Terms of Reference for the "Section" on Harmful Algal Blooms

- To develop and implement annual bloom reporting procedures that can be consistent with ICES procedures and therefore incorporated into HAE-DAT. This will be important in assessing impacts of HAB events and as a research tool to look at patterns that will lead to prediction capability.

Terms of Reference for the "Section" on Harmful Algal Blooms

- To exchange national reports of HAB incidents and development in order to inform HAB Section members of new toxins, new developments, and new approaches. Both toxin producing and nontoxic (but harmful) algal species should be included.

Terms of Reference for the "Section" on Harmful Algal Blooms

To focus on specific needs for scientific advice among PICES member countries by identifying topics of interest, and providing syntheses of the available scientific information on those selected topics. Example topics for discussion and syntheses might include:

– **Mitigation practices to reduce the impact of HABs.**

– **Numerical model development of harmful algal bloom initiation and transport for predictions and forecasts.**

– **Relationship between oceanographic processes and HAB formation (ex. How the physics of nutrients, trace metals tie into bloom formation)**

– **Organism identification using molecular biological techniques.**

– **Discussion of possible changes to certain monitoring techniques (for example, cell numbers vs. toxin levels).**

– **Species introductions including issues of anthropogenic sources (e.g. ballast water) or natural systems (e.g. species range extension).**

Terms of Reference for the "Section" on Harmful Algal Blooms

- 4) Together with TCODE, to develop a metadatabase that describes HAB monitoring and research efforts in each PICES member country.

Terms of Reference for the "Section" on Harmful Algal Blooms

- 5) Support the harmonization of methods for identifying HAB species. This could include intercalibration workshops co-sponsored by PICES and ICES.

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- 6) Development of early warning systems for the detection of HABs. This could include discussion of ocean observing systems and techniques.

Terms of Reference for the "Section" on Harmful Algal Blooms

- 7) To educate the community (managers, students) about HAB organisms. For example, an in-depth study of selected HAB species (top ten) could include information about physiology, taxonomy, etc.

Harmful Algal Event Database = HAE-DAT
IOC-ICES-PICES

Monica Lion will summarize this morning

HAEDAT is not trying to do everything but just give the world an idea of what is happening with HABs within a given area code – despite their relatively large size.

GUIDELINES FOR HAE-DAT DATA ENTRY

Decided in Vladivostok in 2005

PICES HAB Section members agreed upon the following:
1. Types of data to enter:
- ASP, PSP, DSP (at least).
- Red tides, but only if phytoplankton species areknown
- Other observations, e.g., high P-n cell numbers (optional)

2. How many Harmful Algae Events should be reported:
- At least ONE per area code per year.
- If events are due to different species (e.g., A. tamarense and A. catenella) , then fill out separate Event Reports for each

3. What if events spread from one area code to another?
- Can report these as one event, but should list two Area Codes
.

PICES country area codes

Area codes have now been finalized; geographical/hydrographical considerations were used to define areas/boundaries for most PICES countries. Host country have defined their area codes. Size ranges vary widely from 100-200 km (Korea) to 1,000 km for Russia.

HAEDAT	PICES Reports

	2000	2001	2002	2003	2004	2005
Canada	X	X	X	X	X	----
China	----	X	----	----	----	----
Japan	X	----	----	----	----	----
Korea	X	----	----	----	----	----
Russia	X	X	X	X	----	----
USA	X	X	X	X	X	incomplete

Proposal to SB and MEQ from HAB Section (Vladivostok, 2005)

- One day workshop on 2 new species, *Dinophysis* and *Cochlodinium*. Expert speakers will be invited.
- A product from the workshop will be a list of recommendations to help guide collaborative HAB research priorities in PICES countries over the next five years.
- Half day laboratory demonstration on DSP detection.
- One day Session on Anthropogenic influences (next slide)
- The HAB Section encourages all PICES nations to complete monitoring programs for shellfish toxins and the phytoplankton that produce these toxins. This information is critical for safeguarding populations, trade of fishery products and eventual predictive capability for HABs.

By the end of today ---- **this year's proposal**

Special Session ideas

- Initiation of HABs – evidence for local vs. remote development (include evidence for transport processes, etc)

- Role of micro- and macronutrients in HAB formation (anthropogenic vs. natural)

- Comparative monitoring approaches – what is most effective (idealized observation systems)

- **MEQ Topic Session: Harmful Algal Blooms in the PICES region: new trends and potential links with anthropogenic influences**
- Co-convenors: William Cochlan (USA) and TBD
- This session will highlight recent advances in the understanding of the ecology and physiology of harmful algal bloom (HAB) species in the coastal waters of the PICES region. Of particular interest will be laboratory and field studies where anthropogenic factors have been studied in order to elucidate if links exist between the apparent increase in the duration, distribution and impact of HABs, and environmental factors associated with human activities, including urban and agricultural runoff, climatic change and mariculture.

Wednesday, October 18, 2006

Proposal to SB and MEQ from HAB Section (2006)

- 1. Workshop? The title will be "Review of Selected Harmful Algae in the PICES Region: III. *TITLE.*   The suggested invited expert speakers are:

- The co-convenors are XX and YY. These co-convenors will make the final decision regarding which expert speakers to invite.

- 2. A product from the workshop will be a list of recommendations to help guide collaborative HAB research priorities in PICES countries over the next five years.

- We request funding for one invited speaker for the workshop.

- We request a half day laboratory demonstration on ? which will be held prior to the workshop. XX and YY will co-lead the demonstration.

- The HAB Section encourages all PICES nations to complete monitoring programs for shellfish toxins and the phytoplankton that produce these toxins. This information is critical for safeguarding populations, trade of fishery products and eventual predictive capability for HABs.