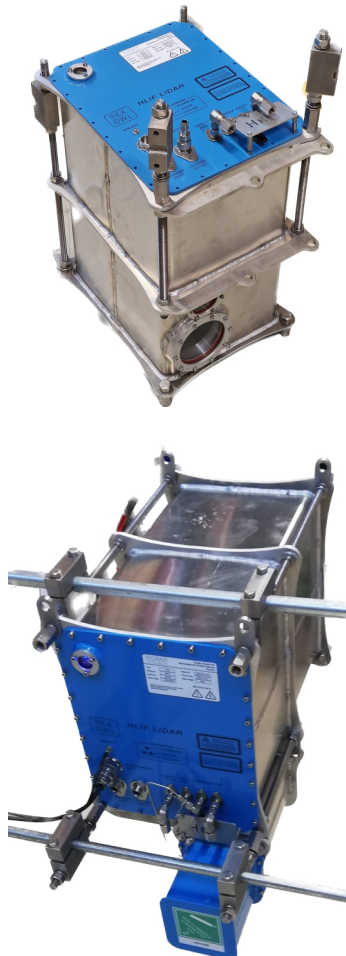


SEA OWL™ and OWL™MAP

Ocean Visuals SEA OWL™ is a patented, integrated sensor solution for real-time detection of oil spills in marine environment on board of moving vessels or stationary platforms – Oil-in-Water Locator (OWL™). It can detect and classify oil on water surface and in water column, submerged oil, and oil in ice slush. Assembled in a waterproof, lightweight aluminium casing and operating on low power consumption (less than 250 W) it provides sensing above water at distances up to 50 m with sensitivity for oil detection down to 3m with part per million (*ppm*) concentration range and sampling rates up to 100 Hz. It operates continuously and unattended with very low maintenance needs, also in extreme weather conditions.

SEA OWL™ operational sensing method is based on Laser Induced Fluorescence (LIF). Its hyper-spectral detector records the spectral response of oil molecules in water with every laser pulse of UV light. Thanks to integrated analysis of HLIF spectra the device can distinguish oil from any other substances in water. If detected oil content is higher than a pre-set threshold, an alarm is triggered. SEA OWL™ can easily be integrated with any vessel or shore-based information management system.

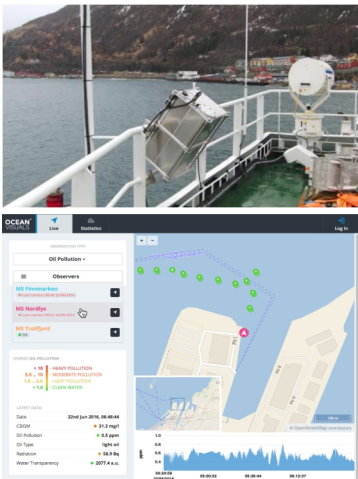



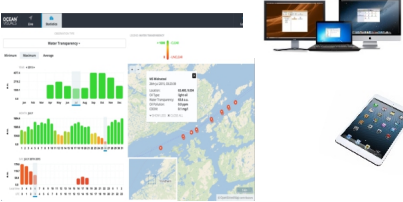


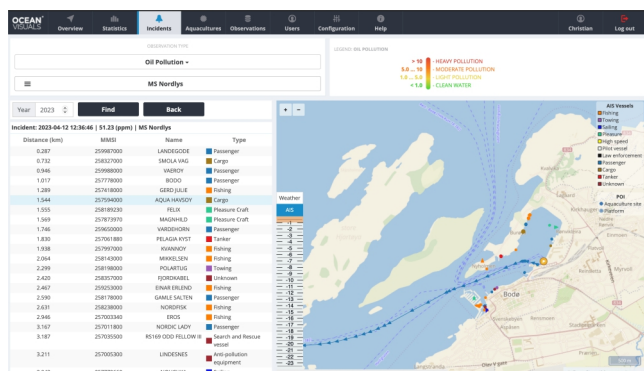
Technical Specification: SEA OWL™ and OWL™MAP

Operational	
Sensing distance	Up to 50 m
Conditions of operation	Continuous, Day and Night
Min. oil concentration in water column /oil thickness on water surface	1 ppm / 1 µm
Pulse repetition / sampling rate	Up to 100 Hz
Sensing laser	UV, eye-safe
Hyperspectral detector	Ultraviolet (UV) and visible spectral range
GPS	Integrated
Control and communication	
Operational control	Integrated micro-controller
Data storage	Local and central servers
Setup of device operation	Remote, via local server
Communication line	Ethernet
Alarm processing	Automatically
Data visualization on the map	Real-Time
General	
Power consumption	250 W / (1500 W Arctic)
Dimensions (L x W x H)	65 cm x 45 cm x 37 cm
Weight	43 kg

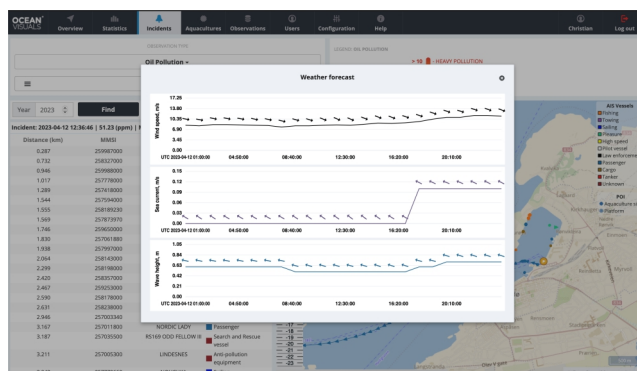
Ocean Visuals SEA OWL™ sensor data is presented in OWL™MAP, a map-based multi-sensor, multi-layer software platform with local and central user interface. OWL™MAP has detailed mapping of oil spill locations and historic measurement results (type of oil and concentrations) in real-time mode or in selected time window from historical data stored in the database. Detection alarm triggers may be set remotely.

SEA OWL™ and OWL™MAP

<p>SEA OWL™ and OWL™MAP</p> 	<ul style="list-style-type: none"> Oil detection based on real-time spectral response from the oil molecules in water Online / Offline data management (collection, initial analysis, distribution) Online / Offline data visualisation (map-based, graphs) Possible to provide data to 3rd party applications Configurable notifications / alarms Data synchronization to OWL™MAP cloud service based on data priority Data synchronization to OWL™MAP client interfaces based on data priority
<p>OWL™MAP Communications</p> 	<ul style="list-style-type: none"> GSM, CDMA, satellite, Wi-Fi, ... Secure connection (HTTPS)
<p>OWL™MAP cloud service</p> 	<ul style="list-style-type: none"> Data collection, management and analysis Storing processed and raw data of interest 3rd party API for data access based on customer needs Remote maintenance / customer support
	<ul style="list-style-type: none"> Secure connection (HTTPS)
<p>OWL™MAP client interfaces</p> 	<ul style="list-style-type: none"> Map-based visualization (real-time & historical data) Web / Internet interface Data synchronization across applications (near real-time) Configurable notifications / alarms



OWL™MAP: Interactive map with AIS data layer, oil pollution reporting with backtracking in time



OWL™MAP: Statistical data for selected observation period