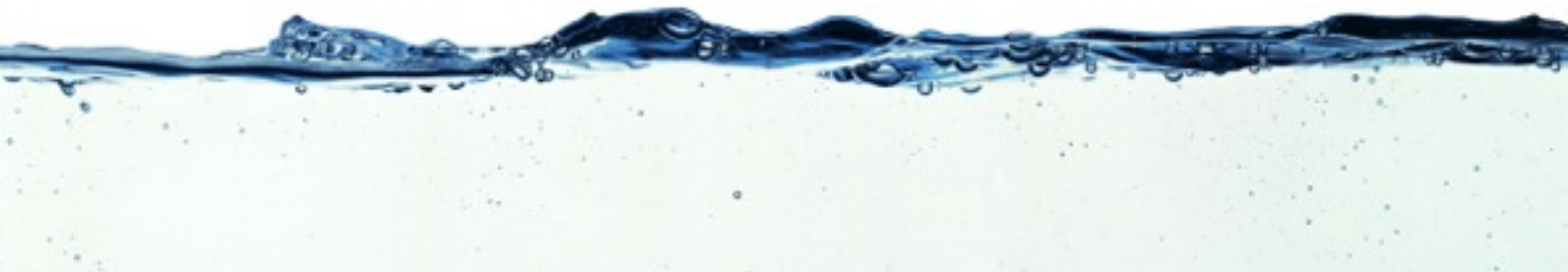




OC-Tech

An efficient and profitable solution



Versatile and consistent.

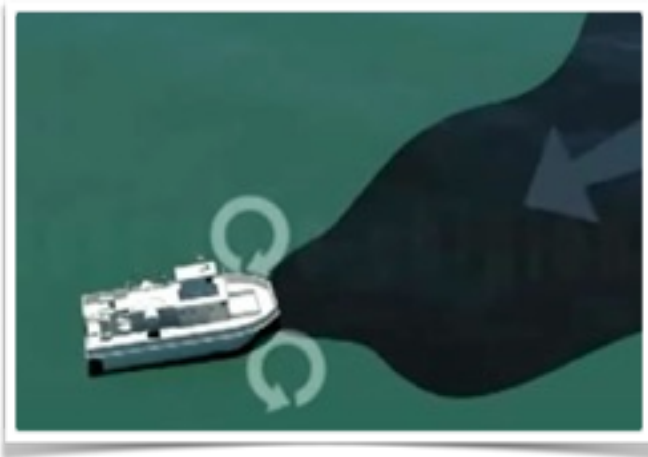
Ocean Cleaner Technology is the result of research conducted over more than 20 years by Mr. Pepín Caraballo of Cádiz, Spain, developing the **OC-Tech**, a new catamaran-hulled spill recovery vessel, which addresses market requirements and can respond quickly, without prior and time consuming analysis, to hydrocarbon spills. **OC-Tech** is also able to deal with algal blooms, jellyfish infestations and solid flotsam and debris contamination. The vessel is versatile on the open sea, in port, inshore and in river situations.

OC-Tech makes an attractive investment because of its competitive pricing, low operating and maintenance costs compared to existing technologies and due to its wider range of applications, including MARPOL services.



Patented functionality.

As a result of industry surveys the Ocean Cleaner Technology team has always worked under the premise that the **OC-Tech** should not only be suitable for the efficient recovery of hydrocarbon spills but must also have capability in other clean-up applications, making it a useful tool in the best-practice management of sea, port and coastal environments.



OC-Tech offers new, patented technology with three key and unique aspects: The ability to generate and precisely control a flow between the two catamaran hulls; a self regulating collection system, which can separate both solids and types of liquid and a unique polyethylene bagging system enabling recovered spill or other contaminants to be stored safely until subsequent removal for processing and treatment.

The catamaran hulls and propulsion system give **OC-Tech** exceptional operating flexibility, allowing it to engage efficiently in a wide range of situations, including confined spaces, in shallow waters or close inshore.

The **OC-Tech** is a shallow-draft catamaran with two main propulsion units at the rear of each hull and auxiliary thruster units located in each of the bows. The bow units allow the **OC-Tech** to generate and control a water flow between the two hulls, even while stationary, offering advanced collection possibilities. The four propulsion units give **OC-Tech** very precise manoeuvrability.

The breadth of situations **OC-Tech** can be applied to include anything from holding a static position alongside a ship leaking contaminant to clean-up of confined and difficult areas in ports, close inshore, on rivers and on dams. This versatility allows for novel but simplified action plans for **OC-Tech** users.



The collection system can grade and separate solids from liquids according to application requirements. Liquids can then be further separated, through decantation, resulting in a high hydrocarbon separation rate, while avoiding emulsions. The separated liquids can then be stored or, if necessary, bagged during operation.

The unique **OC-Tech** polyethylene bagging system means that spill and solid contaminants can be contained safely during **OC-Tech** operation. Both liquids and solids can be stored in these large floating bags, which once filled are sealed, marked with a buoy and released back into the water for subsequent collection. The bags can be towed away by an unspecialized auxiliary vessel, even a small boat, to port or to the shore for removal and treatment. The **OC-Tech** is able to simultaneously collect and bag both solids and liquids.

For hydrocarbon spills of 1mm thickness and using the bagging system, the **OC-Tech** is able to collect and bag at a rate of 15MT per hour, so potentially +300MT per day. Each bag holds 2MT. For small spills and quantities of solids the **OC-Tech's** onboard tanks can be used for storage and later safely unloaded in port. This capacity allows MARPOL services to be offered to third parties.

The bagging system permits **OC-Tech** to operate continuously for up to 48 hours as there is no need to transfer collected spill or solids to support vessels or return to port for offloading. Typically **OC-Tech** operates at 3 knots in open water.



Original and competitive.

