



**WESMANS**

**PRESENTATION LLOYD'S  
OCTOBER 2013**

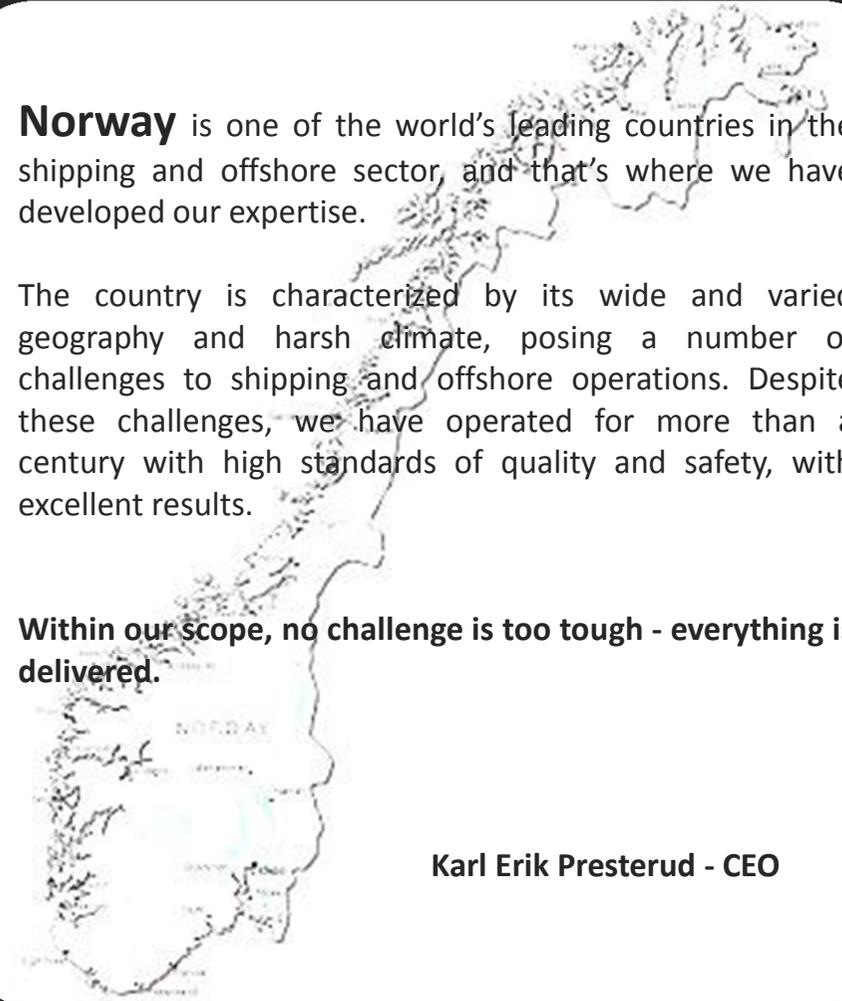


**Norway** is one of the world's leading countries in the shipping and offshore sector, and that's where we have developed our expertise.

The country is characterized by its wide and varied geography and harsh climate, posing a number of challenges to shipping and offshore operations. Despite these challenges, we have operated for more than a century with high standards of quality and safety, with excellent results.

