

# A summary of threats to cetaceans in European waters

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# Threats

- Naval sonar
- Seismic exploration
- Ocean energy
- Unexploded ordnance
- Disturbance from whale watching, motorized vessels
- Vessel noise
- Vessel collisions
- Fisheries
- Pollution
- Coastal development
- Climate change

# naval sonar

Types of impact	Metrics to quantify trends	Root cause	Species most affected
direct mortality	population size	military activities	<i>Ziphius cavirostris</i>
short-term habitat degradation causing medium-scale redistribution	distribution	military activities	<i>Ziphius cavirostris</i> <i>Globicephala melas</i>

# seismic exploration

Types of impact	Metrics to quantify trends	Root cause	Species most affected
short-term habitat degradation causing medium-scale redistribution	distribution	Offshore oil & gas industry Scientific research	All

# ocean energy

Types of impact	Metrics to quantify trends	Root cause	Species most affected
long-term habitat degradation causing medium-scale redistribution	distribution	Renewable energy industry	<i>Phocoena phocoena</i>

# unexploded ordnance

Types of impact	Metrics to quantify trends	Root cause	Species most affected
direct mortality	population size	clearance	All
short-term habitat degradation causing medium-scale redistribution	distribution	clearance	All
health impairment/death deriving from contact/ingestion of noxious substances	population size, reproductive parameters	clearance	All

# disturbance from whale watching, motorized vessels

Types of impact	Metrics to quantify trends	Root cause	Species most affected
short-term habitat degradation causing small-scale redistribution	distribution	unregulated whale watching, irresponsible tourism	All

# vessel noise

Types of impact	Metrics to quantify trends	Root cause	Species most affected
short-term habitat degradation causing small-scale redistribution	distribution	marine transportation	All

# vessel collisions

Types of impact	Metrics to quantify trends	Root cause	Species most affected
direct mortality	population size	powered boat and ship traffic	<i>Balaenoptera physalus</i> <i>Physeter macrocephalus</i>

# fisheries

Types of impact	Metrics to quantify trends	Root cause	Species most affected
direct mortality through bycatch	population size	unregulated or inadequately regulated fisheries	<i>Delphinus delphis</i> <i>Globicephala melas</i> <i>Grampus griseus</i> <i>Physeter macrocephalus</i> <i>Phocoena phocoena</i> <i>Stenella coeruleoalba</i> <i>Tursiops truncatus</i> <i>Ziphius cavirostris</i>
direct mortality from competition with fisheries	population size	various, including overfishing and animal behaviour	<i>Tursiops truncatus</i> <i>Orcinus orca</i>
depletion of food causing medium-scale redistribution	population size, distribution	various, including poorly managed fisheries and climate change	<i>Tursiops truncatus</i> <i>Delphinus delphis</i> <i>Phocoena phocoena</i>

# pollution

Types of impact	Metrics to quantify trends	Root cause	Species most affected
health impairment/death deriving from contact/ingestion of oil and chemical spills, ingestion of noxious substances through food	population size, reproductive parameters	urban and agricultural runoff, industrial effluents, navigation accidents	All
direct mortality through entanglement in/ingestion of solid debris	population size	poor solid waste management, illegal dumping of fishing gear	<i>Physeter macrocephalus</i> <i>Ziphius cavirostris</i>

# coastal development

Types of impact	Metrics to quantify trends	Root cause	Species most affected
long-term habitat degradation causing medium-scale redistribution	distribution	unregulated or inadequately regulated coastal planning	<i>Tursiops truncatus</i> <i>Phocoena phocoena</i>

# climate change

Types of impact	Metrics to quantify trends	Root cause	Species most affected
long-term habitat degradation causing large-scale redistribution	distribution, population size	atmospheric carbon loading	All

# by impact

Types of impact	Threat
direct mortality	naval sonar unexploded ordnance vessel collisions fisheries bycatch fisheries competition ingestion of/entanglement in solid debris
habitat degradation causing redistribution	naval sonar seismic exploration ocean energy unexploded ordnance disturbance from whale watching etc. vessel noise coastal development climate change
health impairment/death deriving from contact/ingestion of chemical spills, ingestion of noxious substances through food	unexploded ordnance pollution
depletion of food causing redistribution	fisheries

# by metric

Metric to quantify trends	Threat
population size	naval sonar unexploded ordnance vessel collisions fisheries bycatch and competition pollution (chemical and solid debris) climate change
distribution	naval sonar seismic exploration ocean energy unexploded ordnance disturbance from whale watching, etc. vessel noise depletion of food caused by fisheries coastal development climate change
reproductive parameters	unexploded ordnance pollution

