Blue mussel bed

Sea slug

General Characteristics

MV Haithabu

Length:	39 meter
Beam:	9.5 meter
Depth:	2.0 meter
Tonnage:	500 BRZ
Propulsion:	2 Volvo Dieselengines 441 kW (600PS) each, two variable pitch propellers
Exhaust emission:	Exhaust gas cleaning system meets IMO requirements (IMO Tier III)
Speed:	11 knots
Installed power:	2 x 340 kVA
Class and type:	GL + 100 A5 RSA (20) E + MC E AUT "Ölfangschiff" (oil recovery ship)
Call sign:	DK7933
Laid down:	2014
Builder:	SET Schiffbau u. Entwicklungs-gesellschaft Tangermünde mbH
Yard number:	191

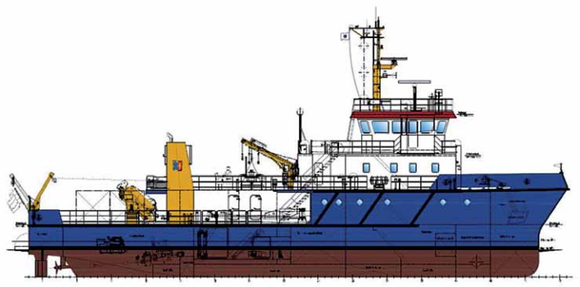
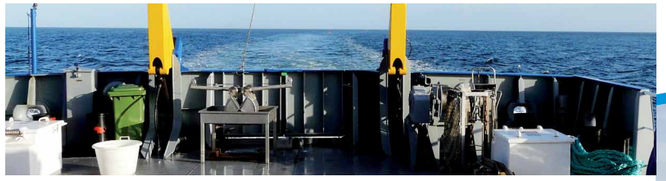


Diagram: Ingenieurbüro Lasse + Pache Naval Consult GmbH

Any questions? Please contact
Landesamt für Landwirtschaft, Umwelt und ländliche Räume, Dezernat Küstengewässer
Poststelle@llur.landsh.de; www.llur.schleswig-holstein.de

Further Information
You can find more detailed information (in German) on ordnance and ammunition in the seas, coastal monitoring and combatting oil spills here:
www.schleswig-holstein.de/DE/Themen/M/meeresschutz.html



Publisher: State Agency for Agriculture, Environment and rural Areas, Hamburger Chaussee 25, D-24220 Flintbek | design: Stefan Polte, foto- und grafikdesign, Noer | updated 2015 | Photography: German Navy, J. Göbel, Central Command for Maritime Emergencies, U. Kunz, State Agency for Criminal Investigation, K.M. Steffens, J. Voß | Printed by: hansadruck, Kiel, 2017 | Circulation: 1,000
The state government on the internet: www.landesregierung.schleswig-holstein.de
This brochure was printed on recycled paper.

Comb jelly Mnemiopsis

Laboratory on the ship

SH
Schleswig-Holstein
Landesamt für Landwirtschaft, Umwelt und ländliche Räume

The MV Haithabu - a multi-purpose vessel

Schleswig-Holstein. The true north.

Haithabu – our multi-purpose vessel

The "Haithabu" is a modern ship for the monitoring of the coastal waters of Schleswig-Holstein and replaces, since 2014, the former "Haithabu" that was commissioned in 1982. It is operated by the Landesbetrieb für Küstenschutz, Nationalpark und Meeresschutz (LKN-SH), the Schleswig-Holstein Agency for Coastal Defense, National Park and Marine Conservation.

Nutrient inputs into the waters, oil spills and ammunition on the sea bed – our seas are exposed to a number of threats and pressures. This is why the "Haithabu" fulfils manifold assignments for different Federal State Authorities. She is a **scientific research vessel** to help us learn more about the status of the Baltic Sea and protect it better, is important for **combatting oil spills** and is used for **detecting and recovering ammunition**.

The crew

The permanent crew consists of a steerman, a machine operator, a mate and a deck hand. The scientific crew depends on the focus of the cruise and consists of one or two specialists in Chemistry, Biology or Geology. For oil spill management, up to eight team members can be boarded. For their use, a mess room for 12, a pantry and two single as well as five double cabins with sanitary facilities are available.

Van-Veen-grab

Monitoring the Baltic Sea - the scientific research vessel

The „Haithabu", performing as a floating laboratory, produces important insights into the biological and chemical status of the Baltic. Employees of the State Agency in Flintbek regularly take samples of its water, animals and sea bed and analyse them directly on board or back on land. The structure of the sea bed and its sediments is recorded as well as the marine biotic communities in the coastal Baltic areas of Schleswig-Holstein. The data gleaned from this is the basis for the description of the condition and the protection of the Baltic Sea.