**Within our scope, no challenge is too tough - everything is delivered.**

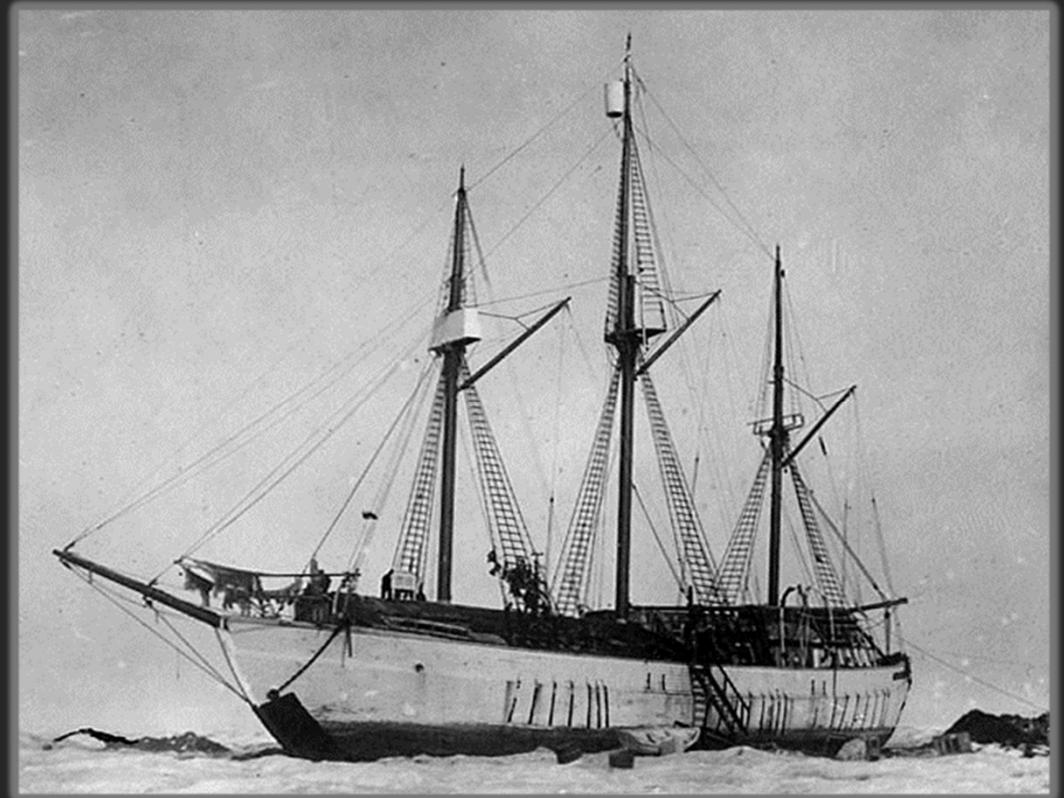
**Karl Erik Presterud - CEO**





# THE NORTHERN SEA ROUTE THE REALITY OF ARCTIC NAVIGATION

- INCREASED INTEREST
- UNIQUE RISKS
- AWARENESS





*The Arctic is a polar region located at the northernmost part of the Earth. The Arctic region consists of a vast, ice-covered ocean, surrounded by treeless permafrost. The area can be defined as north of the Arctic Circle (66° 33'N), the approximate limit of the midnight sun and the polar night.*





# ADVANCE PLANNING

- THE KEY TO SUCCESS





# NAVIGATIONAL EQUIPMENT

- REMOTENESS AND PROXIMITY TO THE NORTH POLE
- CHARTS
- SOUNDING
- COMPASS (MAGNETIC / GYRO)



