



Nostra Project – Baseline study

Strait of Otranto



Source: Nostra website



Source: Città di Otranto website



March 2014

Disclaimer:

The views expressed in this report are purely those of the authors and may not necessarily reflect the views or policies of the partners of the NOSTRA network. The methodological approach that was applied during the baseline study is presented in the final report of the study. The analysis that is provided in this report is based on the data collected and reported by the Nostra partners, a complementary literature review conducted by the consultants, and the results provided by the methodological toolkit developed in the framework of the baseline study. This report is currently focusing only on the Italian side of the Otranto Strait as no data could be reported by the Albanian side in the time of the study.

Acknowledgement:

This report has received support from the Province of Lecce. The authors would like to thank them for providing information requested for completing this study.

Limitations of the analysis:

The consultants faced a limited amount of data. In general, on both sides of the strait, involved partners are facing difficulties in collecting socio-economic and biodiversity related data. In particular, the Albanian side of the Otranto Strait could not deliver any data.

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Nota Bene: Due to difficulties collecting data for the Albanian side of the Otranto Strait, this report focuses mainly on the Italian side of the Strait.



1 General presentation of the strait

1.1 Geographical area

The Strait of Otranto connects the Adriatic Sea with the Ionian Sea and separates Italy from Albania. Its width from Kepi I Gjuhes, Karaburun, Albania to Punta Palascia, and East of Salento is less than 72 kilometers (45 miles). The strait is named after the Italian city of Otranto. The Strait of Otranto has a very strategic position and for centuries has been a key to control all traffic flow from

Mediterranean to Adriatic seas.¹

Otranto is situated in the province of Lecce, and thus in the Puglia Region, at the extreme South-East of Italy. The province faced many invasions over the past, which can be partly explained by its geographical location. In particular, it has successively passed hands from the Roman Empire to the Kingdom of the Two Sicilies. The Greek civilization has also left its mark. The existence of “griko”, the local dialect originating from ancient Greek stands as proof. Thus, the province has a strong and specific cultural identity.

The province itself is about 40 km wide. The eastern coast is in contact with the Adriatic Sea, whereas the south-western part borders the Ionian Sea.

