



# **Boatbreakers**

## **Boat Dismantling Training**

### **Unit 3**

**Boat dismantling administrative and  
financial issues**



## BRIEF PRESENTATION

This unit is relevant to candidates who are employed in or involved in the Recreational Craft Dismantling Industry at a practical level. Candidates who achieve this unit should have the ability to:

- Know the legal requirements for boat dismantling facilities.
- Know the administrative procedures: register of boat characteristics/condition, dismantling certificate, etc.
- Carry out a boat assessment in order to identify boat situation/conditions and to evaluate the resources and logistics needed.
- Know how to develop an economic analysis/budget in order to assess the feasibility and cost of each ELB dismantling process.



## OBJECTIVES

By the end of this session candidates will be able to:

- Explain legal requirements for recreational craft dismantling.
- Explain the administrative procedures for recreational craft dismantling.
- Explain how to develop economic analysis for each end of life recreational craft in order to assess the feasibility and cost.



## 1. Legal requirements for Recreational craft Dismantling Facilities.

Legal requirements for new and existing recreational craft dismantling facilities will depend on both, the activity that this facility is currently carrying out and what activity is the company intended to carry out.

In this sense, it will be necessary to know which new processes and associated health and environment measures should be incorporated in order to successfully undertake recreational craft dismantling tasks and, if desired, the treatment of different wastes arising from this process.

### License for boat dismantling

Very little examples exist of countries that have a specific procedure for obtaining a license for boat dismantling.

Nevertheless, in some countries and/or regions, there are documents that have been made available by official public organisations in order to obtain the **environmental license for boat dismantling activity**. This is the case of Catalonia (Spain) where the *Catalan Waste Agency* released a document explaining the procedure to obtain the environmental license for boat dismantling activities involving recreational craft in Catalonia (Spain). The document informs about the steps a company has to take to be authorized to carry out boat dismantling activities. The agency indicates how companies should classify their activity (according to the law), what documents should be provided and where to submit them. The Catalan Waste Agency explains the administrative requirements that must be fulfilled, once the company has received the environmental license and informs that the dismantling facilities also have to be checked and approved.

For more information on the license for boat dismantling in Catalonia, see *Document attached in this Unit under the name "Procedure\_license\_boat\_dismantling\_Catalonia"*.

A recommendation is to contact the waste agency in your region / country and/or the Ministry of Environment in order to know if there is a specific procedure available in your location/region/country.



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## 1. Legal Requirements for Recreational Craft Dismantling Facilities.

➤ **European Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions - IED (integrated pollution prevention and control).**

*Document attached in this Unit under the name "Directive\_2010\_2010\_75\_EU"*

Member States have to **establish a system and plan for environmental inspections** (mandatory requirements for these inspections are included in the Directive). These inspections will take place every 1-3 years, using risk-based criteria.

This **Industrial Emissions Directive (IED)** also **comprises waste transfer installations** which usually include the following operations: reception, bulking, sorting, transferring, pending, prior to submission to a disposal/recovery operation, and occasionally blending and mixing.

The **permits** will thus be issued by the competent authorities (licensing authorities) assigned by every Member State. The permit will provide the necessary measures to comply with the operator's basic obligations and environmental quality standards, comprising at least the following:

- *"emission limit values for polluting substances,*
- *rules guaranteeing protection of soil, water and air,*
- *waste monitoring and management measures,*
- *requirements concerning emission measurement methodology, frequency and evaluation procedure,*
- *an obligation to inform the competent authority of the results of monitoring, at least annually,*
- *requirements concerning the maintenance and surveillance of soil and groundwater,*
- *measures related to exceptional circumstances (leaks, malfunctions, momentary or definitive stoppages, etc.),*
- *provisions on the minimisation of long-distance or trans boundary pollution,*
- *conditions for assessing compliance with the emission limit values(EU 2010)."*

In this sense, both new and existing waste management/treatment facilities should **apply to the National/regional authority responsible for IED implementation** (licensing authority), **for a recreational craft dismantling permit**.

**National/regional authorities responsible for IED implementation** (licensing authorities) **are usually national and regional environmental authorities** (environmental Ministries and Agencies, waste management agencies/institutions).



