

# **From the MED analyses T3.2-3.6 (Threats) & T3.8-3.12 (Enabling Factors) to the MED Syntheses T3.7 (Threats) & T3.13 (Enabling Factors)**

---

**Andrea Barbanti & Marko Prem – CNR-ISMAR – PAP/RAC**



**CO-EVOLVE 3<sup>rd</sup> SC**

**Valencia, 2017 November 16<sup>th</sup> & 17<sup>th</sup>**

## **Contribution from Task 3.2**

### **Threats to co-evolution - Mediterranean scale: Climate changes and morphological stability**

**Task Leader: ISMAR-CNR**  
**Federica Rizzetto**

---



**CO-EVOLVE 3<sup>rd</sup> Steering Committee meeting**  
**Valencia, 16-17 November 2017**

## Key outcomes contributing to CO-EVOLVE objectives:

- **Analysis of the current morphodynamics** of the European and non-European Mediterranean coasts at NUTSIII scale.
- **Identification of the potential threats to the morphological stability** of the European and non-European Mediterranean coasts at NUTSIII scale.
- **Assessment of the future evolutionary trends** of the European and non-European Mediterranean coasts **under climate change conditions.**



## Most original results / products compared to the state-of-the-art:

- **Data collection on morphodynamics** of the European and non-European Mediterranean coasts under present climate change conditions.
- **Morphological maps of the European and non-European Mediterranean coasts at NUTSIII scale**, useful to identify areas more exposed to erosion and flooding under future climate change conditions.
- **Maps of the evolutionary trends of the European and non-European Mediterranean coasts at NUTSIII scale** occurred over the last decades.



## **Contribution from Task 3.3**

### **Threats to co-evolution - Mediterranean scale: Littoralization and urbanization**

**Task Leader: University of Thessaly**  
**Harry Coccossis, Tonia Koutsopoulou**

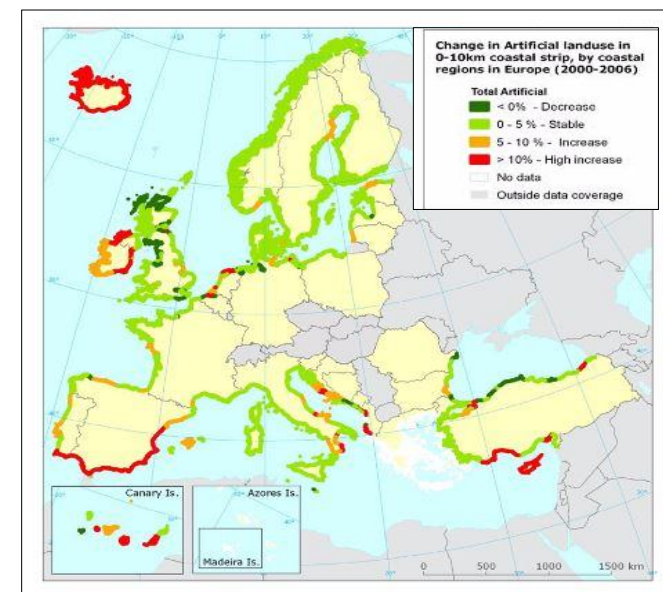
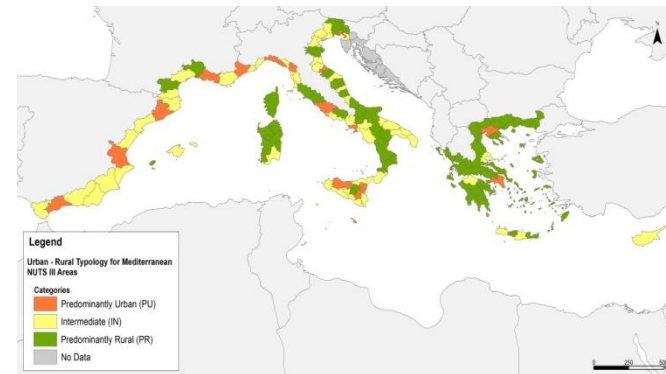
---