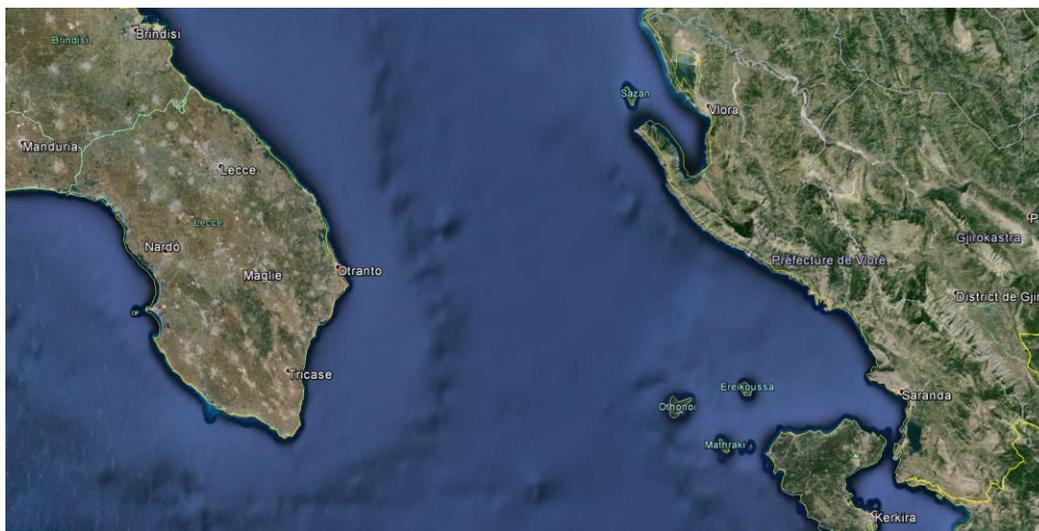


Figure 1: Geographic situation of the strait²

¹ Source: NOSTRA website

² Google Earth

Table 1: Key geographical data

Key geographical data	Unit	Italy , Province of Lecce	Albania, Regional Council of Vlora
Landscape area	ha	279,906 ³	n/a
Seascape area	ha	n/a	n/a
Length of coastline	Km	100 ⁴	n/a
Maximal depth of the strait	m	n/a	n/a
Width of the strait	Km	72	
Urbanized areas	km ²	n/a	n/a

1.2 Level of urbanization

1.2.1 Cities

▪ Province of Lecce, Italy

Population density in the province is about 290 inhabitants/km². Despite this high figure in comparison to the rest of Italy (about 199 inhab/km²), the province is famous for its landscapes and agriculture. The population is mainly concentrated in two areas, one corresponding to the city of Lecce (North- East of the province) and the other one on the North-Western part of the province.

Several urban areas are situated in the province. The main city of the province is Lecce. It accommodates about 90,000 inhabitants. With a population density of 372 inhabitants/km², it is by far the single most dense urban area in the province (the second is Nardò at 164 inhabitants/km²).⁵

1.2.2 Infrastructure

1.2.2.1 Ports

In the Province of Lecce, the coast is speckled with numerous ports, on the Ionian side as well as the Adriatic. The main port is at Gallipoli. It is divided in several areas and includes an area for selling \. ⁶ The other ports have more modest dimensions but welcome touristic and traditional fishing activity. There are 15 traditional ports in total in the province. The network of ports is deeply anchored in the landscape of the province.



Figure 2: Tour and port of Torre Vado

1.2.2.2 Gas pipeline⁷

Europe is highly dependent on the outside world to meet its internal demand for fossil fuels. In particular, gas is imported mainly from Russia. Important reserves are also available in the Caspian

³ Surface of the province of Lecce. Source ISTAT

⁴ Coastline length approximate value from Leuca to Lindinuso. Source: Google Earth

⁵ ISTAT

⁶ Web site *in vacanza nel Salento*: <http://www.invacanzanelsalento.com/salento/informazioni-porto-gallipoli-salento.htm>

⁷ TAP AG website: <http://www.trans-adriatic-pipeline.com/index.php>

and Middle East regions, which currently provide no benefit for Europe due to the absence of a collecting link between the European and the Middle-Eastern gas networks.

The Trans Adriatic Pipeline (TAP) is a project that aims at building this connection. The project would cross Greece and Albania to meet the European network in San Foca on the Italian coast between Lecce and Otranto. The enterprise leading the project is **TAP AG Company**.



Figure 3: The Trans Adriatic Pipeline project

1.2.3 Transportation

The Province of Lecce is connected to the rest of Italy by a dense network of roads and highways, and through a single train line that connects the city of Lecce to Brindisi, Puglia (Figure 4 and Figure 5). Automobiles and buses are the principle means of transportation. The City of Lecce is the hub of many highways. The network is rather well spread out throughout the area.

Several bus routes run through the province. Because of the absence of a local rail system, this is the only available transportation in the area.

