

# Marine Litter Management, Collection & Removal



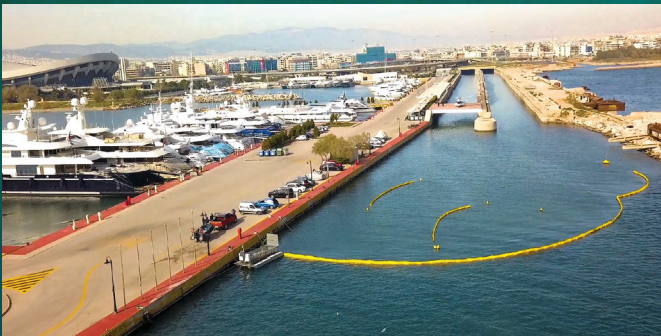
# CLEAN TRASH

*In-situ containment, collection & removal  
of marine litter at river mouths*

Over 80% of marine litter is estimated to originate from land-based sources, one of the main contributors being river sources. To combat this issue, New Naval has created and developed the **CLEAN** (CLAIM's Litter Entrapping Autonomous Network) **TRASH** (Tactical Recovery Accumulation System Hellas) equipment solution to address the issue.

The system is an unparalleled and highly-efficient solution to manually managing and removing marine litter from river mouths before the litter can enter into a larger body of water where the litter can cause negative effects on the marine environments and where plastics can break into micro and macro-plastics dramatically affecting marine life and marine ecosystems. The system has a highly efficient storage design with multiple levels that can be remotely interchanged when filled.

Systems are tailor-made for each installation environment and are intended to be designed in a range of shapes and sizes to meet the task at hand as efficiently and effectively as possible.



As a participant in the EU Horizon 2020 project, CLAIM, Cleaning marine Litter by developing and Applying Innovative Methods, New Naval has developed an innovative marine litter collection and removal technology for river mouths to address the increasing marine litter problem in the world. This project receives funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 774586.

New Naval has more than 40 years of experience providing the highest quality marine and environmental solutions to protect, preserve & restore our world.

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## CLAIM's Litter Entrapping Autonomous Network



New Naval

## Tactical Recovery Accumulation System Hellas

Advanced marine litter collection system



[www.claim-h2020project.eu](http://www.claim-h2020project.eu)  
[www.newnaval.gr](http://www.newnaval.gr)



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# CLEAN TRASH Overview

The system utilizes a combination of active, advanced operational systems and time-tested oil spill response, salvage and marine protection equipment:

- Heavy-duty containment boom with solid cylindrical floats with a subsurface skirt contains and guides litter.
- Auxiliary fence type booms drive/deflect/pace incoming litter to the collection cage.
- A floating foundation attaches to the boom and holds the removable collection cage.
- The hot-dipped galvanized steel collection cage utilizes 3 separate collection chambers/levels that lower and raise to store the litter (down to 5 mm in size). The cage is equipped with lifting points and a sliding door.
- Independent floats utilize salvage technology to move the storage level. They can be raised and lowered by satellite when a level is filled.
- Remote operation and observation versions are available with the development of standalone models optional.

# Features & Options

The features below have been utilized in previous installations or designed to be applied to the system. Installation requirements, location and operational objectives decide the features selected:

- Independent remote-control system for:
  - Lowering/raising of storage levels
  - System camera; real-time viewing
  - Information collection systems viewing
- 24/7 autonomous camera
  - Recording system for camera
  - Online, remote viewing of the camera
  - Multiple camera system for situational monitoring
- Alternate power solutions based on Green energy solutions:
  - Solar panel(s)
  - Wind power
  - Hydro Power/turbine (current-based power)
- Power storage; stand-by options
- Marine light(s)
- Scientific instruments for data collection:
  - Salinity meter
  - Current meter
  - Depth sounder
- Self-propulsion for non-accessible installation locations
- Impeller to induce artificial currents or promote natural currents

# Applications & Installations

Every installation is tailor-made and strategically planned in order for the system to operate with the highest efficiency and effectiveness while addressing the scale of the issue:

- System components are custom-built, designed to properly address the environment, location and river of every installation.
- Operations follow a tested and structured format, with litter removal dependent on litter volumes in the river. This results in minimal operating costs and a reduction of the need for physical attendance by operators for long periods.
- The system can be continuously operated, monitored and utilized to collect and compile a litter information database regarding the volume of litter exiting the river and the correlations of these volumes to weather and river fluctuations.

