



**Interreg**

**South Baltic**



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# Environmental Risk Management Action Plan

*A Practical Framework for Baltic Marina Managers*

Interreg South Baltic Program 2021-2027

Based on the Environmental Risk action management plan..




# What This Session Is About

*A practical, science-based tool for every Baltic marina*

This session introduces the **Environmental Risk Management Action Plan (ERMAP)** — a structured framework developed within the ECOMARINAS project to help marina managers:

- 1** Identify and assess the environmental risks in their marina
- 2** Implement practical, proportionate control measures
- 3** Meet legal obligations under MARPOL, HELCOM and EU directives
- 4** Build a continuous improvement culture — not just a compliance checklist

 *The ERMAP follows ISO 14001:2015 principles — systematic identification, risk assessment, control measures, and continuous improvement.*



# Why Does It Matter? The Baltic Sea Context

**97%**

of Baltic Sea affected by eutrophication

**Slow**

water exchange — pollutants don't flush away

**High**

seasonal vessel density in enclosed basins

**Low**

natural self-purification capacity

## Marina as Hotspot

Even small marinas can affect aquatic ecosystems through **nutrient loading, chemical contamination, habitat alteration, noise, light, and invasive species spread** — particularly in the Baltic's enclosed conditions.

## The Solution: ERMAP

Proactive environmental risk management improves regulatory compliance, social acceptance, and the long-term sustainability of marina operations — turning obligations into competitive advantage.



# The ERMAP: Six Risk Areas

*Each area has its own risk matrix, control points, and good practice measures*

## 1 Wastewater Management

- Risk matrix (likelihood × severity)
- Control measures & good practices

## 2 Hazardous Liquids

- Spill prevention & containment
- Emergency response procedures

## 3 Water Quality Protection

- Monitoring, baselines, reporting
- Biodegradable products, wash-down zones

## 4 Invasive Species Prevention

- Hull inspections & clean-drain-dry
- Biosecurity awareness & signage

## 5 Plastic Pollution

- Waste segregation & Seabins
- Microplastic monitoring

## 6 Additional Risks (Fire, Noise, Light, EMS)

- Fire plans, quiet hours, EMS audits
- ISO 14001-aligned management



# How Environmental Risk is Assessed

*Likelihood × Severity = Risk Rating (aligned with ISO 14001:2015)*

**Risk Rating = Likelihood (L) × Severity (S) | Scale: 1–25**

## LOW

Score: 1–5

Manage through routine procedures & monitoring

## MEDIUM

Score: 6–11

Implement mitigation measures & periodic review

## HIGH

Score: 12–19

Immediate operational controls & management supervision

## EXTREME

Score: 20–25

Urgent corrective action; emergency planning required

*Each risk area is evaluated using this matrix — results determine whether action is routine, urgent, or emergency-level.*



# 1. Wastewater Management

Indicator: Pump-out facilities, holding tanks, discharge prohibition signage

## Key Sources of Risk

| Activity / Source            | L | S | Risk            |
|------------------------------|---|---|-----------------|
| Vessel blackwater discharge  | 4 | 5 | <b>HIGH</b>     |
| Vessel greywater discharge   | 3 | 4 | <b>MED-HIGH</b> |
| Marina sanitary facilities   | 2 | 4 | <b>MEDIUM</b>   |
| Maintenance wash-down runoff | 3 | 4 | <b>MED-HIGH</b> |
| Pump-out system failure      | 2 | 5 | <b>MED-HIGH</b> |

## Good Practice Measures

- ✓ Install accessible pump-out stations — maintain logs monthly
- ✓ Mandatory certified holding tanks on all vessels
- ✓ Connect sanitary facilities to municipal wastewater treatment
- ✓ Post multilingual 'No Discharge' signs at all berths
- ✓ Emergency response plan for pump-out system failures
- ✓ Monitor dissolved oxygen, BOD, and fecal indicator bacteria



## 2. Hazardous Liquids Management

Indicator: Spill kits, secondary containment, trained staff, written procedures

⚠ Survey finding: 56% of South Baltic marinas have NO systems to prevent hazardous liquid spills — the most common reason given was 'Not Necessary'

| Activity                 | L | S | Risk     | Key Control                                   |
|--------------------------|---|---|----------|---|
| Fuel transfer to vessels | 4 | 5 | HIGH     | Controlled fueling, drip trays, trained staff |
| Fuel storage tanks       | 2 | 5 | MED-HIGH | Secondary containment, regular inspections    |
| Oil & lubricant handling | 3 | 4 | MED-HIGH | Bunded storage, spill kits                    |
| Chemical & solvent use   | 3 | 4 | MED-HIGH | Proper labelling, limited on-site quantities  |
| Maintenance area runoff  | 3 | 4 | MED-HIGH | Designated work areas, containment bunds      |

