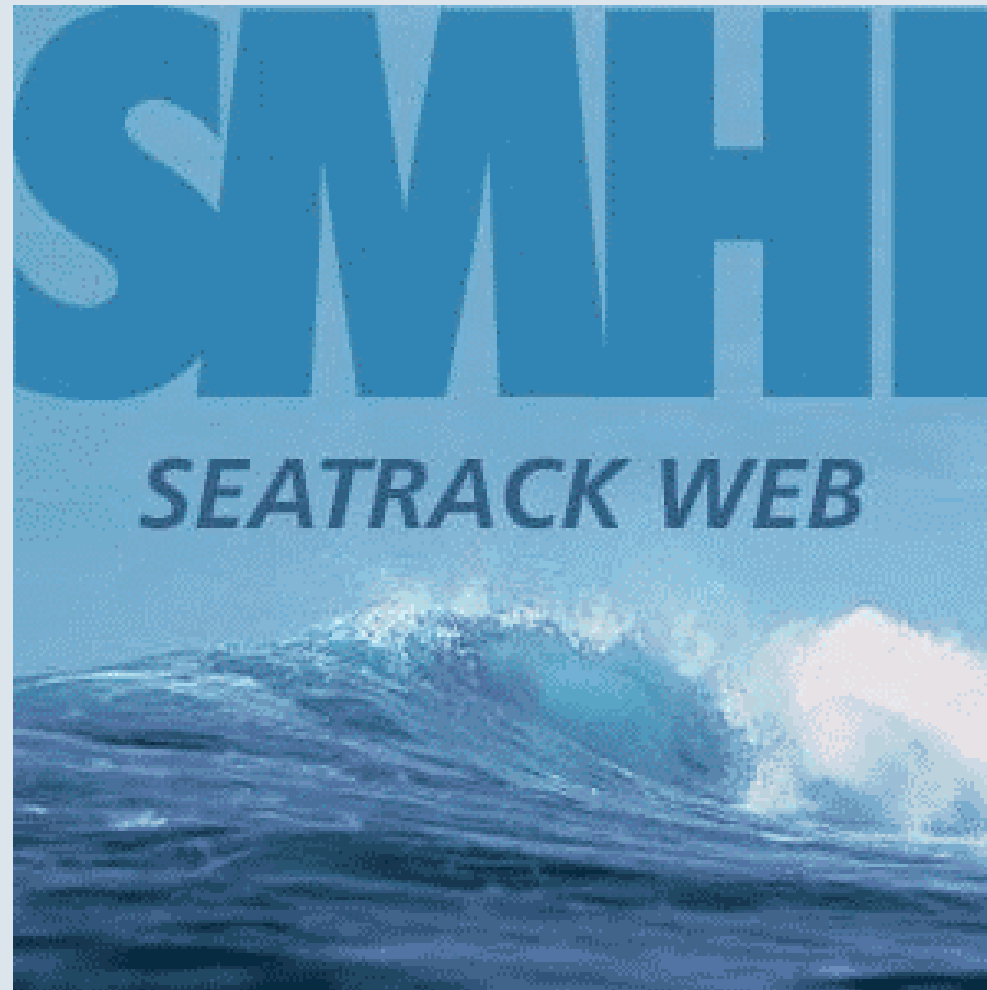


# Seatrack Web, forecasts and backtracking of oil spills



Cecilia Ambjörn, SMHI

# **The system is adopted by HELCOM (Helsinki Commission)**

**It is used by responsible authorities in all countries  
around the Baltic Sea**

**There is no cost for the users**

**The drift is financed by SMHI for HELCOM**

**Implemented at SMHI and RDANH (Denmark)**

**SMHI can follow the usage**

## Cooperation in development

**Development is in close cooperation between**

**SMHI (Swedish Meteorological and Hydrological  
Institute)**

**and**

**RDANH (Royal Danish Administration of Navigation  
and Hydrography)**

# **Cooperation with end users - the basis for all improvements**

**Requirements are most welcome and also implemented**

**Feedback about problems or questions**

**Validation from real spills is always needed**

## **Support**

Swedish Coast Guard,

Swedish Rescue Service Agency,

Finnish Environmental Institute (SYKE),

Royal Danish Administration of Navigation and Hydrography (RDANH),

Bundesamt fuer Seeschifffahrt und Hydrographie (BSH) and SMHI

# Why do we need a web based oil drift forecasting system?

***Illegal spills are quite frequent***

**Awareness and consciousness have increased concerning safety and the environment**

**Plan the most efficient measures**

**Reduce impact on the environment**

**Reduce economic and social effects**

**Accidents will continue to occur**

## Necessary requirements

**Fully operational, 100 %**

**Updated information, latest forecasts**

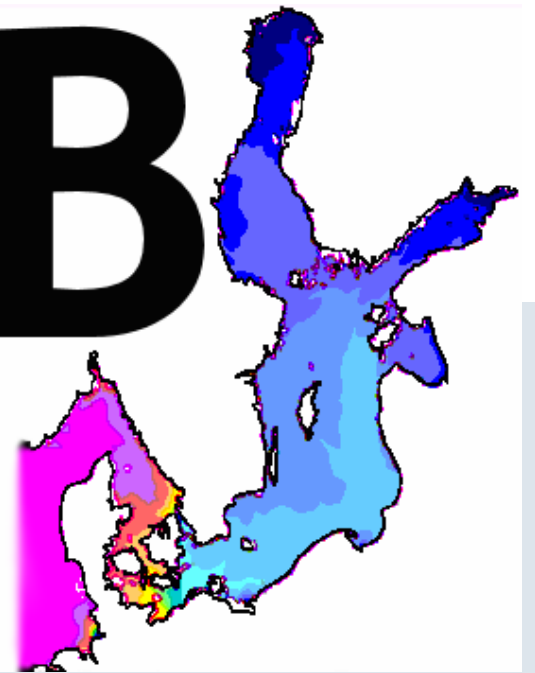
**Advanced numerical models**

**User-friendly**

**Easy to evaluate the results**

**Fast, a few seconds**

# HIROMB



**3 D model, Hiromb, High Resolution Operational Model  
for the Baltic sea**

**Assimilated with salinity, temperature and ice  
Forecasted river inflow daily**

**Agreement about development between Baltic countries**

## Development during 2007

### **Satellite information as GIS layers, prestudy**

- Identification of illegal polluters will be simplified**
- Import the exact oil spill area**
- Validation of the forecasts**

