

EnviRo-Care

Complete Marine Debris Management Solutions

PROVEN TECHNOLOGY

DESMI

DESMI

EnviRo-Care

Like you, we at DESMI deeply feel the importance of the global climate crisis. Whether you belong to a public/ governmental sector, private sector or if you are a NGO, we can help you combat the challenge of cleaning up floating trash in your area with our end to end solutions.

In continuation of our pursuit for green & clean environment and our rich history spanning over 40 years in saving the environment and oceans in particular from marine pollution; DESMI EnviRo-Care have delivered projects that supports health initiatives, ocean conservancy agendas and protect the local communities & environment.

After 40 years of safeguarding marine environments from oil spills and protecting waters around the globe, DESMI EnviRo-Care was created to provide unsurpassed containment and recovery methods in water bodies to deflect and collect floating debris that includes municipal garbage & plastic articles.

We deliver projects & high quality equipment that avoid unnecessary disturbance to the environment, people & marine life, thus ensuring the right balance to preserve ecosystem with modern technologies.

What are some of the benefits you create in the world when you partner with DESMI ?

- Prevention and reduction of marine debris and its impact on the environment.
- Improvement and protection of marine life ecosystems.
- Impact on health, safety & waste management education.
- Recovery of public and tourist spaces.
- Enable the generation of new local jobs.
- Add to the global strategy to reduce plastic pollution in the oceans.
- Empower local government initiatives.
- Positive national and international news coverage.
- Reduce health risk and improve work conditions for operators.
- Environmentally friendly technologies.
- No harmful emission.
- And more...



The clean-up of ocean-bound plastics is one of the most challenging pollution problems ever faced.

Pollution from plastics poses a threat to nature and society through its huge impact on marine life, fishery resources, the livelihood of coastal areas, basic nature values, tourism, and human health.



Pollution from plastics

- A threat to nature and society

Since 2000, the plastics industry has produced as much plastic as all the preceding years combined.

The production of virgin plastic has increased 200-fold since 1950 and has grown at a rate of 4 % a year since 2003.

In 2016, the most recent year for which data is available, production reached 396 million metric tons. That is equivalent to 53 kilograms of plastic for each person on the planet.

Production of plastic in 2016 resulted in approximately 2 billion metric tons of carbon dioxide emissions, which accounts for almost 6 % of the year's total global carbon dioxide emissions. If all predicted plastic production capacity is constructed, current production could increase by 40 % by 2030.

75%

Of all plastic ever produced is waste.

1/3 of Plastic

Already became land or marine pollution and 104 Mill. will leak into nature by 2030.

80%

Of Ocean plastic are estimated to come from Land-Based Sources.

40%

Business as usual. Increase in plastic Production by 2030

DESMI

- Can help you meet the need to curb the challenge of cleaning up the Ocean-bound plastic



By collaborating with DESMI, your municipality or corporation will be contributing to the UN's Sustainable Development Goals.

DESMI is capable of collecting all floating marine debris. The solution is designed to generate circular economy benefits both to DESMI and to its customers by converting collected waste into a resource (if responsible waste management practices are performed) besides contributing to UN's sustainable development goals.

We prevent the pollution to reach our oceans, contribute to safe marine life, healthy environment and mitigate waterborne diseases and create awareness. In addition, we create a positive impact on UN Sustainable development goals 6, 11, 12, 13, 14 & 17.



A Certified UNDP Partner in Impacting UN SDG's.