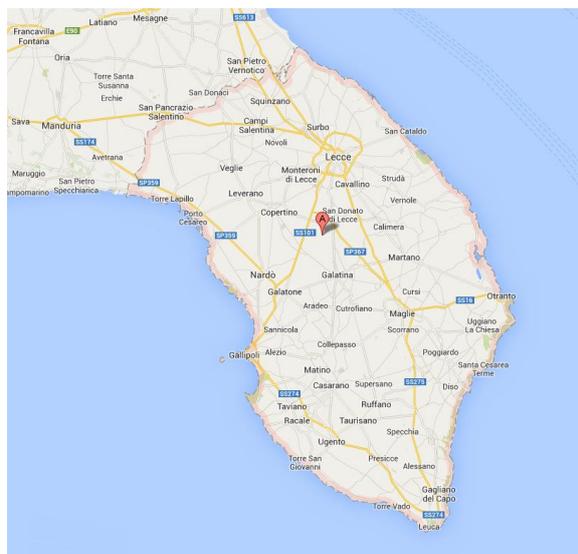


Figure 4: Roads network in the province of Lecce⁸



Figure 5: train network in Puglia⁹

No major civil airport exists in the province. Nevertheless, the nearby airport of Brindisi provides service to several international destinations. It is about 40 km distant from Lecce. The city of Brindisi has also given its name to the surrounding province.

⁸ Google maps

⁹ Ferrovie dello stato website:
<http://www.trenitalia.com/cms/v/index.jsp?vnextoid=5f86f19d7485a110VgnVCM1000080a3e90aRCRD>

1.3 Socio-economic background

1.3.1 Social context (including demographics)

Province of Lecce, Italy¹⁰

Over the last 10 years, the population of the province has been quite stable, showing a slight decrease since 2011. The natural balance is negative since 2005, but this has been compensated for by a positive net migration rate.¹¹

Furthermore, the population is ageing just as it is in the rest of Italy. Figure 6 shows the distribution of the province's population by age.

In Puglia, the average age was 39.3 in 2002 and 42 in 2012. During the same period, the share of people over 65 passed from 15.9% to 19%, and the proportion of 0-14 evolved from 16.7 to 14.6. It is also interesting to note that the decreases are all very regular.¹²

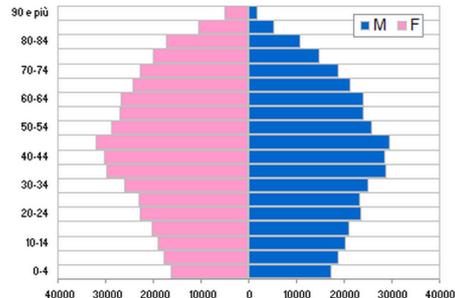


Figure 6: Resident population in the province of Lecce by class of age and sex (01/01/2013)

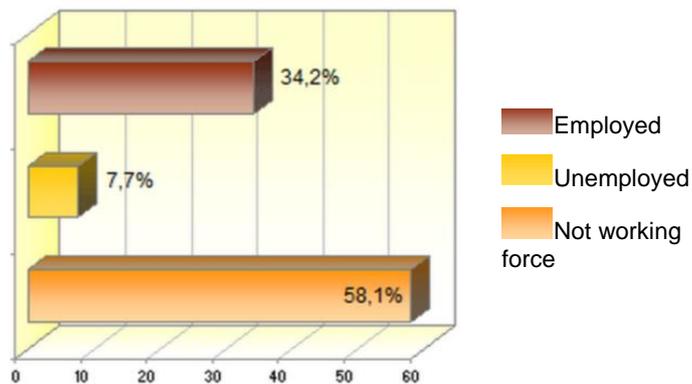


Figure 7: Social situation of the population over 15

Unemployment is particularly high in the province. **With a rate of 18.3%, the region is nearly 8 points higher than the rest of Italy.** The situation is even worse for young people: with an unemployment rate of 43.8% the province is far above the rest of the country (35.3%). While the Province of Lecce seems to have among the highest unemployment rates of the region, the gap between the regional and the national levels is on par with the gap between Northern and Southern Italy. Tuscany and Veneto for example have respective unemployment rates of 7.8% and 6.6% (15 and over)¹³.

The key socio-economic data for the Province of Lecce are summarized in the table below.

