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Amt für Katastrophenschutz
des Landes
Schleswig-Holstein

Ammunition relicts in the Baltic Sea:

Ammunition Dump Site Kiel Bight „KOLBERGER HEIDE“

Neumünster, 11.16.2010

Ammunition dump site in the Kiel bight

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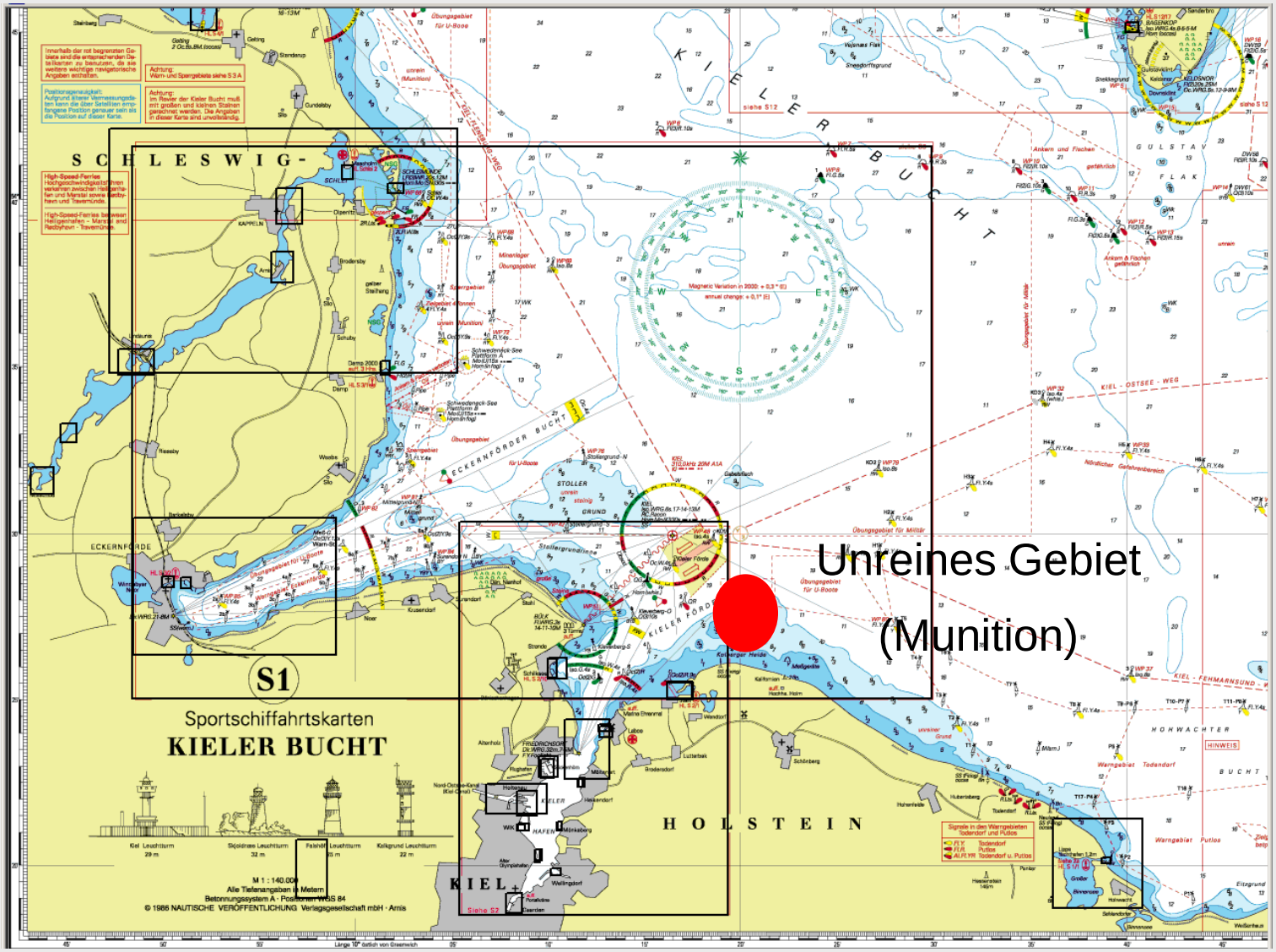


Knowledge about the ammunition

- **Primary sea mines and Torpedo's in only 10 to 20 Meter depth at a distance from 1.5 to 2.5 nautical miles of Heidkate in a busy and congested area**

- **Explosive is mostly highly explosive cotton powder 39**

- **Ammunition is partly sunken into the ground, corroded and the cartridges are sometimes almost gone**

- **Because of the condition of the ammunition, the highly explosive cotton powder 39, the impossibility to disable the ammunition and transport it via land blasting the devises is the only proper way to deal with the problem**

Report and update

- **How does the Ammunition get into the Baltic Sea?**
  - Testing and training
  - Marine War activity and Bombings (Blind shell)
  - Dumping Ammunition after the war
- **What is the matter in this case?**
  - Combination of all, specially
    - Dumping before reaching the harbor
    - Dumping ordered by Allied military administration after the war
- **How much is lying at this place?**
  - The exactly amount can not be calculated until today
- **What is dumped in Heidkate?**
  - Torpedo heads, Mines, artillery shells, …
  - But no Phosphor ammunition so far!

