Henrik Enevoldsen  
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Harmful Algal Bloom Programme  
IOC Science and Communication Centre on Harmful Algae  
University of Copenhagen, Denmark
HAE-DAT

The Harmful Algal Event Data-Base

IOC-ICES-PICES
Summary:

*HAE-DAT does not share primary data*

**HAE-DAT shares:**

- *Summary of data* (species, where, when, conc., effects etc)
- *Information on which data exist and where*
• HAE-DAT contains 1541 national reports from 1987 to 2003 from the North Atlantic region.

• HAE-DAT has been available since 1999 at http:/ioc.unesco.org/hab
• It is the ambition that HAE-DAT will become the global database on harmful algal events:

• North Atlantic (ICES)
• North Pacific (PICES)
• Caribbean (IOC ANCA)
• South America (IOC FANSA)
• Mediterranean (CIESM)
• North Africa (IOC HANA)
• Missing: AU, NZ, SE Asia, Central and Southern Africa
What happened since last year?

- HAEDAT is now transferred from desktop solution (Microsoft Access) requiring download by user to web-based solution (MySQL/PHP on Linux) server

- Database 'normalised' (arranged into tables according to data types) enabling greater flexibility in the production of reports and greater potential for extending the system
• Web forms for online adding and update of records designed (format and layout otherwise as you know it)

• Program written to export data from new database to format used for intermediate production of maps
HAE-DAT next steps

- Ultimate aim is online generation of browsable maps using GIS-type interface, based on the open source mapserver (http://mapserver.gis.umn.edu/) software
HAE-DAT next steps

• Move away from old method of gathering information to entirely web-based system, with users able to take responsibility for the records of their country and edit them online (ICES will start)
HAE-DAT next steps

• Continued extension to information system, integrating further data related to the events described such as relevant taxonomies (IOC Ref. List), monitoring programmes (MON-DAT), HAB-MAP by ISSHA etc.
HAEDAT - MAPs
Présence de toxines PSP
1991 - 2000

ATTENTION
Les cartes doivent être interprétées avec prudence pour ce qui concerne le risque d'intoxication par des produits de la mer en provenance des pays concernés. Les OI et le CIEM ne sont pas responsables d'un dévoué usage abusif de cette information.
• **Information on maps:**

  • presence of toxins
  
  • or observations of mortalities regardless of the level of toxicity

  • **blooms of potentially toxic species** (with non detectable levels of toxicity) are **not shown** as they are not recorded in HAE-DAT
• Before: modifications were provided by each country

• only as dots on maps

• no data files
HAE-DAT maps, what has been done:

• Maps now based on data extracted from HAE-DAT

• To achieve this we have defined/redefined zones for all countries (each country to define its appropriate zones)

• This implies that HEA-DAT zone descriptions are now permanent to be able to compare one year to another etc.
Each zone is represented by a dot at the center of the zone.
Example of file for decadal and/or annual maps
(extracted from HAEDAT)

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<thead>
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HAE-DAT maps

- The new HAE-DAT is now set to deliver the maps for the ICES countries.
- It will be extended to PICES countries when you are ready.
- It will allow to generate maps automatically.
Example of decadal map:

ASP
1994 – 2002
Example of annual map:

2002

PSP
ASP
other

UNITED STATES
Later... with full linkage bt HAE-DAT & maps

20 July 2002
max PSP : 150 µg.hg-1 in mussels
*Alexandrium tamarense*: 100 000 cells.l-1 etc

(This information is invented)
How does it work?

- Monica Lion, IOC-IEO Science and Communication Centre on Harmful Algae, Spanish Institute of Oceanography, Vigo, Spain
- Benjamin Sims, IOC Secretariat/IT
- IFREMER, Nantes, France
How may it work for PICES?

• In the short term:
  • Do you want to submit to present coordinator or to have your own intermediate focal point?
  • Do you want a decentralized version with PICES data?