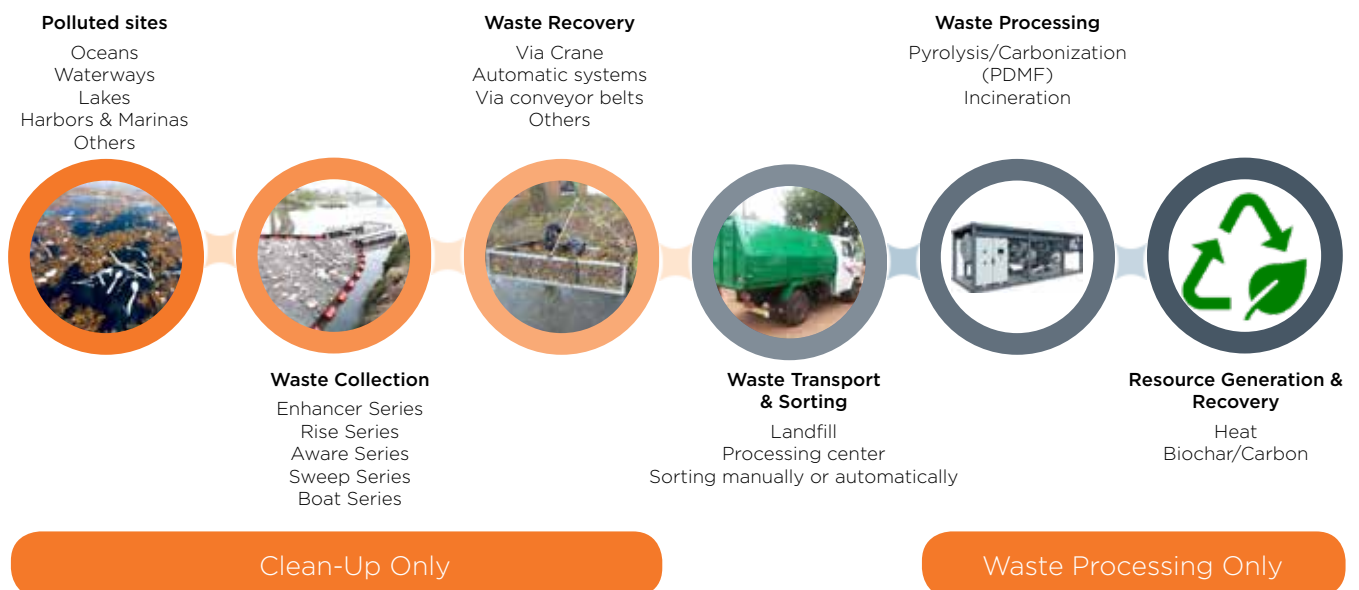
Helping our customers to manage their waste & water sector and offering simplified end-to-end solutions

Seamless customer engagement, enabling our customers to have resourceful yet simplified solutions for efficient & quality waste management

Our Circular Approach to Manage Marine Debris

With a focus on a circular approach, DESMI will help you to identify the polluted site, recommend the best solution for each specific challenge and contain and recover all floating marine debris

from the site. Apart from that DESMI will advise and suggest a different solution for processing the marine debris recovered, obtaining a valuable resource.



Clean-Up Only

Waste Processing Only

DESMI Competences Clean-Up + Waste Processing

EnviRo-Care Products

Our Green technologies and environmental conscious products & systems comply with regulations in every relevant market

Product Range	Series
Containment and Recovery Units	<ul style="list-style-type: none"> • Enhancer • Rise • Treat • Seaweed Skimmer (Sea Turtle) • Sweep
Booms options	<ul style="list-style-type: none"> • Ro-Fence • Mesh Boom
Boat Options	<ul style="list-style-type: none"> • Aware • Boat Superior
Waste Processing Technology	<ul style="list-style-type: none"> • PDMF • Incinerator

ENHANCER Series - Marine Life Friendly Trash Remover

The simple, and consequently reliable, DESMI Enhancer has a proven record for removing floating trash in rivers, channels, streams and other areas with flow in one direction. It is a floating basket with front entrance and front brackets allowing connection to booms giving the opening required.

The robust construction is ensured by making the actual floating structure in galvanized steel and the floats in heavy HDPE pipes with welded on flanges.

During emptying of the two versions (basket and net) the Enhancer is designed with a gate which is closed when the basket or net is lifted out of the Enhancer in order to ensure the unit is not filled with floating debris outside the collection basket/net.