# METEOROLOGICAL FACTORS

- VISABILITY







# METEOROLOGICAL FACTORS

- POLAR NIGHT





# METEOROLOGICAL FACTORS

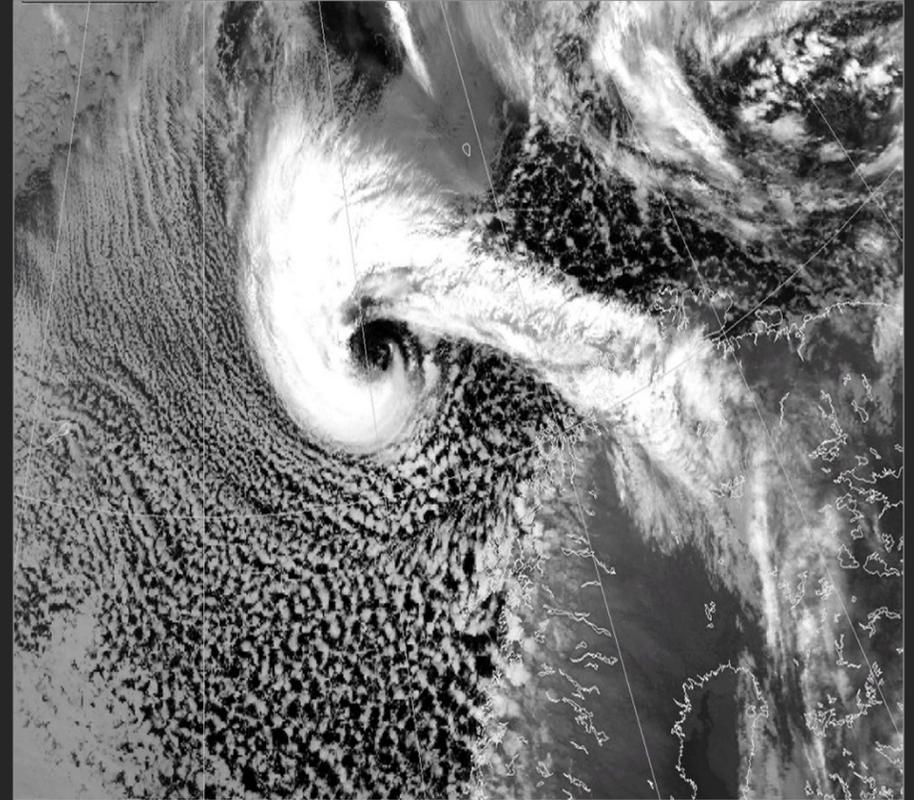
- FOG





# METEOROLOGICAL FACTORS

- POLAR LOWS





# METEOROLOGICAL FACTORS

- LOW TEMPERATURES
- CARGO
- EFFECTS ON CREW AND EQUIPMENT



# ICING

- SLOW DOWN
- REMOVE ICE
- RUN WITH THE SEA
- SEEK SHELTER
- HEAD TO WARMER AREAS





## **BASIC RULES FOR NAVIGATION IN ICE**

- DO NOT ENTER AN AREA WITH ICE**
- DON'T STOP**
- WORK WITH THE ICE AND NOT AGAINST IT**
- DO NOT UNDERESTIMATE THE ICE**
- KNOW YOUR VESSEL**
- EXCESSIVE SPEED WILL RESULT IN DAMAGE**



