

# Report on best practices in Emilia-Romagna

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## Best practice 1

**Best practice title:** Reconstruction and raising of Levante docks - Cesenatico harbour

**Best practice description:**

- Redevelopment of the port's docks (Levante) and raising of the current height (1.10) to 1.50 metres above mean sea level. The aim of the intervention is to secure the activities taking place on these docks from the rise in sea level and storm surges. The intervention also improves the accessibility of the port by widening it by a further two metres.
- The best practice is aimed at those who manage the security of docks and are responsible for their maintenance and construction. Public and private entities can apply the principles of this best practice to increase the resilience and accessibility of port activities.
- Dock renewal can be improved and adapted to local contexts according to the particular needs of smaller ports and the level of risk from the sea. Docks can accommodate various services according to their use, such as electricity supply and water management.
- Can be improved through the incorporation of other integrated and sustainable mobility systems and through a high-albedo pavement material to mitigate the high summer temperatures.

**Potential transferability in region:**

Ports that are vulnerable to the effects of rising seas and storm surges need protection and safety solutions. The raising of docks is one of the solutions that can be used in minor ports because of its versatility and adaptability to these contexts.

## Best practice 2

### **Best practice title: Underground services and video surveillance - Cesenatico harbour**

#### **Best practice description:**

- Construction of underground utilities such as black and white water and rainwater tanks, the resurfacing of the roads concerned and an innovative video surveillance system to ensure the security of the site and the regulation of access through automatic barriers. The intervention aims to improve the current regulation of the flow of people and ensure the proper use and safety of boarding and disembarking operations.
- The best practice is aimed at those who manage the security of docks and are responsible for their maintenance and construction. Public and private entities can apply the principles of this best practice to increase the security and accessibility of port activities.
- The operation can be extended by improving the safety of the entire area adjacent to the port, thus becoming an attractive location for new economic activities.

[https://www.comune.cesenatico.fc.it/servizi/notizie/notizie\\_fase02.aspx?ID=15089](https://www.comune.cesenatico.fc.it/servizi/notizie/notizie_fase02.aspx?ID=15089)

#### **Potential transferability in region:**

This process can be the start to re-evaluate insecure port areas that need to control entries and exits. It is also recommended to renovate infrastructure as underground utilities in outdated ports.

## Best practice 3

**Best practice title:** Free Wi-Fi on the beaches of Romagna

**Best practice description:**

- Many beaches in the region offer a free wi-fi service available to the public. Hotspots are spread along the beach coast and in some harbours, relying on existing structures and bathing establishments. In some cases they are reserved to the customers of the bathing establishments, but in the case of Rimini for instance they are public and available also in the port areas. In the case of Riccione, the signal is extended not only to the shoreline, but also in the water up to 300 metres from the coast.
- The best practice can be repeated by a number of public and private bodies that insist on the coastal area and offer services both to visitors of the beaches, to yachtsmen arriving by sea and to citizens in Veneto.
- There is a good potential in this kind of practice to enter in synergy with other services addressed to citizens and visitors. The registration needed to access free wi-fi can be linked with other information and services for different user profiles, such as weather warnings, tide forecasts, events and many other useful information that can be communicated through a website or an application.

**Potential transferability in region:**

The construction of a well-integrated network of Wi-Fi antennas is recommended for those smaller ports that have significant flows of visitors, tourists, operators and that have other services/apps for communication, whether already active or planned.