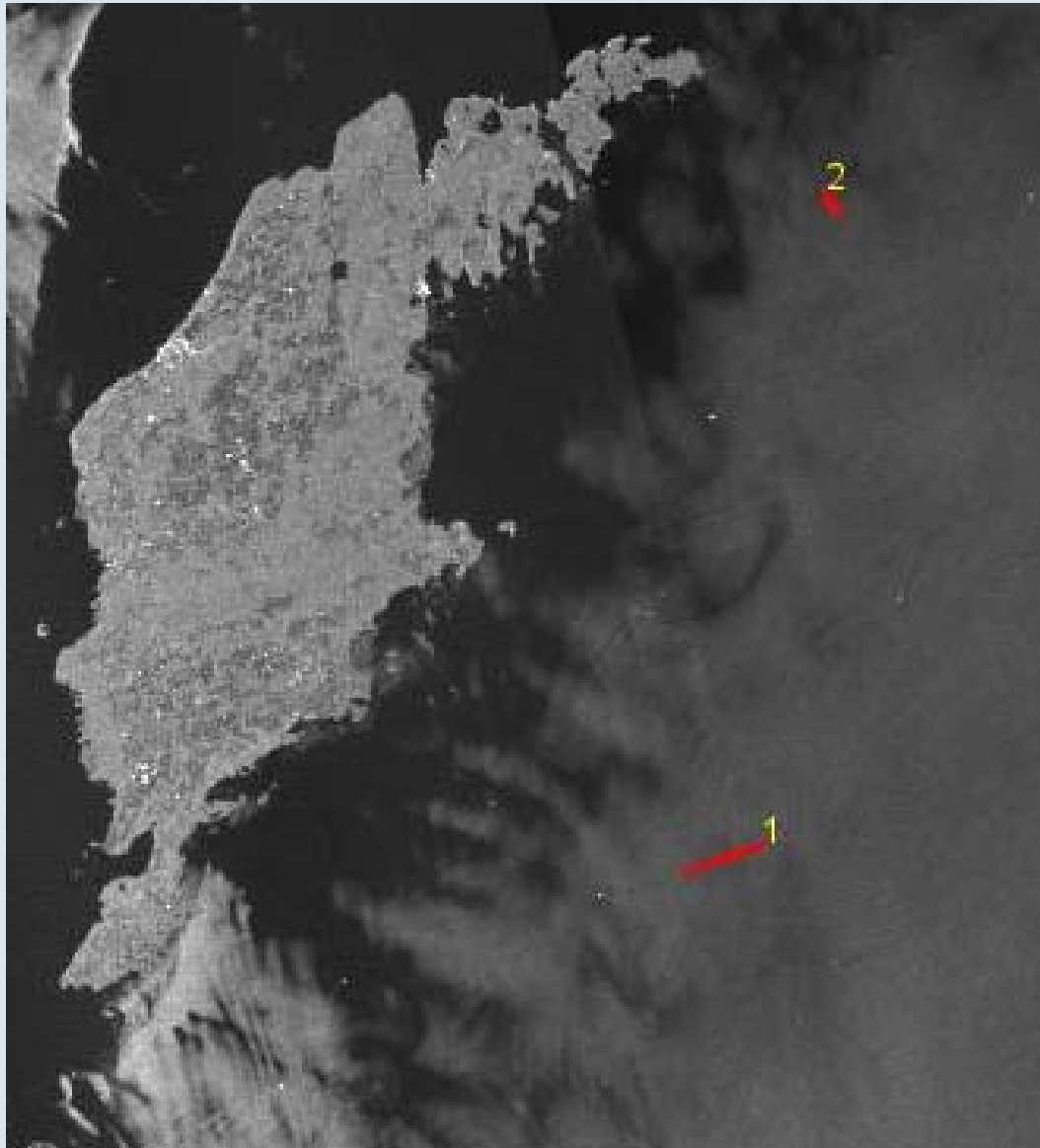
### **Improve AIS functionality**

### **Apply the system on highly resolved areas**

### **Forecasted wave spectra**

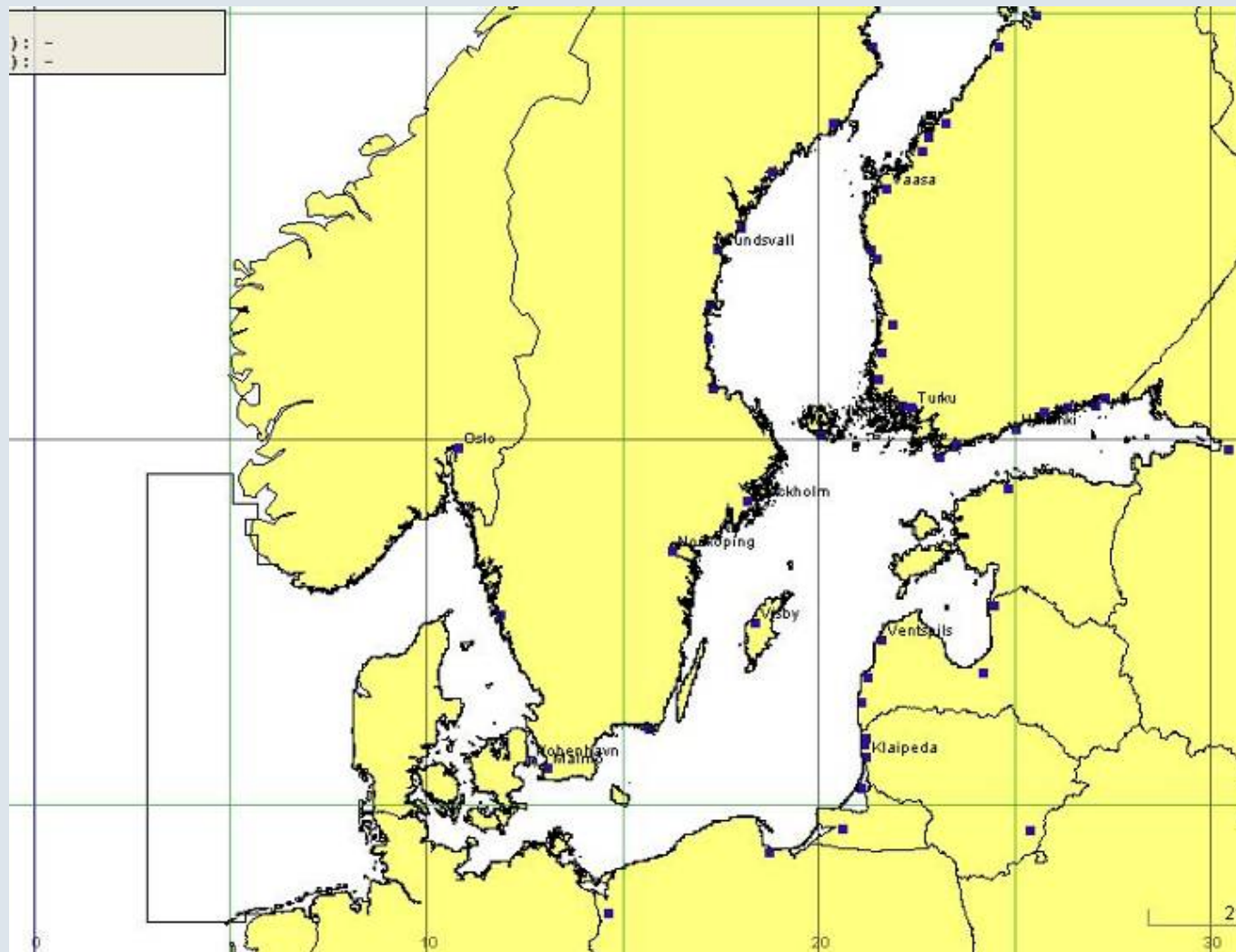


## Satelite picture of oil slicks



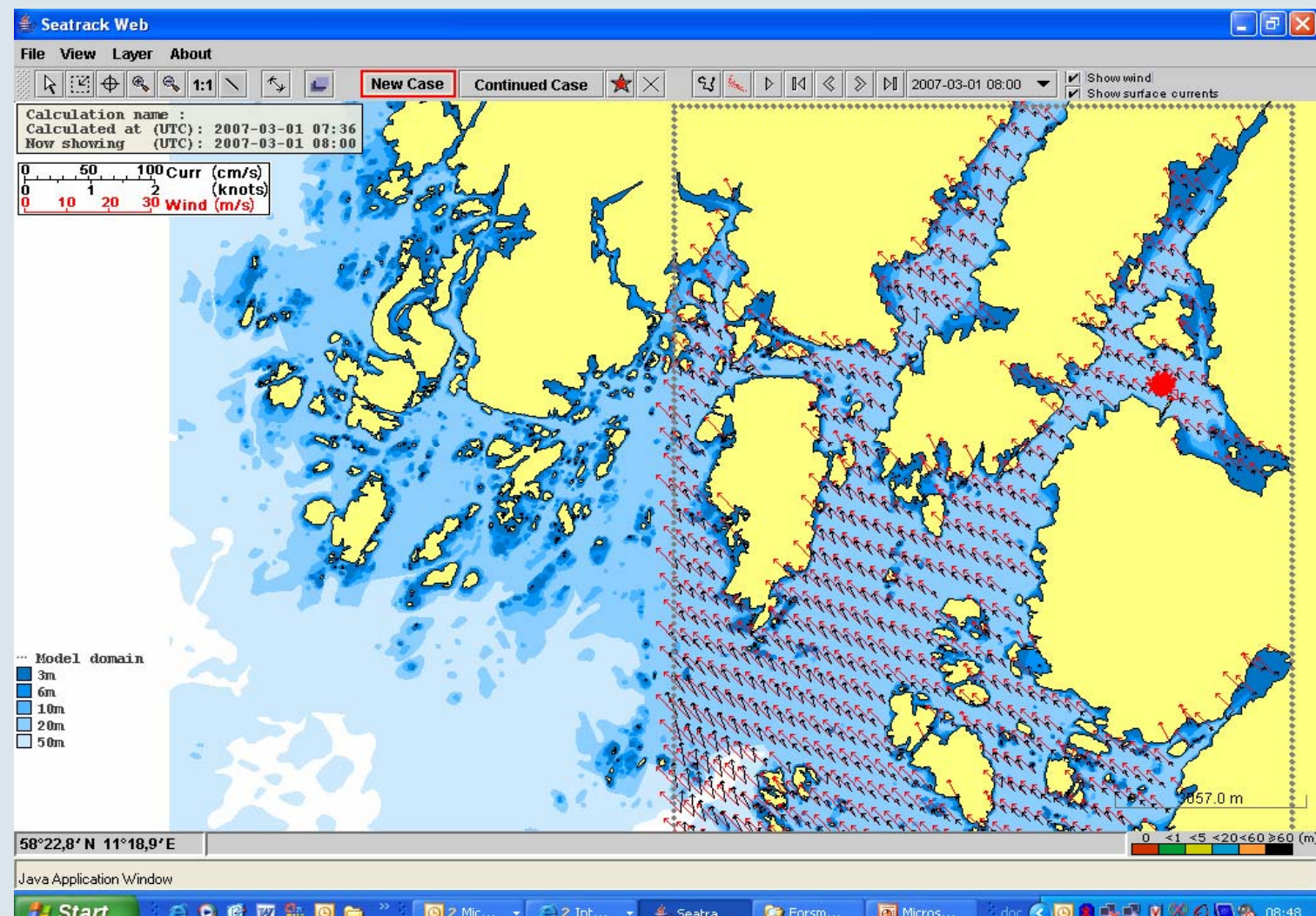
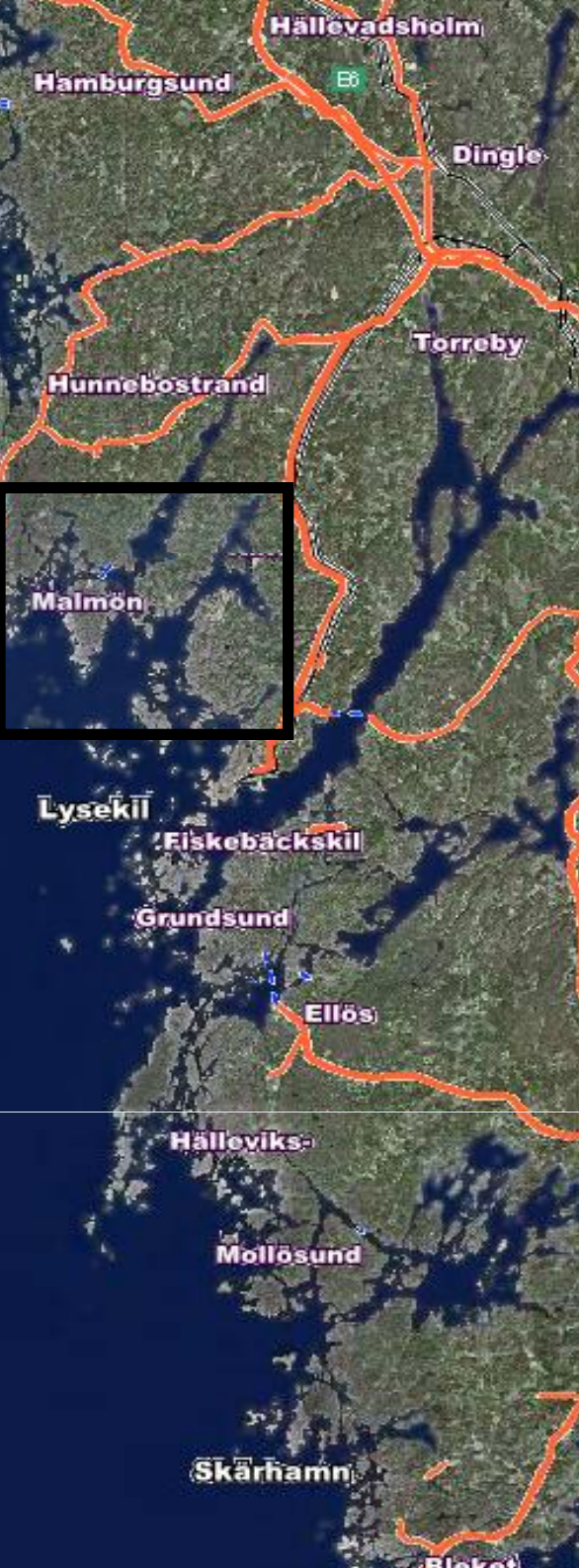
# The area covered by Seatrack Web

**Seatrack Web can be set up for other models and areas**





# Seatrack Web in a Swedish fjord



## Seatrack Web – a real accident

At 1018 UTC on Saturday May 31 2003 Fu Shan Hai, fully laden with a cargo of 66,000 metric tonnes of fertiliser loaded in Ventspils, Latvia was struck by a container ship, Gdynia north of Bornholm.