**CO-EVOLVE 3<sup>rd</sup> Steering Committee meeting**  
**Valencia, 16-17 November 2017**

## Key outcomes contributing to CO-EVOLVE objectives:

- **Trends** Analysis of littoralization and urbanization at MED scale using “**Population density change**” and “**Degree of urbanization**” → from density and compactness to urban sprawl and littoralization
- Key issues related to littoralization trends per country → identification of **pressured coastal zones** and threats evaluation
- Drivers, pressures and impacts on MED touristic areas → comparative analysis on **coastal land use changes**
- Comparative analysis regarding the **mechanisms** addressing urbanization and littoralization pressures in the entire Mediterranean region



## Most original results / products compared to the state-of-the-art:

- Trends analysis within the Co-Evolve approach → **correlation** of “Population density change” and “Degree of urbanization” with **destination typology**

### Degree of urbanization (urban-rural typology) and CO-EVOLVE tourism typology

	High Share - High trends	High Share - Medium trends	High Share - Negative trends
Intermediate Urban (%)	39,29%	50,00%	50,00%
Predominantly Urban (%)	25,00%	40,00%	25,00%
Predominantly Rural (%)	32,14%	10,00%	25,00%
No Data	3,57%	0,00%	0,00%
	Low Share - High trends	Low Share - Medium trends	Low Share - Negative trends
Intermediate Urban (%)	10,00%	14,29%	13,04%
Predominantly Urban (%)	10,00%	0,00%	4,35%
Predominantly Rural (%)	60,00%	85,71%	82,61%
No Data	20,00%	0,00%	0,00%

### Population density change (average) 1995-2015 and CO-EVOLVE tourism typology

High share - High positive trends	High share - Medium positive trends	High share – Negative trends
19%	12,6%	3,9%
Low share - High positive trends	Low share - Medium positive trends	Low share – Negative trends
-2,1%	4,3%	-1,6%