## Best practice 4

**Best practice title:** engineering system to avoid sediment accumulation - marina di Cattolica

### Best practice(s) description

- Marina di Cattolica has adopted the best available technologies in the field of seabed maintenance and remodelling in port areas, installing ejector devices with the Co-Evolve project. The system will prevent the accumulation of sediment and maintain over time a depth suitable for the functionality of the hauling and launching basin and the port area in front of it.
- The system consists of a series of devices - called ejectors - which remove the sediment in the area they control, transporting it to an adjacent area where it does not hinder navigation. The collection and subsequent transport of the material to be handled takes place without any submerged moving parts, by means of appropriately directed jets of water that temporarily suspend the sediment and, at the same time, convey it towards the transport and discharge duct.
- The technology used makes it possible to reduce the accumulation of sediment in the port area in an energy-efficient and environmentally sustainable way.
- BP can be oriented to support Port Authorities and Port Councils in the management of port infrastructure. The approach guarantees an openness towards local actors such as marinas, fishing cooperatives and tourism operators.
- The action can be enhanced by installing a basin monitoring system to assess and analyse sediment circulation at a wide area level. This approach would allow the better efficiency of both the exploitation of sediment caving areas, the systematic implementation of coastal erosion mitigation elements and the rationalisation of beach nourishment and excavation cycles. The approach is aimed at achieving a positive balance between the dredging of port areas, characterised by often polluted sediments, and the nourishment of coastal bathing areas.

<https://www.lifemarinaplanplus.eu/it/company-life/progetto-europeo-co-evolvein-funzione-limpianto-di-disabbigliamento-ad-eiettori-al-porto-di-cattolica>

**Potential transferability in region:**

The regional applicability of this BP is feasible for all ports that experience a high sediment accumulation in their seabed. The adoption of engineering systems such as ejectors will allow ports to manage sediment accumulation in an efficient and sustainable way.



## Best practice 5

**Best practice title:** "CLEAN PORT - Research, innovation and sustainability for maritime cities"

### Best practice description

- Clean Port is an industrial research project for energy sustainability and pollution reduction in port areas. It foresees the design and testing of small-scale prototypes of ship engines partially fuelled by LNG (Liquified Natural Gas) within an innovative hybrid infrastructure in the port of Ravenna, called Green Ironing.
- The project is oriented to involve local actors involved in ship engineering, proposing the development of a coastal network of regional shipyards. The BP is aimed at the co-operation of companies that both have a role in shipbuilding and in the chemical production of innovative fuels, adapting the existing infrastructures to allow the production of internationally competitive ship products. Specifically, the project objectives are
  - o Design of the port infrastructures necessary for the implementation of an energy smart grid.
  - o The design will take into account all technical and fire prevention regulations as well as any urban, environmental and/or landscape constraints.
  - o Construction of a collector station for natural gas and gas generated from biomasses appropriately purified for combustion in ship engines.
  - o Study and substantial improvement of the natural gas liquefaction system for the storage of LNG on board vessels, integration with quayside facilities and exploitation of renewable sources through integration of natural gas from the network with gas from biomass.
  - o Improving liquefaction and tank storage technologies. This will lay the foundations for the use of shore-based facilities as true refuelling systems without the costly and complex infrastructure required for the sole supply of electricity from outside the ship.
- BP can be replicated within an inter-port system with the aim of diversifying shipbuilding functions in the area. This approach is especially effective for implementing retrofits of existing shipbuilding equipment and maritime supply chain systems.

<https://www.cleanportravenna.it/>

**Potential transferability in region:**

The port of Ravenna is not comparable in size and use density with the smaller ports in the region, but there are elements that can potentially be transferred to these contexts.

The activities can be transferred both to develop the existing maritime supply chain and to extend it to contexts that are currently undeveloped in terms of infrastructural potential. In particular, BP can enhance those contexts characterised by a progressive obsolescence that affects both the economic capacity of the port system and the quality of interaction with urban and environmental contexts. The BP can be increased in its effectiveness by developing a census of the existing supply chain and the state of operation of the existing port infrastructures, considering at the same time the relationship with the urban and environmental system.