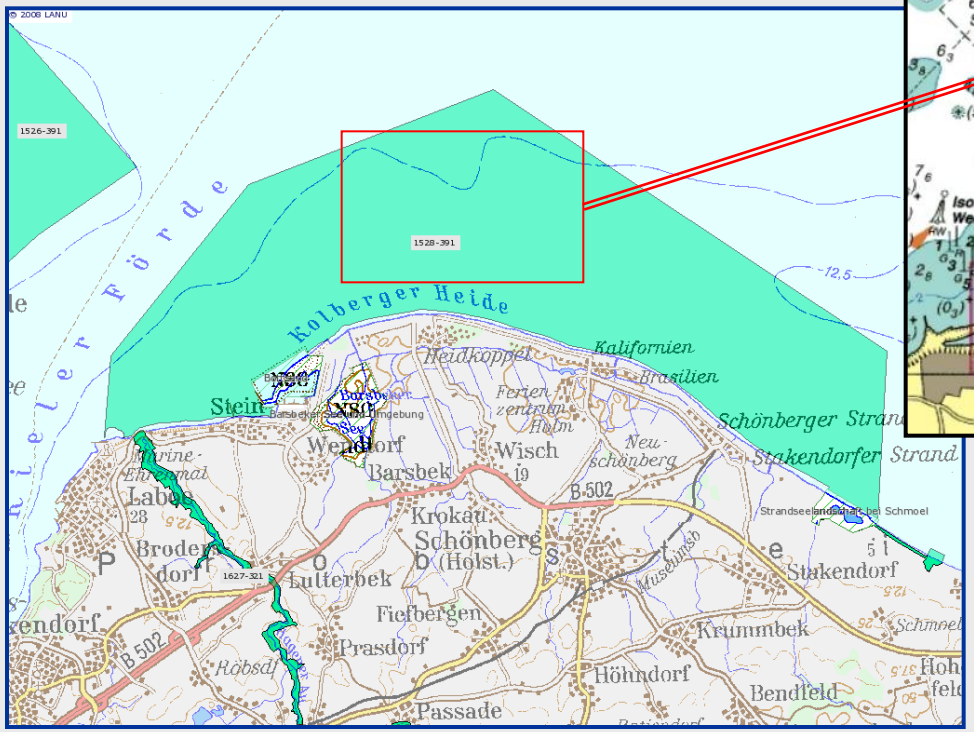
Report and update

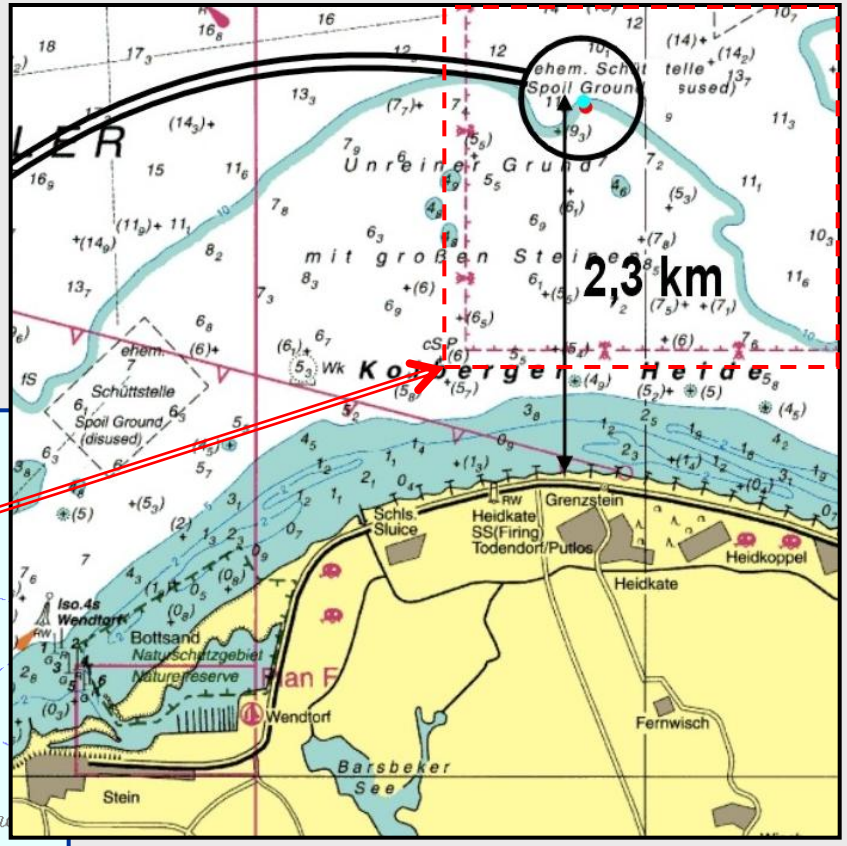
- **Where are the known or potentially risks**
  - Explosion caused by
    - Emergency anchoring maneuver
    - Inexperienced handling and manipulation
  - Poisoning of water by toxic explosives
  - Capturing explosive devises
  - Self detonation

