

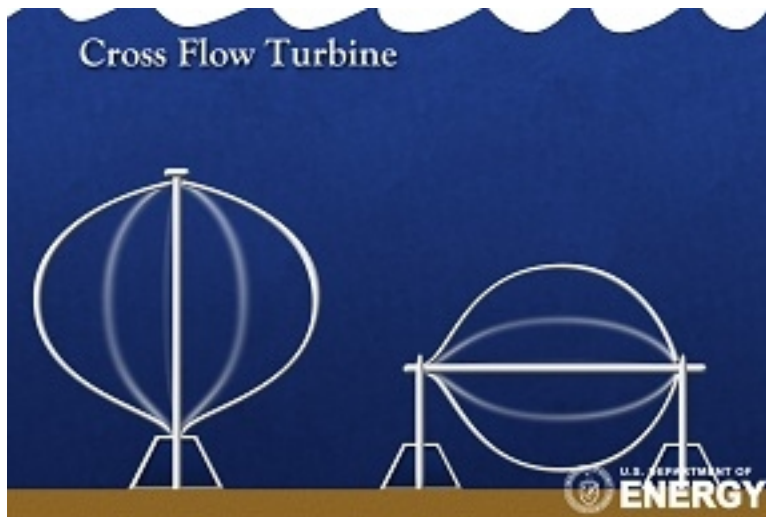
# Custom Report

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## 1 Configuration

### 1.1 Technology: Current – Cross Flow

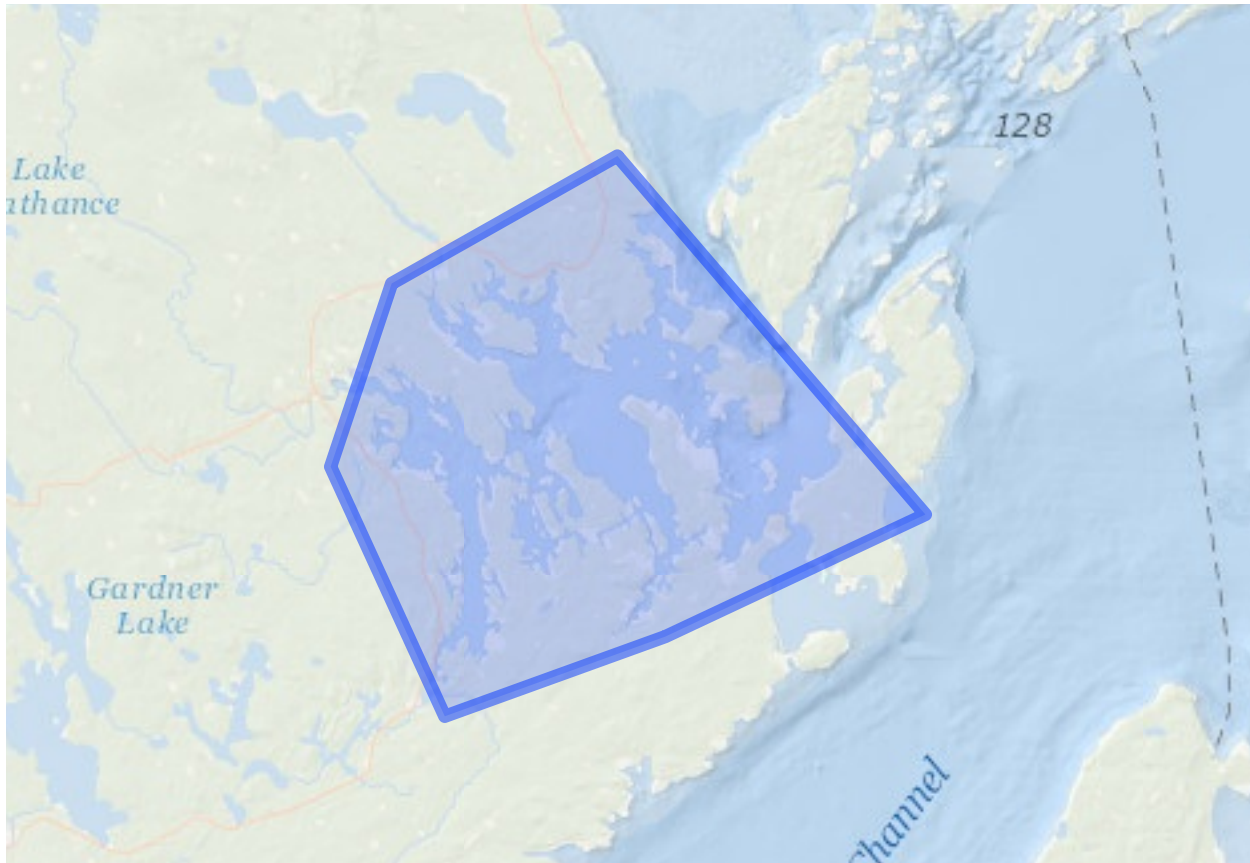


### 1.2 Stressors & Receptors

- Stressors

- Noise
- EMF
- Receptors
  - Marine Mammals
  - Fish
- Stressor-Receptors
  - Marine Mammals AND Noise
  - Fish AND EMF

### 1.3 Location



## 2 Literature

### 2.1 Stressors

Stressors are potentially harmful environmental effects from technology for marine renewable energy.

#### 2.1.0.1 Noise

Literature from Tethys Knowledge Base based on tags: Noise.:

- A three-dimensional underwater sound propagation model for offshore wind farm noise prediction
- Low-frequency acoustic pressure, velocity, and intensity thresholds in a bottlenose dolphin (*Tursiops truncatus*) and white whale (*Delphinapterus leucas*)
- Development of an air bubble curtain to reduce underwater noise of percussive piling

- Effects of underwater noise on auditory sensitivity of a cyprinid fish
- Whale-call response to masking boat noise
- AdBm Demonstration at Butendiek Offshore Wind Farm with Ballast Nedam
- Acoustic characterization of sensors used for marine environmental monitoring
- Evidence that ship noise increases stress in right whales
- Widely used marine seismic survey air gun operations negatively impact zooplankton
- Underwater Acoustic Modeling Report - Virginia Offshore Wind Technology Advancement Project (VOWTAP)
- Environmental Effects Monitoring Report 2011-2013
- Environmental Effects Monitoring Program Annual Report 2017
- Basin-wide contributions to the underwater soundscape by multiple seismic surveys with implications for marine mammals in Baffin Bay, Greenland
- The Behavioural and Physiological Effects of Pile-driving Noise on Marine Species
- Noise mitigation during pile-driving efficiently reduces disturbance of marine mammals
- Characterization of impact pile driving signals during installation of offshore wind turbine foundations
- Evaluating Statistical Models for Baseline Characterization and Measuring Change in Environmental Monitoring Data
- Vessel noise cuts down communication space for vocalizing fish and marine mammals
- Lost listening area assessment of anthropogenic sounds in the Chukchi Sea
- Startle response of captive North Sea fish species to underwater tones between 0.1 and 64 kHz
- Characterisation of underwater operational sound of a tidal stream turbine
- Swimming behavior of roach (*rutilus rutilus*) and three-spined stickleback (*gasterosteus aculeatus*) in response to wind power noise and single-tone frequencies
- Effects of hydrokinetic turbine sound on the behavior of four species of fish within an experimental mesocosm
- Testing the Effectiveness of an Acoustic Deterrent for Grey Whales Along the Oregon Coast
- Obtaining Baseline Measurements of Ocean Ambient Sound at a Mobile Test Berth Site for Wave Energy Conversion Off the Central Oregon Coast
- Noise mitigation systems and low-noise installation technologies
- Underwater construction and operational noise at alpha ventus
- Marine mammals and windfarms: Effects of alpha ventus on harbour porpoises
- Investigations of the Bird Collision Risk and the Responses of Harbour Porpoises in the Offshore Wind Farms Horns Rev, North Sea, and Nysted, Baltic Sea, in Denmark - Part II: Harbour porpoises
- Underwater noise levels of pile-driving in a New Zealand harbour, and the potential impacts on endangered Hector's dolphins
- Request for advice about the displacement of marine mammals around operational offshore windfarms
- Wind turbines cause chronic stress in badgers (*Meles meles*) in Great Britain
- Providing ecological context to anthropogenic subsea noise: Assessing listening space reductions of marine mammals from tidal energy devices
- The Effect of Simulated Seal Scarer Sounds on Harbour Porpoises
- Interdisciplinary study into the effect of a marine renewable energy testing facility on the underwater sound in Falmouth Bay
- Effects of larger turbines for the offshore wind farm at Krieger's Flak, Sweden. Assessment of impact on marine mammals
- Investigations into the effects of pile driving at the offshore wind farm Horns Rev II and the FINO III research platform
- Takes of Marine Mammals Incidental to Specified Activities; Pile Placement for ORPC Maine's Cobscook Bay Tidal Energy Pilot Project
- Underwater Anthropogenic Sound: Understanding the potential impacts on the marine environment and the influence on crab larval behaviour
- Grassland bird community and acoustic complexity appear unaffected by proximity to a wind energy facility in the Nebraska Sandhills
- Cobscook Bay Tidal Energy Project: 2016 Environmental Monitoring Report
- Exposure-response relationship of wind turbine noise with self-reported symptoms of sleep and health

- problems: A nationwide socioacoustic survey in Japan
- Noise characterization of a subsea tidal kite
  - The song of Skylarks *Alauda arvensis* indicates the deterioration of an acoustic environment resulting from wind farm start-up
  - Final Underwater Noise Analysis of Cape Wind Energy Project
  - Male Greater Prairie-Chickens Adjust their Vocalizations in the Presence of Wind Turbine Noise
  - Broad-Scale Acoustic Monitoring for Cetaceans and Underwater Noise in Relation to Offshore Wind Farm Construction in Scotland
  - Acoustic Life Cycle Assessment of Offshore Renewables - Implications from a Wave-Energy Converter Deployment in Falmouth Bay, UK
  - Semi-Active Control of Sound Radiated From an Elastic Circular Plate Integrated With Adaptive Tuned Vibration Absorbers
  - Sensitivity of the Mussel *Mytilus edulis* to Substrate-Borne Vibration in Relation to Anthropogenically Generated Noise
  - Good or Bad Vibrations? Impacts of Anthropogenic Vibration on the Marine Epibenthos
  - Acoustic characterization of submarine cable installation in the Biscay Marine Energy Platform (bimep)
  - Low-cost acoustic design of a bat test room
  - Underwater Noise Propagation Models and its Application in Renewable Energy Parks: WaveRoller Case Study
  - Monitoring the Condition of Marine Renewable Energy Devices through Underwater Acoustic Emissions: Case study of a Wave Energy Converter in Falmouth Bay, UK
  - Massachusetts Study on Wind Turbine Acoustics
  - Changes in Fish Catch Rates in the Presence of Air Gun Sounds in Prudhoe Bay, Alaska
  - Noise Propagation Calculations of a Wind Turbine in Complex Terrain
  - Wind turbine noise assessment in a small and quiet community in Finland
  - Perception and annoyance due to wind turbine noise-a dose-response relationship
  - A Review of the Potential Impacts of Wind Turbine Noise in the Australian Context
  - Windmill Noise Annoyance, Visual Aesthetics, and Attitudes towards Renewable Energy Sources
  - Social survey on wind turbine noise in Japan
  - Nationwide field measurements of wind turbine noise in Japan
  - Continuation Implementation Masterplan Wind at Sea
  - Monitoring and Research Shortlist Offshore Wind - Knowledge advancements and follow up
  - Effects of Offshore Pile Driving on Harbour Porpoise Abundance in the German Bight: Assessment of Noise Effects
  - Assessing Auditory Evoked Potentials of Wild Harbor Porpoises (*Phocoena phocoena*)
  - Marine Wind Farms and Cetaceans
  - Effects of Offshore Wind Farms on the Early Life Stages of *Dicentrarchus labrax*
  - Soundscape and Noise Exposure Monitoring in a Marine Protected Area Using Shipping Data and Time-Lapse Footage
  - Fulfilling EU Laws to Ensure Marine Mammal Protection During Marine Renewable Construction Operations in Scotland
  - Multiple-Pulse Sounds and Seals: Results of a Harbor Seal (*Phoca vitulina*) Telemetry Study During Wind Farm Construction
  - Understanding the Population Consequences of Acoustic Disturbance for Marine Mammals
  - Expert Elicitation Methods in Quantifying the Consequences of Acoustic Disturbance from Offshore Renewable Energy Developments
  - Underwater Sound Levels at a Wave Energy Device Testing Facility in Falmouth Bay, UK
  - Predicting Anthropogenic Noise Contributions to US Waters
  - Mapping Underwater Sound in the Dutch Part of the North Sea
  - A Portable, Real-Time Passive Acoustic System and Autonomous Hydrophone Array for Noise Monitoring of Offshore Wave Energy Projects
  - Seasonal and Diel Variability of the Underwater Noise in the Baltic Sea
  - Environmental Monitoring of the Paimpol-Brehat Tidal Project
  - Human Perception of Sound from Wind Turbines