## Best practice 6

**Best practice title:** “RAVENNA GREEN PORT - Efficienza energetica, mobilità sostenibile e rinnovabili per il Porto di Ravenna”

### Best practice description

- Ravenna Green Port is a three-year research project co-funded by the Emilia-Romagna Region and the Ministry of Economic Development. Launched in October 2015, it sees CertiMaC as lead partner in partnership with CNR ITAE of Messina and in collaboration with the Province of Ravenna, the Port Authority, the Municipality of Ravenna and with the involvement of several companies operating in the port of Ravenna. The specific objectives of the project are
  - DEVELOP a reference centre - human resources, tools, technologies and competences - dedicated to the design, implementation, coordination and monitoring of activities in the field of sustainable mobility, green buildings, requalification of existing infrastructures and energy production from renewable sources in the port area;
  - IMPLEMENT pilot actions for the integrated improvement of energy efficiency in the port area, in collaboration with the Public Administration, companies and institutions operating in the port;
  - DEFINE a roadmap for the development of the port of Ravenna and other ports with similar geographical and industrial characteristics, as well as communication and networking actions that will be activated during the project at local, regional and European level.
- The objective of the project is to involve local stakeholders and decision makers within the different project axes. The project partnership includes scientific partners such as the CNR and local actors such as the Port Authority. The project is articulated around a system of meetings that aims to develop the trade off on the local community of the activities promoted by the consortium. The priority axes are:
  - Sustainable mobility
  - Use of renewable energy sources
  - Green rehabilitation of existing buildings and infrastructures
  - Energy efficiency in industrial processes
  - Synergy with communities of innovators
  - Roadmap for the Green + Smart development of the Port

- BP can be replicated in its various aspects within other port systems, starting from the central role of port authorities and councils. Specifically, the modernisation and reduction of energy consumption of port infrastructure facilities can be replicated.

<https://www.ravennagreenport.com/>

**Potential transferability in region:**

The port of Ravenna is not comparable in size and use density with the smaller ports in the region, but there are elements that can potentially be transferred to these contexts.

The three axes of activity can be transferred to support the achievement of energy objectives, integration between local stakeholders and decision makers, identifying local authorities as the promoters of the actions. In this sense, the framework of the approach is the most replicable and scalable element within other port contexts. The BP pattern can be improved by developing a network of actors to systematically access funding promoted at national and EU level to support the development of SMEs linked to the individual action sectors.

**Best practice title:** progetto “HUB PORTUALE RAVENNA 2017”

**Best practice description:**

“Hub portuale Ravenna 2017” is an articulated project, worth 235 million euros.

The significant strategic investment for the European logistic network has allowed obtaining 37 million euros from the European Union. This contribution complements the 60 million euros from CIPE and the 120 million euros from the European Investment Bank and the Port System Authority's resources.

The project is composed mainly of two phases. The first one consists:

- in the seabed deepening to -13.50 m of the sea channel, the forebay and the deepening of the Candiano Channel to -12.50 m up to the San Vitale Dock, with the dredging of over 4,700,000 cubic meters of material;
- in the construction of a new quay, over 1,000 m long, destined to be used as a container terminal on the right side of the Candiano Canal in Penisola Trattaroli, reachable by the railway line;
- in the structural adaptation to the anti-seismic regulations and the new seabed of more than 2,500 m of existing docks;
- in the deepening of the seabed of further quays (already adapted) for a linear development of over 4,000 m;
- in the realization of new logistic platforms urbanized and equipped, for about 200 hectares, in the port area using part of the material resulting from dredging accurately treated.

In the second phase, the excavation of the seabed up to a depth of 14.5 meters will be completed and the material treatment plant will be built.

#### **Potential transferability in region:**

The port of Ravenna is not comparable in size and use density with the smaller ports in the region, but there are elements that can potentially be transferred to these contexts.

The interventions foreseen by the strategic project can be, taken individually, good practices that may be, in smaller regional ports, replicated. BP can be replicated, along the entire regional coastline, functional, logistical, and infrastructural adaptations of the Port.

**<https://mobilita.regione.emilia-romagna.it/logistica-merci/doc/porto-di-ravenna/progetto-hub-portuale-ravenna-2017>**

## Best practice 8

**Best practice title:** Port Community System (PCS), "SeaGate", Ravenna

**Best practice description:**

The "SeaGate" is a Port Authority of the Northern Tyrrhenian Sea initiative, designed to ensure the improvement of the efficiency, safety, and reliability of the port operational cycle and to reduce the time spent in port for goods.