# EFFECTS OF ICE ON SHIPS PERFORMANCE

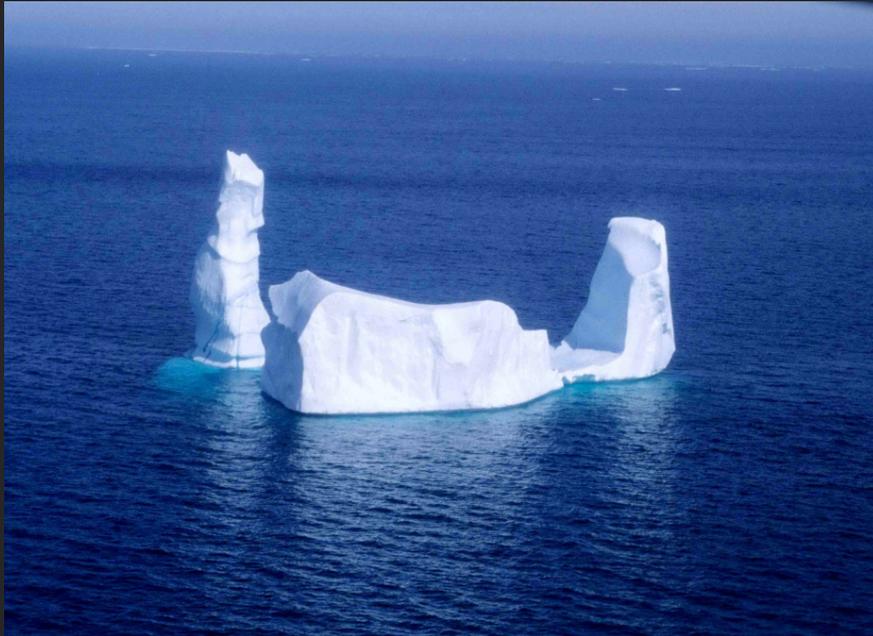
- SHIP'S RESISTANCE
- SHIPS MANOUVERING
- STRUCTURAL CAPABILITY





# ICE

- ICE BLINK (FIRST SIGNS)
- SMALL FRAGMENTS OF ICE
- FOG







# ICE DAMAGE

## RAMMING THE ICE





# ICE DAMAGE

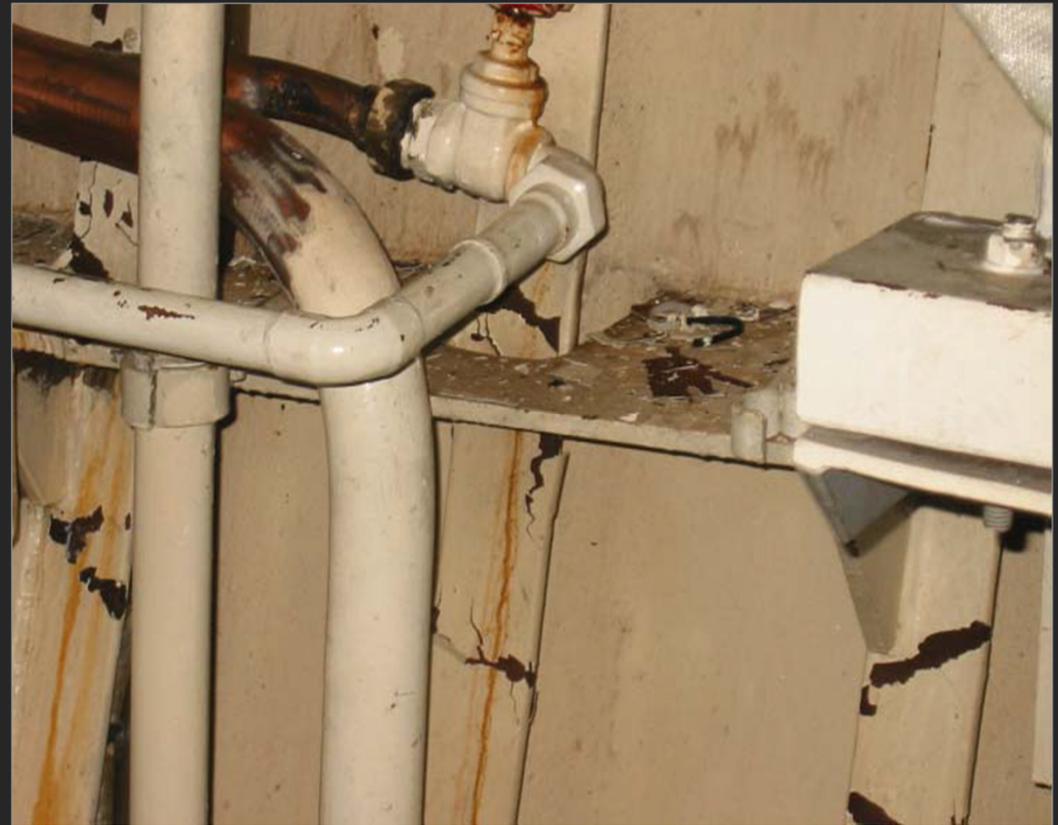
## RUDDER





# ICE DAMAGE

## DAMAGE TO FRAMES





# ICE DAMAGE

## DAMAGE TO PROPELLER

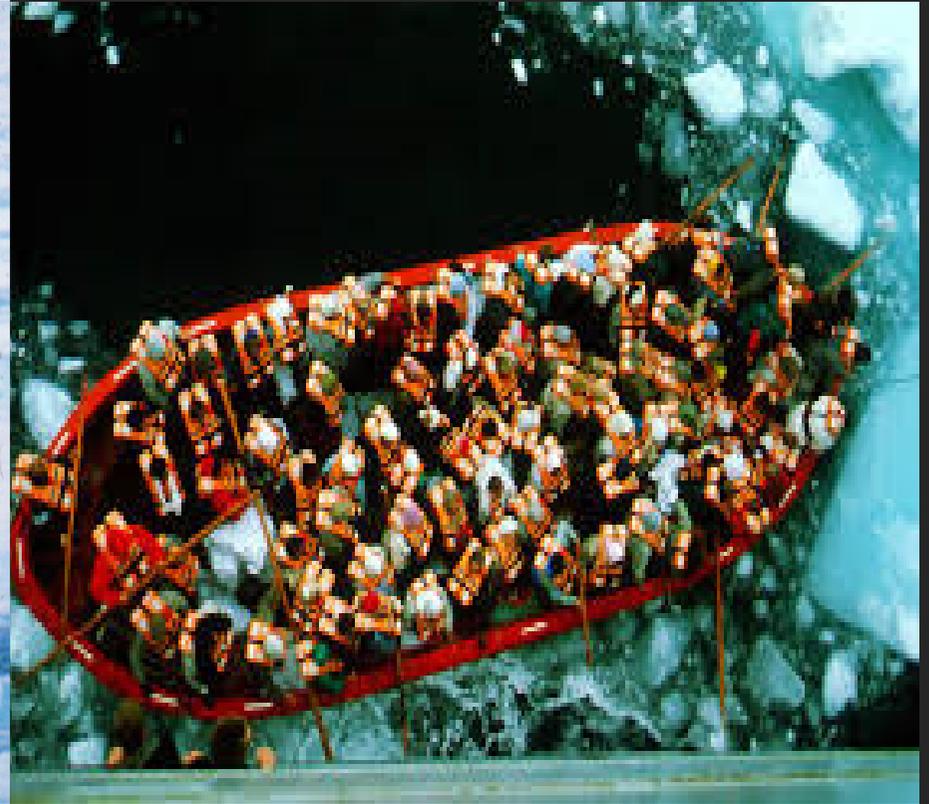




# REMOTENESS

- SAR
- POLLUTION
- SALVORS
- SAFE PORTS
- WRECK REMOVAL







# THE USE OF THE NSR 2013

- 40 VESSELS HAVE PASSED THROUGH THE NSR WATERS
- 997 358 TONS
- 481 PERMITS GIVEN



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*...that's all.*



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