- The Effects of Noise on Aquatic Life II
- Characterizing Large River Sounds: Providing Context for Understanding the Environmental Effects of Noise Produced by Hydrokinetic Turbines
- Classification of Three-Dimensional Ocean Features using Three-Dimensional Empirical Orthogonal Functions
- Field Calibration a Tool for Acoustic Noise Prediction: The CALCOM<sup>TM</sup>10 Data Set
- Auditory and Behavioral Responses of California Sea Lions (*Zalophus californianus*) to Single Underwater Impulses from an Arc-Gap Transducer
- Hermosa West Wind Energy Project Draft EIS - Appendix F: Bat Acoustical Studies
- A GIS-Multicriteria Approach to Analyzing Noise and Visual Impacts of Wind Farms
- Effects of Acoustic Deterrents on Foraging Bats
- Effects of marine noise pollution on Mediterranean fishes and invertebrates: A review
- The role of ambient sound levels, signal-to-noise ratio, and stimulus pulse rate on behavioural disturbance of seabass in a net pen
- Behavioural responses in a congested sea: an observational study on a coastal nest-guarding fish
- Auditory Recognition of Familiar and Unfamiliar Subjects with Wind Turbine Noise
- Acoustic Noise Associated with the MOD-1 Wind Turbine: Its Source, Impact, and Control
- Fairhead Tidal Environmental Impact Assessment Scoping Document
- A Survey of Acoustic Harassment Device (AHD) Use in the Bay of Fundy, NB, Canada
- Underwater Noise Modelling for Environmental Impact Assessment
- An Italian Proposal on the Monitoring of Underwater Noise: Relationship Between the EU Marine Strategy Framework Directive (MSFD) and Marine Spatial Planning Directive (MSP)
- Acoustic Characterization of a Hydrokinetic Turbine
- Discussion of the Effects of the Underwater Noise Radiated by a Wave Energy Device - Portugal
- Impacts of Anthropogenic Noise on Marine Life: Publication Patterns, New Discoveries, and Future Directions in Research and Management
- Validation of Finite Element Computations for the Quantitative Prediction of Underwater Noise from Impact Pile Driving
- Baseline Measurement of Underwater Noise Under the SURGE Project
- Underwater Mach Wave Radiation from Impact Pile Driving: Theory and Observation
- MeyGen Tidal Energy Project Phase 1: Environmental Statement
- Measurement of Long-Term Ambient Noise and Tidal Turbine Levels in the Bay of Fundy
- Hydroacoustic Measurements of the Noise Radiated from Wave Energy Converters in the Lysekil Project and Project WESA
- Comparison of Underwater Background Noise during Spring and Neap Tide in a High Tidal Current Site: Ramsey Sound
- Assessment of Underwater Noise Generated by Wave Energy Devices
- Environmental Monitoring Report - 2011 Installation of Monopile at Voith Hydro Test Berth, Fall of Warness, Orkney
- Scoping Study: Review of Current Knowledge of Underwater Noise Emissions from Wave and Tidal Stream Energy Devices
- A Computational Method to Predict and Study Underwater Noise due to Pile Driving
- Cod and Sole Behaviour in an Offshore Wind Farm
- Underwater Noise from a Wave Energy Converter Is Unlikely to Affect Marine Mammals
- Hearing Thresholds of a Harbor Porpoise (*Phocoena phocoena*) for Playbacks of Seal Scarer Signals, and Effects of the Signals on Behavior
- The Effects of Noise on Aquatic Life
- Sound Exposure in Harbour Seals During the Installation of an Offshore Wind Farm: Predictions of Auditory Damage
- Estimation of Acoustic Particle Motion and Source Bearing Using a Drifting Hydrophone Array Near a River Current Turbine to Assess Disturbances to Fish
- Noise Mitigation Measures and Low-noise Foundation Concepts - State of the Art
- Underwater Noise Produced by the Piling Activities During the Construction of the Belwind Offshore Wind Farm (Bligh Bank, Belgian Marine Waters)

- Airborne Sound Propagation Over Sea During Offshore Wind Farm Piling
- Eco-Hydro-Acoustic Modeling and its Use as an EIA Tool
- Effects of Noise and By-Catch on a Danish Harbour Porpoise Population
- The Cumulative Effect on Sound Levels from Multiple Underwater Anthropogenic Sound Sources in Shallow Coastal Waters
- Did the Pile Driving during the Construction of the Offshore Wind Farm Egmond aan Zee, the Netherlands, Impact Porpoises?
- Did the Pile Driving during the Construction of the Offshore Wind Farm Egmond aan Zee, the Netherlands, Impact Local Seabirds?
- Effects of Pile-Driving on Harbour Porpoises (*Phocoena phocoena*) at the First Offshore Wind Farm in Germany
- Acoustic Deterrent Workshop National Wind Technology Center, Louisville, CO
- Underwater Radiated Noise from Point Absorbing Wave Energy Converters: Noise Characteristics and Possible Environmental Effects
- On Certain Problems Concerning Environmental Impact Assessment of Wind Turbines in Scope of Acoustic Effects
- The Effects of Wind Turbines on Antipredator Behavior in California Ground Squirrels (*Spermophilus beecheyi*)
- The Remote Environmental Assessment Laboratory's Acoustic Library: An Archive for Studying Soundscape Ecology
- Ambient noise in an urbanized tidal channel
- Long Term Monitoring of Underwater Noise at a Proposed Deployment Site of a Tidal Stream Device
- Experimental Evidence for the Effects of Chronic Anthropogenic Noise on Abundance of Greater Sage-Grouse at Leks
- Experimental Chronic Noise Is Related to Elevated Fecal Corticosteroid Metabolites in Lekking Male Greater Sage-Grouse (*Centrocercus urophasianus*)
- Stakeholders or Subject Matter Experts, who Should be consulted?
- Acoustic Monitoring Techniques for Avian Detection and Classification
- Evaluations of Wind Potential in Dobrogea Plateau
- Study and Application of Underwater Noise Impact in Coastal Region off Western Taiwan
- Responses of Harbour Porpoises to Pile Driving on a Temporal and Spatial Scale
- Towards a Numerical Model to Simulate the Observed Displacement of Harbour Porpoises *Phocoena phocoena* Due to Pile Driving in Belgian Waters
- Hydro Sound Measurements during the Installation of Large Diameter Offshore Piles using Combinations of Independent Noise Mitigation Systems
- Dynamic Measurements of Pile Deflections as a Source of Underwater Sound Emissions during Impact Driving of Offshore Pile Foundations
- New Achievements in Underwater Noise Modelling for Offshore Pile Driving
- Lake Michigan Offshore Wind Feasibility Assessment
- Assessing Environmental Impacts of Offshore Wind Farms: Lessons Learned and Recommendations for the Future
- Grey Seals use Anthropogenic Signals from Acoustic Tags to Locate Fish: Evidence from a Simulated Foraging Task
- Assessing the Underwater Acoustics of the World's Largest Vibration Hammer (OCTA-KONG) and Its Potential Effects on the Indo-Pacific Humpbacked Dolphin (*Sousa chinensis*)
- The Significance of Parameter Uncertainties for the Prediction of Offshore Pile Driving Noise
- Amplitude modulation of wind turbine sound in cold climates
- Development of Noise Mitigation Measures in Offshore Wind Farm Construction
- Source Levels of the Underwater Calls of a Male Leopard Seal
- In Situ Mortality Experiments with Juvenile Sea Bass (*Dicentrarchus labrax*) in Relation to Impulsive Sound Levels Caused by Pile Driving of Windmill Foundations
- Habitat Preferences of Harbour Seals in the Dutch Coastal Area: Analysis and Estimate of Effects of Offshore Wind Farms
- Marine Mammals and Ocean Noise: Future Directions and Information Needs with Respect to Science,

Policy and Law in Canada

- Long-range Effects of Airgun Noise on Marine Mammals: Responses as a Function of Received Sound Level and Distance
- Aversiveness of Sounds in Phocid Seals: Psycho-Physiological Factors, Learning Processes and Motivation
- Escape Responses of Hauled out Ringed Seals (*Phoca hispida*) to Aircraft Disturbance
- Modeling of Underwater Noise from Pile Driving using Coupled Finite Element and Parabolic Equation Model with Improved Parabolic Equation Starting Field
- Effects of Offshore Pile Driving on Harbor Porpoises (*Phocoena phocoena*)
- Evidence of a Lombard Response in Migrating Humpback Whales (*Megaptera novaeangliae*)
- The Measurement and Prediction of Underwater Noise from Impact Pile Driving during the Construction of Offshore Wind Farm
- Development of a Unique Instrumentation System to Monitor Underwater Noise Due to Pile Driving
- Acoustic Environmental Monitoring - Wello Penguin Cooling System Noise Study
- Underwater Radiated Noise Due to the Piling for the Q7 Offshore Wind Park
- Discovery of Sound in the Sea
- Underwater Active Acoustic Monitoring Network For Marine And Hydrokinetic Energy Projects
- Flow-Noise and Turbulence in Two Tidal Channels
- Long-Term, Global-Scale Statistics of Sound Propagation
- Long Term Estimations of Low Frequency Noise Levels over Water from an Off-Shore Wind Farm
- Characteristics of the Operational Noise from Full Scale Wave Energy Converters in the Lysekil Project: Estimation of Potential Environmental Impacts
- Underwater Noise Measurements of a 1/7th Scale Wave Energy Converter
- Underwater Noise from Construction and Operation of Offshore Wind Farms
- Underwater Noise of Whale Watching Boats and Potential Effects on Killer Whales (*Orcinus orca*), Based on an Acoustic Impact Model
- Underwater Surf Noise Near Sea Coasts of Different Types
- Underwater Radiated Noise from Modern Commercial Ships
- Vessel Noise Effects On Delphinid Communication
- Threshold for Onset of Injury in Chinook Salmon from Exposure to Impulsive Pile Driving Sounds
- Turbine Sound May Influence the Metamorphosis Behaviour of Estuarine Crab Megalopae
- Underwater Ambient Noise at a Proposed Tidal Energy Site in Puget Sound
- Underwater Noise From Three Types Of Offshore Wind Turbines: Estimation Of Impact Zones For Harbor Porpoises And Harbor Seals
- Temporal Patterns In Ambient Noise Of Biological Origin From A Shallow Water Temperate Reef
- The Acoustics And Acoustic Behavior Of The California Spiny Lobster (*Panulirus interruptus*)
- The Effect of Acoustic Harassment Devices on Harbour Porpoises (*Phocoena phocoena*) in the Bay of Fundy, Canada
- Summary on Harbour Porpoise Monitoring 1999-2006 around Nysted and Horns Rev Offshore Wind Farms
- Baseline assessment of underwater noise in the Ria Formosa
- Responses of Harbour Porpoises to Pile Driving at the Horns Rev II Offshore Wind Farm in the Danish North Sea
- Particle Motion Measured at an Operational Wind Turbine in Relation to Hearing Sensitivity in Fish
- Perception of Low-Frequency Acoustic Signals by a Harbour Porpoise (*Phocoena phocoena*) in the Presence of Simulated Offshore Wind Turbine Noise
- Pile Driving Zone of Responsiveness Extends Beyond 20 km for Harbour Porpoises (*Phocoena phocoena* (L.))
- Predicting Underwater Radiated Noise Levels due to the First Offshore Wind Turbine Installation in the U.S.
- Noise Measurements Of A Prototype Tidal Energy Turbine
- Noise Negatively Affects Foraging and Antipredator Behaviour in Shore Crabs
- Modelling the Vertical Directivity of Noise from Underwater Drilling
- Measurement of Underwater Noise During Piling at the Red Funnel Terminal, Southampton, and