- **How big is the risk to residents and guests?**
  - The Risk is low, there are no known examples in the past
  - Direct poisoning of people is because of the large dilution rate very unlikely

The particular aria

- Habitat and live space
- Topic family recreation (bathing, sailing, diving)
- Marin activity (Baltic way)
- Ammunition Dump Site





FFH-Gebiet (DE-1528-391)
coastel landscape „BOTTSAND-MARZKAMP und seine vorgelagerten Flachgründe“

EU-Bird shelter area 1530-491

Nature 2000 – area of Heidkate

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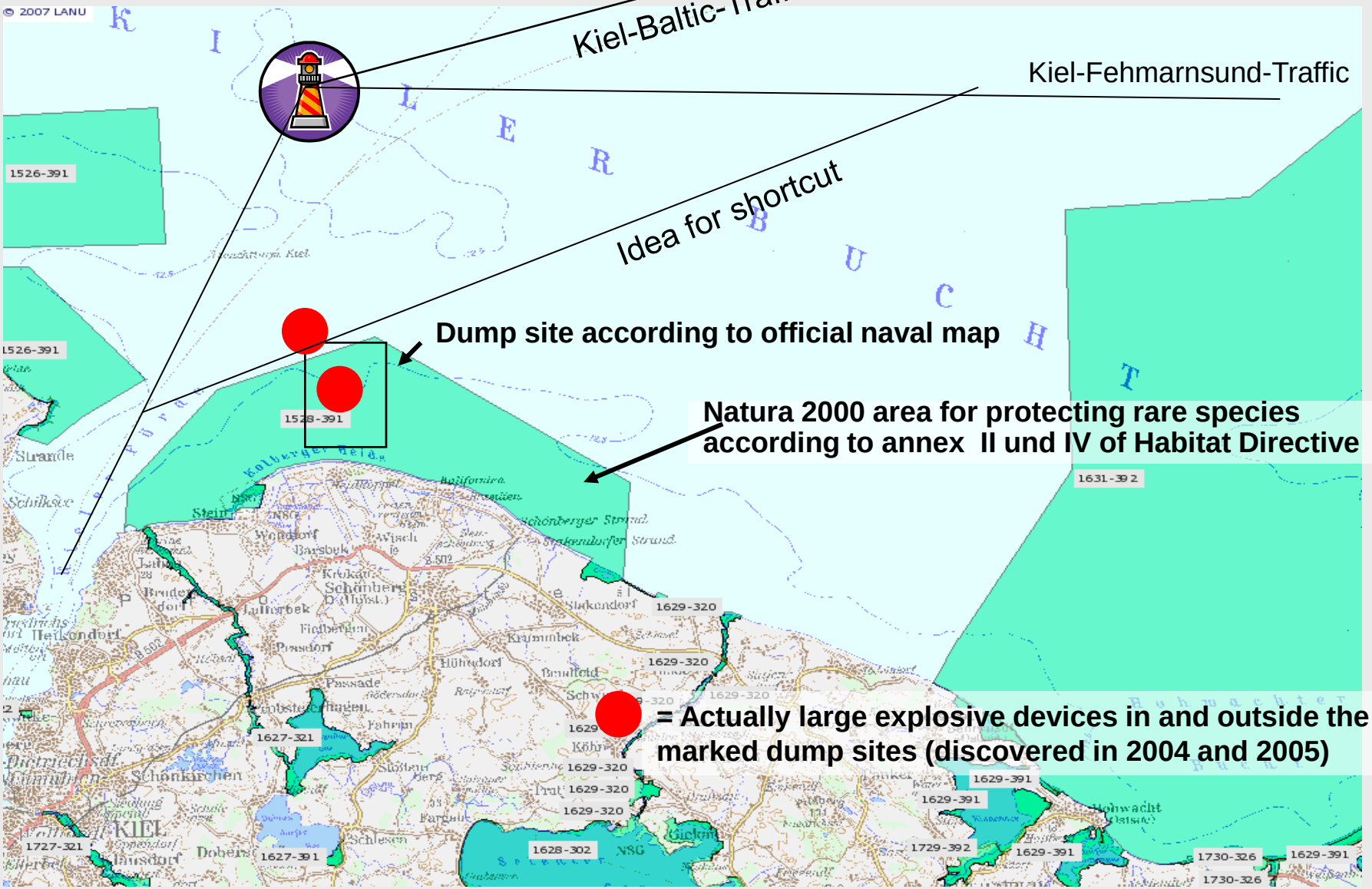