## **Contribution from Task 3.4**

### **Threats to co-evolution - Mediterranean scale: Touristic fluxes and carrying capacity**

**Task Leader: University of Thessaly**  
**Harry Coccossis, Tonia Koutsopoulou**

---

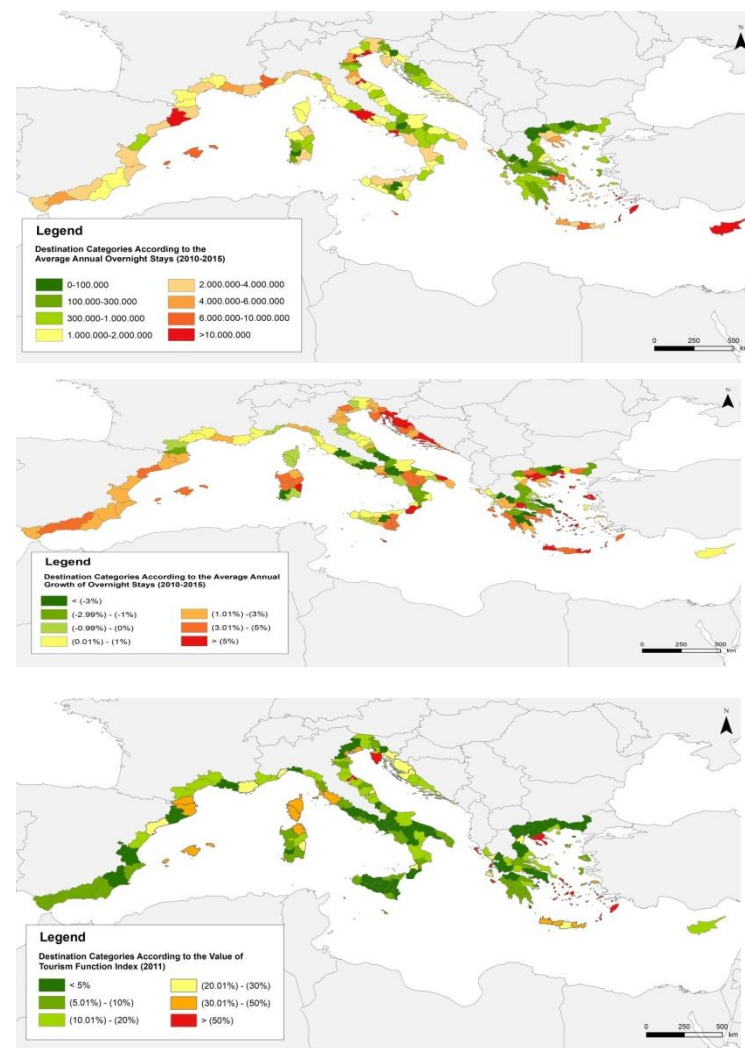


**CO-EVOLVE 3<sup>rd</sup> Steering Committee meeting**  
**Valencia, 16-17 November 2017**



## Key outcomes contributing to CO-EVOLVE objectives:

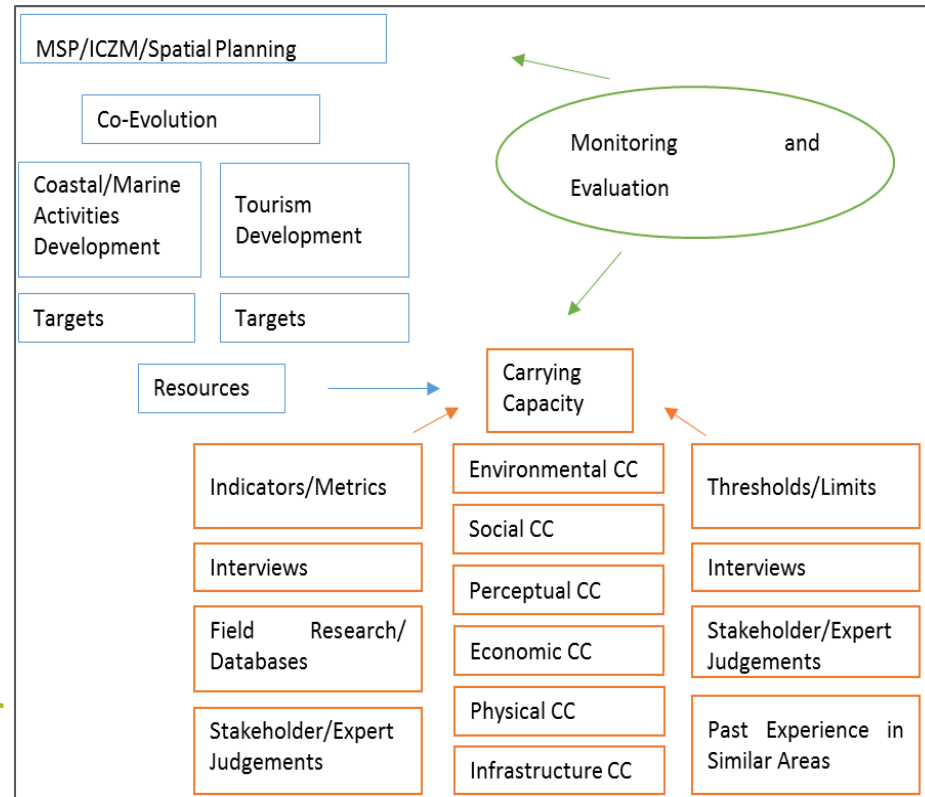
- Defining Co-Evolve's approach in measuring Carrying Capacity → Highlighting main **drivers** and **impacts** of CC in tourism destinations
- MED scale **Tourism Fluxes Analysis** and **Tourism Intensity Assessment**
- Tourism Fluxes Analysis and Tourism Intensity Assessment at **Pilot Area level** → Average Overnight Stays, Average Annual Growth and Tourism Function Index Scores