- Observation of its Affect on Caged Fish
- Listening In
- Making the Case for the Sound Management of Marine Protected Areas
- Is a German Harbour Porpoise Much More Sensitive than a British One? Comparative Analyses of Mandatory Measures for the Protection of Harbour Porpoises (*Phocoena phocoena*) During Offshore Wind Farm Ramming in Germany, Denmark and the UK
- Impact Assessment of an Off-shore Wind Park on Sea Ducks
- Framework for Assessing Impacts of Pile-Driving Noise from Offshore Wind Farm Construction on a Harbour Seal Population
- Gray Whales, *Eschrichtius robustus*, Avoid the Underwater Sounds of Killer Whales, *Orcinus orca*
- Estimates of Water Turbine Noise Levels
- Exposure to Seismic Survey Alters Blue Whale Acoustic Communication
- Effects of the Construction of Scroby Sands Offshore Wind Farm on the Prey Base of Little Tern *Sternula albifrons* at its Most Important UK Colony
- Environmental Assessment of Offshore Wind Power Generation near Rhode Island: Acoustic and Electromagnetic Effects on Marine Animals [Presentation]
- Effect of the Sound Generated by an Acoustic Harassment Device on the Relative Abundance and Distribution of Harbor Porpoises (*Phocoena phocoena*) in Retreat Passage, British Columbia
- Effects Of Ambient And Boat Noise On Hearing And Communication In Three Fish Species Living In A Marine Protected Area (Miramare, Italy)
- Effects Of Tidal Turbine Noise On Fish Hearing And Tissues
- Effects of Marine Windfarms on the Distribution of Fish, Shellfish and Marine Mammals in the Horns Rev Area
- Effects of Pile-Driving Noise on the Behaviour of Marine Fish
- Differentiating Between Underwater Construction Noise of Monopile and Jacket Foundations for Off-shore Windmills: A Case Study from the Belgian Part of the North Sea
- Context-Dependent Impacts of Anthropogenic Noise on Individual and Social Behaviour in a Cooperatively Breeding Fish
- Broadband Acoustic Environment at a Tidal Energy Site in Puget Sound
- Changes in Humpback Whale Song Occurrence in Response to an Acoustic Source 200 km Away
- Characterizing the Relative Contributions of Large Vessels to Total Ocean Noise Fields: A Case Study Using the Gerry E. Studds Stellwagen Bank National Marine Sanctuary
- Assessment of Basic Audiometric Functions in Killer Whales (*Orcinus orca*) at Loro Parque, Tenerife, Spain
- Averaging Underwater Noise Levels for Environmental Assessment of Shipping
- Barging Effects On Sensory Systems Of Chinook Salmon Smolts
- Behavioural Reactions of Free-Ranging Porpoises and Seals to the Noise of a Simulated 2 MW Wind-power Generator
- An Investigation into the Effects of Underwater Piling Noise on Salmonids
- Assessing the Responses of Coastal Cetaceans to the Construction of Offshore Wind Turbines
- Assessing Underwater Noise Levels during Pile-Driving at an Offshore Windfarm and its Potential Effects on Marine Mammals
- Assessment Method for Sound Radiated by Cyclically Operating Wells Turbines
- Acoustic Masking In Marine Ecosystems: Intuitions, Analysis, And Implication
- An Analysis of the Potential Acoustic Effects of Cape Wind's Offshore Wind Farm on Marine Mammal Populations
- A Case Study on the Effects of Underwater Noise During the Construction of Large Offshore Wind Farms
- A Digital Acoustic Recording Tag for Measuring the Response of Wild Marine Mammals to Sound
- A Review of Offshore Windfarm Related Underwater Noise Sources
- A Vessel Noise Budget for Admiralty Inlet, Puget Sound, Washington (USA)
- Use of Static Passive Acoustic Monitoring (PAM) for monitoring cetaceans at Marine Renewable Energy Installations (MREIs) for Marine Scotland
- The effect of vessel noise on the vocal behavior of belugas in the St. Lawrence River estuary, Canada



- Harbour porpoise responses to pile-driving diminish over time
- School is out on noisy reefs: the effect of boat noise on predator learning and survival of juvenile coral reef fishes
- Acoustic Characteristics of the Lifesaver Wave Energy Converter
- Anthropogenic noise increases fish mortality by predation
- Effect of boat noise on the behaviour of bluefin tuna *Thunnus thynnus* in the Mediterranean Sea
- Aquamarine Power Marine Mammal Observation Report
- Exposure of benthic invertebrates to sediment vibration: From laboratory experiments to outdoor simulated pile-driving
- Soundscape characterization in a dynamic acoustic environment: Grand Passage, Nova Scotia, a planned in-stream tidal energy site
- Impulsive noise pollution in the Northeast Atlantic: Reported activity during 2015–2017
- Determining the dependence of marine pile driving sound levels on strike energy, pile penetration, and propagation effects using a linear mixed model based on damped cylindrical spreading
- Measuring responses of harbour seals to potential aversive acoustic mitigation signals using controlled exposure behavioural response studies
- Noise impact assessment on the basis of onsite acoustic noise immission measurements for a representative wind farm
- Social structure and abundance of coastal bottlenose dolphins, *Tursiops truncatus*, in the Normano-Breton Gulf, English Channel
- A review of crustacean sensitivity to high amplitude underwater noise: Data needs for effective risk assessment in relation to UK commercial species
- Characteristics of the soundscape before and after the construction of the Block Island Wind Farm
- Assessment of impacts on tropical marine environment for off-shore clean energy development
- Effects of noise-mitigated offshore pile driving on harbour porpoise abundance in the German Bight 2014-2016 (Gescha 2)
- Effect of Pile-Driving Playback Sound Level on Fish-Catching Efficiency in Harbor Porpoises (*Phocoena phocoena*)
- Effects of impulsive noise on marine mammals: investigating range-dependent risk
- Acoustic impact of a wave energy converter in Mediterranean shallow waters
- Evaluating Changes in the Marine Soundscape of an Offshore Wind Farm via the Machine Learning-Based Source Separation
- Effects of wind turbine noise on the surrounding soundscape in the context of greater-prairie chicken courtship vocalizations
- Potential Benefits of Vessel Slowdowns on Endangered Southern Resident Killer Whales

### 2.1.0.2 EMF

Literature from Tethys Knowledge Base based on tags: EMF.:

- Assessing potential impacts of energized submarine power cables on crab harvests
- Effect of magnetic pulses on Caribbean spiny lobsters: implications for magnetoreception
- Appendix O Summary of Current Information Related to Electromagnetic Field Impacts on Fish and LEEDCo Proposed Transmission Cable
- Potential Impact of Submarine Power Cables on Crab Harvest
- Behavioral responses by migrating juvenile salmonids to a subsea high-voltage DC power cable
- Navitus Bay Wind Park Technical Appendix 2.1 - EMF Calculations Report
- MeyGen Tidal Energy Project Phase 1 Electromagnetic Fields Best Practice Report
- Identical Response of Caged Rock Crabs (Genera *Metacarcinus* and *Cancer*) to Energized and Unenergized Undersea Power Cables in Southern California, USA
- Modeling Magnetic Fields from a DC Power Cable Buried Beneath San Francisco Bay Based on Empirical Measurements
- Assessment of Electromagnetic Interference Effects of the Solano Windfarm: Final Report
- Effects of an Electric Field on White Sharks: In Situ Testing of an Electric Deterrent
- Power Connections for Offshore Wind Farms

- Evidence that Fin Whales Respond to the Geomagnetic Field During Migration
- The Aversive Effect of Electromagnetic Radiation on Foraging Bats - A Possible Means of Discouraging Bats from Approaching Wind Turbines
- Pulse trawl fishing: characteristics of the electrical stimulation and the effect on behaviour and injuries of Atlantic cod (*Gadus morhua*)
- A Comparison of Fishes and Invertebrates Living in the Vicinity of Energized and Unenergized Submarine Power Cables and Natural Sea Floor off Southern California, USA
- Permanent magnets reduce bycatch of benthic sharks in an ocean trap fishery
- Aversive responses of captive sandbar sharks *Carcharhinus plumbeus* to strong magnetic fields
- Environmental Assessment of Offshore Wind Power Generation near Rhode Island: Acoustic and Electromagnetic Effects on Marine Animals
- Rearing in a Distorted Magnetic Field Disrupts the “Map Sense” of Juvenile Steelhead Trout
- Evidence for Geomagnetic Imprinting as a Homing Mechanism in Pacific Salmon
- Geomagnetic Imprinting: A Unifying Hypothesis of Long-Distance Natal Homing in Salmon and Sea Turtles
- Compatibility of Magnetic Imprinting and Secular Variation
- Simulating Transoceanic Migrations of Young Loggerhead Sea Turtles: Merging Magnetic Navigation Behavior with an Ocean Circulation Model
- An Inherited Magnetic Map Guides Ocean Navigation in Juvenile Pacific Salmon
- Use of Multiple Orientation Cues by Juvenile Loggerhead Sea Turtles, *Caretta caretta*
- True Navigation and Magnetic Maps in Spiny Lobsters
- The Perception of Weak Electric D.C. Currents by the European Eel (*Anguilla anguilla*)
- The Environmental Effects of the Installation and Functioning of the Submarine SwePol Link HVDC Transmission Line: A Case Study of the Polish Marine Area of the Baltic Sea
- Sub-Sea Power Cables And The Migration Behaviour Of The European Eel
- On Electric Fields of Power Lines and on Their Perception by Freshwater Fish
- Marine Turtles use Geomagnetic Cues during Open-Sea Homing
- Long-Term Exposure of Several Marine Benthic Animals to Static Magnetic Fields
- Magnetic Orientation and Magnetoreception in Birds and Other Animals
- Field Scale Experiments to Assess the Effects of Offshore Wind Farms on Marine Organisms
- Electromagnetic Field Study
- EPRI Workshop on EMF and Aquatic Life
- Effect of Modified Magnetic Field on the Ocean Migration of Maturing Chum Salmon, *Oncorhynchus keta*
- Behaviour Of Trout (*Salmo Trutta* L.) Larvae And Fry In A Constant Magnetic Field
- Magnetic field discrimination, learning, and memory in the yellow stingray (*Urolophus hannah*)
- Effect of low frequency electromagnetic field on the behavior and bioenergetics of the polychaete *Hediste diversicolor*
- Impact of magnetic fields generated by AC/DC submarine power cables on the behavior of juvenile European lobster (*Homarus gammarus*)
- Effects of EMF emissions from undersea electric cables on coral reef fish
- Installation and operational effects of a HVDC submarine cable in a continental shelf setting: Bass Strait, Australia
- AUV-based characterization of EMF emissions from submerged power cables
- Potential effects of electrical energy transmission - the case study from the Polish Marine Areas (southern Baltic Sea)

## 2.2 Receptors

Receptors are species, habitats and human activities of environmental concern. Spatial data of receptors are extracted for the area of interest from data harvested predominantly from MarineCadastre.gov.