Risk aria for (marine) mammals

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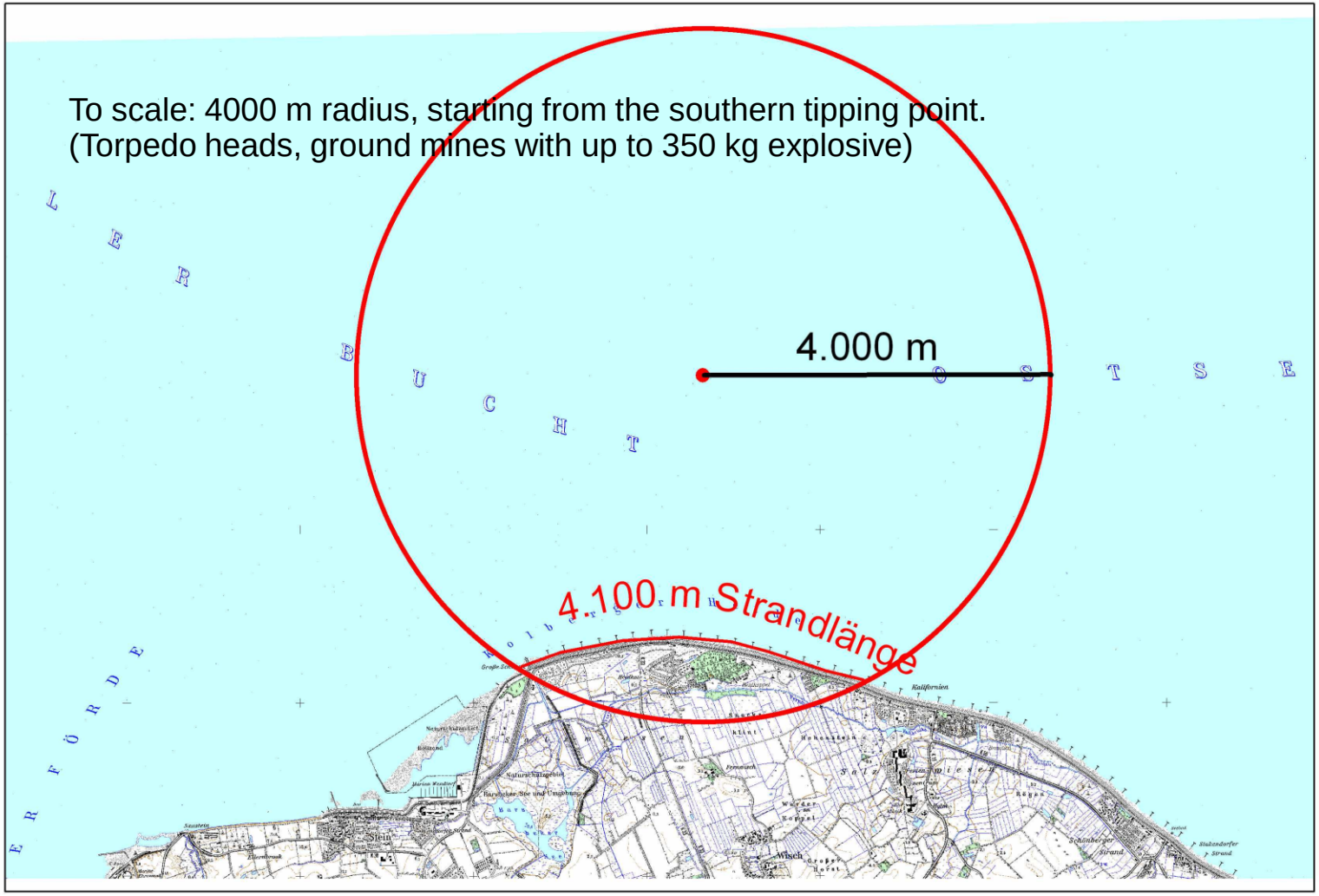