Fu Shan Hai carried ca 1700 cubic meters of heavy oil, which began to leak into the sea during the night and continued to leak for several days afterwards.

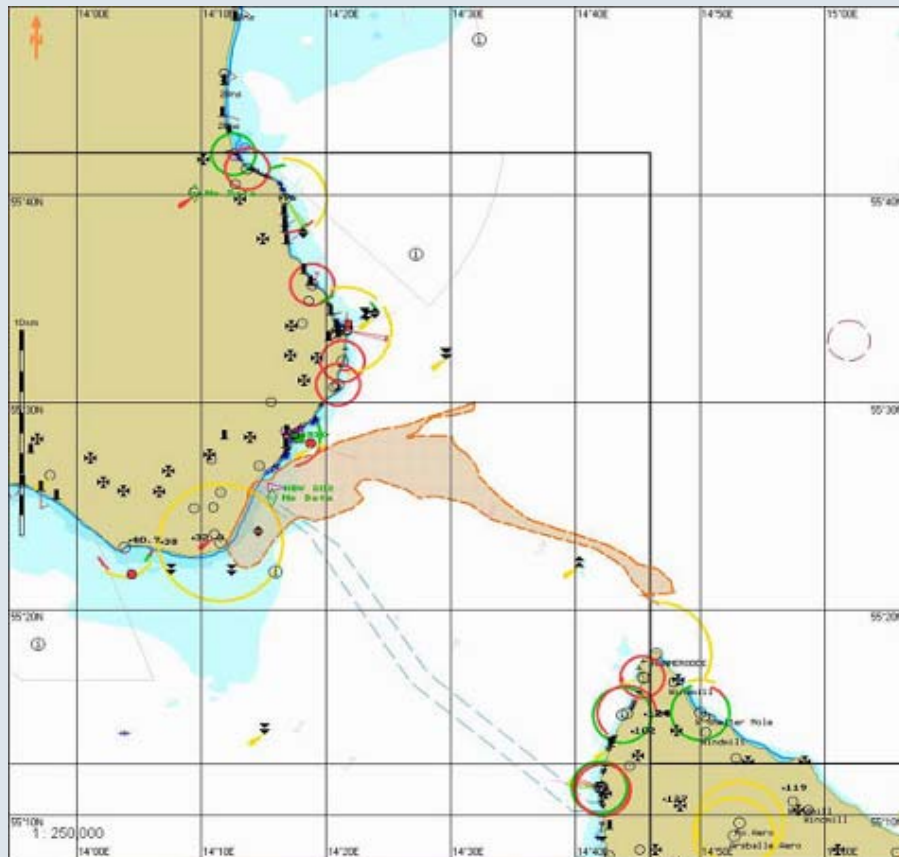
The Swedish coast was heavily struck by oil, maybe also Poland and Russia