## Most original results / products compared to the state-of-the-art:

- Operationalizing TCCA for Coastal Destinations → Developing of a **Tourism Carrying Capacity Assessment Framework for Coastal Destinations**
- Adapting the metrics system for TCCA into **5 corresponding types of tourism** (beach, urban/cultural, cruise, recreational boating and nature tourism) → building further on **Tourism Sustainability Toolkit**

### Proposed Tourism Carrying Capacity Assessment Framework for Coastal Destinations



## **Contribution from Task 3.5**

### **Threats to co-evolution - Mediterranean scale: Pollution and Ecosystems**

**Task Leaders: ISMAR-CNR**  
**Lucia Bongiorno & Alessandra Pugnetti**  
**Task team: Mita Drius & Alessandro Campanaro**

---



**CO-EVOLVE 3<sup>rd</sup> Steering Committee meeting**  
**Valencia, 16-17 November 2017**

## Key outcomes contributing to CO-EVOLVE objectives:

- We identified the **major coastal ecosystem services in the Mediterranean Basin** and we highlighted their **crucial role in sustaining coastal tourism**
- We analyzed a very comprehensive range of **threat factors to coastal ecosystems caused by coastal tourism and of threat factors caused by other human activities** and impinging on coastal tourism
- We built **maps of ecological risk** by adopting **seven threat indicators** for which adequate information was available at MED scale



## Most original results / products compared to the state-of-the-art:

- We tuned the analysis of threat factors on the five coastal **tourism typologies** adopted in CO-EVOLVE and presented **innovative information** in relation to threats (e.g. light pollution)
- We provided a **conceptual framework** which links coastal ecosystem functionality to tourism sustainability and shows how human pressures can affect both
- The **maps of ecological risk** clearly show where the hotspots for the selected threats are located, allowing **spatial comparison among Mediterranean regions and further analyses of cumulative impacts**



## **Contribution from Task 3.6**

### **Threats to co-evolution - Mediterranean scale: Land-Sea uses and land-sea interactions**

**Task Leader: University of Thessaly**  
**Harry Coccossis, Tonia Koutsopoulou**

---



**CO-EVOLVE 3<sup>rd</sup> Steering Committee meeting**  
**Valencia, 16-17 November 2017**

## Key outcomes contributing to CO-EVOLVE objectives:

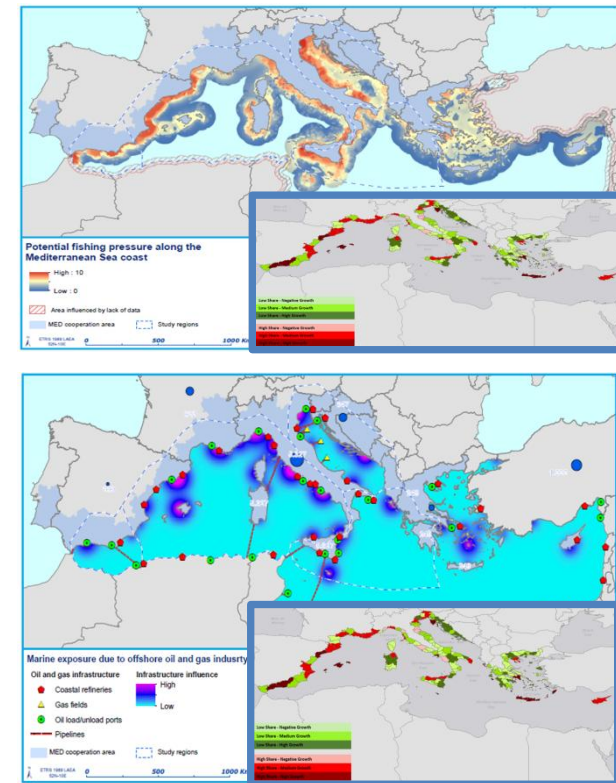
- MED scale analysis on the most **important coastal and maritime activities** → Coastal and maritime tourism, fisheries and aquaculture, energy extraction, agriculture and maritime transport
- **Trends analysis** at Med scale and evaluation of potential **threats** per economic activity → provision of maps and related data
- Analysis on the use of MSP and ICZM as tools for addressing land sea interactions → Identification of **knowledge gaps** in monitoring and evaluating **cumulative pressures** from land-sea interactions





