring. Now, there are 23 dedicated monitoring and control zones for HABs along Chinese coast. The provincial oceanic and fishery bureaus are responsible for the monitoring activities. HAB data in China include location, time, area, causative species and economic loss of each event. Often, events can be missed. We can provide the HAB monitoring data from 1998 to 2000 in format of the ICES/PICES HAE database as a contribution to the formation of a collaborative PICES HAB database.