

# THE REAL COSTS OF HEAVY FUEL OIL (HFO) SPILLS



HFO spills are widely identified as the **major risk** posed by shipping to Arctic environments, wildlife and local communities.

## CASE STUDIES

**TOTAL HFO SPILLED**  
(tonnes)

### HFO is:

The highly viscous, residual product of crude oil refining; Extremely slow to degrade and acutely toxic.

**TOTAL PAYMENTS**

Costs of spills can extend over many years and reach millions of dollars.

### NAKHODKA oil spill



1997 Russian tanker sunk in the Sea of Japan

17,400 t



US \$244 ml

- Clean-up costs
- Lost fishing income
- Individual claimants

### ERIKA oil spill



1999 Maltese tanker sunk in the Bay of Biscay

20,000 t



US \$153 ml

- Clean-up costs
- Loss of equipment
- Reputational damage
- Environmental damage

### PRESTIGE oil spill



2002 Bahamian tanker sunk off Spanish coast

63,000 t



US \$3 bl (estimated)

- Clean-up costs
- Lost fishing and tourism income
- Community support/compensation
- Pollution monitoring
- Image restoration

14 years since the spill, it is not yet possible to estimate the final costs.

### SELENDANG AYU fuel oil spill



2004 Malaysian bulk carrier broke up in Alaska

1,200 t



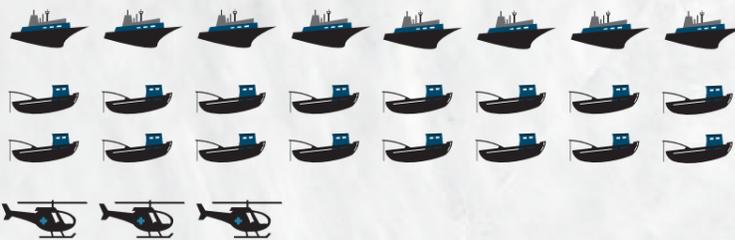
US \$112 ml

- Clean-up costs
- Wreck removal
- Lost fishing income
- Beach monitoring
- Fines

## SPILL RESPONSE

Spill response is often hindered by the remoteness of the site, a lack of infrastructure and weather conditions.

### Resources used in oil recovery operations



E.g. NAKHODKA

More than 80 vessels engaged in oil recovery from the sea surface

Hundred of fishing boats mobilised to manually collect oil

Helicopters deployed to spray dispersant

### Slow response

In the Arctic response difficulties could also be worsened by total darkness, sub-zero temperatures and shifting ice.

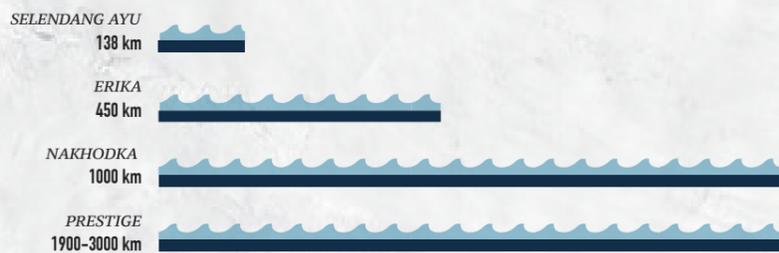
### ERIKA & SELENDANG AYU

Clean-up efforts continued for 2 years

## ENVIRONMENTAL IMPACTS

The impact on marine life can be long lasting and far reaching.

### Stretch of coastline affected by oil



### Oil toxicity impacts on marine life

Pollutants detected in marine mammals, invertebrate and shellfish several years after the spill.

### PRESTIGE

Estimated 150,000-250,000 seabirds killed



## ECONOMIC & SOCIAL IMPACTS

The persistent nature of HFO has a prolonged effect on sensitive economic resources.

### Impacts on fisheries



### ERIKA & SELENDANG AYU

Many fisheries were closed and suffered major downturns

### Impacts on tourism



### PRESTIGE

Total losses for the tourist industry 2002-2006 €718.78 ml

### Impacts on health and well-being



### ERIKA

Increased respiratory tract symptoms still reported more than 1 year after exposure

## CONCLUSIONS & RECOMMENDATIONS

**1** HFO spills in polar and sub-polar conditions present the most severe difficulties for oil spill responders.

**2** The behaviour and fate of HFO means spills are more difficult and costly in polar and sub-polar conditions than spills of other oil types.

**3** Immediate consideration of fuel oil spill prevention and mitigation strategies is required.

A precautionary approach dictates a **rapid phase-out of the use of HFO** in polar and sub-polar seas.