# BOATBREAKERS

## 1. Legal requirements for Recreational craft Dismantling Facilities.

### ➤ Directive 2008/98/EC on waste, Waste Framework Directive (WFD)

*Document attached in this Unit under the name "Directive\_2008\_98\_EC"*

Article 23 of WFD, concerning "**Issue of permits**", states that Member States shall require any establishment or undertaking intending to carry out waste treatment to obtain a permit from the competent authority. These permits should include, at least, the following:

- "the types and quantities of waste that may be treated;
- for each type of operation permitted, the technical and any other requirements relevant to the site concerned;
- the safety and precautionary measures to be taken;
- the method to be used for each type of operation;
- such monitoring and control operations as may be necessary;
- such closure and after-care provisions as may be necessary(EU 2008)."



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## 1. Legal requirements for Recreational craft Dismantling Facilities.

### ➤ **Guideline on the Recycling of Recreational Vessels**

The *Guideline on the Recycling of Recreational Vessels* includes, between principle 22 and 27, the recycling standards for Recreational Vessels (including metal and non-metal hulled vessels).

*Document attached in this Unit under the name "Guideline\_recycling\_recreational\_vessels")*



## 2. Administrative procedures for recreational craft register and decommissioning certificate.

Ships category above 500GT are covered by the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships which was adopted in May 2009 under IMO's (International Maritime Organisation) auspices.

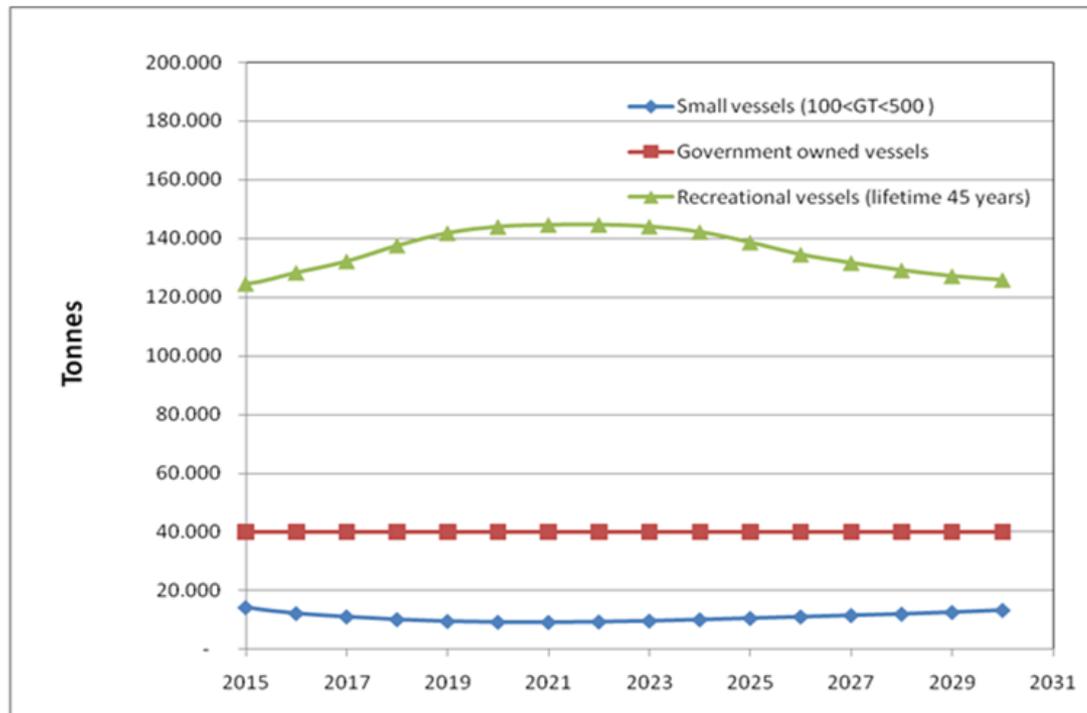
Recreational craft are not included in the Hong Kong Convention, and they are defined, according to the **Recreational Craft Directive**, as *“any boat of any type intended for sports and leisure purposes of hull length from 2.5m to 24m...”*. No specific legislation has been published concerning recreational craft dismantling / end-of-life.



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## 2. Administrative procedures for recreational craft register and decommissioning certificate.

### ➤ Projections of future recreational craft recycling volumes \*



Based on these projections, different Future policy options for end-of-life recreational craft were defined within the study “Recovery of obsolete vessels not found in the fishing trade”(EC 2011)\*. These policy options, none of them already implemented, are available in page 14 of the study. For more information, see *Document attached in this Unit under the name “Recovery\_obsolete\_vessels”*).