*If it's not visible, stocked and staff-trained — it does not exist. A spill kit at the dock is the minimum.*









# 3. Water Quality Protection

Indicator: Monitoring data, containment zones, maintenance area controls

## Risk Assessment

| Activity                       | L | S | Risk   |
|--------------------------------|---|---|--------|
| Surface runoff from docks      | 4 | 3 | HIGH   |
| Vessel maneuvering / prop wash | 3 | 3 | MEDIUM |
| Fuel handling & minor spills   | 3 | 4 | HIGH   |
| In-water hull cleaning         | 4 | 4 | HIGH   |
| Uncontrolled wash-down         | 3 | 3 | MEDIUM |

## Key Monitoring Indicators

-  Nutrients: Total nitrogen and phosphorus
-  Turbidity / total suspended solids
-  Dissolved oxygen levels
-  Petroleum hydrocarbon indicators
-  Fecal indicator bacteria (after sewage incidents)
-  Sediment monitoring for long-term contamination

Good practice: Monitor seasonally, log results, share with authorities in annual report.



# 4. Invasive Species Prevention

*Indicator: Hull inspection protocols, clean-drain-dry signage, biosecurity records*

**⚠️ 37% of South Baltic marina managers believe invasive species prevention measures are 'Not Necessary' — despite hull fouling being the #1 vector**

## Hull Fouling

Biofouling on recreational vessels transports invasive species between marinas. Most common & highest-risk pathway.  
L:4 × S:4 = HIGH

## Equipment Transfer

Anchors, ropes, fenders and diving gear moved between water bodies without cleaning.  
L:4 × S:4 = HIGH

## Residual Bilge Water

Larvae and microorganisms in bilge, live wells and ballast compartments.  
L:3 × S:3 = MEDIUM

## Marina Structures

Submerged pontoons and moorings provide habitat for invasive colony establishment.  
L:3 × S:3 = MEDIUM

**Clean • Drain • Dry** Inspect hull at check-in • Post biosecurity signage • Log incidents • Coordinate with national biosecurity authorities



# 5. Plastic Pollution Management

Indicator: Waste segregation infrastructure, Seabin deployment, cleanup records

## Risk Matrix

| Source                         | L | S | Risk   |
|--------------------------------|---|---|--------|
| Improper vessel waste disposal | 4 | 3 | HIGH   |
| Visitor littering              | 4 | 4 | HIGH   |
| Marina maintenance debris      | 3 | 3 | MEDIUM |
| Boat cleaning / hull abrasion  | 3 | 4 | HIGH   |
| Synthetic rope & fender wear   | 2 | 3 | MEDIUM |

## Practical Solutions

- ♻ Segregated waste stations with recycling fractions on pontoons
- ♻ Seabins / PortBins for surface debris and microplastics
- ♻ Ban single-use plastics at marina café and shop
- ♻ Shrink wrap take-back programme for boat owners
- ♻ Quarterly marina seabed and dock clean-up events
- ♻ Log waste quantities by type — identify key sources

Lithuania: 71% of marinas have no plastic reduction measures · Germany: 73% do · Sweden: 86% do



# 6. Additional Environmental Risks

*Fire, noise, light pollution, electromagnetic disturbance, and EMS management gaps*

**Fire Risk** HIGH (L3×S4)

Toxic gases & contaminated firefighting runoff.  
Fire prevention systems, emergency plans, joint drills with fire brigade.

**Noise Pollution** MEDIUM (L3×S3)

Engine, generator & maintenance noise disrupts fish behaviour and marine mammals.  
Quiet-hour policies, low-noise equipment maintenance.

**Light Pollution** MEDIUM (L3×S3)

Artificial lighting disrupts fish, sea birds and invertebrate circadian rhythms.  
Shielded, directional, low-intensity lighting with timers.

**Electromagnetic Disturbance** LOW-MED (L2×S3)

Shore power cables generate EMFs affecting electrosensitive species.  
Best-practice cable installation and placement.