### 2.2.0.1 Marine Mammals

Literature from Tethys Knowledge Base based on tags: Marine Mammals.:

- Low-frequency acoustic pressure, velocity, and intensity thresholds in a bottlenose dolphin (*Tursiops truncatus*) and white whale (*Delphinapterus leucas*)
- Development of an air bubble curtain to reduce underwater noise of percussive piling
- Whale-call response to masking boat noise
- Acoustic characterization of sensors used for marine environmental monitoring
- Dynamic habitat corridors for marine predators; intensive use of a coastal channel by harbour seals is modulated by tidal currents
- Using paired visual and passive acoustic surveys to estimate passive acoustic detection parameters for harbor porpoise abundance estimates
- Spatial Variation in Foraging Behaviour of a Marine Top Predator (*Phoca vitulina*) Determined by a Large-Scale Satellite Tagging Program
- From echolocation clicks to animal density—Acoustic sampling of harbor porpoises with static data-loggers
- Feeding home ranges of pacific coast feeding group gray whales
- Assessing the Performance of Passive Acoustic Monitoring Technologies for Porpoise Detection in a High Flow Tidal Energy Test Site
- Field assessment of C-POD performance in detecting echolocation click trains of bottlenose dolphins (*Tursiops truncatus*)
- Behavioral responses of minke whales (*Balaenoptera acutorostrata*) to experimental fishing gear in a coastal environment
- The Use of an Unsupervised Learning Approach for Characterizing Latent Behaviours in Accelerometer Data
- Environmental Effects Monitoring Report 2011-2013
- Basin-wide contributions to the underwater soundscape by multiple seismic surveys with implications for marine mammals in Baffin Bay, Greenland
- Noise mitigation during pile-driving efficiently reduces disturbance of marine mammals
- Acoustic monitoring reveals the times and tides of harbor porpoise (*Phocoena phocoena*) distribution off central Oregon, U.S.A.
- Soundscape of an Indo-Pacific humpback dolphin (*Sousa chinensis*) hotspot before windfarm construction in the Pearl River Estuary, China: Do dolphin engage in noise avoidance and passive eavesdropping behavior?
- North Atlantic right whale *Eubalaena glacialis* occurrence in offshore wind energy areas near Massachusetts and Rhode Island, USA
- Impact of pile-driving on Hector's dolphin in Lyttelton Harbour, New Zealand
- Fine scale spatial variability in the influence of environmental cycles on the occurrence of dolphins at coastal sites
- Marine Mammal Behavioral Response to Tidal Turbine Sound
- Testing the Effectiveness of an Acoustic Deterrent for Grey Whales Along the Oregon Coast
- Noise mitigation systems and low-noise installation technologies
- Underwater construction and operational noise at alpha ventus
- Marine habitat modelling for harbour porpoises in the German Bight
- Marine mammals and windfarms: Effects of alpha ventus on harbour porpoises
- Investigations of the Bird Collision Risk and the Responses of Harbour Porpoises in the Offshore Wind Farms Horns Rev, North Sea, and Nysted, Baltic Sea, in Denmark - Part II: Harbour porpoises
- Underwater noise levels of pile-driving in a New Zealand harbour, and the potential impacts on endangered Hector's dolphins
- Request for advice on the populations of cetaceans that might be involved in significant interactions with marine renewable energy developments in Scottish marine waters
- Request for advice about the displacement of marine mammals around operational offshore windfarms
- Assessment of Risk to Marine Mammals from Underwater Marine Renewable Devices in Welsh Waters: Phase 1 - Desktop Review of Marine Mammals and Risks from Underwater Marine Renewable Devices in Welsh Waters

- Review of Cetacean Monitoring Guidelines for Welsh Wave and Tidal Energy Developments
- Providing ecological context to anthropogenic subsea noise: Assessing listening space reductions of marine mammals from tidal energy devices
- Marine Mammals - Investigations and preparation of environmental impact assessment for Kriegers Flak Offshore Wind Farm
- Do man-made structures and water depth affect the diel rhythms in click recordings of harbor porpoises (*Phocoena phocoena*)?
- Investigations into the effects of pile driving at the offshore wind farm Horns Rev II and the FINO III research platform
- Takes of Marine Mammals Incidental to Specified Activities; Pile Placement for ORPC Maine's Cobscook Bay Tidal Energy Pilot Project
- Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Construction of the Vineyard Wind Offshore Wind Project
- Algorithms for Marine Mammal Modelling and an Application in Ramsey Sound
- Development of Marine Mammal Observation Methods for Vantage Point Surveys in Ramsey Sound
- Estimating cetacean density and abundance in the Central and Western Mediterranean Sea through aerial surveys: Implications for management
- Fine-scale hydrodynamics influence the spatio-temporal distribution of harbour porpoises at a coastal hotspot
- Mechanical properties of harbor seal skin and blubber a test of anisotropy
- Going with the flow: Tidal influence on the occurrence of the harbour porpoise (*Phocoena phocoena*) in the Marsdiep area, The Netherlands
- Responses of bottlenose dolphins and harbor porpoises to impact and vibration piling noise during harbor construction
- Fine-Scale Hydrodynamic Metrics Underlying Predator Occupancy Patterns in Tidal Stream Environments
- East Anglia TWO Offshore Windfarm Scoping Report
- First in situ Passive Acoustic Monitoring for Marine Mammals during Operation of a Tidal Turbine in Ramsey Sound, Wales
- Seasonal and Diel Patterns in Cetacean Use and Foraging at a Potential Marine Renewable Energy Site
- Broad-Scale Acoustic Monitoring for Cetaceans and Underwater Noise in Relation to Offshore Wind Farm Construction in Scotland
- Has Designating and Protecting Critical Habitat had an Impact on Endangered North Atlantic Right Whale Ship Strike Mortality?
- Observations and Tracking of Killer Whales (*Orcinus orca*) with Shore-Based X-Band Marine Radar at a Marine Energy Test Site
- Year-Round Spatiotemporal Distribution of Harbour Porpoises Within and Around the Maryland Wind Energy Area
- The combined use of visual and acoustic data collection techniques for winter killer whale (*Orcinus orca*) observations
- Effects of fine-scale oceanographic features on the distribution and movements of harbour porpoises *Phocoena phocoena* in the Bay of Fundy
- Issuance of Incidental Harassment Authorizations to Deepwater Wind for the Take of Marine Mammals Incidental to Construction of the Block Island Wind Farm and Block Island Transmission System
- Evaluation of a Passive Acoustic Monitoring Network for Harbor Porpoise in California
- Temporal Patterns in Habitat Use by Small Cetaceans at an Oceanographically Dynamic Marine Renewable Energy Test Site in the Celtic Sea
- Effects of Offshore Pile Driving on Harbour Porpoise Abundance in the German Bight: Assessment of Noise Effects
- Assessing Auditory Evoked Potentials of Wild Harbor Porpoises (*Phocoena phocoena*)
- Harbour Porpoise Distribution can Vary at Small Spatiotemporal Scales in Energetic Habitats
- Temporal Patterns in Minas Basin Intertidal Weir Fish Catches and Presence of Harbour Porpoise during April - August 2013

- Marine Wind Farms and Cetaceans
- Riding the Tide: Use of a Moving Tidal-Stream Habitat by Harbour Porpoises
- Fulfilling EU Laws to Ensure Marine Mammal Protection During Marine Renewable Construction Operations in Scotland
- Multiple-Pulse Sounds and Seals: Results of a Harbor Seal (*Phoca vitulina*) Telemetry Study During Wind Farm Construction
- Understanding the Population Consequences of Acoustic Disturbance for Marine Mammals
- Environmental Monitoring of the Paimpol-Brehat Tidal Project
- Environmental Interview: Effects of Wind Power on Marine Life
- Use of Anthropogenic Sea Floor Structures by Australian Fur Seals: Potential Positive Ecological Impacts of Marine Industrial Development?
- Habitat Preferences and Distribution of the Harbour Porpoise *Phocoena phocoena* West of Scotland
- Using Habitat Models to Identify Suitable Sites for Marine Protected Areas for Harbour Porpoises (*Phocoena phocoena*)
- Habitat Preferences and Interannual Variability in Occurrence of the Harbour Porpoise *Phocoena phocoena* off Northwest Scotland
- Foraging Behaviour and Reproductive Season Habitat Selection of Northeast Pacific Porpoises
- Harbour Porpoise (*Phocoena phocoena*) Foraging Strategy at a High-Energy, Near-Shore Site in South-West Wales
- Killer Whales (*Orcinus orca*) feeding on schooling herring (*Clupea harengus*) using underwater tail-slaps: Kinematic analyses of field observations
- Estimates of Collision Risk of Harbour Porpoises and Marine Renewable Energy Devices at Sites of High Tidal-Stream Energy
- Evidence that Fin Whales Respond to the Geomagnetic Field During Migration
- A Survey of Acoustic Harassment Device (AHD) Use in the Bay of Fundy, NB, Canada
- Passive Acoustic Monitoring the Diel, Lunar, Seasonal and Tidal Patterns in the Biosonar Activity of the Indo-Pacific Humpback Dolphins (*Sousa chinensis*) in the Pearl River Estuary, China
- Discussion of the Effects of the Underwater Noise Radiated by a Wave Energy Device - Portugal
- Simulating Harbour Porpoise Habitat Use in a 3D Tidal Environment
- Towards Acoustic Monitoring of Marine Mammals at a Tidal Turbine Site: Grand Passage, NS, Canada
- California Current Cetacean & Ecosystem Assessment Survey (CalCurCEAS): Final Report to Bureau of Ocean Energy Management Regarding Surveys of Windfloat and Wave Energy Areas
- MeyGen Tidal Energy Project Phase 1: Environmental Statement
- EMEC Fall of Warness Test Site: Environmental Appraisal
- Trends of Harbour Porpoise (*Phocoena phocoena*) Density in the Southern North Sea
- Effects on Harbour Porpoises from Rødsand 2 Offshore Wind Farm
- Porpoises and Offshore Windfarms - Conflict, Co-Existence or Refuge
- Underwater Noise from a Wave Energy Converter Is Unlikely to Affect Marine Mammals
- Hearing Thresholds of a Harbor Porpoise (*Phocoena phocoena*) for Playbacks of Seal Scarer Signals, and Effects of the Signals on Behavior
- The Effects of Noise on Aquatic Life
- Integrating Passive Acoustic and Visual Data to Model Spatial Patterns of Occurrence in Coastal Dolphins
- A Self-Contained Subsea Platform for Acoustic Monitoring of the Environment Around Marine Renewable Energy Devices - Field Deployments at Wave and Tidal Energy Sites in Orkney, Scotland
- General Models of the Spatial Distribution of Porpoises Require Representative Data and Parsimony: Comment on Skov & Thomsen (2008)
- Short-Term Disturbance by a Commercial Two-Dimensional Seismic Survey does Not Lead to Long-Term Displacement of Harbour Porpoises
- Assessment of the Effects of the Offshore Wind Farm Egmond aan Zee (OWEZ) for Harbour Porpoise (comparison T0 and T1)
- Likely Effects of Construction of Scroby Sands Offshore Wind Farm on a Mixed Population of Harbour *Phoca vitulina* and Grey *Halichoerus grypus* Seals
- Resolving Fine-Scale Spatio-Temporal Dynamics in the Harbour Porpoise *Phocoena phocoena*