Physico-chemical measuring equipment
- measuring probe system (CTC probe) for the determination of temperature, salinity, water depth, oxygen and pH in the water
- water sampling rosette, up to five water samplers can take water samples from different depths in one heave
- specialised water samplers for the analysis of organic and inorganic trace concentrations
- laboratory for wet and dry use with equipment (filtration racks, volumetric analysis for oxygen determination (Winkler-method))

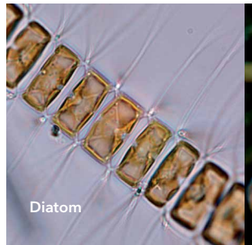
Hydrographical and chemical monitoring is carried out at up to 26 monitoring sites in the coastal waters, which are sampled 10-18 times per year. The following parameters are measured:
- temperature, salinity, pH and oxygen content
- nutrients (phosphorus and nitrogen compounds, silicate) in the water
- hazardous substances (metals , f.ex. lead, mercury, cadmium and copper as well as chlorinated hydrocarbons) in sediments, water and mussels

Biological monitoring is carried out to work on marine ecological questions, mainly collecting
- bottom-dwelling organisms (macrozoobenthos including mussels, bristleworms, crustaceans and starfish), monitored at 35 sites as an indicator for water quality
- microalgae (phytoplankton) up to 18 times annually at 23 and zooplankton at six sites.

Biological measuring equipment
- grabs (0,1m² Van-Veen, 40 kg and 70 kg)
- small bottom trawl net (dredge)
- phytoplankton (Hensen) and zooplankton nets (WP2)

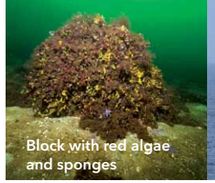
The **consistency of the sea floor** is also registered using a variety of new methods. This helps, among other questions, to find the boundaries of different habitats and biotopes. Local surveys are merged into a comprehensive overall picture of the sea floor.

Sonar and acoustic depth finder
- single beam echo sounder
- acoustic ground discrimination system (Echoplus)
- hydrographic echo sounder (38 and 200 kHz)
- side-scan sonar 2 x 200 kHz
- remotely operated underwater vehicle (ROV) with video, sonar, grabber and conductivity, temperature and depth sensor



Diatom

Snake pipefish



Block with red algae and sponges

Oil recovery exercise with vessel MV "Strelasund"

All monitoring activities are carried out on behalf of the Environmental Ministry of Schleswig-Holstein (MELUR) within the coastal waters of Schleswig-Holstein (12-mile territorial sea). The monitoring of natural and man-made impacts on the seas is an important part of governmental services for the public and serves to implement the **European directives on the marine environment**, namely the Water Framework Directive (WFD), Marine Strategy Framework Directive (MSFD) and Habitats Directive as well as the requirements of national marine monitoring (Federal/Länder-measuring programme, BLMP) and the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area (HELCOM).

Harmful substance spill management - the oil spill recovery ship

Due to its specialised facilities, the „Haithabu" can be used in hazard control as an oil spill recovery vessel. Two 12 m beams, which can be extended from the sides, capture floating oil from the water surface using special brushes. 200 cubic metres of an oil-water-mixture can be stored on-board. For a safe **average accident deployment**, the "Haithabu" posesses explosion prevention facilities, a gas measuring instrument, a gas lock, positive pressure ventilation and non-arcing tools.

Oil recovery system of the "Haithabu"
- in-built Lamor Oil Recovery System LORS 5C 100
- oil recovery yield 140 m³/h per side
- oil transfer pumps GT A50, delivery rate per side 50 m³/h
- oil barrier containers with 22 m inflatable oil barriers each, 1.5 m high
- tank heating system in cargo tanks for auxilliary steam supply

The **maritime emergency management** in the seas is carried out jointly by the German Federal Government and the Federal Coastal States. In case of spills, the executive staff of the LKN-SH in Husum directs the operations at sea, in complex emergency situations the Central Command for Maritime Emergencies in Cuxhaven commences work.

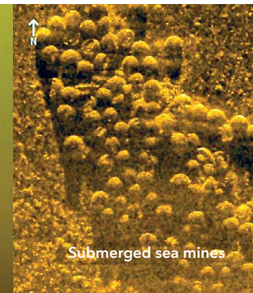
Munitions in the sea – discovery and removal

About 1.6 million tons of old munitions are situated in our seas, the German part of the Baltic contains around 300,000 tons. Many of the areas containing munitions lie within the coastal waters.

The requirements of mission divers have been incorporated into the construction of the vessel to provide a safe working platform for the **Explosive Ordnance Disposal of Schleswig-Holstein.** The stern was equipped with an extendible platform for diving activities and an anchor. The work deck has a hinged guardrail and offers room for an equipment container, storage area for recovered munitions as well as a dinghy with special equipment. The powerful deck crane on starboard is able to lower the dinghy at sea or take torpedoes, bombs and mines from the sea bed on board.

The extension of the scientific equipment for the survey of the sea bed and exact positioning enable the location of reported munitions on the sea floor and thus the determination of the actual load in the marine area of Schleswig-Holstein.

Diver with sea mine



Submerged sea mines