**EMS Management Deficiencies** MED-HIGH (L3×S4)

Unclear policies, poor staff training, lack of coordination. Increases incident probability.  
ISO 14001-aligned EMS, audits, certification (Blue Flag, ECOMARINAS).



# What Good Practice Looks Like

*Before & After — applying the ERMAP in your marina*

## ✗ Before ERMAP

✗ No written spill response procedure at fuel dock

✗ Hazardous waste mixed with household bins

✗ No hull inspection at vessel check-in

✗ No water quality baseline data available

✗ Pump-out out of service — no maintenance log

## ✓ After ERMAP

✓ Laminated spill response card posted + spill kit stocked

✓ Locked, labelled hazardous waste storage, separate contractor

✓ 'Check-in hull protocol' form completed for arriving vessels

✓ Seasonal monitoring log: O<sub>2</sub>, turbidity, nutrients on file

✓ Monthly pump-out service log; boaters informed at check-in

*Document before/after with photos — visible change is the most powerful evidence for your board and for inspectors.*



# Policy & Legal Framework

*The ERMAP aligns with all key international, regional and EU obligations*

## International

- MARPOL Convention — pollution from ships (sewage, garbage, oil, hazardous substances)
- HELCOM (Helsinki Convention) — nutrient reduction, waste management, invasive species in the Baltic

## EU Directives

- Water Framework Directive (2000/60/EC) — good ecological & chemical status of surface waters
- Marine Strategy Framework Directive (2008/56/EC) — good environmental status of marine waters
- Invasive Alien Species Regulation (EU) 1143/2014 — prevention and management of invasive species

## Voluntary Frameworks

- ISO 14001:2015 — Environmental Management System framework underpinning the ERMAP
- Blue Flag for Marinas — wastewater, waste, energy, biodiversity, and awareness criteria
- ECOMARINAS Certification — integrating ERMAP outcomes into the certification indicator system



# Implementation Roadmap

*A phased approach to embedding ERMAP in your marina operations*

| Phase 1<br>0–30 days  | Phase 2<br>30–90 days  | Phase 3<br>90 days–6 months  | Phase 4<br>Ongoing   |
|---|--|--|--|
| <p><b>Assess &amp; Document</b></p> <ul style="list-style-type: none"><li>→ Complete the ERMAP risk matrices for all 6 areas</li><li>→ Identify your highest-risk activities (score 12–25)</li><li>→ Audit existing procedures &amp; documentation gaps</li></ul> | <p><b>Quick Wins</b></p> <ul style="list-style-type: none"><li>→ Post laminated spill response procedure at fuel dock</li><li>→ Label all waste bins; add hazardous waste lockbox</li><li>→ Train all staff on spill response &amp; pump-out procedure</li></ul> | <p><b>Structural Improvements</b></p> <ul style="list-style-type: none"><li>→ Upgrade pump-out accessibility; schedule maintenance</li><li>→ Install Seabin or PortBin in marina basin</li><li>→ Begin baseline water quality monitoring log</li></ul> | <p><b>Monitor &amp; Improve</b></p> <ul style="list-style-type: none"><li>→ Annual ERMAP review — update risk ratings</li><li>→ Pursue ECOMARINAS or Blue Flag certification</li><li>→ Document before/after improvements for board &amp; inspectors</li></ul> |

*Within 90 days, every participating marina should implement at least one visible improvement — documented with before/after evidence.*



# Roles & Responsibilities

*Effective ERMAP implementation requires clear ownership at every level*

**Marina Manager / Owner**

ERMAP oversight, annual review, investment decisions, certification pursuit

**Harbour Master / Operations**

Day-to-day compliance, staff briefings, incident reporting, monitoring logs

**Marina Staff**

Spill response, waste management, hull check-in protocol, visitor communication

**Boat Owners & Visitors**

Compliance with discharge rules, proper waste disposal, hull cleaning cooperation

**Local Authorities**

Permit issuance, inspection coordination, funding access, policy alignment



# Monitoring, Review & Continuous Improvement

*The ERMAP is a living document — not a one-time checklist*

## 1 — PLAN

Identify risks,  
set targets & procedures

## 2 — DO

Implement controls,  
train staff, act

ISO  
14001

## 4 — ACT

Review results,  
correct & improve

## 3 — CHECK

Monitor, measure,  
log incidents & data

*Annual ERMAP review · Update risk ratings based on monitoring data · Integrate with certification audit cycle*