- Effects of Noise and By-Catch on a Danish Harbour Porpoise Population
- Did the Pile Driving during the Construction of the Offshore Wind Farm Egmond aan Zee, the Netherlands, Impact Porpoises?
- Re-Established Stony Reef Attracts Harbour Porpoises *Phocoena phocoena*
- Galloper Wind Farm Project: Environmental Statement - Chapter 14: Marine Mammals
- Effects of Pile-Driving on Harbour Porpoises (*Phocoena phocoena*) at the First Offshore Wind Farm in Germany
- Predictions from Harbor Porpoise Habitat Association Models are Confirmed by Long-Term Passive Acoustic Monitoring
- First Specific Biodiversity Assessment in the Portuguese Pilot Zone for Marine Renewables
- Application of a multi-hydrophone drifter and porpoise detection software for monitoring Atlantic harbour porpoise (*Phocoena phocoena*) activity in and near Minas Passage
- Ambient noise in an urbanized tidal channel
- Long Term Monitoring of Underwater Noise at a Proposed Deployment Site of a Tidal Stream Device
- Study and Application of Underwater Noise Impact in Coastal Region off Western Taiwan
- Survey of Beached Birds and Mammals: Sao Jácinto - Torreira (Portugal) - March 2014 to March 2015
- Responses of Harbour Porpoises to Pile Driving on a Temporal and Spatial Scale
- Towards a Numerical Model to Simulate the Observed Displacement of Harbour Porpoises *Phocoena phocoena* Due to Pile Driving in Belgian Waters
- Assessing Environmental Impacts of Offshore Wind Farms: Lessons Learned and Recommendations for the Future
- Patterns of Spatial and Temporal Distribution of Humpback Whales at the Southern Limit of the Southeast Pacific Breeding Area
- Grey Seals use Anthropogenic Signals from Acoustic Tags to Locate Fish: Evidence from a Simulated Foraging Task
- Assessing the Underwater Acoustics of the World's Largest Vibration Hammer (OCTA-KONG) and Its Potential Effects on the Indo-Pacific Humpbacked Dolphin (*Sousa chinensis*)
- Marine Mammals and Ocean Noise: Future Directions and Information Needs with Respect to Science, Policy and Law in Canada
- Long-range Effects of Airgun Noise on Marine Mammals: Responses as a Function of Received Sound Level and Distance
- Aversiveness of Sounds in Phocid Seals: Psycho-Physiological Factors, Learning Processes and Motivation
- Behavioral Responses and Habituation of Pinnipeds and Small Cetaceans to Novel Objects and Simulated Fishing Gear With and Without a Pinger
- Escape Responses of Hauled out Ringed Seals (*Phoca hispida*) to Aircraft Disturbance
- Getting it Right for the North Atlantic Right Whale (*Eubalaena glacialis*): A Last Opportunity for Effective Marine Spatial Planning?
- MERiFIC 3.3.2: Grey Seal Population Surveys of the Isles of Scilly and Parc Naturel Marin d'Iroise
- Ocean Wind Power Ecological Baseline Studies Final Report - Volume 3: Marine Mammal and Sea Turtle Studies
- Offshore Wind Farms in the Belgian Part of the North Sea: State of the Art After Two Years of Environmental Monitoring
- Effects of Offshore Pile Driving on Harbor Porpoises (*Phocoena phocoena*)
- Evidence of a Lombard Response in Migrating Humpback Whales (*Megaptera novaeangliae*)
- Entanglement of Australian sea lions and New Zealand fur seals in lost fishing gear and other marine debris before and after Government and industry attempts to reduce the problem
- Impacts of Offshore Wind Farm Construction on Harbour Porpoises: Acoustic Monitoring of Echolocation Activity using Porpoise Detectors (T-PODs)
- Underwater Radiated Noise Due to the Piling for the Q7 Offshore Wind Park
- Admiralty Inlet Final Environmental Assessment
- Underwater Active Acoustic Monitoring Network For Marine And Hydrokinetic Energy Projects
- Environmental Risk Evaluation System - An Approach to Ranking Risk of Ocean Energy Development on Coastal and Estuarine Environments

- Passive Acoustic Monitoring of Cetacean Activity Patterns and Movements in Minas Passage: Pre-Turbine Baseline Conditions
- Status of Marine Mammals in Korea
- Long-Term Multibeam Measurements Around a Tidal Turbine Test Site in Orkney, Scotland
- Underwater Noise of Whale Watching Boats and Potential Effects on Killer Whales (*Orcinus orca*), Based on an Acoustic Impact Model
- Using Standardised Counting Methods for Seabirds to Monitor Marine Mammals in the Dutch North Sea from Fixed Platforms
- Vessel Noise Effects On Delphinid Communication
- Towards Best Environmental Practice for Cetacean Conservation in Developing Scotland's Marine Renewable Energy
- Underwater Noise From Three Types Of Offshore Wind Turbines: Estimation Of Impact Zones For Harbor Porpoises And Harbor Seals
- The Effect of Acoustic Harassment Devices on Harbour Porpoises (*Phocoena phocoena*) in the Bay of Fundy, Canada
- Statistical Modeling of North Atlantic Right Whale Migration along the Mid-Atlantic Region of the Eastern Seaboard of the United States
- Summary on Harbour Porpoise Monitoring 1999-2006 around Nysted and Horns Rev Offshore Wind Farms
- Seal Scarers as a Tool to Deter Harbour Porpoises from Offshore Construction Sites
- Seasonal Distribution Of Harbour Porpoises And Possible Interference Of Offshore Wind Farms In The German North Sea
- Short-Term Effects of the Construction of Wind Turbines on Harbour Porpoises at Horns Reef
- Responses of Harbour Porpoises to Pile Driving at the Horns Rev II Offshore Wind Farm in the Danish North Sea
- Perception of Low-Frequency Acoustic Signals by a Harbour Porpoise (*Phocoena phocoena*) in the Presence of Simulated Offshore Wind Turbine Noise
- Pile Driving Zone of Responsiveness Extends Beyond 20 km for Harbour Porpoises (*Phocoena phocoena* (L.))
- Potential Impacts of Ocean Energy Development on Marine Mammals in Oregon
- Real-Time Monitoring for Beluga Whales (*Delphinapterus leucas*) in the Eagle River, Alaska using a PAMBuoy Detection System
- Negative Long Term Effects on Harbour Porpoises from a Large Scale Offshore Wind Farm in the Baltic - Evidence of Slow Recovery
- North Atlantic Right Whale Distribution and Seasonal Occurrence in Nearshore Waters off New Jersey, USA, and Implications for Management
- Modelling Harbour Porpoise Seasonal Density as a Function of the German Bight Environment: Implications for Management
- Modelling the Biological Significance of Behavioural Change in Coastal Bottlenose Dolphins in Response to Disturbance
- Methods Used During Gross Necropsy to Determine Watercraft-Related Mortality in the Florida Manatee (*Trichechus manatus latirostris*)
- Localization of Southern Resident Killer Whales Using Two Star Arrays to Support Marine Renewable Energy
- Mandibular Fractures in Short-Finned Pilot Whales, *Globicephala macrorhynchus*
- Land-Based Infrared Imagery for Marine Mammal Detection
- Harbour Porpoises (*Phocoena phocoena*) and Wind Farms: A Case Study in the Dutch North Sea
- Hydrodynamics of a Ship/Whale Collision
- Factors Influencing the Diving Behaviour of Fish Eating Killer Whales: Sex Differences and Diel and Interannual Variation in Diving Rates
- Forensic Methods for Characterizing Watercraft from Watercraft-Induced Wounds on the Florida Manatee (*Trichechus manatus latirostris*)
- Framework for Assessing Impacts of Pile-Driving Noise from Offshore Wind Farm Construction on a Harbour Seal Population

- From Echolocation Clicks to Animal Density - Acoustic Sampling of Harbor Porpoises with Static Dataloggers
- Gray Whales, *Eschrichtius robustus*, Avoid the Underwater Sounds of Killer Whales, *Orcinus orca*
- Evidence for Infanticide in Bottlenose Dolphins: An Explanation for Violent Interactions with Harbour Porpoises?
- Exposure to Seismic Survey Alters Blue Whale Acoustic Communication
- FORCE Environmental Effects Monitoring Report September 2009 to January 2011
- Effects of Wind Farms on Harbour Porpoise Behavior and Population Dynamics
- Environmental Assessment of Offshore Wind Power Generation near Rhode Island: Acoustic and Electromagnetic Effects on Marine Animals [Presentation]
- EMEC Tidal Test Facility Fall of Warness Eday, Orkney: Environmental Statement
- Effect of the Sound Generated by an Acoustic Harassment Device on the Relative Abundance and Distribution of Harbor Porpoises (*Phocoena phocoena*) in Retreat Passage, British Columbia
- Declining Survival Probability Threatens the North Atlantic Right Whale
- Design and Implementation of a Marine Animal Alert System to Support Marine Renewable Energy
- Detection of Marine Mammals and Effects Monitoring at the NSPI (OpenHydro) Turbine Site in the Minas Passage during 2010
- Development of a Stereo Camera System for Monitoring Hydrokinetic Turbines
- Call and Component Evaluation for Improved Performance of Recognition of Killer Whale Individuals
- Changes in Humpback Whale Song Occurrence in Response to an Acoustic Source 200 km Away
- Characterizing the Relative Contributions of Large Vessels to Total Ocean Noise Fields: A Case Study Using the Gerry E. Studds Stellwagen Bank National Marine Sanctuary
- Assessment of Basic Audiometric Functions in Killer Whales (*Orcinus orca*) at Loro Parque, Tenerife, Spain
- Behavioural Reactions of Free-Ranging Porpoises and Seals to the Noise of a Simulated 2 MW Wind-power Generator
- Assessing the Responses of Coastal Cetaceans to the Construction of Offshore Wind Turbines
- Assessing Underwater Noise Levels during Pile-Driving at an Offshore Windfarm and its Potential Effects on Marine Mammals
- Absolute Probability Estimates of Lethal Vessel Strikes to North Atlantic Right Whales in Roseway Basin, Scotian Shelf
- Acoustic Masking In Marine Ecosystems: Intuitions, Analysis, And Implication
- An Analysis of the Potential Acoustic Effects of Cape Wind's Offshore Wind Farm on Marine Mammal Populations
- A Digital Acoustic Recording Tag for Measuring the Response of Wild Marine Mammals to Sound
- Use of Static Passive Acoustic Monitoring (PAM) for monitoring cetaceans at Marine Renewable Energy Installations (MREIs) for Marine Scotland
- Baseline Presence of and Effects of Tidal Turbine Installation and Operations on Harbour Porpoise in Minas Passage, Bay of Fundy, Canada
- The effect of vessel noise on the vocal behavior of belugas in the St. Lawrence River estuary, Canada
- Harbour porpoise responses to pile-driving diminish over time
- Fine-scale harbour seal at-sea usage mapping around Orkney and the North coast of Scotland
- Aquamarine Power Marine Mammal Observation Report
- Placing Green Energy in the Sea: Offshore Wind Farms, Dolphins, Oysters, and the Territorial Politics of the Intertidal Zone in Taiwan
- Improving understanding of bottlenose dolphin movements along the east coast of Scotland (Interim Report 2019)
- Effects of multiple exposures to pile driving noise on harbor porpoise hearing during simulated flights—An evaluation tool
- Impulsive noise pollution in the Northeast Atlantic: Reported activity during 2015–2017
- Measuring responses of harbour seals to potential aversive acoustic mitigation signals using controlled exposure behavioural response studies
- Humpback Whale Encounter with Offshore Wind Mooring Lines and Inter-Array Cables
- Social structure and abundance of coastal bottlenose dolphins, *Tursiops truncatus*, in the Normano-