The recovered material can be either manually

treated, or DESMI can also deliver a containerized pyrolyze treatment plant called PDMF giving 80 % volume reduction and with carbon negative by-products.

Advantages of ENHANCER Series:

- Simple and strong construction
- Designed to contain & recover all type of marine debris
- Operates under a wide range of tidal conditions and water flow
- No harm to the environment & marine life
- Low maintenance
- High recovery capacity

ENHANCER Series (With Basket)



ENHANCER Series (With Net)



RISE Series - Automated Trash Remover System

DESMI units under Rise – series are smart surface debris collection systems. These automated systems are designed to guide the marine debris for easy recovery with perforated belt designs. Serving the efficient purpose to remove the floating surface debris, while allowing the water to pass and intending to allow marine life to stay unharmed.

The Rise is equipped with electrically driven belt systems that lifts the debris out of the water draining away free water by gravity, and then load the material on a subsequent angled belt to either right, left or in a straight line direction.

The operation of the Rise-series increases the efficiency of waste collection, in addition to, minimizing the time, which an operator may spend in the proximity of the polluted waters. Hence, making the operation safer for the operators.

The Rise - Series systems are made in marine grade aluminum whereas, the buoyancy is created by high abrasion resistant pontoons. Furthermore, the angled belt is counter balanced making the transport of waste material safe and easy. With their modular design, the series ensures ease of shipping, storage and assembly.



Advantages of Rise Series:

- Simple and strong construction - High durability
- Easy to assemble and operate
- Up to 3,500 kg recovered waste per hour
- Operates under a wide range of tidal conditions and water flow
- No harm to the environment & marine life
- Low maintenance & energy consumption
- Reduce health risk to the operator

TREAT Series - Affordable and Portable Trash Remover

The units under the TREAT series are lightweight, low cost, waste recovery units and designed for the use in areas with lower capacity demand and with eventual difficult or limited access.

The Unit is portable and can be operated by one person. The recovery bags for waste collection can be light, cheap and disposable or reusable type.

The bag can immediately be replaced with a new one, with little manual work.



AWARE Series - Remote Friendly Trash Remover

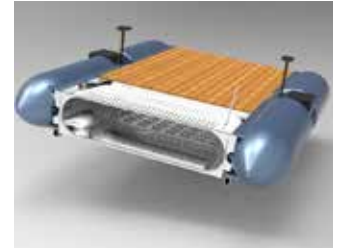
The DESMI AWARE is a unique series that includes remote controlled mobile units, designed with entrance opening placed at the water level to allow free flow of water surface trash to enter waste collection bag.

This series offers a floating platform mounted with four pontoons giving a high buoyancy. The series prioritizes electrically driven Propulsion motors to ensure negligible CO₂ emissions and the safety of our environment.

The position of the two electrically operated propulsion motors allows the unit to turn on its axis. This feature can also allow the use of Aware Series in narrow streams.

Advantages of Aware Series:

- Easy to assemble
- Require less storage space
- Easy to operate
- Easy to launch
- High collection capacity



SWEEP Series - Ocean Friendly Trash Remover

Combatting Marine Pollution with the SWEEP - series will result in a much cleaner shoreline and reduce the plastic in the water significantly. The concept is well proven within the Oil Spill Combat industry when recovering heavy fractions of oil/tar balls.

Experience has shown that it is important to have puncture resistant guide booms creating the opening of the system. DESMI is using two sizes: Ro-Boom 650 and Ro-Boom 1000 as guide booms. The guide boom 650 is 2 sections, each with 3 air chambers. The guide boom 1000 is 2 sections, each with 5 air chambers. The actual collection part of the Sweep series consists of an entrance net connected to the two guide booms. The entrance net is again connected to one or more trawl bags recovering the floating debris.