\* [http://ec.europa.eu/environment/waste/ships/pdf/Final\\_report\\_ver03\\_09\\_12\\_2011.pdf](http://ec.europa.eu/environment/waste/ships/pdf/Final_report_ver03_09_12_2011.pdf)



# BOATBREAKERS

## 2. Administrative procedures for recreational craft register and decommissioning certificate.

### ➤ Boat registration

Concerning **boat registration**, every Member State has its own legislation and system. Many countries register all craft from 2.5m length up, but several countries exclude recreational craft below a certain length or a certain engine power.

- The length limit as condition for boat registration varies greatly:
- Exemption for L < 2 m: Greece
- Exemption for L < 2.5m: Cyprus, France
- Exemption for L < 5-5.5m: Finland, Hungary, Slovenia
- Exemption for L < 7m: Luxembourg, Romania
- Exemption for L < 8m: Spain
- Exemption for L < 10m: Italy
- Exemption for L < 12m: Latvia, Estonia
- Exemption for L < 15m: Germany.
- The engine power as condition for boat registration varies from P=7.35kW in Luxembourg to P=15kW in Finland.
- Denmark uses the Gross Register Ton as criteria (registration > 20 GRT), while The Netherlands refer to the speed (registration > 20km/h).

For more information concerning boat registration systems in Europe by country (P: power, L: length), please check Table 6-1 on page 77 of the report: "Recovery of obsolete vessels not used in the fishing trade." *Document attached in this Unit under the name "Recovery\_obsolete\_vessels"*).



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## 2. Administrative procedures for recreational craft register and decommissioning certificate.

### ➤ Boat registration / “de-registration”

According to the European Boating Industry, the **average lifespan** for recreational craft is 30 years but in certain occasions it can go up until 40 years. On the other hand, inflatable and semi-rigid boats lifespan is considered to be between 10 to 15 years.

DIGEST suggests that boat dismantling facilities should issue a **certificate** in order to confirm that the boat has been dismantled and the materials and wastes have been processed and removed in an environmentally friendly way.

Nevertheless, as mentioned above, recreational boat registration systems exists only for some countries and **de-registration rarely occurs.**

End-of-life recreational craft are still not included as a category in the European Waste Catalogue. However, the European Waste Catalogue classifies **end-of-life vehicles (ELV)** from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance under code 1601:

160104: end-of-life-vehicles, containing neither liquids nor other hazardous components.

160106: end-of-life-vehicles, containing neither liquids nor other hazardous components.

Boat DIGEST suggests that boat dismantlers should issue a **certificate** similar to the certificate that, according to the **ELV Directive**, has to be issued for End-of-Life Vehicles (ELV). According to the ELV Directive a certificate of destruction has to be issued when de-registering vehicles. In this sense, Member States had to introduce a de-registration system for ELV including a Certificate of Destruction (CoD) for ELV that has to be issued by the competent authority when the ELV is transferred to a treatment facility. This certificate of destruction only applies to vehicles under 3500kg.

For more information, see *Document attached in this Unit under the name “ELV\_Directive”*.

For more information on the minimum requirements for Certificates of Destruction , see *Document attached in this Unit under the name “Minimum\_requirements\_certificates\_destruction”*.



### 3. Economic analysis for end-of-life recreational craft dismantling.

It is recommended to use certain criteria in order to estimate **boat transport** (to the dismantling site) and **dismantling costs**. These dismantling costs will be related to the status and location of the boat. In this sense, boat owners, or in his/her default, boat dismantlers should assess this with the information they have available.

In this sense, APER has created a **template** in order for the owner (or anyone who may require it) to fill it out and facilitate the economic assessment of boat transport and dismantling.

For more information, see *Document attached in this Unit under the name "Identification\_template"*.

## 3. Economic analysis for end-of-life recreational craft dismantling.

### ➤ Transport and dismantling process – economic assessment

For the economic assessment, concerning transport and dismantling processes, the following issues have to be taken into account:

First of all, the **boat condition** should be taken into account in terms of location and possible impacts related with boat movement transportation. A recreational craft could be sunk and/or could be in a very poor condition and thus **could pose a risk** to other boats or even sink. It is also possible for the boat to be in a good condition making it very easy to take it out of the water. Every situation requires a precise assessment of the possible impacts related to boat removal, preventive measures and associated costs.

Once the boat is out of the water, it will be necessary to **asses boat transport needs** according to (1) available/owned transport vehicle, (2) type/length of the boat we should move and carry and (3) technical resources available in situ. Some waste managers externalise boat transport to a specialised transport company.

First of all it will be necessary to know if we can transport the boat as it is or if it will have to be fragmented. For instance, mast, sails and keels of sailboats are usually removed before transporting them to dismantling facilities. It will also be necessary to do an inventory of the technical and human resources needed for this task.