Highly protected species Harbour Porpoise

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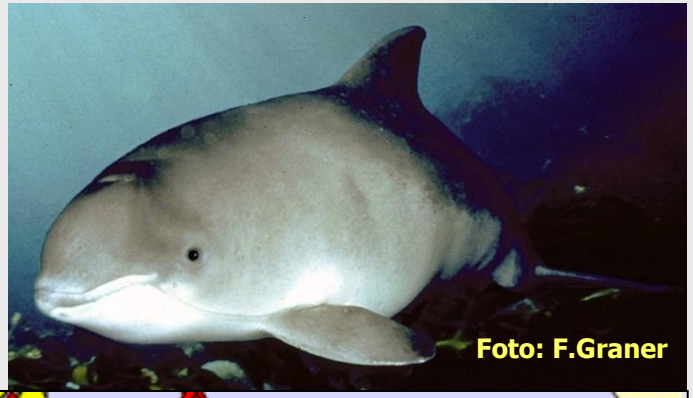
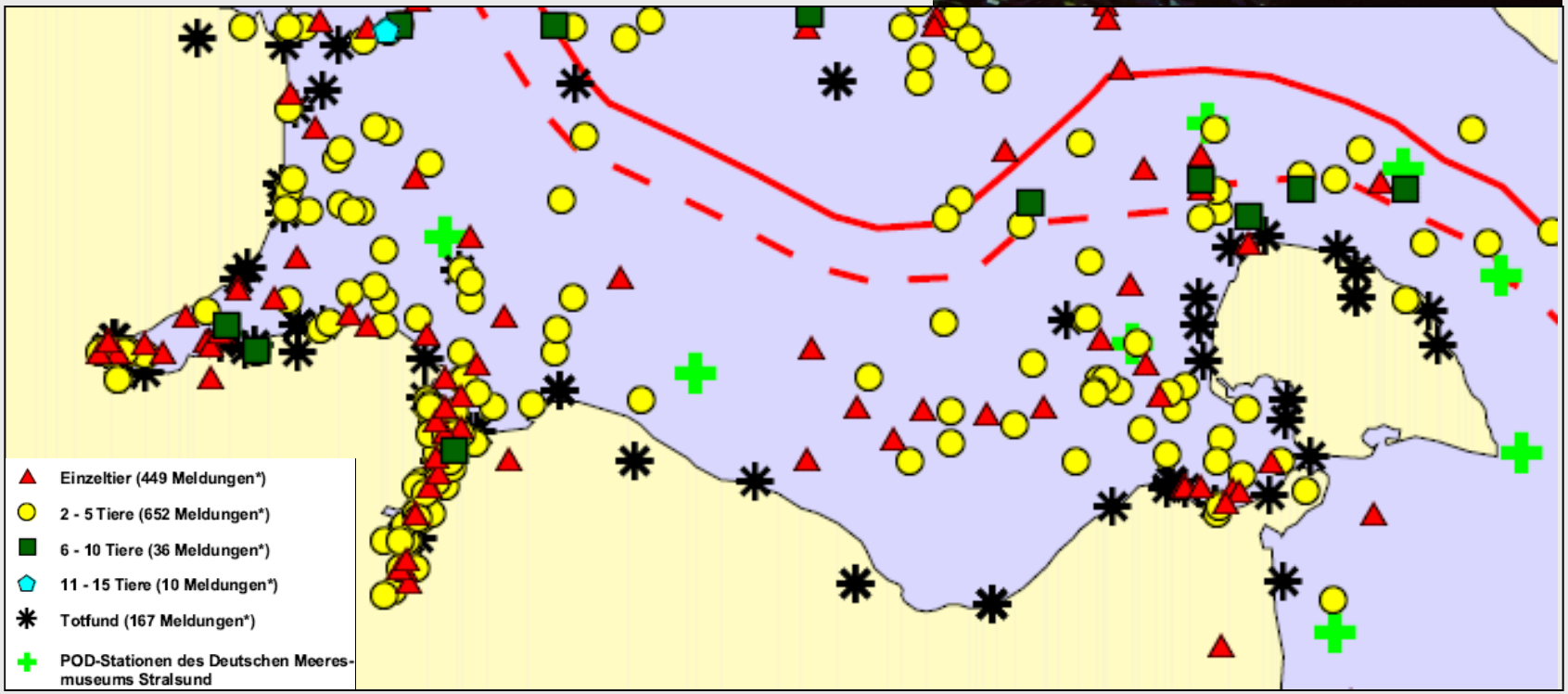
POD detected Porpoise

Map of Fedral Office for
Nature Conservation (BfN)





Blasting is the only way

- **Due to the sensitive of the explosive cotton powder 39 the disabling of the ammunition is impossible!**
  The danger increases, if mines are drying.

- **Icing the devices under water and transport via land is due to the highly explosive device no option!**

- **Staking and mantling the devices with concrete is no option, because of the amount of more than 25 tons of explosive devices and the short distance to shore!**

Diver with a ground mine

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Prepare for destruction blast

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Destruction blasts off HEIDKATE

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Time line of HEIDKATE operation

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2005
- risk assessment of the dump site

2006
- beginn of destruction blast operation

2007
- public protests and 1. symposium (Oct.)

2008
- Scientific development of bubble curtain

2009
- Evaluation of bubble curtain

2010
- Bubble curtain with diameter > 120 m

Safety measures

- **Land and Sea-side blocking**
  - Information of the population
- **Suppressing the under water noise with bubble curtain**
- **Detection of Chemicals in the water**
  - Use of passive sampler by a environmental scientist as a verifier
- **Searching the Blasting sites for remaining of the blasting**

Impact prevention

- **A full protection of all the effects from under water explosions of torpedoes and mines is technically <u>not</u> possible.**

- **But there are some precautions that can be taken, for example the use of so called “Pinger” to scare endangered wildlife a short time before the blasting.**