¹⁰ ISTAT

¹¹ ISTAT

¹² ISTAT: Population in the Puglia region. Available at: http://www.istat.it/it/puglia/dati?q=gettable&dataset=DCIS_INDEMOG1&dim=104,0,0&lang=2&tr=0&te=0

¹³ ISTAT

Table 2: Key socio-economic data

Key population data	Unit	Italy , Province of Lecce	Albania, Regional Council of Vlora
Number of inhabitants in the landscape area	(x 1000)	813.6 (2010)	n/a
GDP per capita in the area		15,761	n/a
Employed	%	n/a	n/a
Unemployment rate in the area	%	18.3% (2012)	n/a
Unemployment rate in the country	%	10.7% (2012)	n/a

1.3.2 Main economic activities ¹⁴

The presence of the following main economic activities were identified through analysis of the Italian side of the Otranto Strait.

Table 3: Main economic activities

Type of activity	Italy , Province of Lecce	Albania, Regional Council of Vlora
Maritime transport of goods	Low	Low
Maritime transport of passengers	Low	Low
Ports (fisheries and trade)	Traditional	n/a
Onshore energy production	No	n/a
Onshore production of renewable energy	√	n/a
Onshore industry and infrastructure	√	n/a
Onshore agriculture	√	n/a
Building and construction	?	n/a
Tourism	√	n/a

In terms of providing employment, services and industry are clearly the dominant economic sectors in the province, with about 70% of the workforce in the services sector and about 25% in the industrial sector (**Error! Reference source not found.**). Nevertheless, what most differentiates the structure of the province is the size of its enterprises. Micro-size enterprises are dominant in the Puglia Region (**Error! Reference source not found.**).

¹⁴ Noi italia, 100 statistiche per capire l'italia in cui viviamo, Sistema statistico nazionale, Istituto nazionale di statistica

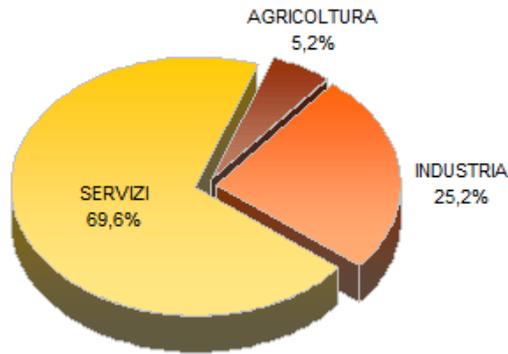


Figure 8: Workforce per sector of activity in the province of Lecce

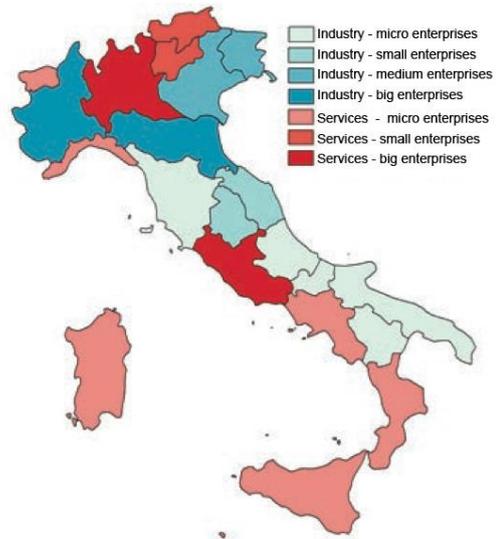


Figure 9: Size of Italian enterprises per region

The number of tourists has increased in remarkable proportions in the last years (+54% between 2006 and 2010). Tourism is included in the category “services” of **Error! Reference source not found.** Tourism activities are concentrated on the coastal area, in specific sites outside the wetland area. Tourism is limited to the period between June-September. Despite the fact that agriculture does not seem to be a particularly important sector, the touristic identity of the province is largely based on the so called “agriturismo”¹⁵.

No data has been found to indicate the importance of the sea in local activities (fishing, diving, or transport of goods and people). However, given the numerous traditional ports in the province (about 15¹⁶), one can expect a notable weight in the GDP and workforce (see the study case of Sardinia).