• In the long term:
  • There will be user responsibility of data – however each region may choose to have a coordinator and QC before upload.
Thank you for your attention
HAB-MAP
Regional Summaries on HAB Occurrences

Initiative by XHAB organizers

To be published as a CD

Editors, A. Zingone & H. Enevoldsen
30 year summary by region, 1970 to current, including

1. Species, toxins, effects
2. Specific times of events, duration of events, locations with coordinates if possible
3. Maximum cell counts and max chl a if possible by event; temperature, salinity, pH, D.O ranges, or whatever environmental data may be available
4. What databases exist and who or where to contact
5. References, including the grey literature and websites
HAB-MAP

The regions are:
Region 1, GEORGIA, USA TO GREENLAND:
Region 2, EAST COAST OF FLORIDA, CARIBBEAN AND CENTRAL AMERICA
Region 3, SOUTH AMERICA MINUS VENEZUELA:
Region 4, WEST COAST, USA, WEST COAST CANADA, AND ALASKA:
Region 5, AUSTRALIA AND NEW ZEALAND:
Region 6, SOUTHEAST ASIA, INDONESIA, PHILIPPINES
Region 7, KOREA, JAPAN, CHINA, AND RUSSIA
Region 8, INDIAN OCEAN,
Region 9, SOUTH AFRICA
Region 10, MEDITERRANEAN,
Region 11, PORTUGAL, SPAIN, ENGLAND, FRANCE, GERMANY, SCANDINAVIA
More details at ioc.unesco.org/hab
Every event must be associated to a precise day (Date of the event) and a precise geographical coordinate (Latitude and Longitude). These informations are of great importance in order to favour future data analysis, especially when using information from other data bases.

**Precise Day:**

DATE OF EVENT: 18/04/00

**Precise Location:**

LATITUDE: [Decline]

LONGITUDE: [Decline]

**Location Information:**

REGION (state, province...): Galicia, Northwest Spain.

REGION No. (if any; consult your country representative): IX a

LOCATION (City, Bay...): Rías de Vigo.

SURFACE km²: [Blank]

**Additional Location Information:**

42.10.90 - 42.14.36 N; 08.43.16 - 08.52.20 W.

The affected area is dedicated to intensive mussel cultivation in rafts and to a high production of other molluscs in natural banks: clams, cockles, oyster and scallops are the main species exploited.

**Graphical Support (map of area):** [Blank]
The maximum cell concentration should be provided herein and should correspond to the precise day and location.

**CAUSATIVE SPECIES**

<table>
<thead>
<tr>
<th>EVENT No</th>
<th>CAUSATIVE SPECIES/GENUS</th>
<th>TAXONOMICAL CLASS</th>
<th>(Cells/L)</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-00-010</td>
<td>Pseudo-nitzschia australis</td>
<td>Bacillarophyceae</td>
<td>509,820</td>
<td>Determined by electronic microscopy. Other s</td>
</tr>
<tr>
<td>SP-00-010</td>
<td></td>
<td></td>
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</table>

**ADDITIONAL SPECIES**

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<th>EVENT No</th>
<th>SPECIES/GENUS</th>
<th>TAXONOMICAL CLASS</th>
<th>(Cells/L)</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-00-010</td>
<td>Chaetoceros spp.</td>
<td>Bacillarophyceae</td>
<td>725,333</td>
<td>And other chain-forming diatoms.</td>
</tr>
</tbody>
</table>

**PIGMENT ANALYSIS:**

2.7 µg/l Chl a.

**CYSTS:**

**PICTURE OF ORGANISM:**

**ADDITIONAL MICROALGAE INFO:**
**Event No:** SP-00-010  
**Country:** Spain  
**Year:** 2000

### Environmental Conditions

#### Weather:
Cloudy.

#### Temperature (°C):
16°C, 13.5°C

#### Turbidity (Secchi disk m):

#### Temperature (°C):
8°C

#### Turbidity (NTU):

#### Temperature (°C):
35.5°C, 35°C

#### pH:

#### Turbidity (NTU):

#### Temperature (°C):

#### Nutrient Concentration:

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Concentration (μM/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrate</td>
<td>0.30 μM/L</td>
</tr>
<tr>
<td>Nitrite</td>
<td>0.03 μM/L</td>
</tr>
<tr>
<td>Ammonium</td>
<td>0.13 μM/L</td>
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<tr>
<td>Phosphate</td>
<td>0.00 μM/L</td>
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</tbody>
</table>