To prevent Porpoise from beeing harmed

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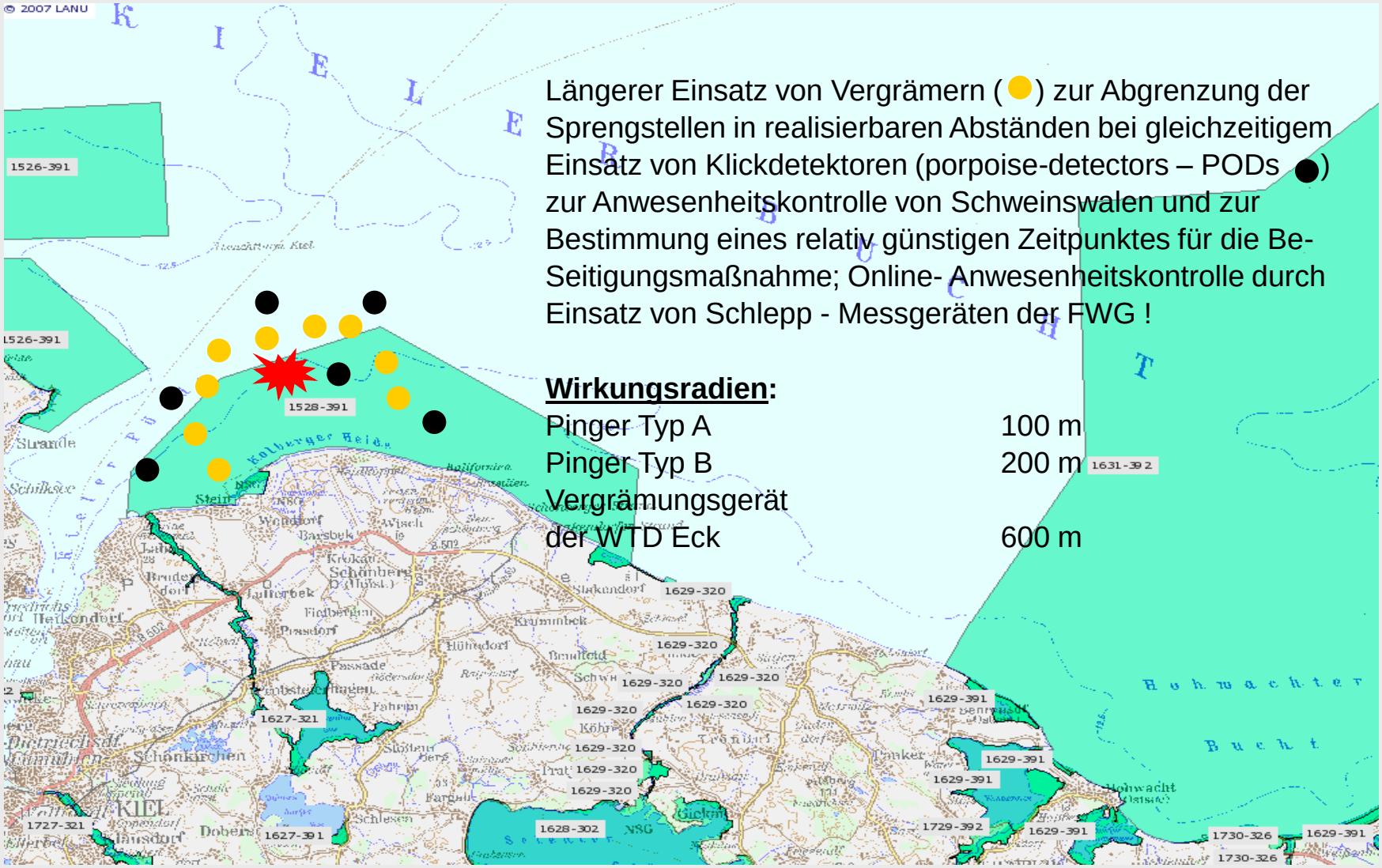

Längerer Einsatz von Vergrämern (●) zur Abgrenzung der Sprengstellen in realisierbaren Abständen bei gleichzeitigem Einsatz von Klickdetektoren (porpoise-detectors – PODs ●) zur Anwesenheitskontrolle von Schweinswalen und zur Bestimmung eines relativ günstigen Zeitpunktes für die Be-Seitigungsmaßnahme; Online- Anwesenheitskontrolle durch Einsatz von Schlepp - Messgeräten der FWG !

Wirkungsradien:

Pinger Typ A	100 m
Pinger Typ B	200 m
Vergrämungsgerät der WTD Eck	600 m

What is the bubble curtain technology?