The other end of the guide booms has tow bar and towing rope connected to one or two towing boats. If towing with two boats, it is important to ensure good and constant communication between the boats. With one boat operation there are two possibilities:

1. Having the boat equipped with a Jib with a length of typically 5 - 8 meters giving a corresponding opening of the Sweep

2. Using a Ro-Kite which will allow an opening of up to 20 meters - will normally require a boat minimum 12 - 15 meters in length with keel and some 150 hp



Advantages of Sweep Series:

- Long lasting durability
- Easy to assemble
- Easy to Operate
- Design giving low shipping cost
- Up to 3,500 kg recovered waste per hour



BOAT SUPERIOR Series - User-friendly Trash Remover

This BOAT Series is thoughtfully designed to recover floating debris from harbors, rivers, lakes and other waterbodies. Its simple design helps to improve the efficiency in clean-up and makes it easy to use & maneuver.

Marine debris are guided smoothly into the specially designed angle at the forward of the boat and thereafter, with the help of mesh conveyor, the surface debris are collected into an onboard storage area to run away any free water before its disposal.

This series offers a wide variety of sizes, power drives and accessories that enables our partners to find the right solution for different needs and challenges.

Build with strong and durable materials like the HDPE pontoons ensure abrasion resistance & long lifetime.



RO-FENCE BOOM - Durable Containment Boom

RO-FENCE is a rigid buoyancy boom for long-term deployment, manufactured in robust materials designed to withstand harsh effects of abrasion, UV, oil and marine degradation.

RO-FENCE is best suited to protected and inland waters. The bright colour floats are manufactured in high abrasion resistant material. These moulded HD Polyethylene floats are attached to base fabric with corrosion resistant fittings. The same floats are utilized for both boom sizes, providing a commonality of spares.

The floats can be unbolted from the base fabric for cleaning if necessary. A float can be simply replaced if damaged.

Anchor eyebolts can be provided at regular intervals at the floats or at the end connector.

RO-FENCE is ballasted by lead weights placed under each pair of floats. Alternatively, stainless steel blocks or galvanized chain ballast can be used. Connectors are also provided at the ends of each

section according to preference. The standard connector is ASTM. Other types of connectors can be fitted on request.

RO-FENCE can be supplied in section lengths up to 200 m / 656 ft. The heavy-duty floats can be filled with foam as an option, to provide ultimate reliability and increased buoyancy.

Advantages of RO-FENCE:

- RO-FENCE has rugged construction for long life
- Fitted with impact and abrasion resistant floats
- Sturdy base fabric
- Optional foam filled floats for ultimate reliability
- A choice of section lengths and end connectors
- Simple to repair
- Ideal for containment and protection from oil spills, trash and other floating pollutants
- Extreme durability ensures low maintenance requirements



SEAWEED Skimmer (Sea Turtle) - Eco-friendly Seaweed Removal System

DESMI SEA TURTLE MKII - An Eco-Friendly Sargazo on water Free-of-Sand Removal System. An effective, eco-friendly and economic way to remove sargassum from water before it takes contact with sand and damage the beaches.

It is very well known that sargassum can't be just contained with barriers, if not diverted, sargassum must be removed from water.

The DESMI SEA TURTLE MKII is the result of years of investigation and a number of different tests in a variety of scenarios.

The unit is able to remove sargazo even in shallow water and bad weather conditions and transport it

far from the beach using 15 cm / 6" or 20 cm / 8" buried PVC pipes or rigid hoses. The concept reduces the need of trucks, tractors and people removing sargassum from the beach.

The system requires only one or two operators, has no limitation on board about the amount of recovered sargassum neither with the number of operation hours, and avoids the use of bags or sargassum transshipment.

The DESMI Sea Turtle MKII is hydraulically driven, controlled via a Radio Remote Control supplied with the DESMI electric or diesel power pack. The Remote Control is equipped with an emergency stop button.