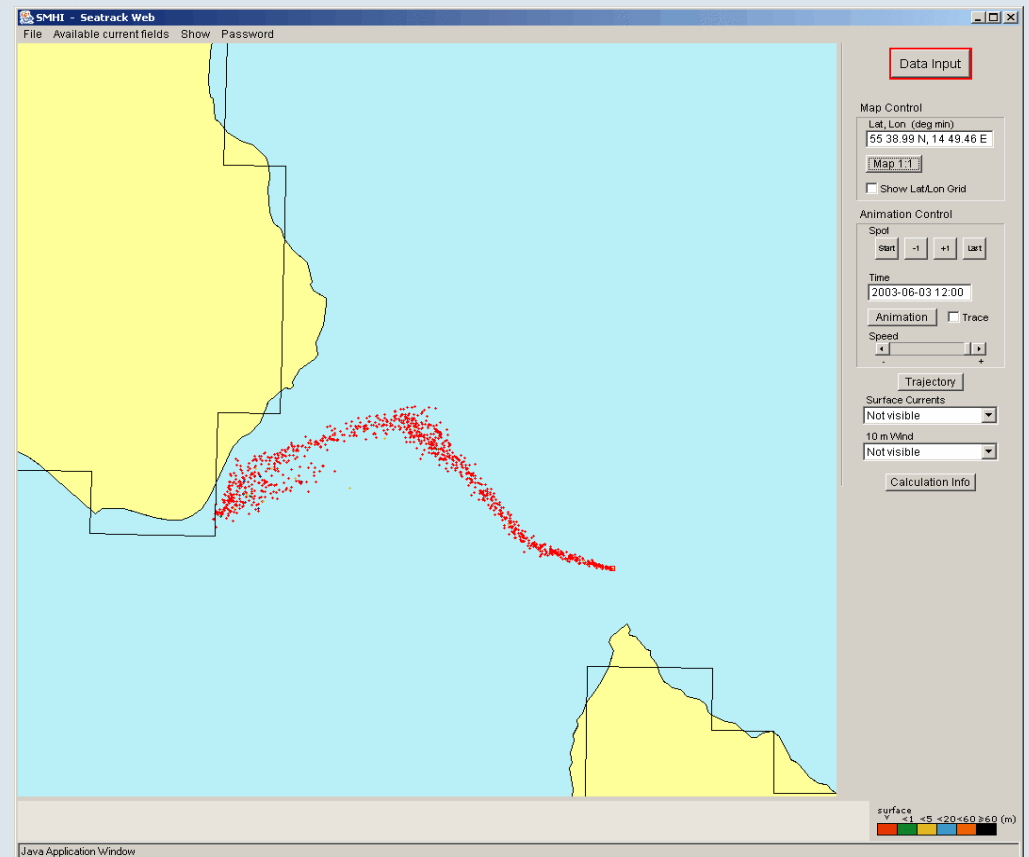
# The oil spill June 3, 1200 UTC

## SLAR image and forecast

### Radar



### Forecast



# Training Seatrack Web

**HELCOM finances training in HELCOM countries**

**The training has been executed during 2006 and early 2007**

## **Result of training**

**Very positive, great enthusiasm**

**Many good suggestions of improvement**

## **The strength of Seatrack Web!**

**Very close contact with users**

**User suggestions are implemented if possible**

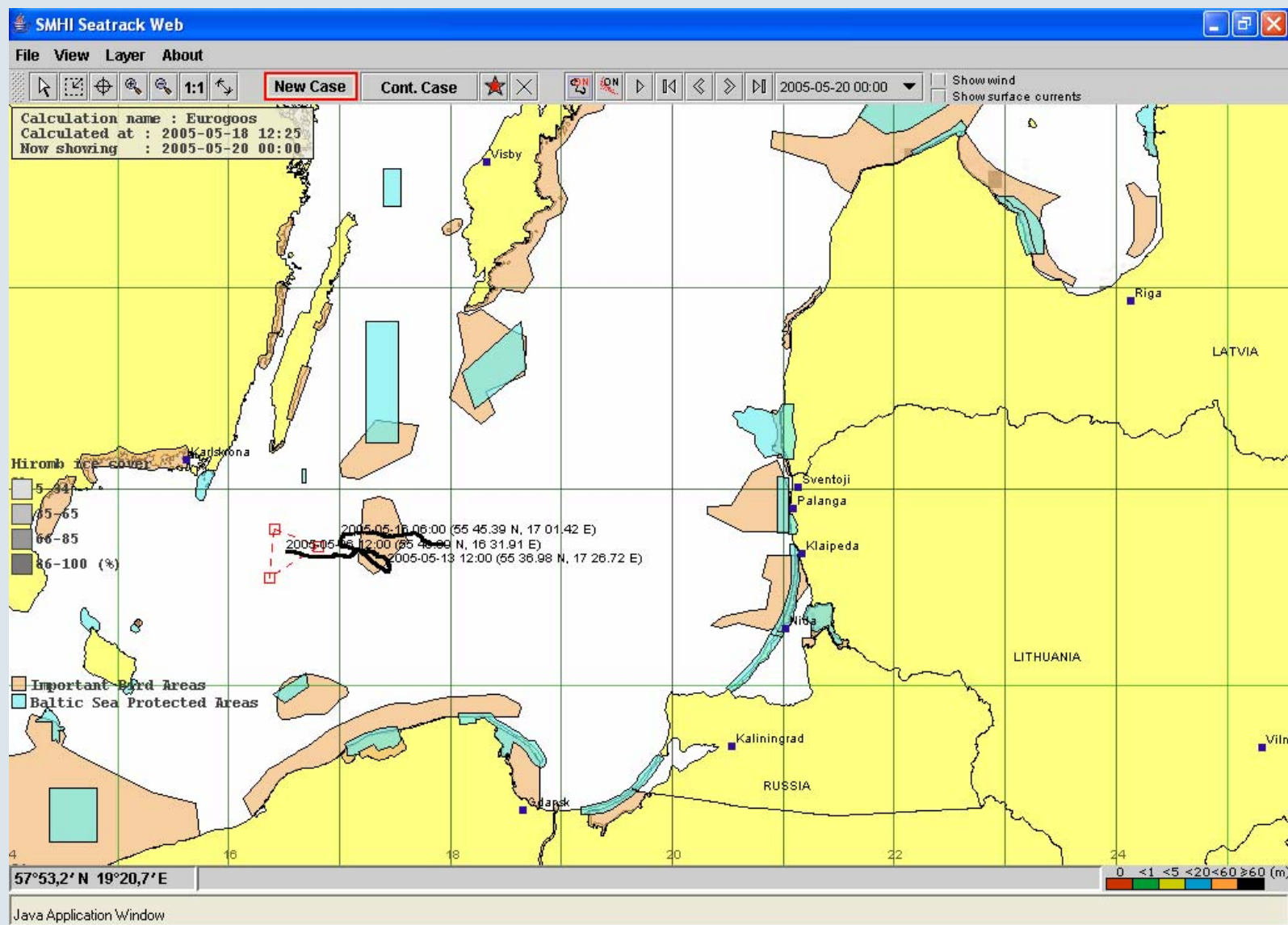
**Enthusiastic team, partners and users**

