

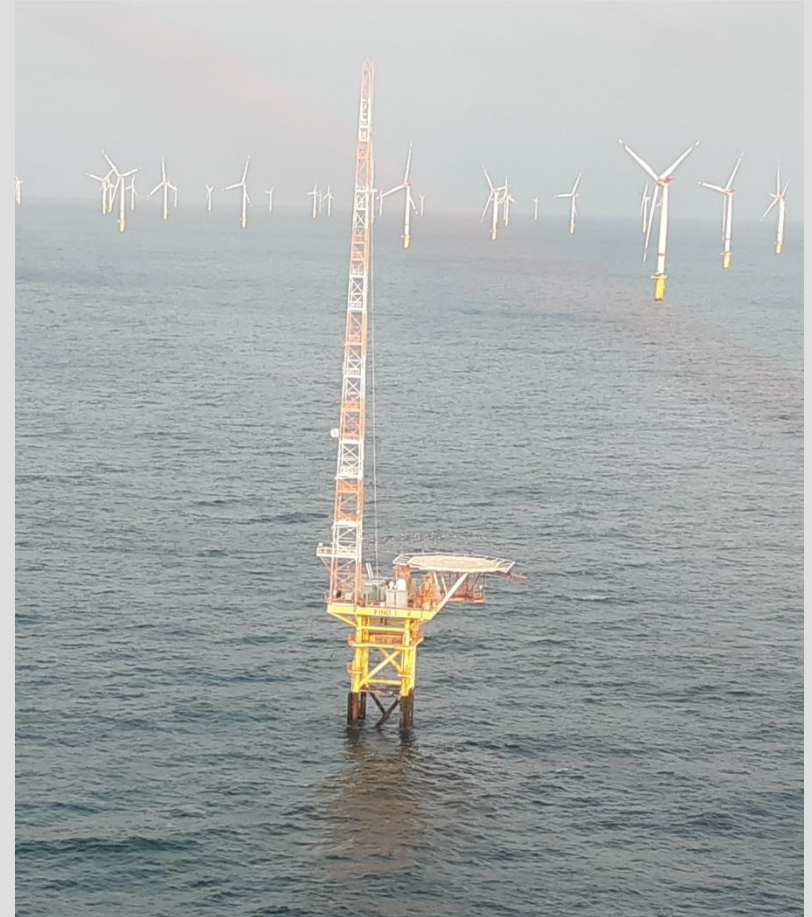
# The FINO1 Platform

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## Offshore Research Laboratory in the North Sea

Date: 28.01.2021

Speakers: Björn Lehmann-Matthaei  
Lisa Schulz



# Outline

- 1.** Facts
- 2.** Location
- 3.** Objectives
- 4.** Technical Data
- 5.** Research Projects
- 6.** Prospects

## 1. Facts

- Owner: Federal Republic of Germany
- Building/Completion: 2003
- Location: 45 km to the north of Borkum
- Foundation: Jacket (steel tubes)
- Operating: remote
- Operations Management: until 2012: DNV GL  
since then: FuE-Zentrum FH Kiel GmbH
- Current Contract Period: March 2020 – July 2023, option  
extension for another year

## 2. Location

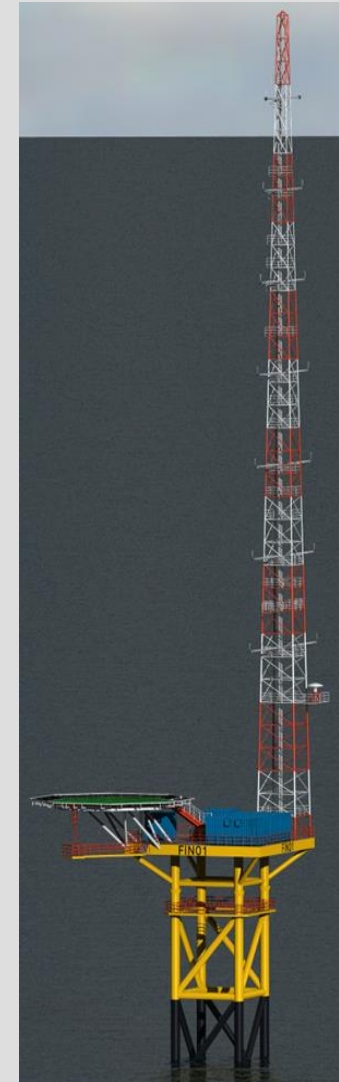


### 3. Objectives

- Risk minimization by the construction of offshore wind farms at deep-water sites and far away from the coast
- Speed-up of the development of planned offshore wind farms
- Acquisition of new & useful results with regard of support structures, wind & wave loads, lightning intensity, supply and other offshore related parameters
- Creating opportunities for small and medium-sized enterprises to build up references