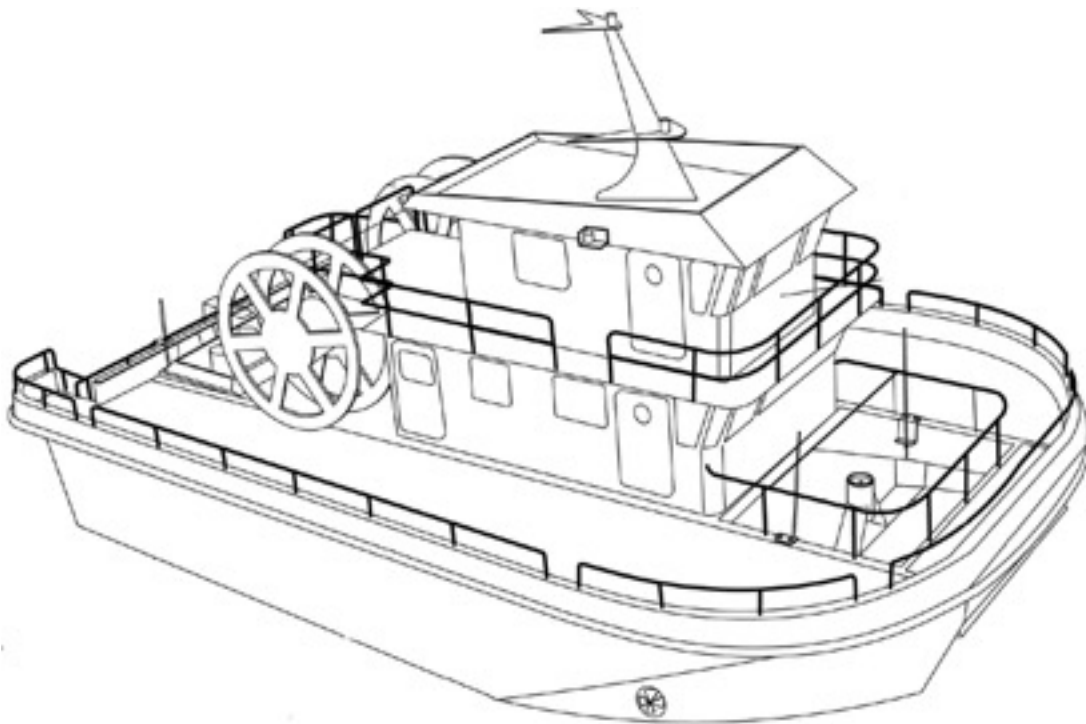
Ocean Cleaner Technology's original recovery and storage systems provide the recovery sector with a more profitable vessel than existing alternatives because of its better adaptability to a wide range of tasks; efficiency; excellent response time and simple equipment, which needs no time consuming calibration for optimal use.

Additionally, for the investor, the system's simplicity, compared to existing options, offers further advantages as smaller crews are necessary and crew members require less training and specialization. Down-time is also reduced to a minimum during crew changeovers.



OC-Tech offers a large deck area, which can be used for secondary and complimentary tasks, such as the transport of persons and equipment or as a platform for maintenance work related to port and bunkering services, as well as deployment of buoys and containment booms, demarcation floats or environmental investigations such as sampling.

The vessel has a high-pressure hose system which can be used in inshore clean-up operations, for the removal of contaminants from rocks, beaches and other areas with difficult access. Contaminants removed with the hose can then be directed towards the vessel's tunnel for collection using the unique propulsion system. Additional filters can be fitted to further purify collected water and prevent eutrophication in enclosed waters.



Original design 1.991

Quality and effectiveness.

To guarantee competitiveness and a high quality vessel **Ocean Cleaner Technology** employs aeronautical industry construction methods. The catamaran is built entirely from composite materials in approximately 4-5 months depending on intended use. Production is flexible and allows a high degree of customization specific to client requirements. To ensure efficient collection a vessel of between 12 and 25 meters in length is recommended.

The hulls are joined by an aluminum frame, to reduce weight, and within which the separation and collection unit is situated. The unit can easily be calibrated or removed using a hydraulic system.

The vessel exhausts include spark arrestors to prevent fire ignition and explosions during operation.

The **OC-Tech** is specifically designed to be easily dismantled into sections for transport by road or even helicopter to a spill location, where the vessel can quickly be reassembled on site.



OC-Tech, a universal solution.

Technical specifications, OC-Tech 16m

Overall length: 16.00m.

Overall breadth: 8.50m.

Hull Beam: 2.75m.

Tunnel width: 2.75m.

Moulded depth: 2.00m.

Draft: 0.80m.

Main motors: 2 x 230hp (min) CUMMINS QSB 5.9 with ZF85A/MG5050A transmission

Bow propulsion: In each bow, hydraulic thruster driven by a CUMMINS 9.5/11.5 MDKBM generator

Fuel tanks: 2000l.

Patented collection system

Patented bagging system

Internal storage tanks

Wet exhaust system

Hydraulic steering

Antifog treated bridge windows with clear-view screen

Chain windlass

Cabin equipped with galley and heads

Approved mixed lighting with directional spotlight in work area

Approved security systems

Main and auxiliary anchor

Bilge pumps; Tanks and washdown pump for the deck

500l drinking water tank

Perimeter inflatable fenders

Safety and handrails in marine grade stainless steel

Weather station

Winch in work area to assist with collection of solids

Approved gas and flame detectors

High quality, professional standard, autopilot

Horn

Professional standard compass

Communications equipment

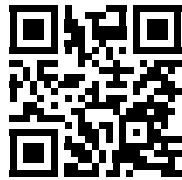
Professional standard GPS navigator

High-contrast radar

Professional standard radio phone

Professional standard satellite phone

Sonar plotter



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