**Operational to 100%**

**State-of-the-art forecasting systems**

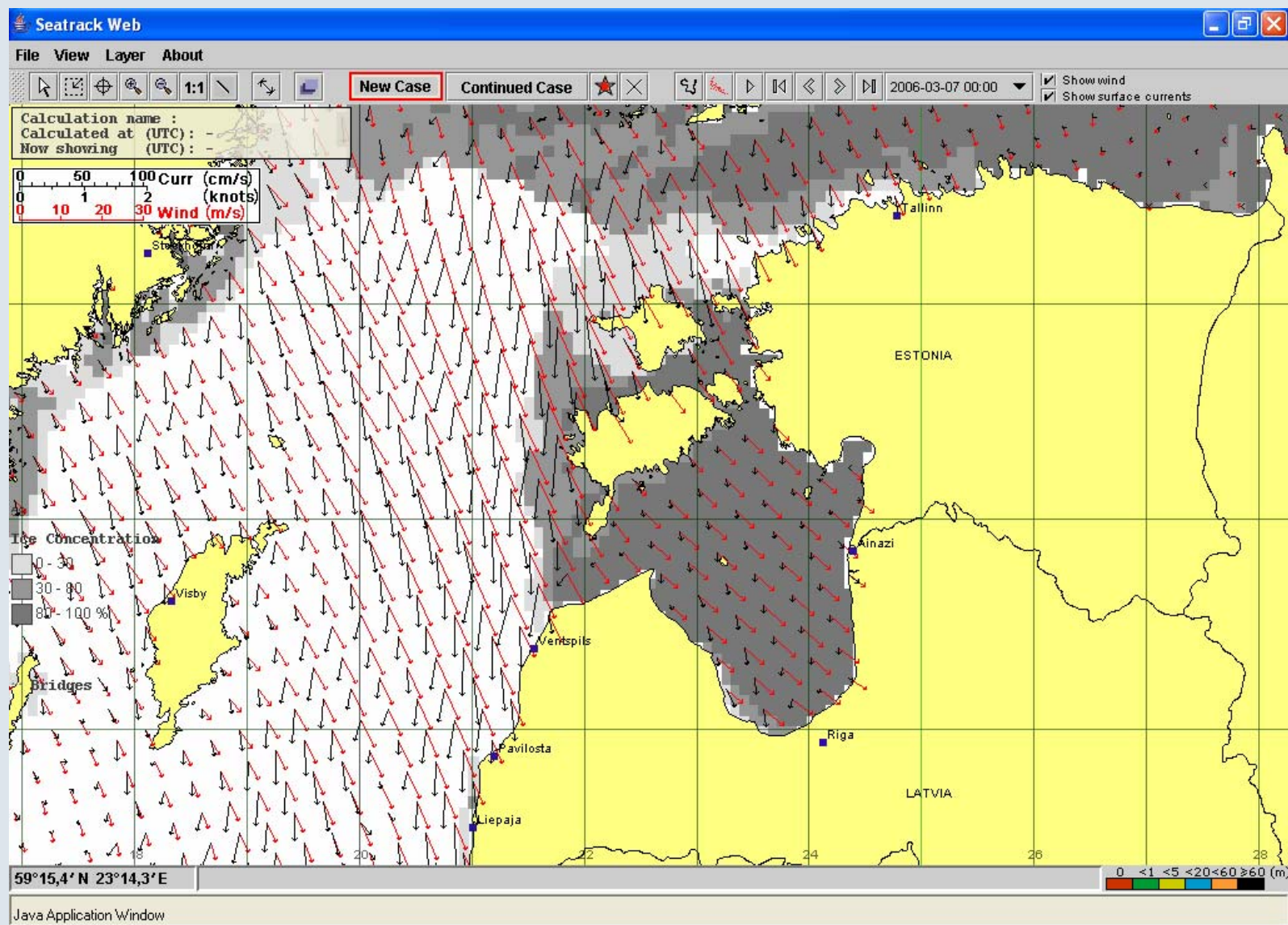
**Can be reached from any place**

# The oil passes through an Important Bird Area

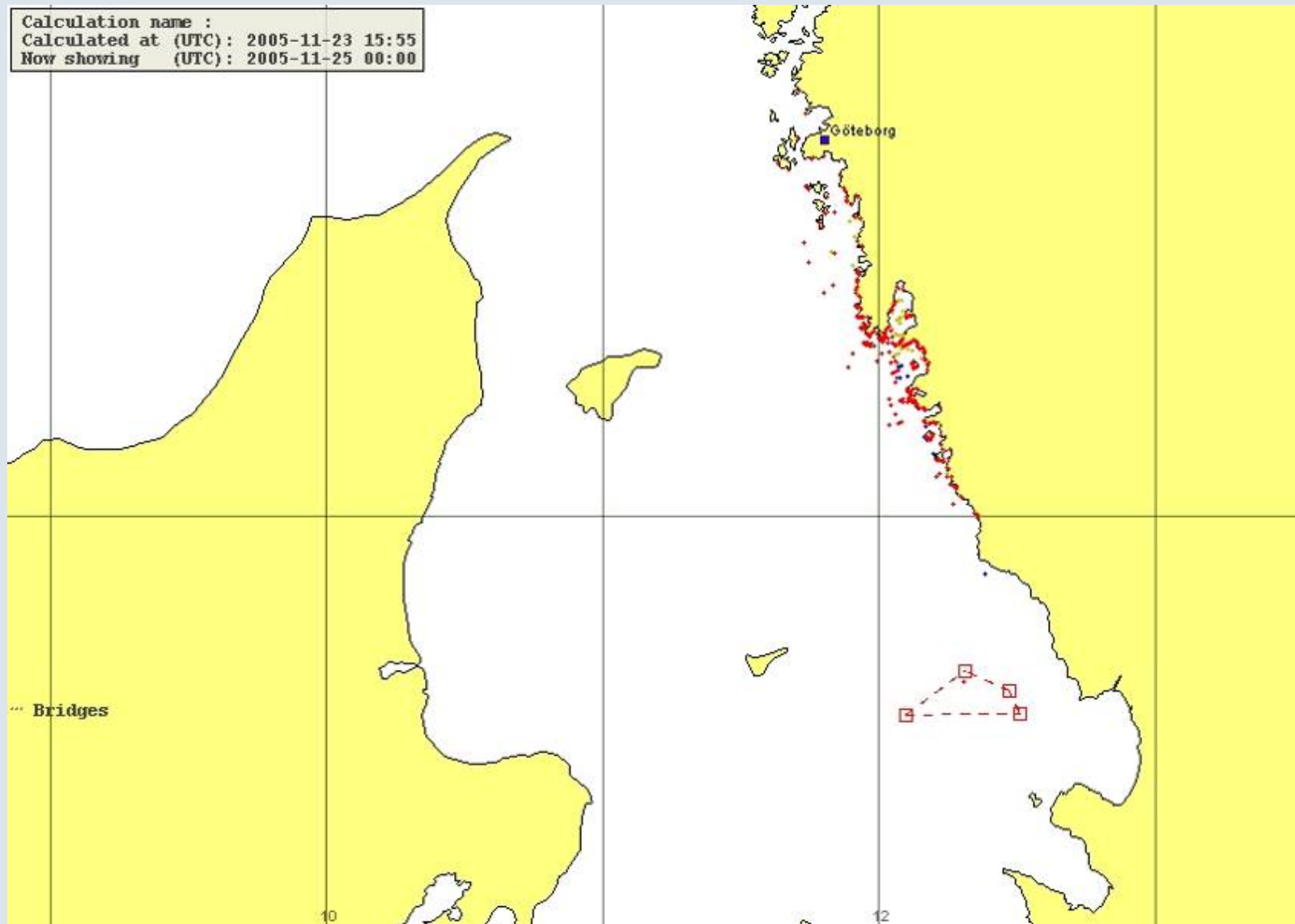




# Seatrack Web – ice, winds and currents



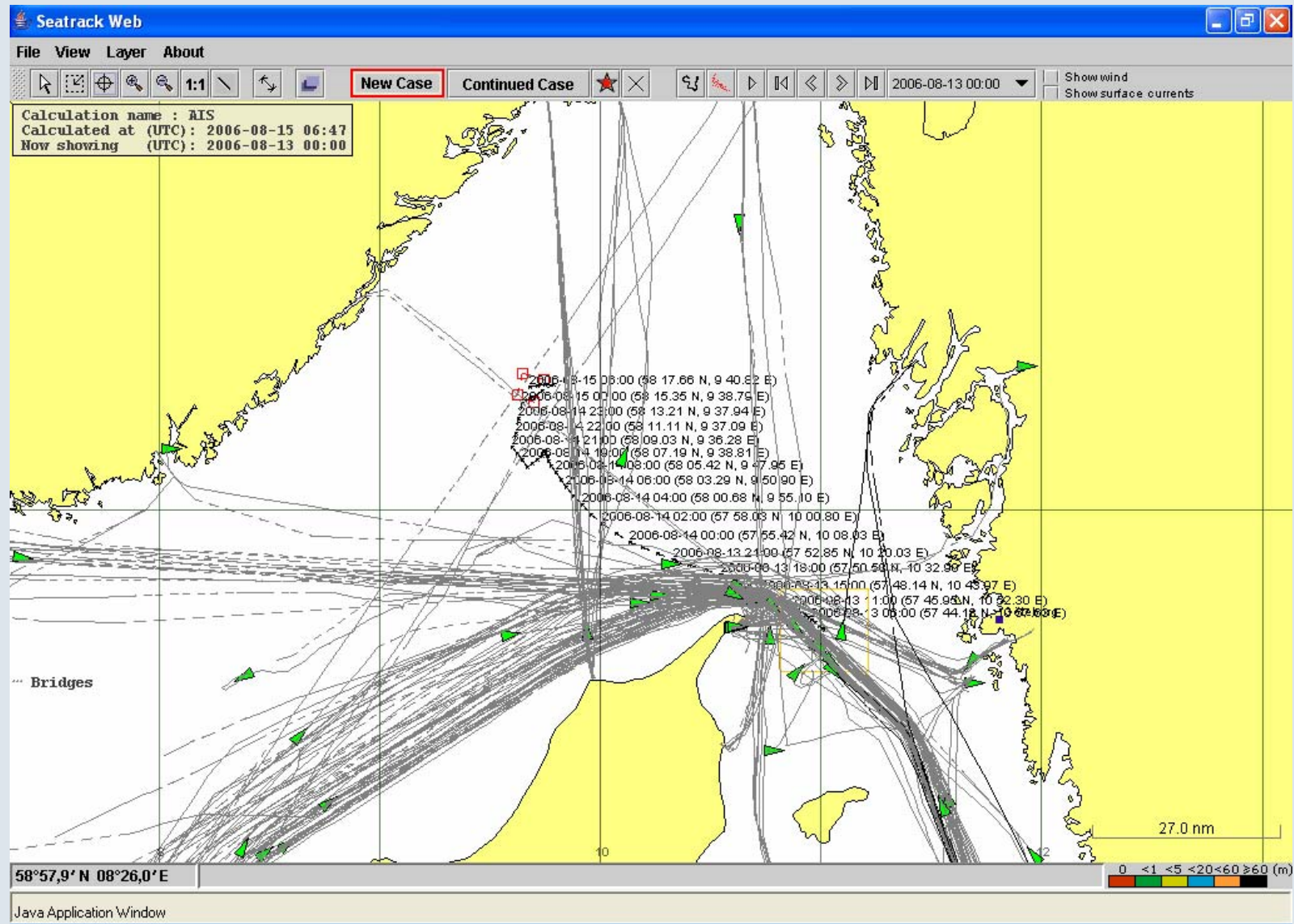
# Seatrack Web – scenario a tool to use in decision support