## Most original results / products compared to the state-of-the-art:

- MED scale (NUTS3) analysis on the **interactions** of tourism with main coastal and maritime activities → **correlation** of pressured areas with Co-Evolve's **destination typology**
- Identification of cumulative pressure “**Hot spots**” → spatial correlation between tourism pressured areas and pressured areas from other economic activities
- Methodology for **comparative analysis** on land use conflict assessment in terms of **compatibility** and **intensity** at local scale





## **Contribution from Task 3.8**

### **Enabling factors for co-evolution – Mediterranean scale: Coastal protection measures**

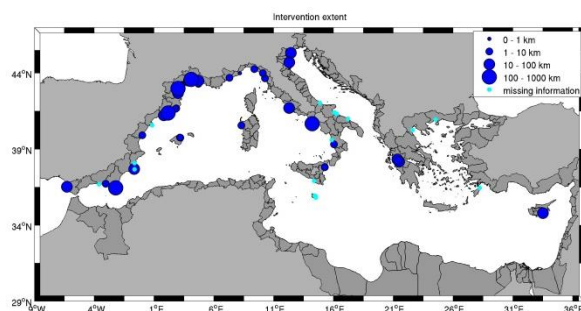
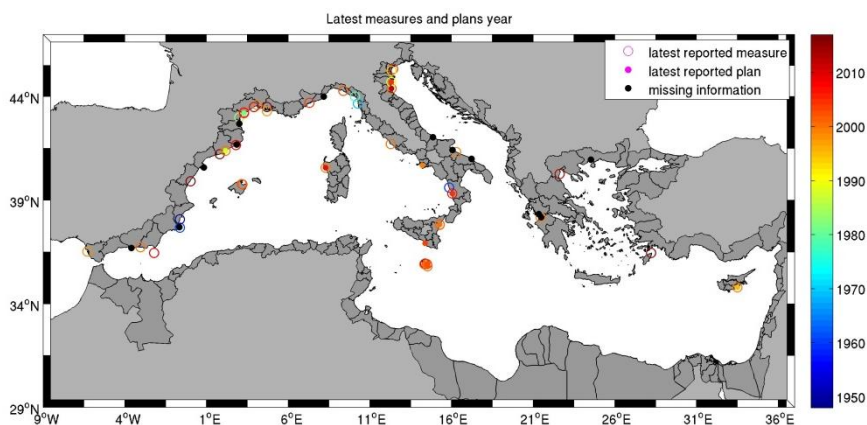
**Task Leader: CNR-ISMAR**  
**Sandro Carniel - Davide Bonaldo - Maria Gabriella Gaeta**

---



**CO-EVOLVE 3<sup>rd</sup> Steering Committee meeting**  
**Valencia, 16-17 November 2017**

## Key outcomes contributing to CO-EVOLVE objectives:



- Review of coastal protection techniques and plans along the EU Mediterranean coastlines
- Visual representation of coastal protection techniques distribution and intervention efficiency
- Tourism-oriented strategies for coastal protection



## Most original results / products compared to the state-of-the-art:

- **Updated assessment** of the state-of-art coastal protection technologies, their geographical distribution based on geomorphological, hydrodynamic and socio-economical setting and their outcomes
- **Indicators** for the characterisation of coastal protection as enabling factors for sustainable co-evolution in touristic areas
- **A new framework for coastal planning conjugating morphological conservation and sustainable tourism**



## **Contribution from Task 3.9**

# **Enabling factors for co-evolution – Mediterranean scale: Ecosystems protection**

**Task Leader: ISMAR-CNR**

**Lucia Bongiorno & Alessandra Pugnetti**

**Task team: Mita Drius & Alessandro Campanaro**

---



**CO-EVOLVE 3<sup>rd</sup> Steering Committee meeting**  
**Valencia, 16-17 November 2017**

## Key outcomes contributing to CO-EVOLVE objectives:

- We presented a **detailed review of the existing strategies and measures facing relevant threats to ecosystems**, with a focus on the Mediterranean Basin
- We reviewed the **most pertinent tools for cumulative impact assessment** within marine spatial planning and offered examples of **application** in the Mediterranean context
- We described the main **Citizen Science initiatives** currently in place in the Mediterranean Basin