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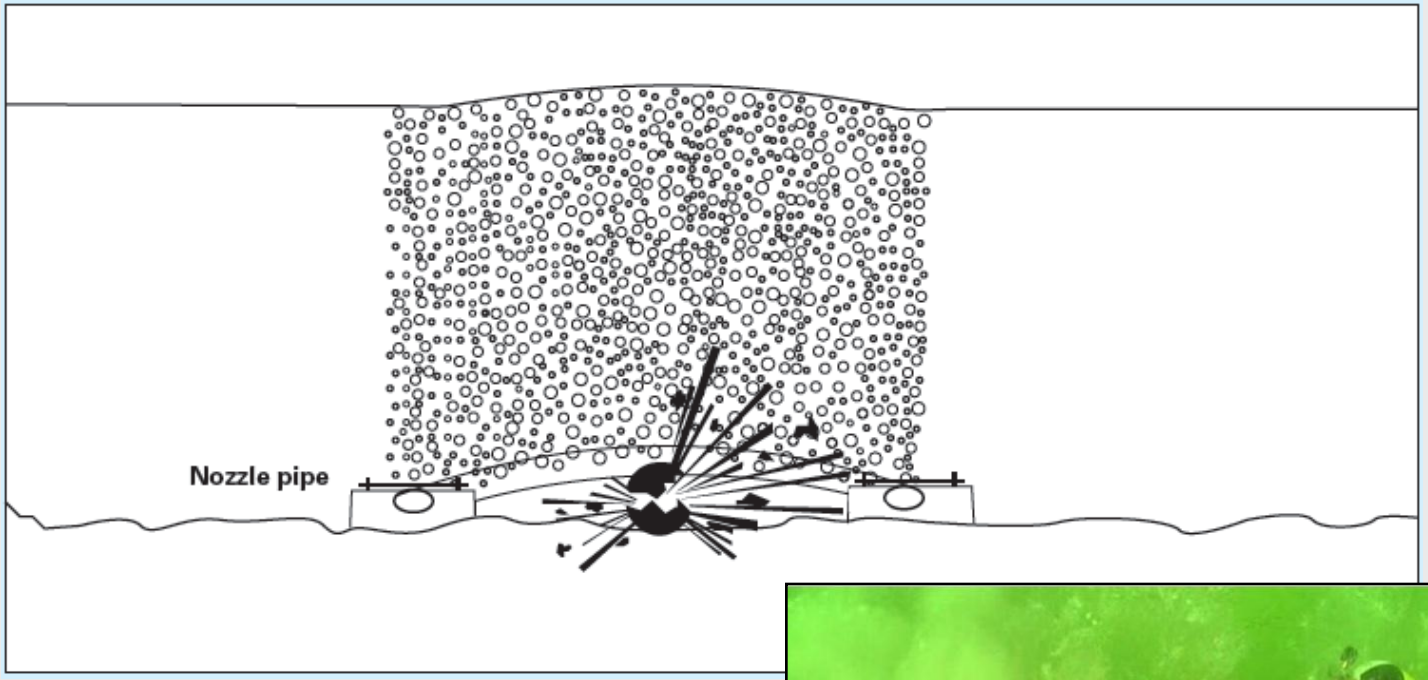
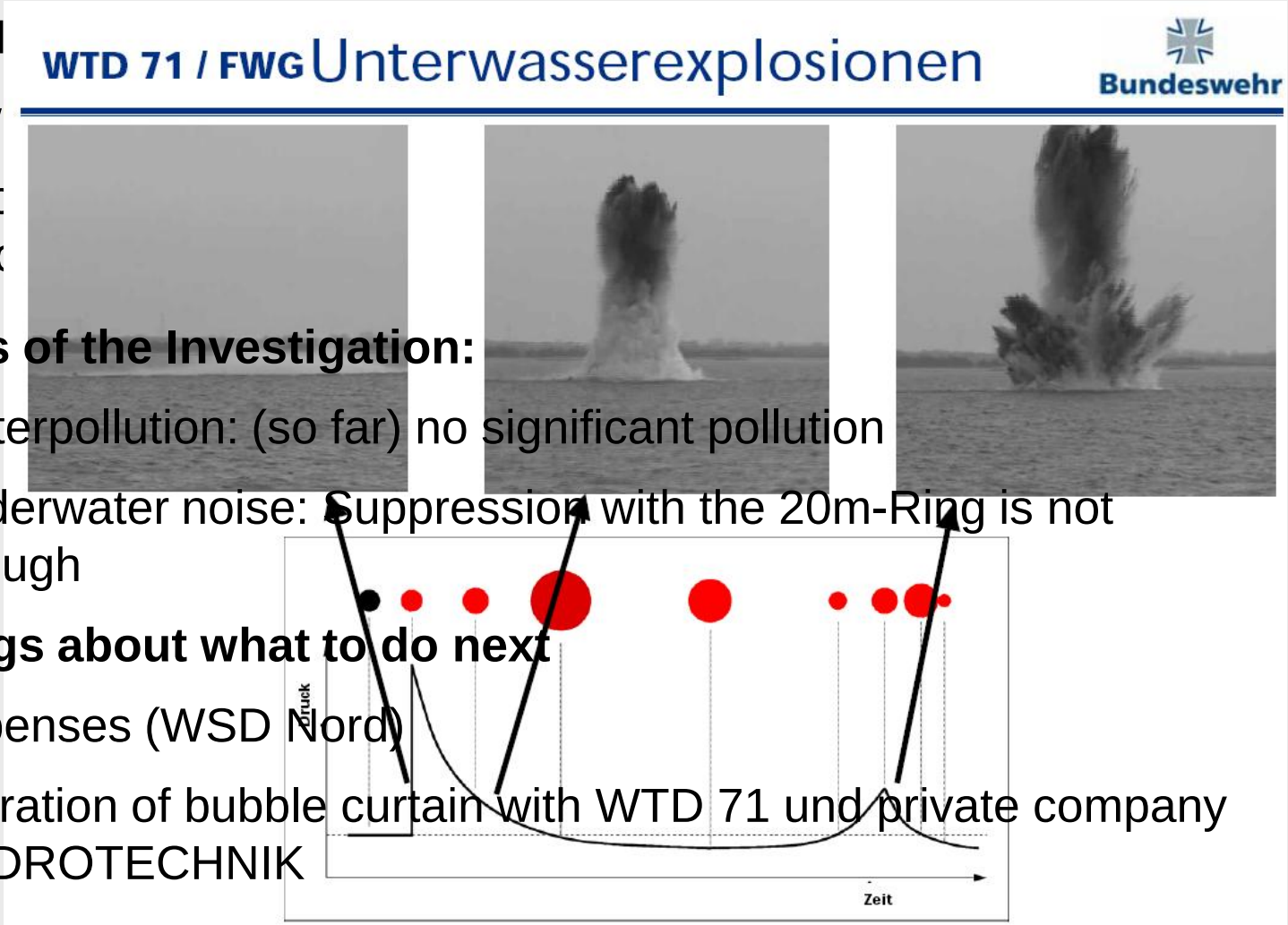