Some companies have mobile equipment including the proper tools in order to scrap the boat in situ. For this task it will be necessary to acquire the necessary permits and, in some cases, to rent an area to perform scrapping tasks.

## 3. Economic analysis for end-of-life recreational craft dismantling.

### ➤ Transport and dismantling process – economic assessment

End-of-life recreational craft management should follow **Waste Framework Directive principles** and thus it should start with prevention criteria. In this sense, there are some elements of the boat that could be removed and sold in the **second hand market**. One of the most valuable pieces of the boat is the engine, it is necessary to check if the engine is still inside and its condition in order to be sold or decontaminated and scrapped.

It is very important **to estimate the kind and approximate amount of materials** in order to estimate the profit that is possible to obtain from selling these materials or the cost of treating them (or to send to a specialised waste management company to treat them). Concerning metal prices, the London Metal Exchange *“is the world centre for industrial metals trading, and the prices discovered on their three trading platforms are used as the global reference price and both the metal and investment communities use the LME to transfer or take on risk, 24 hours a day(LME).”* However, waste prices may vary significantly depending on the country and even the region within a country. As an example, the Spanish Federation of Foundry Associations (FEAF) provides information on iron and steel.

As a reference\*, the following prices are indicated below (*Diputació de Barcelona, June 2011*):

Scrap: 340 EUR/ton

Brass: 3.525 EUR/ton

Aluminium: 1200 EUR/ton

Ferric Stainless Steel (low C, magnetic): 250-450 EUR/ton

Non-Ferrous Stainless Steel (austenitic, non-magnetic): 1.200-1.600 EUR/ton

Lead: 1305 EUR/ton

Moreover, the Bureau of International Recycling (BIR) supports the interests of the recycling industry on an international scale. It serves as a platform to establish successful business and trading relations and to promote recycling among other industrial sectors and policy makers.

\* *BOATCYCLE Project*

## 3. Economic analysis for end-of-life recreational craft dismantling.

### ➤ Transport and dismantling process – economic assessment

A part from the already mentioned criteria, administrative issues as well as technical and human resources associated costs should be assessed for each of the steps comprised within the boat dismantling process itself (decontamination, outstanding materials removal, shredding, etc.).

Several references are available related to boat dismantling costs. The following reference\* for dismantling costs/profit has taken into account the type of boat, the construction materials and the economic return (this estimation does not consider overheads, transportation costs and equipment depreciation). Note that human resources rate was estimated at 12€/h.

**Table 1.** Boat dismantling cost estimation (BOATCYCLE project, 2012)

Types	Length	Sub - products	Cost	Difference (return)
Sailboat	6 m	494 EUR	183 EUR	311 EUR
Sailboat	9 m	1.885 EUR	184 EUR	1.701 EUR
Sailboat	12 m	4.691 EUR	185 EUR	4.506 EUR
Motor boat	6 m	148 EUR	202 EUR	54 EUR
Motor boat	9 m	513 EUR	225 EUR	288 EUR
Motor boat	12 m	926 EUR	225 EUR	701 EUR

\* The BOATCYCLE Project

## 3. Economic analysis for end-of-life recreational craft dismantling.

### ➤ Transport and dismantling process – economic assessment

Another reference\* provides an estimation for average transportation and dismantling for recreational craft according to their length:

**Table 2.** Boat dismantling cost estimation (APER, 2014)

Length	5 to 7 m	8 to 9 m	10 to 12 m
<b>Collect of RC (extraction + transportation)</b>	€200 > €400	€400 > €500€	€600 > €1.000
<b>Dismantling, clean up</b>	€200 > 600	€600 > €900	€800> €1.500
<b>Control &amp; knowledge of outlets for all waste</b>	€100 > €300	€200 > 400	€300 > €700
<b>Total</b>	€500 > €1.300	€1.200 >1.800	€1.700 >€3.200

\* APER

## 3. Economic analysis for end-of-life recreational craft dismantling.

### ➤ Transport and dismantling process – economic assessment

Moreover, **average price of dismantling a sailboat** was assessed between 100-150 EUR/m while **average price of dismantling a motorboat** was assessed between 200-1.000 EUR within the “Recovery of Obsolete Vessels not used in the Fishing Trade” study (COWI/RWEC/Leitat 2011). In this sense, average prices for boat dismantling according to their length are the following: 800EUR (for boats/vessels up to 7m); 1.500EUR (for boats/vessels from 10 to 12m) and 15.000EUR (for 15m boats/vessels). These estimations were made taking into account the following dismantling costs per country (COWI/RWEC/Leitat 2011).