#### Nutrient Concentration:

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</tr>
<tr>
<td>Ammonium</td>
<td>0.13 μM/L</td>
</tr>
<tr>
<td>Phosphate</td>
<td>0.00 μM/L</td>
</tr>
</tbody>
</table>

#### Oxygen Content (μM/kg):

#### Oxygen Saturation (%):

#### Salinity (psu):
35, 35

#### Wind Direction:
SE

#### Wind Velocity:
50 m/s

#### Current Direction:

#### Current Velocity:

#### Algal Bloom:
- **Location in Water Column:** Surface Bloom.
- **Additional Environmental Information:**
  - Data are the average value for the water column (0-15 m).

---

**HE/2004**
**HARMFUL EFFECTS**

- **Has the event affected?**
  - [ ] Humans
  - [ ] Birds
  - [ ] Planctonic Life
  - [ ] Benthic Life
  - [ ] Natural Fish
  - [ ] Other Terrestrial
  - [ ] Aquatic Mammals
  - [ ] Shellfish
  - [ ] Fish
  - [ ] Aquaculture Fish

- **Has any toxicity been detected?**
  - [ ] Yes
  - [ ] No
  - If yes, approximate range: 25-50 μg

- **Explanations of toxicity**
  - [ ] Yes
  - [ ] No
  - If yes, comments:

If intoxications occurred, please indicate the species implicated in the transmission of toxins (Transjects):

### TOXIN ASSAY INFORMATION
(If available, indicate in section TOXIN CONTENT - TOXICITY any quantitative or qualitative measure)

<table>
<thead>
<tr>
<th>SPECIES CONTAINING THE TOXIN</th>
<th>TOXIN TYPE</th>
<th>TOXIN</th>
<th>TOXIN CONCENTRATION (μg/100 g)</th>
<th>ASSAY TYPE</th>
<th>USE OF A KIT?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ciguatera (Ciguatera fish)</td>
<td>ASP</td>
<td>Ciguatera</td>
<td>25-50 μg</td>
<td>HPLC</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Ciguatera (Ciguatera fish)</td>
<td>ASP</td>
<td>Ciguatera</td>
<td>211 μg</td>
<td>HPLC</td>
<td>[ ] Yes [ ] No</td>
</tr>
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</table>

**ASSOCIATED SYNDROMES**

**UNEXPLAINED TOXICITY**

**ASSAY COMMENTS**

**EXTENT OF THE EFFECT** (qualification of biological damage: animal deaths...)

**ECONOMIC LOSSES** (production value, direct loss, indirect loss...)

**MANAGEMENT DECISION**

**ADDITIONAL HARMFUL EFFECT INFORMATION**

Irrelevant effects, because the closures caused by this event were brief (two weeks maximum). Closures due to the presence of toxicity manifestations is usual in the area and resource exploitation strategies allow to face these disourses without great problems. Economic losses are important when closures have a long duration.
### PREVIOUS OCCURRENCES IN THIS REGION

Detected annually from 1995; generally with a periodicity of two events a year: at the beginning - middle of spring and autumn.

Are there any biological samples available for further analysis? Please indicate the type of sample.

### ADDITIONAL EVENT INFORMATION (text)

### ADDITIONAL EVENT INFORMATION (file):

### ADDITIONAL EVENT INFORMATION IN THE WEB (web links):

### EVENT RELATED BIBLIOGRAPHY

Please write here any comments to improve this form:
Old form

- COUNTRY:
  1. Location:
  2. Date of Occurrence:
  3. Effects:
  4. Management decision:
  5. Causative Species:
  6. Environment:
  7. Advected population or in situ growth:
  8. Previous occurrences:
  9. Additional Comments:
  10. Individual to contact:
Modified form for National HAB report

• Available at the IOC Web page.
• Modified form, an example and some instructions.
  - Word 6.0 document.
  - Locked form, you can only write on the grey spaces and tick boxes.
  - 2 pages form, with the first page containing much of the same information that was collected in the old forms.
• National focal points will submit the national report to the IOC-IEO Science and Communication Centre on HA, in Vigo preferably by e-mail.
Modified form for the National HAB reports

INSTRUCTIONS FOR FILLING OUT THE FORMS

PLEASE only report information about harmful events (according to the following definition).