## Most original results / products compared to the state-of-the-art:

- We explicitly linked the existing strategies and measures to “descriptors” expressing the five coastal tourism typologies adopted in CO-EVOLVE, thus showing which strategy regulates which touristic activity
- We proposed an innovative conceptual framework which integrates the use of tools of cumulative with multi-ecosystem service assessment, and we applied it to one of the five touristic typologies (i.e. Cruising)
- We identified **eight indicators** at MED scale for the Enabling Factor “Ecosystem protection”



## **Contribution from Task 3.10**

### **Enabling factors for co-evolution – Mediterranean scale: Water supply and depuration**

**Task Leader: Department HERAULT**

---

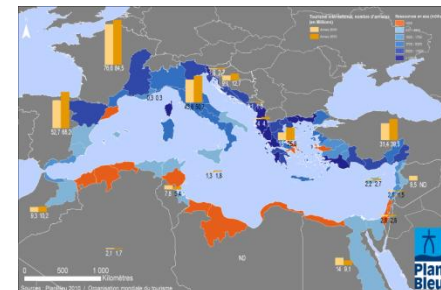
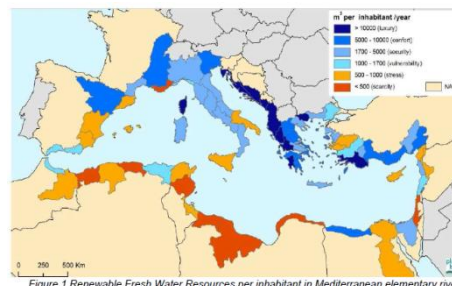
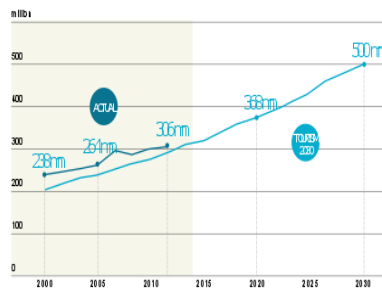


**CO-EVOLVE 3<sup>rd</sup> Steering Committee meeting**  
**Valencia, 16-17 November 2017**

## Key outcomes contributing to CO-EVOLVE objectives:

Considering expected international tourist arrivals in the Med region - see below map 1,