Thanks to this logistic system, the port of Ravenna was among the first to test important innovative procedures promoted by the Customs and Monopolies Agency, such as the clearance at sea and the controlled customs corridor, and was able to respond with the necessary speed to new regulatory obligations imposed on operators, such as those related to the need to communicate in advance the data related to the verified gross mass when containers are loaded. The "SeaGate" favors a greater connection with inland logistic nodes and multimodal corridors and a more intense and effective dialogue with the large national telematics platforms.

It thus allows creating a logistics and transport network not only from an infrastructural point of view but also from a technological one, thanks to the availability of IT systems able to facilitate the exchange of information between the actors of the supply chain, simplifying procedures and making the flow of goods between ports more efficient and secure.

**Potential transferability in region:**

The port of Ravenna is not comparable in size and use density with the smaller ports in the region, but there are elements that can potentially be transferred to these contexts.

The replicability of these IT systems in other regional commercial and tourist ports could provide a Unique Model of integrated Port Community System to improve the use of port infrastructure and services, increase safety levels and optimize space.

<https://www.pcs-ravenna.it>



**Best practice title:** Avamporto di Ravenna

**Best practice description:**

The Ravenna outpost is a significant element at a regional level both functionally and in terms of opportunities and economic growth. It consists of an area destined to the tourist port, a dock for service vehicles, and an area dedicated to cruise docking. The 2007 Port Master Plan foresees a further extension of the work that consists of two new arched breakwaters that start from the end of the existing breakwaters, leaving unchanged the current 270 m wide mouth. The end of the new dykes reaches a depth of about 10.0 m, compared to the current 8.5 m, delimiting the main inlet 300 m wide, at a distance of about 600 m from the secondary inlet coinciding with the current one.

This extension allows for more maneuvering space for large ships and at the same time serves as a coastal defense.

**Potential transferability in region:**

The port of Ravenna is not comparable in size and use density with the smaller ports in the region, but there are elements that can potentially be transferred to these contexts.

The construction of a new outpost is a strategic element also for smaller ports. In this context, the outer harbour allows for the accommodation of a greater number of vessels, including larger vessels such as ferries and hydrofoils to increase trade and tourism and for fast connections with other ports on the Dalmatian coast and in the northern Adriatic. An outpost also provides mooring facilities for law enforcement vehicles, such as the Guardia di Finanza and the Coast Guard, with excellent accessibility and ease of access to the sea even in emergencies. The construction of an outer harbour makes it possible to allocate mooring space within the port to fishing boats and private vessels, better separating flows and spaces.

The construction of an outpost is generally invasive and must take into account possible environmental and landscape impacts.

## Best practice 10

**Best practice title:** Isola Ecologica come oasi di educazione ambientale

**Best practice description:**

The project proposal originates from the "FLAG Costa dell Emilia-Romagna" to the fishing and aquaculture sector development. The project aims to raise awareness and involve fishermen and mussel farmers. Encouraging them to take the waste collected ashore, together with the waste material generated by their activities, and deliver it to the ecological islands equipped on the port docks.

The guiding idea is to conceive the ecological island as an authentic environmental education oasis, where the technical module that encloses the containers becomes a means of communication on environmental issues and at the same time, through the landscape component, has an ecological function.

As far as communication is concerned, on the street side, or rather the one from which this is carried out, a typical image of the place is represented together with a QR-code to access a technical portal.

Instead, on the opposite side dedicated to the pedestrian fruition, on the panels will be told the story of the waste of the sea.

Some flowerbed areas, around the module, are slightly depressed so that they can collect water from the increasingly frequent water bombs, becoming rain gardens and making the port pedestrian areas more resilient to climate change.

This proposal has been represented, although not yet present, for the marinas of Goro, Cesenatico, Ravenna, and Cattolica.

**Potential transferability in region:**

The design of these ecological islands within the various regional ports would allow, in addition to a mere reduction of waste scattered in the sea, to create a sort of regional port ecological identity and a system of actions that help to counteract climate impacts.