## 4. Technical Data

- Platform Deck: area: 16x16 m,  
height: 20 m above sea level
- Helicopter Deck: area:  $\varnothing$  14 m  
height: 25 m above sea level
- Pylon: four element-welded  
construction  
height: 101,5 m above sea level
- Water Depth: 28 m
- Anchoring Depth: 4 x 30 m
- Energy Supply: one generator set à 31,25 kVA  
one generator set à 143,75 kVA



## 5. Research Projects – Since 2012

### Projects finished and funded by (total 21 projects):

9 x BMU / BMWi

2 x State of Schleswig-Holstein

1 x EU

10 x companies/foundations/federal authorities

### Projects currently ongoing and funded by (total 11 projects):

2 x BMU / BMWi

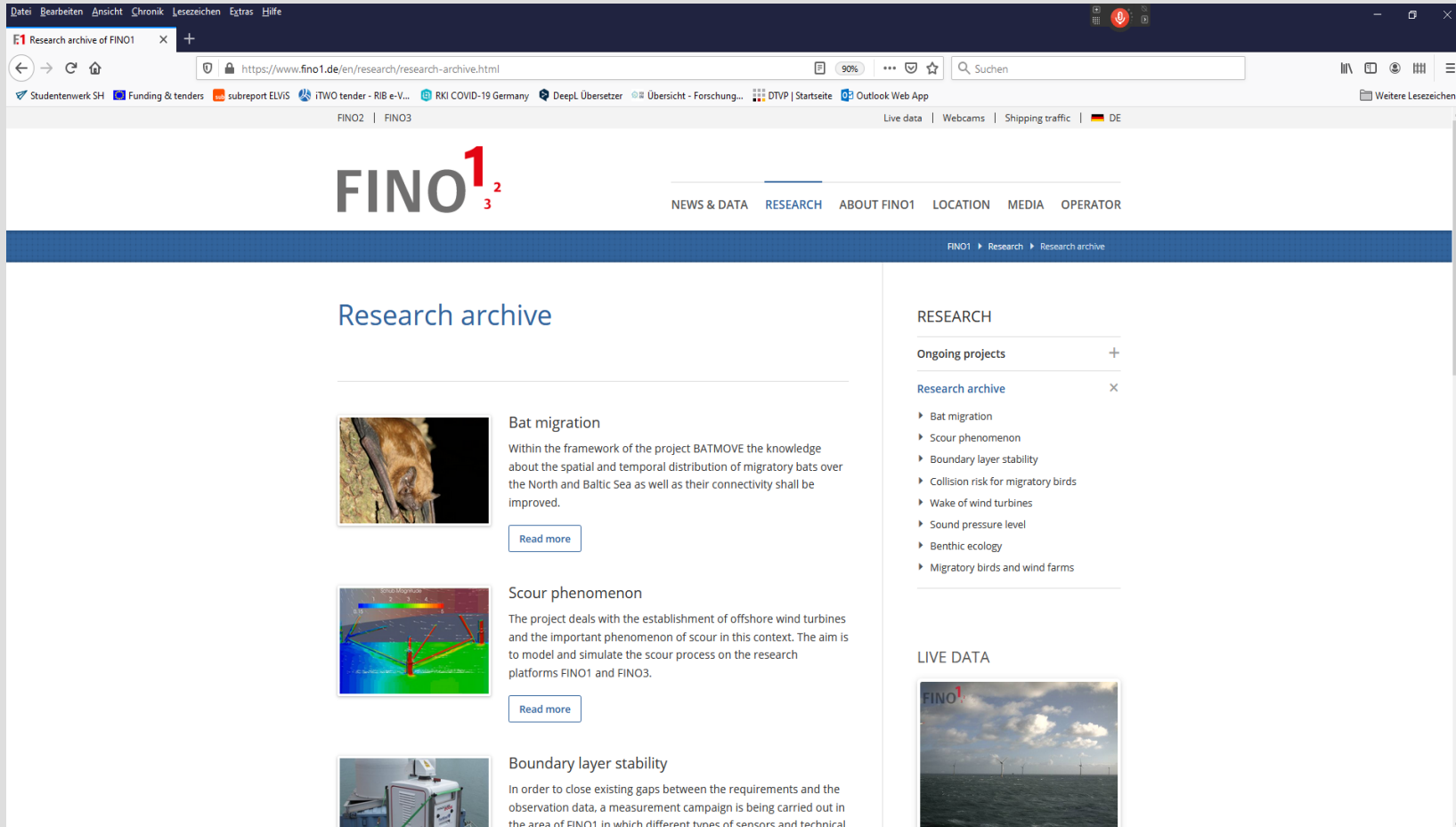
0 x State of Schleswig-Holstein

0 x EU

9 x companies/foundations/federal authorities




## 5. Research Projects - Finished



The screenshot shows a web browser displaying the FINO1 Research archive. The browser's address bar shows the URL <https://www.fino1.de/en/research/research-archive.html>. The website has a dark blue header with the FINO1 logo and navigation links: NEWS & DATA, RESEARCH, ABOUT FINO1, LOCATION, MEDIA, OPERATOR. Below the header, the page title is "Research archive". The main content area is divided into two columns. The left column features three project cards: "Bat migration" (with a photo of a bat), "Scour phenomenon" (with a 3D visualization of a wind turbine), and "Boundary layer stability" (with a photo of a measurement campaign). The right column has a "RESEARCH" section with a list of ongoing projects and a "LIVE DATA" section with a photo of the FINO1 offshore wind turbine.

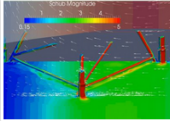
### Research archive



**Bat migration**

Within the framework of the project BATMOVE the knowledge about the spatial and temporal distribution of migratory bats over the North and Baltic Sea as well as their connectivity shall be improved.


[Read more](#)



**Scour phenomenon**

The project deals with the establishment of offshore wind turbines and the important phenomenon of scour in this context. The aim is to model and simulate the scour process on the research platforms FINO1 and FINO3.

[Read more](#)



**Boundary layer stability**

In order to close existing gaps between the requirements and the observation data, a measurement campaign is being carried out in the area of FINO1 in which different types of sensors and technical