Breton Gulf, English Channel

- Environmental Aspects of Developing Ireland’s Atlantic Marine Energy Test Site (AMETS)
- Monitoring of Marine Mammal Strandings Along French Coasts Reveals the Importance of Ship Strikes on Large Cetaceans: A Challenge for the European Marine Strategy Framework Directive
- Optimising multiple multibeam sonars to assess marine life interactions with an underwater kite
- Effects of impulsive noise on marine mammals: investigating range-dependent risk
- Evaluating Effects of Stressors - Fiscal Year 2010 Progress Report: Environmental Effects of Marine and Hydrokinetic Energy
- Potential Benefits of Vessel Slowdowns on Endangered Southern Resident Killer Whales

## 2.2.0.2 Fish

Literature from Tethys Knowledge Base based on tags: Fish.:

- Artificial reefs facilitate tropical fish at their range edge
- Effects of underwater noise on auditory sensitivity of a cyprinid fish
- Structure in a sea of sand: fish abundance in relation to man-made structures in the North Sea
- Comparing nekton distributions at two tidal energy sites suggests potential for generic environmental monitoring
- Predictable changes in fish school characteristics due to a tidal turbine support structure
- Broadband echosounder measurements of the frequency response of fishes and euphausiids in the Gulf of Alaska
- Investigating acoustic diversity of fish aggregations in coral reef ecosystems from multifrequency fishery sonar surveys
- Development and application of an empirical multifrequency method for backscatter classification
- Estimation of reef fish length by divers and by stereo-video: A first comparison of the accuracy and precision in the field on living fish under operational conditions
- Determining representative ranges of point sensors in distributed networks
- Wideband (15–260 kHz) acoustic volume backscattering spectra of Northern krill (*Meganyctiphanes norvegica*) and butterfish (*Peprilus triacanthus*)
- Over or under? Autonomous sensor fish reveals why overshot weirs may be safer than undershot weirs for fish passage
- Species identification in deep water using multiple acoustic frequencies
- Marine fish monitoring at FORCE: Updated report on processing and analysis
- Investigation of the Vertical Distribution, Movement and Abundance of Fish in the Vicinity of Proposed Tidal Power Energy Conversion Devices
- Video and acoustic camera techniques for studying fish under ice: a review and comparison
- Diversity, abundance and size structure of fishes and invertebrates captured by an intertidal fishing weir at Bramber, Minas Basin, Nova Scotia
- Startle response of captive North Sea fish species to underwater tones between 0.1 and 64 kHz
- Wave energy drives biotic patterns beyond the surf zone: Factors influencing abundance and occurrence of mobile fauna adjacent to subtropical beaches
- Swimming behavior of roach (*rutilus rutilus*) and three-spined stickleback (*gasterosteus aculeatus*) in response to wind power noise and single-tone frequencies
- Project to Assess Potential Impacts of the Reedsport Ocean Power Technologies Wave Energy Generation Facility on Migration and Habitat use of Green Sturgeon (*Acipenser medirostris*)
- Effects of hydrokinetic turbine sound on the behavior of four species of fish within an experimental mesocosm
- Investigation of Monitoring Fish Using Underwater Fish-Eye Camera at the Test Site of Marine Renewable Energy
- Effects of mid-frequency active sonar on hearing in fish
- Prioritisation of monitoring and research for diadromous fish in the context of Marine/Offshore Renewables: A summary of stakeholder engagement meetings between Marine Scotland, wild fisheries interests and wind, wave and tidal developers
- Depth use and movements of homing Atlantic salmon (*Salmo salar*) in Scottish coastal waters in relation

- to marine renewable energy development
- Flatfish habitat use near North America's first offshore wind farm
- An investigation of the fisheries ecosystem dynamics in Rhode Island's nearshore waters
- Appendix O Summary of Current Information Related to Electromagnetic Field Impacts on Fish and LEEDCo Proposed Transmission Cable
- Quantifying biodiversity trade-offs in the face of widespread renewable and unconventional energy development
- OERA Webinar Series: Finite Element Analysis to Assess Fish Mortality from Interactions with Tidal Turbine Blades
- Behavioral responses by migrating juvenile salmonids to a subsea high-voltage DC power cable
- Observing Fish Using Underwater Camera at the Test Site before Installing Ocean Power Generation
- Fish Distributions in a Tidal Channel Indicate the Behavioural Impact of a Marine Renewable Energy Installation
- Mobile Demersal Megafauna at Common Offshore Wind Turbine Foundations in the German Bight (North Sea) Two Years after Deployment - Increased Production Rate of Cancer pagurus
- Hydroacoustic Assessment of Behavioral Responses by Fish Passing Near an Operating Tidal Turbine in the East River, New York
- Effect of an Offshore Wind Farm on the Viviparous Eelpout: Biometrics, Brood Development and Population Studies in Lillgrund, Sweden
- Out in the Wash: Spatial Ecology of a Temperate Marine Shallow Rocky-Reef Species Derived using Acoustic Telemetry
- Environmental impacts over fish communities of submarine cable installation in the Biscay Marine Energy Platform (bimep)
- Developing fish passage and protection at hydropower dams
- Combined Optical and Acoustic Monitoring of Fishes in the Demonstration Site of Marine Renewable Energy Development
- Ecological and morphological traits predict depth-generalist fishes on coral reefs
- The role of nature-based infrastructure (NBI) in coastal resiliency planning: A literature review
- Global ecological success of Thalassoma fishes in extreme coral reef habitats
- Numerical Models as Enabling Tools for Tidal-Stream Energy Extraction and Environmental Impact Assessment
- Multi-Scale Temporal Patterns in Fish Presence in a High-Velocity Tidal Channel
- Changes in Fish Communities on a Small Spatial Scale, an Effect of Increased Habitat Complexity by an Offshore Wind Farm
- Hydroacoustic Analysis of the Effects of a Tidal Power Turbine on Fishes
- Interactions of Aquatic Animals with the ORPC OCGen in Cobscook Bay, Maine: Monitoring Behavior Change and Assessing the Probability of Encounter with a Deployed MHK Device
- Evaluation of Blade-Strike Models for Estimating the Biological Performance of Kaplan Turbines
- Comparative migration ecology of striped bass and Atlantic sturgeon in the US Southern mid-Atlantic bight flyway
- Quantifying fish-turbine interactions using VEMCO's new high residency acoustic electronic tagging technology
- A Review of the Status of Atlantic Sturgeon in Canada, with Comparisons to Populations in the United States and Europe
- Ecological performance of young-of-the-year blue rockfish (*Sebastes mystinus*) associated with oil platforms and natural reefs in California as measured by daily growth rates
- A Pilot Study of the Distribution and Abundances of Rockfishes in Relation to Natural Environmental Factors and an Offshore Oil and Gas Production Platform off the Coast of Southern California
- A comparison of the fish assemblages associated with an oil/gas pipeline and adjacent seafloor in the Santa Barbara Channel, Southern California Bight
- Evaluation of Juvenile Salmon Behavior at Bonneville Dam, Columbia River, using a Multibeam Technique
- Atlantic Sturgeon Spatial and Temporal Distribution in Minas Passage, Nova Scotia, Canada, a Region of Future Tidal Energy Extraction

- Laboratory Experiments on the Effects of Blade Strike from Hydrokinetic Energy Technologies on Larval and Juvenile Freshwater Fishes
- Acoustic Tracking of Fish Movements in the Minas Passage and FORCE Demonstration Area: Pre-Turbine Baseline Studies (2011-2013)
- Quantification of Massive Seasonal Aggregations of Blacktip Sharks (*Carcharhinus limbatus*) in South-east Florida
- Seal Predation on Salmon and Forage Fish Schools as a Function of Tidal Currents in the San Juan Islands, Washington, USA
- Red and White Muscle Activity and Kinematics of the Escape Response of the Bluegill Sunfish during Swimming
- Use of an Autonomous Sensor to Evaluate the Biological Performance of the Advanced Turbine at Wanapum Dam
- Effects of marine noise pollution on Mediterranean fishes and invertebrates: A review
- The role of ambient sound levels, signal-to-noise ratio, and stimulus pulse rate on behavioural disturbance of seabass in a net pen
- Behavioural responses in a congested sea: an observational study on a coastal nest-guarding fish
- Effects of an Electric Field on White Sharks: In Situ Testing of an Electric Deterrent
- A Marine Biological Underwater Depuration System (MUDS) to Process Waste Waters
- Using Temporal Analysis Techniques to Optimize Hydroacoustic Surveys of Fish at MHK Devices
- Fish Passage Assessment of an Advanced Hydropower Turbine and Conventional Turbine Using Blade-Strike Modeling
- Impact of Coastal Defence Structures (tetrapods) on a Demersal Hard-Bottom Fish Community in the Southern North Sea
- Rigs-to-Reefs in the North Sea: Hydroacoustic Quantification of Fish Associated with a ‘Semi-Cold’ Platform
- Fish Assemblages Associated with Urban Structures and Natural Reefs in Sydney, Australia
- Preliminary Study of the Feeding Habits of Pelagic Fish around Hawaiian Fish Aggregation Devices or can Fish Aggregation Devices Enhance Local Fisheries Productivity?
- Fish Assemblages on Sunken Vessels and Natural Reefs in Southeast Florida, USA
- Estimating Enhancement of Fish Production by Offshore Artificial Reefs: Uncertainty Exhibited by Divergent Scenarios
- Cod and Sole Behaviour in an Offshore Wind Farm
- The Local Fish Community, Indifferent to the Wind Farm?
- Macrotidal Estuaries: A Region of Collision Between Migratory Marine Animals and Tidal Power Development
- Estimation of Acoustic Particle Motion and Source Bearing Using a Drifting Hydrophone Array Near a River Current Turbine to Assess Disturbances to Fish
- Seasonal Patterns of Winter Flounder *Pseudopleuronectes americanus* Abundance and Reproductive Condition on the New York Bight Continental Shelf
- Eco-Hydro-Acoustic Modeling and its Use as an EIA Tool
- Catch Patterns of the German Baltic Sea Trawl Fleet Targeting Demersal Species Between 2006 and 2009
- Mobile Demersal Megafauna at Artificial Structures in the German Bight - Likely Effects of Offshore Wind Farm Development
- Describing and Comparing Variability of Fish and Macrozooplankton Density at Marine Hydrokinetic Energy Sites
- Pulse trawl fishing: characteristics of the electrical stimulation and the effect on behaviour and injuries of Atlantic cod (*Gadus morhua*)
- A Comparison of Fishes and Invertebrates Living in the Vicinity of Energized and Unenergized Submarine Power Cables and Natural Sea Floor off Southern California, USA
- Changes in a fish assemblage after a coral bleaching event
- Equivocal Effects of Offshore Wind Farms in Belgium on Soft Substrate Epibenthos and Fish Assemblages
- Vulnerability of Coral Reef Fisheries to a Loss of Structural Complexity