*Interactive Reflection*

**Which risk area is the biggest challenge in YOUR marina right now?**

**Wastewater &  
Pump-out**

**Hazardous  
Liquids**

**Water Quality  
Monitoring**

**Invasive  
Species**

**Plastic  
Pollution**

**Fire / Noise /  
EMS**

*Use Kahoot, show-of-hands, or open discussion*



20 minutes · Groups of 3–4 · Use the ERMAP template worksheet

Working in small groups, complete the following for your marina (or a marina you know):

### Step 1

#### **Pick your top 3 risks:**

From the 6 ERMAP areas, identify the three activities with the highest environmental risk score in your marina. Rate each: Likelihood (1–5) × Severity (1–5).

### Step 2

#### **Identify your gaps:**

For each high-risk item: what control measures are currently missing? What is the most important single document or procedure not yet in place?

### Step 3

#### **Build your 90-day action:**

For each gap, define: What will you do? Who is responsible? What evidence will you produce (photo, log, signed procedure)? Deadline?


*Outcome: Each group presents one commitment — a specific action they will take within 90 days, with measurable evidence.*



# ERMAP & ECOMARINAS Certification

*Every ERMAP action contributes directly to certification indicators*

| ERMAP Risk Area        | ECOMARINAS Indicator                     | Certification Scheme    |
|------------------------|--|-------------------------|
| Wastewater Management  | Wastewater & Sewage Management Indicator | Blue Flag, Clean Marina |
| Hazardous Liquids      | Hazardous Substances Indicator           | ISO 14001, Blue Flag    |
| Water Quality          | Water Quality Monitoring Indicator       | ECOMARINAS, Blue Flag   |
| Invasive Species       | Biodiversity & Habitat Indicator         | ECOMARINAS              |
| Plastic Pollution      | Waste Infrastructure & Sorting Indicator | Blue Flag, ECOMARINAS   |
| Additional Risks (EMS) | Environmental Management System          | ISO 14001:2015          |

 *The ERMAP helps turn your invisible compliance work into visible, certifiable value — evidence for inspectors, owners, and boaters alike.*



# From Compliance Cost to Competitive Advantage

Environmentally compliant marinas — with a documented ERMAP — are more attractive to:

## International Cruising Yachts

Skippers from Germany, Scandinavia and UK actively research environmental credentials before selecting a marina destination.

## Charter Operators & Clubs

Sustainability standards increasingly specified in facility agreements — ECOMARINAS certification is a qualifying signal.

## Grant & Funding Bodies

EU and national programmes for marina infrastructure prefer or require environmental certification.

## Tourism Authorities

Coastal tourism promotion increasingly uses marina eco-certification as a quality indicator for sustainable destinations.

The ECOMARINAS standard turns your invisible ERMAP compliance into visible, marketable value.



# Your Three Most Important Takeaways

## 1 Risk is manageable — if it is documented

Most penalties in Baltic marinas are for missing documentation, not active pollution events. A written procedure and a maintenance log are your most powerful compliance tools.

## 2 The ERMAP is proportionate

You do not need to solve everything at once. The risk matrix tells you where to start — High and Extreme risks first, Low risks through routine monitoring.

## 3 Behaviour change is the cheapest improvement

Laminated cards, check-in hull forms, boater signage — these cost almost nothing and are noticed immediately by inspectors, visitors, and certifiers.

*Now let's look at how real Baltic marinas implemented these changes — and what you can apply immediately.*



# Summary & Call to Action

*ECOMARINAS is closing the gap between interest and action*



## Download the ERMAP

Request the full Environmental Risk Management Action Plan template from the ECOMARINAS project office.



## Complete your risk matrices

Use the 6 risk area worksheets. Score likelihood × severity for each activity at your marina.



## Document your starting point

Take before-photos of your current situation. This is your baseline for the 90-day improvement cycle.



## Join the ECOMARINAS network

Share your action plan, connect with Baltic marina peers, and apply for ECOMARINAS certification.



## Pursue certification

Blue Flag, ISO 14001, or ECOMARINAS — any certification turns compliance into competitive advantage.



## Gdansk Forum 2027

Join the Sustainable Sailing Infrastructure Forum — where Baltic marina managers share what works.



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# Environmental Risk Management Action Plan



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Questions? Join the network. Make your marina great.