Advantages of the Seaweed Skimmer:

- Sargassum free-of-sand removal
- Very low operational and maintenance cost compared with sargazo removal workboats
- No license, no crew required
- Able to perform in shallow water and bad weather conditions
- Requires only one or two operators
- Low energy consumption
- Able to manage most of the floating plastic trash encountered with the sargassum arriving to the beach
- Safe for operators, swimmers and sea species
- Working with the DESMI MESH BOOM in a pocket configuration increases the sargassum removal rate



MESH BOOM - High Buoyancy Floating Mesh Barrier

A revolutionary high buoyancy floating mesh barrier for Sargassum Seaweed, floating trash, water lilies and other floating elements that require control.

DESMI innovates its line of floating booms, developing a unique in the market mesh floating boom able to perform in bad weather conditions to contain and deflect undesirable elements like Sargassum, floating seaweed, plastic trash, water lilies, etc.

DESMI MESH BOOM is the result of years of investigation and tests, its design is based on a Nautical Grid that allows water and wind free passing but retains any floating elements protecting beaches, water sources, marinas, power plants, industrial facilities, water cooling sources, etc.

Its light weight, high tension strength and high buoyancy makes the DESMI MESH BOOM to perform in harsh conditions as big waves and heavy winds. It is NOT a NET!, nets are designed to close their borders and catch fishes, the Nautical grid keeps the size and shape of the square borders 2.54cm/1".

Advantages of the Seaweed Skimmer:

- Adequate for use in waves and wide water bodies
- Does not disturb water species as per its short draft
- Can be used to deflect pollutants to a collection point at the shore
- Does not catch fishes, it is not a Net
- Strong anchoring points located at both sides of the aluminum end connectors
- No harmful polystyrene
- Easy on-site repair if needed
- Compact and easy storage when is not in use
- Less maintenance and anchoring requirements compared with fix wall booms.
- Standard aluminum marine grade connectors allows easy connection and retrieval



Waste Processing Technology PDMF - Marine Waste Processing

PYROLYSIS/CARBONIZATION

- Processing capacity from 1.5 TPD - 5 TPD
- Dried feedstock - plastics and/or organic
- 10+ years of experience in organic waste processing
- Decentralized solution
- Supply renewable heat energy from residual biomass for heating & drying purposes
- High safety standards - "continuous process"
- Output - Biochar & Activated carbon
- 80 % waste volume reduction
- Energy - efficient
- Carbon negative by-product
- EU environmental standards

- Cloud consulting & data optimization
- Climate control console parameters to suit high temperature regions
- Commissioning & training included



DESMI - Proven Technology

DESMI specialises in the development, manufacturing, sale and service of pumps and pumping solutions including a wide range of environmental equipment for oil spill, seaweed and clean waterways.

DESMI was founded in 1834 and is one of Denmark's oldest companies and today these solutions are sold to more than 100 countries via a network of subsidiaries and distributors on six continents.

DESMI target five segments:

- Marine & Offshore
- Industry
- EnviRo-Clean
- Defence & fuel
- Utility

Despite our age, DESMI is a modern and dynamic organization which has constantly evolved to meet the needs of our customers and the changing business environment. Our head office is in Denmark, and we have local offices in 20 countries around the world and systems operating in more than 100 countries.

DESMI has more than 900 employees with 300+ in Denmark and 400+ more located around the world.

In the EnviRo-Clean segment, DESMI now delivers efficient and responsible solutions for oil spills, seaweed and marine debris clean-up (EnviRo-Care). Whether the situation is manmade (e.g. oil spills, plastic and other trash) or the result of the seaweed overgrowth, DESMI has easy-to-use, durable equipment to efficiently meet the needs of your community.



DESMI EnviRo-Clean



OIL SPILL RESPONSE



SEAWEED



MARINE DEBRIS

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- DESMI Companies
- DESMI Dealers/Agents

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MARINE & OFFSHORE

INDUSTRY

ENVIRO-CLEAN

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UTILITY