- Classification of sound-scattering layers using swimming speed estimated by acoustic Doppler current profiler
- Quantifying Fish Assemblages in Large, Offshore Marine Protected Areas: An Australian Case Study
- Permanent magnets reduce bycatch of benthic sharks in an ocean trap fishery
- Aversive responses of captive sandbar sharks *Carcharhinus plumbeus* to strong magnetic fields
- Developing a Deeper Understanding of Animal Movements and Spatial Dynamics through Novel Application of Network Analyses
- In Situ Mortality Experiments with Juvenile Sea Bass (*Dicentrarchus labrax*) in Relation to Impulsive Sound Levels Caused by Pile Driving of Windmill Foundations
- Comparison of Blade-Strike Modeling Results with Empirical Data
- ATOC/Pioneer Seamount Cable after 8 Years on the Seafloor: Observations, Environmental Impact
- Towards a Spatially Explicit Risk Assessment for Marine Management: Assessing the Vulnerability of Fish to Aggregate Extraction
- Do Windmill Parks Function as a Refugium?
- The Effects of Wind Power on Marine Life - A Synthesis
- Computational Tools to Assess Turbine Biological Performance
- Locating Spawning Haddock (*Melanogrammus aeglefinus*, Linnaeus, 1758) at Sea by Means of Sound
- In-Situ Ecological Interactions with a Deployed Tidal Energy Device; An Observational Pilot Study
- The Ecology of Benthopelagic Fishes at Offshore Wind Farms: A Synthesis of 4 Years of Research
- Ocean Wind Power Ecological Baseline Studies Final Report - Volume 4: Fish and Fisheries Studies
- Residency, Site Fidelity and Habitat Use of Atlantic Cod (*Gadus morhua*) at an Offshore Wind Farm Using Acoustic Telemetry
- Assessing Ecological Risks of Offshore Wind Power on Kattegat Cod
- Energy Profiling of Demersal Fish: A Case-Study in Wind Farm Artificial Reefs
- Environmental Impact Assessments for Wave Energy Developments - Learning from Existing Activities and Informing Future Research Priorities
- Rearing in a Distorted Magnetic Field Disrupts the "Map Sense" of Juvenile Steelhead Trout
- An International Assessment of the Environmental Effects of Marine Energy Development
- Sediment-Laden Ice Measurements and Observations, and Implications for Potential Interactions of Ice and Large Woody Debris with Tidal Turbines in Minas Passage
- Quantifying Barotrauma Risk to Juvenile Fish during Hydro-Turbine Passage
- Evidence for Geomagnetic Imprinting as a Homing Mechanism in Pacific Salmon
- Geomagnetic Imprinting: A Unifying Hypothesis of Long-Distance Natal Homing in Salmon and Sea Turtles
- Compatibility of Magnetic Imprinting and Secular Variation
- An Inherited Magnetic Map Guides Ocean Navigation in Juvenile Pacific Salmon
- Short-term Movement, Home Range, and Behavior of Red Snapper around Petroleum Platforms in the Northern Gulf of Mexico, as Determined by High Resolution Acoustic Telemetry
- Hydrokinetic Turbine Effects on Fish Swimming Behaviour
- Visual Censuses Around Drifting Fish Aggregating Devices (FADs): A New Approach For Assessing The Diversity Of Fish In Open-ocean Waters
- Threshold for Onset of Injury in Chinook Salmon from Exposure to Impulsive Pile Driving Sounds
- The Influence Of Offshore Windpower On Demersal Fish
- The Perception of Weak Electric D.C. Currents by the European Eel (*Anguilla anguilla*)
- The Potential for Cooperative Management of Elasmobranchs and Offshore Renewable Energy Development in UK Waters
- Temporal Variability of Pelagic Fish Assemblages around Fish Aggregation Devices: Biological and Physical Influences
- The Efficacy of Midwater Artificial Structures for Attracting Pelagic Sport Fish
- Spatial and Temporal Changes in the Assemblage Structure of Fish Associated to Fish Aggregation Devices in the Western Mediterranean
- Sub-Sea Power Cables And The Migration Behaviour Of The European Eel
- Short- and Long-Term Effects of an Offshore Wind Farm on Three Species of Sandeel and their Sand Habitat

- Simulation-Based Investigations of Fishery Changes as Affected by the Scale and Design of Artificial Habitats
- Review of Migratory Routes and Behaviour of Atlantic Salmon, Sea Trout and European Eel in Scotland's Coastal Environment: Implications for the Development of Marine Renewables
- Residence of Fish in the Vicinity of a Decommissioned Oil Platform in the North Sea
- Particle Motion Measured at an Operational Wind Turbine in Relation to Hearing Sensitivity in Fish
- Potential Impact of Large-Scale Tidal Power Developments in the Upper Bay of Fundy on Fisheries Resources of the Northwest Atlantic
- Offshore Wind Farms as Productive Sites or Ecological Traps for Gadoid Fishes? - Impact on Growth, Condition Index and Diet Composition
- Olympic Coast National Marine Sanctuary: Fish
- On Electric Fields of Power Lines and on Their Perception by Freshwater Fish
- Changes in Relative Fish Density Around a Deployed Tidal Turbine during on-Water Activities
- Marine Megavertebrates and Fishery Resources in the Nantucket Sound - Muskeget Channel Area
- Measurement of Underwater Noise During Piling at the Red Funnel Terminal, Southampton, and Observation of its Affect on Caged Fish
- Long-Term Exposure of Several Marine Benthic Animals to Static Magnetic Fields
- Importance Of The Artificial Light Field Around Offshore Petroleum Platforms For The Associated Fish Community
- Homing of Pelagic Fish to Fish Aggregation Devices (FADs): The Role of Sensory Cues
- Does temporal variability limit standardized biological monitoring at wave and tidal energy sites?
- Field Scale Experiments to Assess the Effects of Offshore Wind Farms on Marine Organisms
- Field Experiments on the Attraction of Pelagic Fish to Floating Objects
- Fish And Sessile Assemblages Associated With Wind-turbine Constructions In The Baltic Sea
- Fish are Attracted to Vessels
- Forecasting 3-D Fish Movement Behavior using a Eulerian-Lagrangian-Agent Method (ELAM)
- Epibenthic Colonization of Concrete and Steel Piling in a Cold-Temperate Embayment: A Weld Experiment
- Estimation of the Risks of Collision or Strike to Freshwater Aquatic Organisms Resulting from Operation of Instream Hydrokinetic Turbines
- Evaluation of Blade-Strike Models for Estimating the Biological Performance of Large Kaplan Turbines
- Fish densities associated with structural elements of oil and gas platforms in southern California
- Effects of High-Relief Structures on Cold Temperate Fish Assemblages: A field Experiment
- Effect of Modified Magnetic Field on the Ocean Migration of Maturing Chum Salmon, *Oncorhynchus keta*
- Effects Of Ambient And Boat Noise On Hearing And Communication In Three Fish Species Living In A Marine Protected Area (Miramare, Italy)
- Vertical Distribution of Juvenile Salmon in a Large Turbid River
- Effects of Pile-Driving Noise on the Behaviour of Marine Fish
- The Spatial Ecology and Biological Responses of Wild Fishes Relative to Hydropower Development on the Winnipeg River
- Diel Variation in Feeding and Movement Patterns of Juvenile Atlantic Cod at Offshore Wind Farms
- Collision Risk of Fish with Wave and Tidal Devices
- Colonisation of Fish and Crabs of Wave Energy Foundations and the Effects of Manufactured Holes - A Field Experiment
- Context-Dependent Impacts of Anthropogenic Noise on Individual and Social Behaviour in a Cooperatively Breeding Fish
- Correlations Between Benthic Habitats and Demersal Fish Assemblages - A Case Study on the Dogger Bank (North Sea)
- Barging Effects On Sensory Systems Of Chinook Salmon Smolts
- Base Line Studies North Sea Wind Farms: Final Report Pelagic Fish
- Baseline Data and Power Analysis for the OWET Dungeness Crab and Fish Baseline Study
- Behaviour Of Trout (*Salmo Trutta* L.) Larvae And Fry In A Constant Magnetic Field
- An Investigation into the Effects of Underwater Piling Noise on Salmonids

- Are Southern California Oil and Gas Platforms Essential Fish Habitat
- Artificial Reef Effect and Fouling Impacts on Offshore Wave Power Foundations and Buoys - A Pilot Study
- Evaluation of Potential EMF Effects on Fish Species of Commercial or Recreational Fishing Importance in Southern New England
- Aggregation and Feeding Behaviour of Pouting (*Trisopterus luscus*) at Wind Turbines in the Belgian Part of the North Sea
- Aggregation at Windmill Artificial Reefs: CPUE of Atlantic Cod (*Gadus morhua*) and Pouting (*Trisopterus luscus*) at Different Habitats in the Belgian Part of the North Sea
- Magnetic field discrimination, learning, and memory in the yellow stingray (*Urobatis jamaicensis*)
- Relating fish distributions to physical characteristics of a tidal energy candidate site in the Banks Strait, Australia
- Characterizing and monitoring marine nekton at Puget Sound's renewable energy site
- Improving visual biodiversity assessments of motile fauna in turbid aquatic environments
- School is out on noisy reefs: the effect of boat noise on predator learning and survival of juvenile coral reef fishes
- Anthropogenic noise increases fish mortality by predation
- Effect of boat noise on the behaviour of bluefin tuna *Thunnus thynnus* in the Mediterranean Sea
- Use of a model turbine to investigate the high striking risk of fish with tidal and oceanic current turbine blades under slow rotational speed
- Use of a bottom-mounted hydroacoustic sonar to assess fish presence and vertical distribution at the FORCE in-stream tidal turbine test site in Minas Passage
- An agent-based model to predict fish collisions with tidal stream turbines
- Using acoustic telemetry for high-resolution sablefish movement informing potential interactions with a tidal turbine
- Endangered Atlantic Sturgeon in the New York Wind Energy Area: implications of future development in an offshore wind energy site
- Agent-Based Modelling of fish collisions with tidal turbines
- Vertical migrations of fish schools determine overlap with a mobile tidal stream marine renewable energy device
- In situ characterization of turbine hydraulic environment to support development of fish-friendly hydropower guidelines in the lower Mekong River region
- Effects of EMF emissions from undersea electric cables on coral reef fish
- Winter and summer differences in probability of fish encounter (spatial overlap) with MHK devices
- A mesocosm comparison of laboratory-based and on-site eDNA solutions for detection and quantification of striped bass (*Morone saxatilis*) in marine ecosystems
- The proportion of flatfish recruitment in the North Sea potentially affected by offshore windfarms
- Downstream migration of Atlantic salmon smolts past a low head hydropower station equipped with Archimedes screw and Francis turbines
- Acoustic impact of a wave energy converter in Mediterranean shallow waters
- A fish-eye view of riverine hydropower systems: the current understanding of the biological response to turbine passage

## 2.3 Stressor-Receptors

### 2.3.0.1 Marine Mammals AND Noise

Literature from Tethys Knowledge Base based on tags: Marine Mammals, Noise.:

- Underwater Radiated Noise Due to the Piling for the Q7 Offshore Wind Park
- Social structure and abundance of coastal bottlenose dolphins, *Tursiops truncatus*, in the Normano-Breton Gulf, English Channel
- Changes in Humpback Whale Song Occurrence in Response to an Acoustic Source 200 km Away
- Fulfilling EU Laws to Ensure Marine Mammal Protection During Marine Renewable Construction Operations in Scotland