2009 - That happenend!

- **Ammunition Blasting 02.13.2009**
  - 5 M
  - 3 w
  - Doc
    an c



- **Results of the Investigation:**
  - Waterpollution: (so far) no significant pollution
  - Underwater noise: Suppression with the 20m-Ring is not enough
- **Meetings about what to do next**
  - Expenses (WSD Nord)
  - Migration of bubble curtain with WTD 71 und private company HYDROTECHNIK

What effect does it have?

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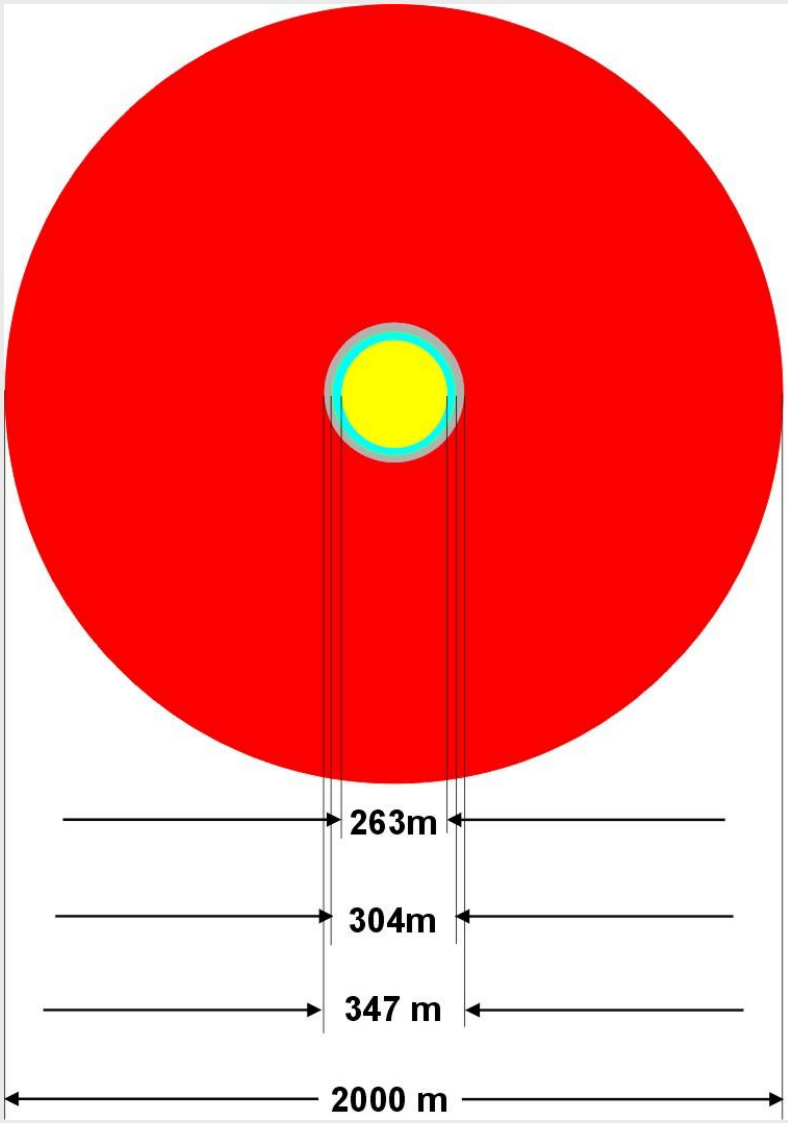

Gefährdungsfläche in 4 m Tiefe

mit 3 Ringen: 3,0%

mit 2 Ringen: 1,7%

mit 1 Ring: 2,3%

What is going on in 2011?
What's going to happen next?

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- **Evaluate the construction of the larger ring**
  - Half or full circle with
  - one or two parallel pipes?
  - What is the lowest efficient air volume?
  - What is the best size of air bubbles?

- **Again blasting in cooperation with WTD 71**
  - First Quarter of 2011
  - Measuring under water suppression
    - Under water noise documentation
    - Basics of explosion behavior for the future action
  - If it works:
    up to 30 destroying blasts in 2011

Public relations off shore

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Discussion

- **Thank you four your attention**

- **We really ask for – realistic – recommendations for optimizing our protection measures before, during and after our blasting activities.**