#### RESEARCH

Ongoing projects +

Research archive x

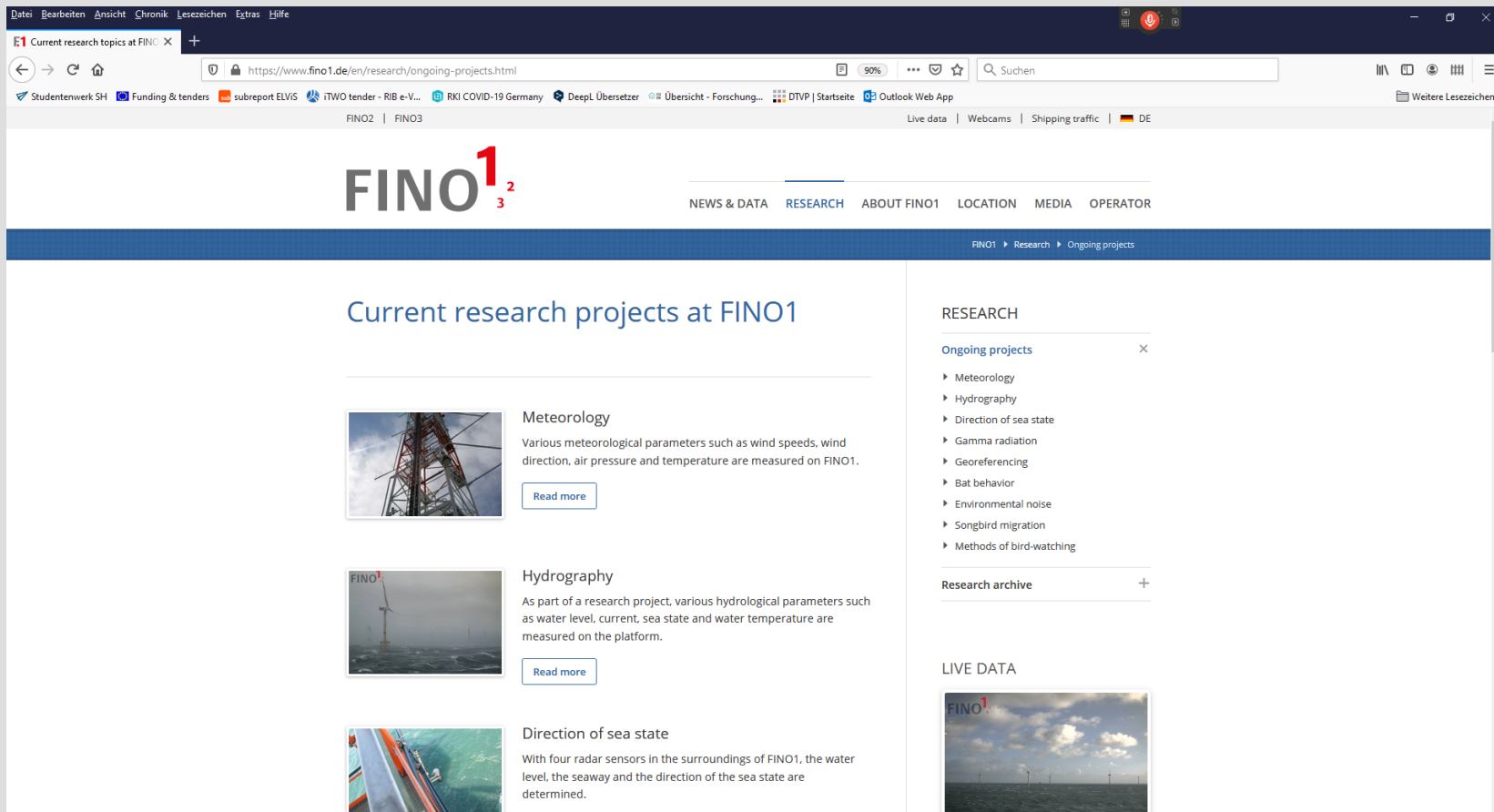
- Bat migration
- Scour phenomenon
- Boundary layer stability
- Collision risk for migratory birds
- Wake of wind turbines
- Sound pressure level
- Benthic ecology
- Migratory birds and wind farms

#### LIVE DATA








## 5. Research Projects - Ongoing



The screenshot shows a web browser displaying the FINO1 website. The browser's address bar shows the URL <https://www.fino1.de/en/research/ongoing-projects.html>. The website header features the FINO1 logo and navigation links: NEWS & DATA, RESEARCH, ABOUT FINO1, LOCATION, MEDIA, OPERATOR. Below the header, the main content area is titled "Current research projects at FINO1" and lists three projects: Meteorology, Hydrography, and Direction of sea state. Each project has a small image and a "Read more" button. On the right side, there is a sidebar with a "RESEARCH" section containing a list of ongoing projects and a "Research archive" section. At the bottom of the sidebar, there is a "LIVE DATA" section with a small image of the FINO1 platform.

**Current research projects at FINO1**

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**Meteorology**  
 Various meteorological parameters such as wind speeds, wind direction, air pressure and temperature are measured on FINO1.  
[Read more](#)
- 
**Hydrography**  
 As part of a research project, various hydrological parameters such as water level, current, sea state and water temperature are measured on the platform.  
[Read more](#)
- 
**Direction of sea state**  
 With four radar sensors in the surroundings of FINO1, the water level, the seaway and the direction of the sea state are determined.

**RESEARCH**

**Ongoing projects**

- Meteorology
- Hydrography
- Direction of sea state
- Gamma radiation
- Georeferencing
- Bat behavior
- Environmental noise
- Songbird migration
- Methods of bird-watching

**Research archive**

**LIVE DATA**

## 5. Research Projects

Scientific congress about all 3 FINO-platforms on  
**22<sup>nd</sup> of September 2021 in Kiel**  
Results of the projects will be presented



## 6. Prospects

- Design Lifetime of FINO1 platform is 20 years
- The following parallel activities were agreed upon with the funding agency BMWi/PTJ:
  - 1. calculation and simulation of the stability to determine the stability beyond the design lifetime
  - 2. development of a dismantling concept
  - 3. cooperation in working group for future use of the platform (first workshop in November 2020)



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