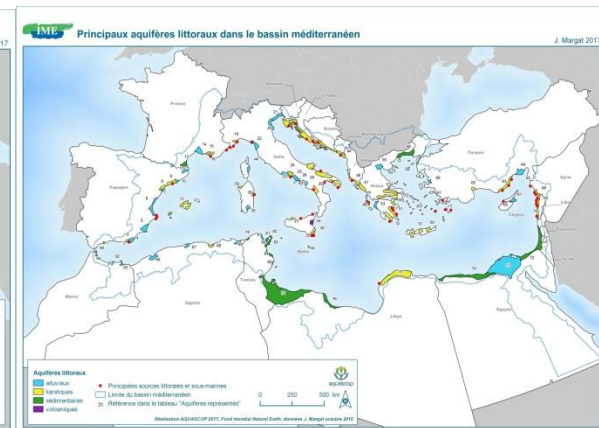
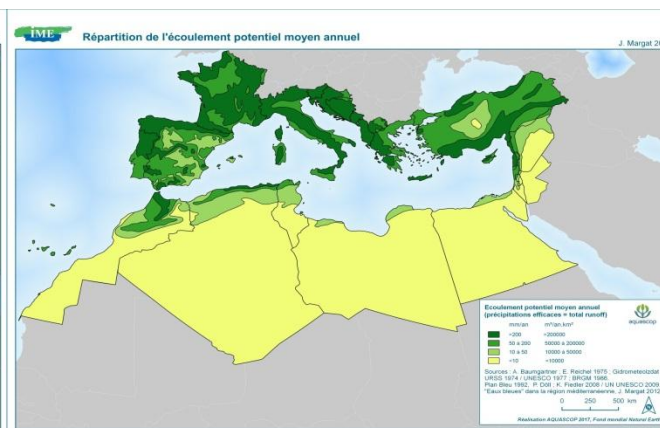
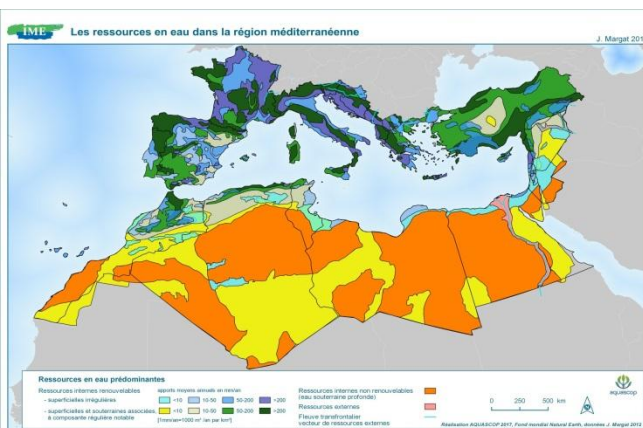
- **Renewable Fresh Water Resources per inhabitant** : important **difference between North and South**. For the future, we must **anticipate a higher stress**, including for the north Regions – **map 2**
- **Coastal water quality** : Accelerated **degradation in the 20th century**. 200 M people localized on the Med coast, in majority in the cities. **Trend : continuation & increase**
- **International Tourism & water resources** : the most important part of Tourism on coastal zone, during summer period = when there is little rain and low water reserves... – **map 3**





## Most original results / products compared to the state-of-the-art:

- Med water resources with a **new map produced**
- Effective rains / **new map**
- Med coastal aquifers / **new map**
- **Water tourism impacts : waste of limited resources, pollution**



## **Contribution from Task 3.11**

### **Enabling factors for co-evolution - Mediterranean scale: Transports and accessibility**

**Task Leader: IUAV**  
**Francesco Musco, PhD**  
**Nazmus Sakib**

---



**CO-EVOLVE 3<sup>rd</sup> Steering Committee meeting**  
**Valencia, 16-17 November 2017**

## Key outcomes contributing to CO-EVOLVE objectives:

- Med scale (coastal NUTS 3 level) analysis of the identified touristic transport and accessibility **enabling factors**
- Transport and accessibility database able to support some of the **relevant Tourism Sustainability Indicators** developed under the **Tourism Sustainability Toolkit (D\_3.16.2)** in a **Med scale**
- Value added PA scale data acquisition on touristic transport and accessibility and the gaps identified may support the **ICZM/MSP based tourism driven planning for the PAs**, upon which the Med scale transferability plan will be developed



## Most original results / products compared to the state-of-the-art:

- Addressing the **land-sea interaction concept** to determine the coastal touristic transport and accessibility enabling factors
- **Med Scale consolidated database** on coastal touristic transport and accessibility features, seasonality and flows
- **Atlas of maps** providing a comprehensive **Med scale** geo-spatial analysis of the **passenger port infrastructure** and **ship accessibility**, **passenger intermodal capacity** and **hinterland accessibility** from these **passenger ports** and their nearest **airports**



**From the MED analyses  
T3.2-3.6 (Threats) & T3.8-3.12 (Enabling Factors)  
to the MED Syntheses  
T3.7 (Threats) & T3.13 (Enabling Factors)**

**CONTACTS**

**Names: Andrea Barbanti ISMAR-CNR & Marko Prem PAP/RAC**

**CO-EVOLVE 3<sup>rd</sup> Steering Committee meeting  
Valencia, 2017 November 16<sup>th</sup>-17<sup>th</sup>**