A harmful algal event is defined as:

- a water discoloration, scum or foam causing a socio-economic impact due to the presence of toxic or harmful microalgae
- biotoxin accumulation in seafood above levels considered safe for human consumption
- any event where humans, animals or other organisms are negatively affected by algae

As indicated on the form, you may not be able to fill in all the data fields. However, all information is valuable.

When reporting location, do so according to geographic region. For example: Area: Ría de Vigo; Region: Northwest Spain. The ICES region can be obtained from the ICES web site: http://www.ices.dk/committee/acfm/comwork/report/1999/ices_map.pdf or your country representative will enter the appropriate code.

We feel that the form is self-explanatory. If, however, you have problems, contact your country representative.

Following completion of the forms, please return them to your national representative.
### 1 - GENERAL INFORMATION

Please note: NOT all information requested on this form is required. Some respondents may choose to stop at the end of the first page, but others may wish to add detailed bloom information, as requested on page 2. Any information you provide is of value.

#### Indicate the nature of the reported harmful event:
- Water discoloration
- High Phyto concentration
- Seafood toxin
- Mass mortalities
- Foam/mucilage in the coast
- Other: __________

#### Has the event directly affected?
- Planktonic life
- Benthic life
- Shellfish
- Natural Fish
- Aquaculture Fish
- Aquatic mammals
- Birds
- Other terrestrial: __________
- Humans

#### Has any toxicity been detected?
- Yes
- No
- If yes, approximate range: __________

#### Associated syndrome
- PSP
- DSP
- ASP
- AZP
- NSP
- GPP
- Other: __________

#### Unexplained toxicity
- Yes
- No
- If yes, comments: __________

If intoxications occurred, please indicate the species implicated in the transmission of toxins (Transvector): __________

Additional comments: __________

Is this report the outcome of a monitoring programme?
- Yes
- No

If yes, which programme(s)? __________

Has this event occurred before in this location?
- Yes
- No
- If yes, comments: __________

Individual(s) to contact (name, address, e-mail, web page, etc.): __________
2 - LOCATION AND DATE

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<th>0° S</th>
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General location information

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<th>ICES Area code:</th>
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Additional location information (i.e., length of covered shoreline or aerial coverage of bloom, ecosystem type, etc.): 

Date of detection of quarantine levels (dd/mm/yy): 

<table>
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<th>Detection date:</th>
<th>Final date:</th>
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Additional information (i.e., start and end date of the bloom): 

3 - MICROALGAE

Causative organism known?  [ ] Yes  [ ] No

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<tr>
<th>Causative species/genus</th>
<th>Taxonomical class</th>
<th>Cells/L (max.)</th>
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<thead>
<tr>
<th>Co-occurring dominant species</th>
<th>Taxonomical class</th>
<th>Cells/L (max.)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chlorophyll concentration, if known (µg/L): 

Additional Bloom Information:

Event-related Bibliography:

Thank you for your contribution. If you have more detailed information to offer on this HAB event, please continue to the next page. Fill in only what information is available.
### 4 - ENVIRONMENTAL CONDITIONS

The information herein provided should correspond to the environmental conditions at a reported location and day of an event. Complimentary information can be provided if possible in the "Additional Environmental Information" field.

<table>
<thead>
<tr>
<th>Location and date:</th>
<th>Turbidity (NTU):</th>
<th>Wind direction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weather:</td>
<td></td>
<td>Wind velocity:</td>
</tr>
<tr>
<td>Stratified water:</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Temperature (°C):</td>
<td></td>
<td>Oxygen saturation %:</td>
</tr>
<tr>
<td>Secchi disk (m):</td>
<td></td>
<td>Current direction:</td>
</tr>
<tr>
<td>Salinity:</td>
<td></td>
<td>Current velocity:</td>
</tr>
<tr>
<td>Nutrient information:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please, if available, indicate here maximum/minimum temperature and salinity recorded during the whole duration of the event:

| Maximum Temperature (°C): | Maximum Salinity: |
| Minimum Temperature (°C): | Minimum Salinity: |