For more information see *Document attached in this Unit under the name “Recovery\_obsolete\_vessels”*.



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## 3. Economic analysis for end-of-life recreational craft dismantling.

### ➤ Transport and dismantling process – economic assessment

COUNTRY	DISMANTLING COSTS	SPECIFIC INFORMATION	INFORMATION SOURCE
Finland	<p>For <b>boats under 6 metres</b>, the disposal costs are <b>10€ per metre, plus nominal local transportation costs</b>.</p> <p>The reported Finnish costs are as follows:  <b>Truck hire 55€ per hour</b>            Disposal cost (<b>boat &lt;6m</b>) <b>10€ per metre</b>            Disposal cost (<b>boat &gt;6m</b>) <b>150€ per tonne</b></p> <p>The <b>disposal of metal boats is free of charge</b>.</p>	<p>The Finnish system follows the principle that “the polluter pays” but tempers this by ensuring that the polluter doesn’t pay too much (avoiding dumping problems because of high marina charges and high disposal costs).</p> <p>The Finnish system is not yet proven for larger craft, such as large sailing boats among others, but Kuusakoski is confident that these too can be handled with no particular difficulties. In their opinion, no new capital expenditure on infrastructure, fixed or mobile, would be necessary. The costs of scrapping these larger crafts would be greater than for the small boats, with a 12m sailing boat working out at about <b>124€ per metre</b>.</p>	<p>FINNBOAT - Finnish Marine Industries Federation &amp; Kuusakoski</p>
France	<p><b>7 metre boat</b> has a dismantling cost of <b>approximately 700€</b>.            This cost could go up to <b>900€ when transportation is included</b>.</p>	<p>Nevertheless, <b>for each boat</b>, the above-mentioned association <b>APER - Association pour la Plaisance Eco-Responsible</b> asks for <b>several cost estimations</b> in order for owners to get the best price.</p> <p>Costs for bigger boats are not specified, but the document mentions the cost would go up in an exponential way.</p>	<p>Mission parlementaire – Démantèlement des navires (Le Grenelle de la Mer)</p>
Italy	<p>The estimations of the decommissioning cost of an end-of-life boat have been evaluated for three different craft sizes, <b>not including transport and handling expenses</b>:</p> <ul style="list-style-type: none"> <li>- Short outboard craft (<b>5m</b>): ~ <b>300 €</b></li> <li>- Medium outboard daycruiser (<b>7,5m</b>); Moulds: ~ <b>1.500 €</b></li> <li>- Big cabin cruiser (<b>15m</b>): ~ <b>15.000 €</b></li> </ul>	<p>Such a price difference is generated essentially by the labour costs, deriving from the complexity of the disassembling process, which cannot be managed with standardized large-scale waste handling procedures.</p> <p>That process needs a hand-crafted process made by operators with a strong boatbuilding know-how, in order to preserve the safety of the workers and to obtain the maximum recyclability of each component.</p>	<p>UCINA - Italian Marine Industry Association</p>
Spain	<p>Yatch (<b>4-7 m</b>): <b>760€</b>            Sailboat (<b>10-12 metres</b>): <b>1880€</b></p>		<p>LIFE Boatcycle project</p>

**Table 3.** Boat dismantling reference costs in Finland, France, Italy and Spain. For more information see *Document attached in this Unit under the name “Recovery\_obsolete\_vessels”*.



## 4. Recreational craft dismantling network.

A **recreational craft dismantling network** (online map) has been created in order to show existing dismantling sites that dismantle recreational craft (exclusively and/or occasionally) in various countries in Europe.

The objective of this map is **to provide boat owners with information on where to dismantle their boat and to give visibility to the dismantling companies which are often not well known by the nautical community in Europe.**

Boat dismantlers can contact the Boat DIGEST partnership in order to be included free of charge in this map. Contact can be made by sending an e-mail to [contact@boatdigest.eu](mailto:contact@boatdigest.eu) or [office@europeanboatingindustry.eu](mailto:office@europeanboatingindustry.eu).

The network can be accessed by entering the following **LINK**: <http://www.boatdigest.eu/dismantling-network.asp>



# BOATBREAKERS

## Exercise

A boat owner has provided the facility with the following document (*Document attached in this Unit under the name "EXERCICE\_Identification\_sheet"*) on the assessment of his boat status. Please estimate each of the associated costs to be taken into account and estimate the total dismantling cost using the tips included in this unit. For this, use or approximate the rates currently used in business (e.g. personnel cost/hour). Please take into account that results will differ among countries and they will depend on business type.