# Seatrack Web – AIS, Automatic Identification System

## Evidence to court from illegal spills

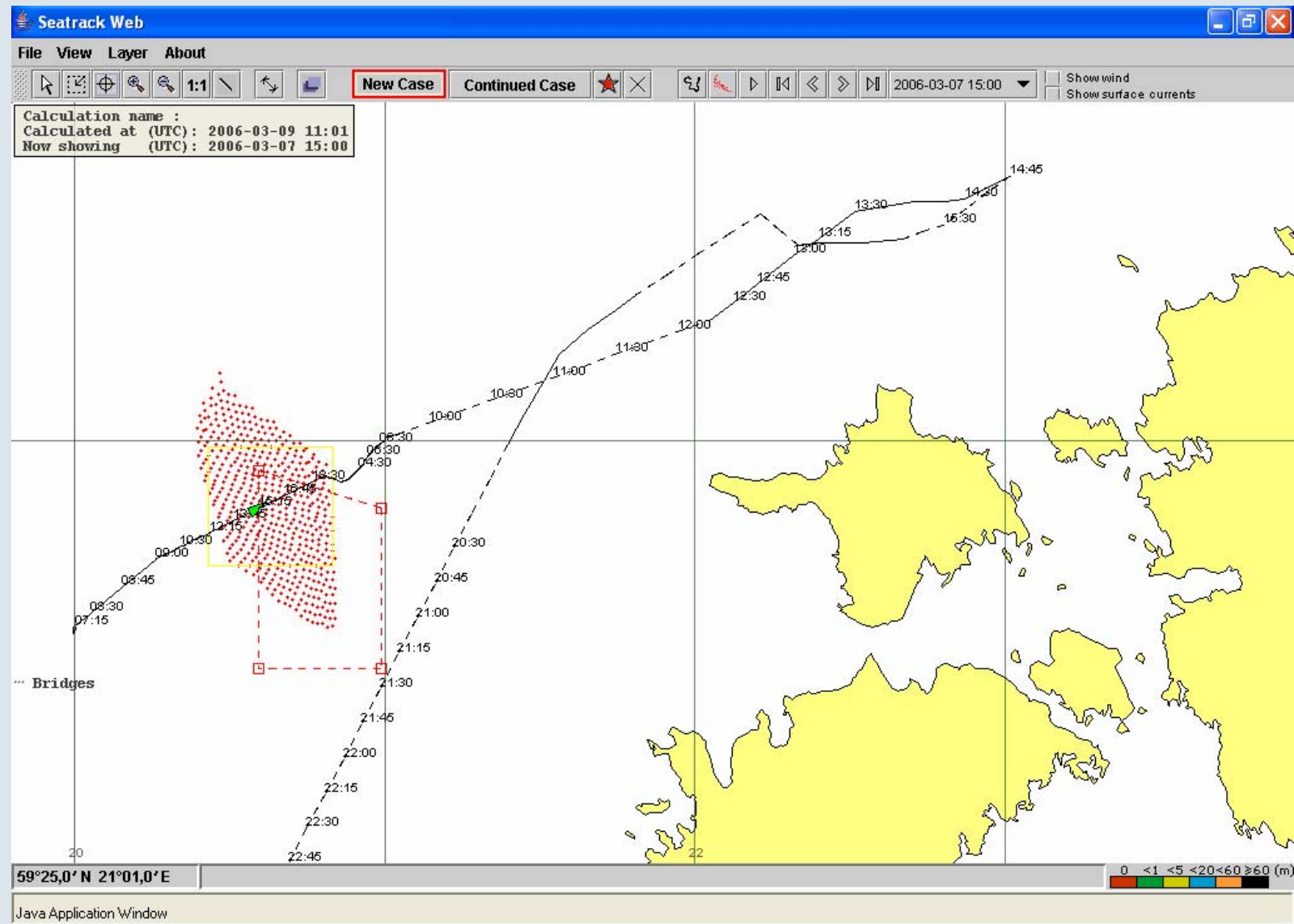
### 108 possible ships





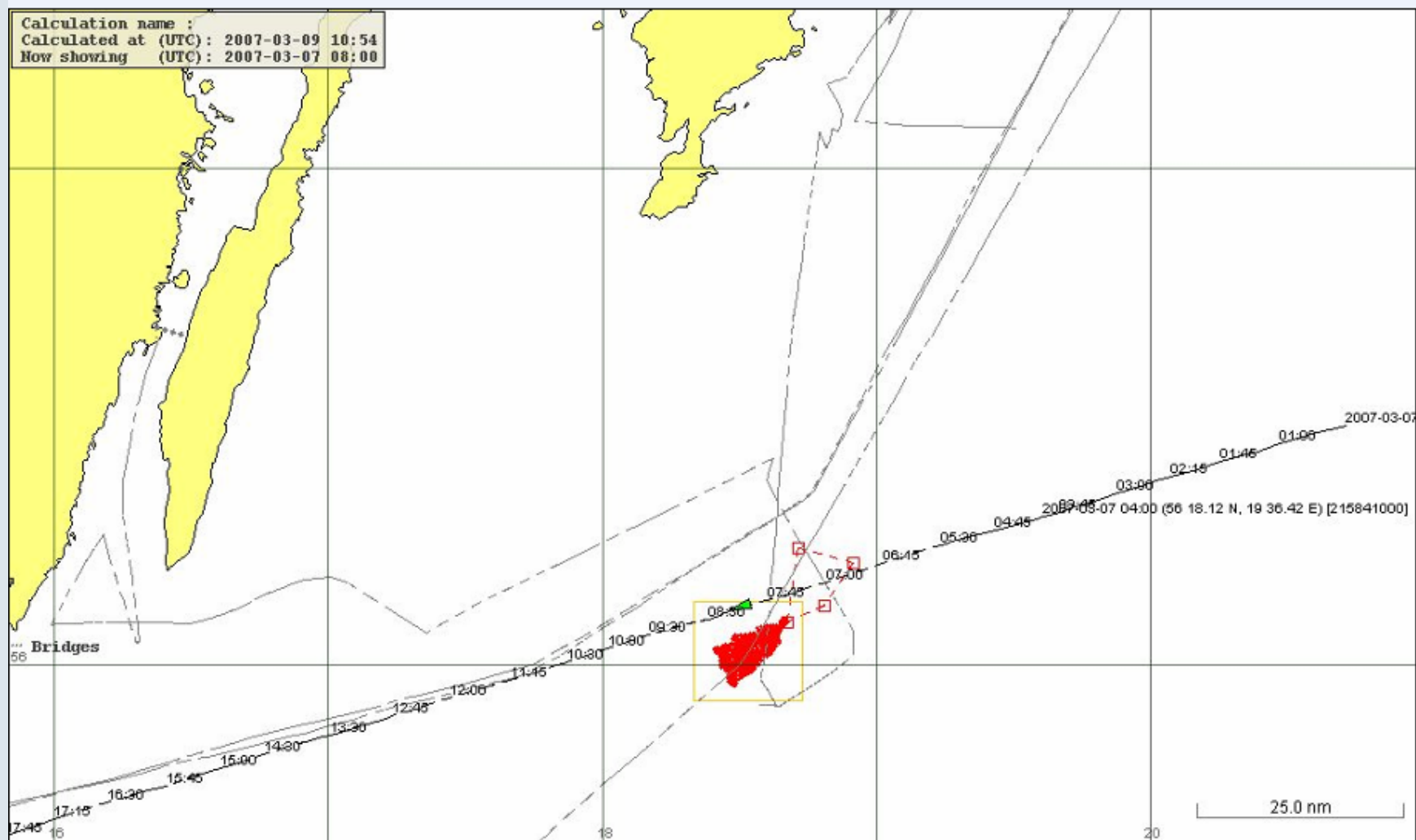
# Seatrack Web – AIS

## one suspected ship



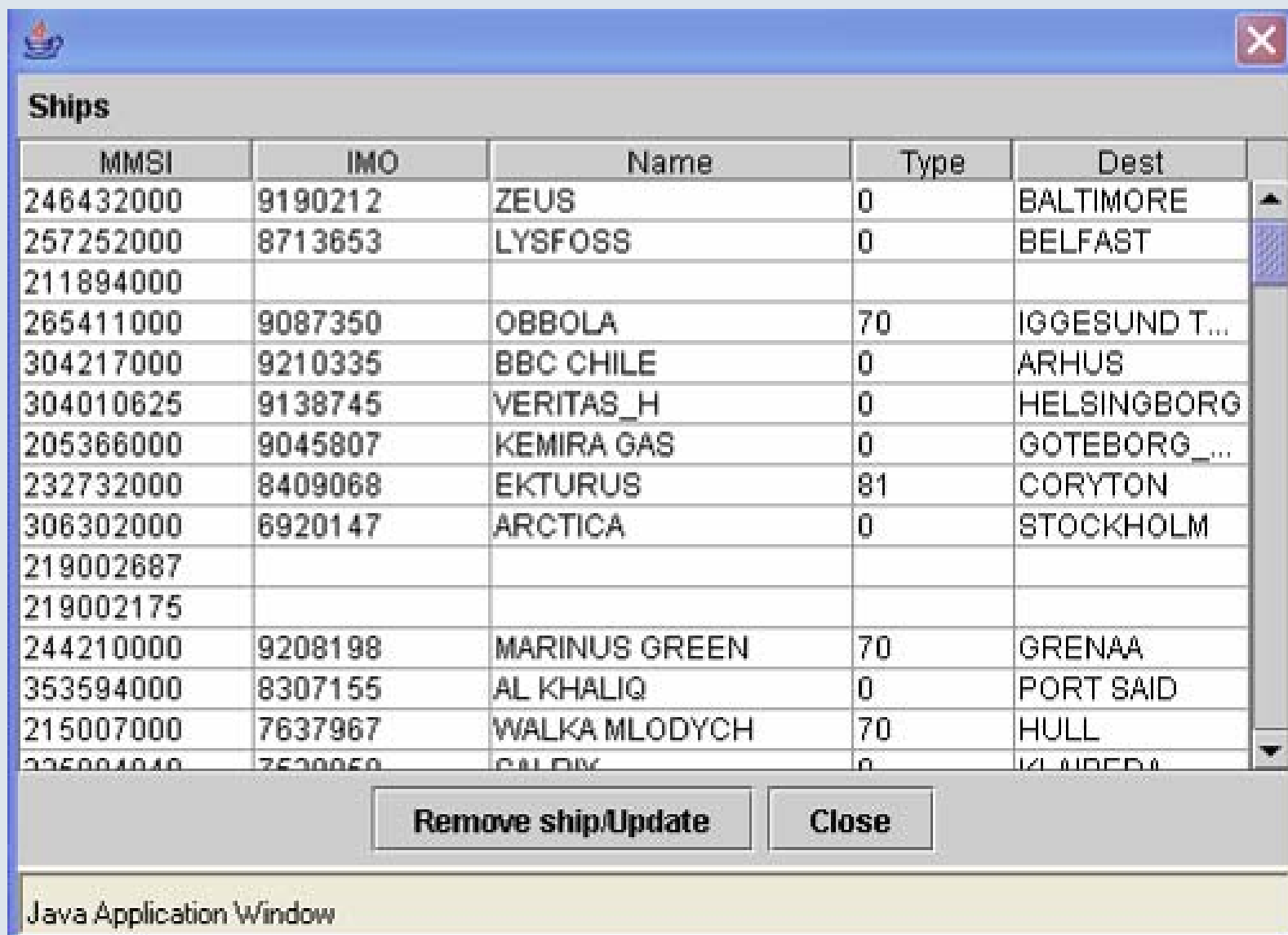
# Seatrack Web – AIS

## one suspected ship



# Seatrack Web – AIS

## All possible ships



MMSI	IMO	Name	Type	Dest
246432000	9190212	ZEUS	0	BALTIMORE
257252000	8713653	LYSFOSS	0	BELFAST
211894000				
265411000	9087350	OBBOLA	70	IGGESUND T...
304217000	9210335	BBC CHILE	0	ARHUS
304010625	9138745	VERITAS_H	0	HELSINGBORG
205366000	9045807	KEMIRA GAS	0	GOTEBORG_...
232732000	8409068	EKTURUS	81	CORYTON
306302000	6920147	ARCTICA	0	STOCKHOLM
219002687				
219002175				
244210000	9208198	MARINUS GREEN	70	GRENAA
353594000	8307155	AL KHALIQ	0	PORT SAID
215007000	7637967	WALKA MLODYCH	70	HULL
225004040	7520050	CALDERA	0	KLARFED

Remove ship/Update Close

Java Application Window

# Seatrack Web – AIS

## one suspected ship