<table>
<thead>
<tr>
<th>Location in the water column:</th>
<th>Whole water column</th>
<th>Subsurface bloom</th>
<th>Surface bloom</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALGAL BLOOM</td>
<td>Advection or in situ growth:</td>
<td>Advection</td>
<td>In situ</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional environmental information:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

IOC/HE/2004
### 5 - Toxin Assay Information

<table>
<thead>
<tr>
<th>Species containing the toxin</th>
<th>Toxin type</th>
<th>Toxin details</th>
<th>Max. Concentration (specify units)</th>
<th>Assay type</th>
<th>Use of a kit (if yes, what type of kit)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes [ ] No [ ] Type:</td>
</tr>
</tbody>
</table>

**Additional Information** (e.g. positive animal assay, chemical details, analytical methods, etc.):

**Economic Losses** (production value, direct loss, indirect loss...):

**Management Decision:**

**Additional Harmful Effect Information:**
Mapping of harmful events related to phytoplankton blooms in Western Europe and North America

The data shown on maps are updated by the International Working Group on Harmful Algal Bloom Dynamics (IWGABD), under the joint responsibility of the International Council for the Exploration of the Sea (ICES) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO.

Data are provided by representatives of the different member countries of the IWGABD, and coordination and cartographic services are ensured by the French Institute for Marine Research and Exploitation (Ifremer).

The maps are updated annually for the preceding ten-year period.

The information available differs greatly depending on the event or country concerned. As monitoring intensity, the number of monitoring stations, and the number of samplings also differ considerably, there is no direct relation between recorded and actual harmful algal events (e.g., toxicity) in a given region. Moreover, areas with many recorded events may benefit from an efficient monitoring and management program and have very few problems and a low risk of intoxication, whereas infrequent events in other areas may cause severe problems and represent significant health risks.

Coordination: Catherine Rolin.
Mapping of harmful events related to phytoplankton blooms in Western Europe and North America

Available maps:
- Regular monitoring
- All towns
- PEP towns
- DSP towns
- AGP towns
- NFP towns
- GFP towns
- Azap inside
- Mortalities (animals and plants)
- Coral bleaching

This site requires the latest version of Macromedia Flash Player and Adobe Acrobat Reader.
Authors

Coordination / contact

Catherine Rollin, Ifremer

Conception

Alain le Magueresse, Ifremer

Realization

Bernard Rollin, Ifremer

Translation

James Gray

Countries / organizations providing data

<table>
<thead>
<tr>
<th>Country</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>Institut Maurice-Lamontagne / Québec</td>
</tr>
<tr>
<td></td>
<td>Fisheries and Oceans / St. Andrews</td>
</tr>
<tr>
<td>Denmark</td>
<td>BioConsult / Aabyhøj</td>
</tr>
<tr>
<td>England</td>
<td>CEFAS / Weymouth</td>
</tr>
<tr>
<td>Estonia</td>
<td>Estonian Marine Institute / Tallinn</td>
</tr>
<tr>
<td>Finland</td>
<td>Maj and Tor Næssling Foundation / Helsinki</td>
</tr>
<tr>
<td>France</td>
<td>Ifremer / Nantes</td>
</tr>
<tr>
<td>Germany</td>
<td>Biologische Anstalt / Helgoland</td>
</tr>
<tr>
<td>Ireland</td>
<td>Marine Institute Fisheries Research Centre / Duble</td>
</tr>
<tr>
<td>Latvia</td>
<td>Hydrobiologisk Institute / Sallasps</td>
</tr>
<tr>
<td>Norway</td>
<td>Institute of Marine Research / Fiskelegen</td>
</tr>
<tr>
<td>Portugal</td>
<td>IPIMAR / Lisboa</td>
</tr>
</tbody>
</table>
Presence of toxins in north America
1991 - 2000

PSP: Paralytic Shellfish Poison
ASP: Amnesic Shellfish Poison
DSP: Diarrheic Shellfish Poison
NSP: Neurotoxic Shellfish Poison
CFP: Ciguatera Fish Poison
mort.: animal and plant mortalities

ICES countries

DISCLAIMER - WARNING
HAEOMAT maps should be interpreted with caution,
regarding risk of intoxication by seafood products
from the respective areas/regions/countries.
The IOC and ICES are not liable for possible misuse
of this information.