- Effects of Offshore Pile Driving on Harbor Porpoises (*Phocoena phocoena*)
- Investigations of the Bird Collision Risk and the Responses of Harbour Porpoises in the Offshore Wind Farms Horns Rev, North Sea, and Nysted, Baltic Sea, in Denmark - Part II: Harbour porpoises
- Environmental Assessment of Offshore Wind Power Generation near Rhode Island: Acoustic and Electromagnetic Effects on Marine Animals [Presentation]
- Low-frequency acoustic pressure, velocity, and intensity thresholds in a bottlenose dolphin (*Tursiops truncatus*) and white whale (*Delphinapterus leucas*)
- MeyGen Tidal Energy Project Phase 1: Environmental Statement
- Impulsive noise pollution in the Northeast Atlantic: Reported activity during 2015–2017
- Escape Responses of Hauled out Ringed Seals (*Phoca hispida*) to Aircraft Disturbance
- Effect of the Sound Generated by an Acoustic Harassment Device on the Relative Abundance and Distribution of Harbor Porpoises (*Phocoena phocoena*) in Retreat Passage, British Columbia
- Assessing Environmental Impacts of Offshore Wind Farms: Lessons Learned and Recommendations for the Future
- An Analysis of the Potential Acoustic Effects of Cape Wind’s Offshore Wind Farm on Marine Mammal Populations
- Measuring responses of harbour seals to potential aversive acoustic mitigation signals using controlled exposure behavioural response studies
- Noise mitigation during pile-driving efficiently reduces disturbance of marine mammals
- Marine Wind Farms and Cetaceans
- A Survey of Acoustic Harassment Device (AHD) Use in the Bay of Fundy, NB, Canada
- The effect of vessel noise on the vocal behavior of belugas in the St. Lawrence River estuary, Canada
- Acoustic Masking In Marine Ecosystems: Intuitions, Analysis, And Implication
- Behavioural Reactions of Free-Ranging Porpoises and Seals to the Noise of a Simulated 2 MW Wind-power Generator
- A Digital Acoustic Recording Tag for Measuring the Response of Wild Marine Mammals to Sound
- Ambient noise in an urbanized tidal channel
- Study and Application of Underwater Noise Impact in Coastal Region off Western Taiwan
- Grey Seals use Anthropogenic Signals from Acoustic Tags to Locate Fish: Evidence from a Simulated Foraging Task
- Long Term Monitoring of Underwater Noise at a Proposed Deployment Site of a Tidal Stream Device
- Providing ecological context to anthropogenic subsea noise: Assessing listening space reductions of marine mammals from tidal energy devices
- Effects of impulsive noise on marine mammals: investigating range-dependent risk
- The Effects of Noise on Aquatic Life
- Did the Pile Driving during the Construction of the Offshore Wind Farm Egmond aan Zee, the Netherlands, Impact Porpoises?
- Discussion of the Effects of the Underwater Noise Radiated by a Wave Energy Device - Portugal
- Pile Driving Zone of Responsiveness Extends Beyond 20 km for Harbour Porpoises (*Phocoena phocoena* (L.))
- Acoustic characterization of sensors used for marine environmental monitoring
- Vessel Noise Effects On Delphinid Communication
- Potential Benefits of Vessel Slowdowns on Endangered Southern Resident Killer Whales
- Exposure to Seismic Survey Alters Blue Whale Acoustic Communication
- Harbour porpoise responses to pile-driving diminish over time
- Towards a Numerical Model to Simulate the Observed Displacement of Harbour Porpoises *Phocoena phocoena* Due to Pile Driving in Belgian Waters
- Whale-call response to masking boat noise
- Environmental Effects Monitoring Report 2011-2013
- Underwater construction and operational noise at alpha ventus
- Underwater Active Acoustic Monitoring Network For Marine And Hydrokinetic Energy Projects
- Responses of Harbour Porpoises to Pile Driving at the Horns Rev II Offshore Wind Farm in the Danish North Sea
- Gray Whales, *Eschrichtius robustus*, Avoid the Underwater Sounds of Killer Whales, *Orcinus orca*

- Basin-wide contributions to the underwater soundscape by multiple seismic surveys with implications for marine mammals in Baffin Bay, Greenland
- Marine Mammals and Ocean Noise: Future Directions and Information Needs with Respect to Science, Policy and Law in Canada
- Request for advice about the displacement of marine mammals around operational offshore windfarms
- Effects of Noise and By-Catch on a Danish Harbour Porpoise Population
- Hearing Thresholds of a Harbor Porpoise (*Phocoena phocoena*) for Playbacks of Seal Scarer Signals, and Effects of the Signals on Behavior
- Responses of Harbour Porpoises to Pile Driving on a Temporal and Spatial Scale
- Aquamarine Power Marine Mammal Observation Report
- Assessing Auditory Evoked Potentials of Wild Harbor Porpoises (*Phocoena phocoena*)
- Environmental Monitoring of the Paimpol-Brehat Tidal Project
- Understanding the Population Consequences of Acoustic Disturbance for Marine Mammals
- Aversiveness of Sounds in Phocid Seals: Psycho-Physiological Factors, Learning Processes and Motivation
- Effects of Pile-Driving on Harbour Porpoises (*Phocoena phocoena*) at the First Offshore Wind Farm in Germany
- Assessing the Underwater Acoustics of the World's Largest Vibration Hammer (OCTA-KONG) and Its Potential Effects on the Indo-Pacific Humpbacked Dolphin (*Sousa chinensis*)
- Assessing Underwater Noise Levels during Pile-Driving at an Offshore Windfarm and its Potential Effects on Marine Mammals
- Investigations into the effects of pile driving at the offshore wind farm Horns Rev II and the FINO III research platform
- Assessment of Basic Audiometric Functions in Killer Whales (*Orcinus orca*) at Loro Parque, Tenerife, Spain
- Summary on Harbour Porpoise Monitoring 1999-2006 around Nysted and Horns Rev Offshore Wind Farms
- Multiple-Pulse Sounds and Seals: Results of a Harbor Seal (*Phoca vitulina*) Telemetry Study During Wind Farm Construction
- Testing the Effectiveness of an Acoustic Deterrent for Grey Whales Along the Oregon Coast
- Framework for Assessing Impacts of Pile-Driving Noise from Offshore Wind Farm Construction on a Harbour Seal Population
- Broad-Scale Acoustic Monitoring for Cetaceans and Underwater Noise in Relation to Offshore Wind Farm Construction in Scotland
- Underwater Noise from a Wave Energy Converter Is Unlikely to Affect Marine Mammals
- Use of Static Passive Acoustic Monitoring (PAM) for monitoring cetaceans at Marine Renewable Energy Installations (MREIs) for Marine Scotland
- The Effect of Acoustic Harassment Devices on Harbour Porpoises (*Phocoena phocoena*) in the Bay of Fundy, Canada
- Marine mammals and windfarms: Effects of alpha ventus on harbour porpoises
- Underwater Noise From Three Types Of Offshore Wind Turbines: Estimation Of Impact Zones For Harbor Porpoises And Harbor Seals
- Perception of Low-Frequency Acoustic Signals by a Harbour Porpoise (*Phocoena phocoena*) in the Presence of Simulated Offshore Wind Turbine Noise
- Underwater noise levels of pile-driving in a New Zealand harbour, and the potential impacts on endangered Hector's dolphins
- Evidence of a Lombard Response in Migrating Humpback Whales (*Megaptera novaeangliae*)
- Effects of Offshore Pile Driving on Harbour Porpoise Abundance in the German Bight: Assessment of Noise Effects
- Takes of Marine Mammals Incidental to Specified Activities; Pile Placement for ORPC Maine's Cobscook Bay Tidal Energy Pilot Project
- Noise mitigation systems and low-noise installation technologies
- Assessing the Responses of Coastal Cetaceans to the Construction of Offshore Wind Turbines
- Long-range Effects of Airgun Noise on Marine Mammals: Responses as a Function of Received Sound



Level and Distance

- Development of an air bubble curtain to reduce underwater noise of percussive piling
- Underwater Noise of Whale Watching Boats and Potential Effects on Killer Whales (*Orcinus orca*), Based on an Acoustic Impact Model
- Characterizing the Relative Contributions of Large Vessels to Total Ocean Noise Fields: A Case Study Using the Gerry E. Studds Stellwagen Bank National Marine Sanctuary

### 2.3.0.2 Fish AND EMF

Literature from Tethys Knowledge Base based on tags: Fish, EMF.:

- Evidence for Geomagnetic Imprinting as a Homing Mechanism in Pacific Salmon
- Rearing in a Distorted Magnetic Field Disrupts the “Map Sense” of Juvenile Steelhead Trout
- Magnetic field discrimination, learning, and memory in the yellow stingray (*Urobatis jamaicensis*)
- Effects of EMF emissions from undersea electric cables on coral reef fish
- Appendix O Summary of Current Information Related to Electromagnetic Field Impacts on Fish and LEEDCo Proposed Transmission Cable
- Behaviour Of Trout (*Salmo Trutta L.*) Larvae And Fry In A Constant Magnetic Field
- A Comparison of Fishes and Invertebrates Living in the Vicinity of Energized and Unenergized Submarine Power Cables and Natural Sea Floor off Southern California, USA
- Behavioral responses by migrating juvenile salmonids to a subsea high-voltage DC power cable
- Pulse trawl fishing: characteristics of the electrical stimulation and the effect on behaviour and injuries of Atlantic cod (*Gadus morhua*)
- Effects of an Electric Field on White Sharks: In Situ Testing of an Electric Deterrent
- Aversive responses of captive sandbar sharks *Carcharhinus plumbeus* to strong magnetic fields
- Compatibility of Magnetic Imprinting and Secular Variation
- Long-Term Exposure of Several Marine Benthic Animals to Static Magnetic Fields
- Geomagnetic Imprinting: A Unifying Hypothesis of Long-Distance Natal Homing in Salmon and Sea Turtles
- An Inherited Magnetic Map Guides Ocean Navigation in Juvenile Pacific Salmon
- Sub-Sea Power Cables And The Migration Behaviour Of The European Eel
- On Electric Fields of Power Lines and on Their Perception by Freshwater Fish
- Field Scale Experiments to Assess the Effects of Offshore Wind Farms on Marine Organisms
- Effect of Modified Magnetic Field on the Ocean Migration of Maturing Chum Salmon, *Oncorhynchus keta*
- Permanent magnets reduce bycatch of benthic sharks in an ocean trap fishery
- The Perception of Weak Electric D.C. Currents by the European Eel (*Anguilla anguilla*)

## 3 Spatial

### 3.1 Fish: Essential Fish Habitat

\begin{table}

\caption{

Source: NOAA Fisheries

Spatial: within site

}

species	lifestage
Silver Hake	Eggs/Larvae, Adult, ALL
Atlantic Herring	Juvenile, Adult, Larvae, ALL
Windowpane Flounder	Eggs, Juvenile, Adult, Larvae, ALL
Smooth Skate	Juvenile, ALL
Atlantic Sea Scallop	ALL
Ocean Pout	Adult, Eggs, Juvenile, ALL
American Plaice	Adult, Juvenile, Larvae, Eggs, ALL
Atlantic Mackerel	Juvenile, Adult, ALL
White Hake	Larvae, Adult, Eggs, Juvenile, ALL
Thorny Skate	Juvenile, ALL
Winter Flounder	Eggs, Juvenile, Larvae/Adult, ALL
Acadian Redfish	Larvae, ALL
Haddock	Juvenile, ALL
Yellowtail Flounder	Adult, Juvenile, ALL
Red Hake	Adult, Eggs/Larvae/Juvenile, ALL
Little Skate	Juvenile, Adult, ALL
Pollock	Adult, Juvenile, Larvae, ALL
Atlantic Cod	Larvae, Adult, Juvenile, Eggs, ALL
Winter Skate	Juvenile, ALL
Basking Shark	ALL

\end{table}

### 3.2 Marine Mammals: Biologically Important Areas for Cetaceans

\begin{table}

\caption{

Source: NOAA CetSound

Spatial: within 10 nautical miles of site

}

Species	Behavior	Time	Place
Humpback whale ( <i>Megaptera novaeangliae</i> )	Feeding	March - December	Gulf of Maine; Stellwagen Bank;
Harbor porpoise ( <i>Phocoena phocoena</i> )	Small and resident	July - September	Gulf of Maine
Fin whale ( <i>Balaenoptera physalus</i> )	Feeding	June - October	Northern Gulf of Maine

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