/2004
Présence de toxines NSP
1991 - 2000

ATTENTION
Ces cartes doivent être interprétées avec prudence
parce qu’elles concernent le risque d’intoxication par des
produits de la mer en provenance des pays concernés.
Le CIEM ne saurait être tenu responsable d’un éventuel usage abusif de cette information.
IOC-ICES WGHABD 02:

Discussed:

• That differences exist in location information reported on the HAEDAT forms.
## Event Information

**Event No:** CA-01-001  
**Country:** CANADA  
**Year:** 2001

### General Information

**Precise Day and Precise Location**

Every event must be associated with a precise day (Date of the event) and a precise geographical coordinate (Latitude and Longitude). These information are of great importance in order to favour future data analysis, especially when using information from other data bases.

**Precise Day:**

**Date of Event:**

**Precise Location:**

**Location Information**

<table>
<thead>
<tr>
<th>Region (state, province...)</th>
<th>Bay of Fundy.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region No. (if any; consult your country representative)</td>
<td></td>
</tr>
<tr>
<td>Location (City, Bay...):</td>
<td>South-west New Brunswick.</td>
</tr>
</tbody>
</table>

**Surface km²:**

### Location Information

**Additional Location Information:**

**Graphical Support (map of area):**

### Date Information

**Initial Date:**

**Final Date:**

**Additional Date Information:**

Detection of quarantine levels: June 01 - Aug 01.  
Start and end of the bloom: May-July
**Event No:** SP-01-009  
**Country:** Spain  
**Year:** 2001

### Precise Day and Precise Location (Geographical Coordinate) of the Reported Event:

Every event must be associated to a **Precise Day** (Date of the event) and a **Precise Geographical Coordinate** (Latitude and Longitude). These informations are of great importance in order to favour future data analysis, especially when using information from other data bases.

<table>
<thead>
<tr>
<th>Precise Day</th>
<th>N-S/E-W</th>
<th>00°</th>
<th>00'</th>
<th>00''</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Event</td>
<td></td>
<td>25/06/01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Precise Location</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Latitude</td>
<td>N</td>
<td>42</td>
<td>14</td>
<td>36</td>
</tr>
<tr>
<td>Longitude</td>
<td>W</td>
<td>08</td>
<td>49</td>
<td>50</td>
</tr>
</tbody>
</table>

### Location Information

- **Region (state, province...):** Galicia, NW Spain.
- **Region No. (if any; consult your country representative):** IVA & II
- **Location (City, Bay...):** Rias Baixas (Vigo, Pontevedra, Arousa and Me)
- **Surface km²:**

**Additional Location Information:**

- Latitude: 42 10 90 - 43 24 55 N.  
- Longitude: 8 41 11 - 9 03 00 W.

The affected area is dedicated to intensive mussel cultivation in rafts and to a high production of other molluscs in natural banks: clams, cockles, oyster and scallops are the main species exploited.

### Date Information

- **Initial Date:** 28/05/01
- **Final Date:** 25/08/01

**Additional Date Information:**  
Detection of quarantine levels: 12/06/01 to 27/08/01.
This red tide of 2001 was first detected off SW Florida offshore of Johns Pass (27.7267° and -82.9767°) and Sarasota (27.1335° and -82.9612°) in January and then periodically offshore of Sarasota until June. It reappeared inshore in August off Sarasota and has been offshore and inshore (from 25.9075°, -81.7076° to 27.9775°, -82.8319° to -83.3916°), even down to the Florida Keys. It continues today into 2002. The SW bloom evidently was transported to the north and was first detected 30 miles off Carabelle Florida (24.6067°) on October 15, 2001. It then moved...
IOC-ICES WGHABD 2002:

Discussed:

• The differences in how location information is reported on the HAEDAT forms.

• Decided to:

• Redefine regions used on HAEDAT maps.
• Use same HAE regions on the HAEDAT form.
IOC-ICES WGHABD 2002:

It was agreed:

• Delegates will divide their countries into HAE regions.

• Delegates will amend the old HAEDAT forms using the new HAE code and homogenizing the location information (Degrees and minutes).

• Automatically create maps from the data base.

• HAEDAT will provide the detailed information behind the decadal maps.