Regarding the economic dynamics between Italia and Albania, since the year 2000, there have been many displacements of Italian firms and factories in the manufacturing sector to settle in Albania. Furthermore, the transport of passengers is higher than the transport of goods between Italia and Albania. The Puglia Region could have benefited more for its own development if tighter economic cooperation with Albania had been arranged for. Unfortunately, the lack of cross-border transport and communication networks continues to pose an obstacle to increasing economic links between the two sides of the Otranto Strait.

¹⁵ The Italian civil code defines it as « the activity of an agricultural entrepreneur that offers to tourists, and in its own premises, food and hospitality, using its own products and organizing sometimes cultural or recreational activities.

¹⁶ Website *in vacanza nel Salento*: <http://www.invacanzanelsalento.com/salento/porti-del-salento.htm>

2 Significance and sensitivity of biodiversity and natural environment in the strait

2.1 Remarkable landscapes¹⁷

The natural characteristics of the area strongly determine its visual identity.

The sea in Salento is among the cleanest in Italy, and its translucency is internationally reputed. The coast is made up of both rocky areas and sandy beaches. This diversity creates a great variety of maritime landscapes.

Climate, traditional agriculture, and landscape meet in the exploitation of olive trees. Not only does it ensure revenue for the province through the exportation of olive oil, but it also sets the rhythm for the inner landscape. The monumental olive trees are remarkable elements of the landscape.¹⁸



Figure 10: A monumental olive tree in Salento

2.2 Biodiversity and natural environment in the strait¹⁹

There are various types of land covers in the Italian side of the Otranto Strait, as shown in the table below.

Table 4: Main land covers of the strait²⁰

Land cover (CORINE Land cover Nomenclature)		Italy , Province of Lecce	Albania, Regional Council of Vlora
Artificial surfaces	Urban fabric	√	n/a
	Industrial, commercial and transport units	√	n/a
	Mine, dump and construction sites	n/a	n/a
	Artificial non-agricultural vegetated areas	√	n/a
Agricultural	Arable land	√	n/a

¹⁷ UNESCO

¹⁸ Image available at: <http://www.flickr.com/photos/florixc/7977178599/lightbox/>

¹⁹ Il portale ambientale della regione Puglia. Available at: http://ecologia.regione.puglia.it/index.php?option=com_content&view=article&id=1015&Itemid=1040

²⁰ Guida ai parchi del Salento, Provincia di Lecce

areas	Permanent crops	√	n/a
	Pastures	√	n/a
	Heterogeneous agricultural areas	√	n/a
Forest and semi-natural areas	Forests	√	n/a
	Shrub and/ or herbaceous vegetation association	√	n/a
	Open spaces with little or no vegetation	n/a	n/a
Wetlands	Inland wetlands	√	n/a
	Coastal wetlands	√	n/a

2.2.1 “Remarkable” ecosystem or habitat types

The territory is covered with protected areas that host many different habitats and ecosystems. For example, the natural regional park “Bosco e Paludi di Rauccio” includes holly oak woods, sandy shores, bogs and small marshlands, a basin and reclamation channels, cultivated fields and grazing land. Among the terrestrial habitats, the diversity of wetlands, the rocky coast, the olive landscape, and pinewoods is also remarkable. Each of these habitats is home to specific types of fauna and flora. The combination of the species associated to each habitat is what makes for the great diversity of the terrain. There are also three remarkable marine habitats: hills, caves and Pastoni.

2.2.2 Protected areas^{21, 22}

The region is rich in natural protected areas:

- **Six natural regional parks**
 - Bosco e paludi di Rauccio, situated along the Adriatic sea
 - Costa Otranto – Santa Maria di Leuca e Boco di Tricase, situated along the South-Eastern coast of the province (about 55 km of coast);
 - Litorale di Ugento, situated in the South-Western coast;
 - Isola di Sant’Andrea – litorale di punta Pizzo;
 - Portoselvaggio – Palude del Capitano, situated on the Ionian coast.
- **One national reserve:**
 - Le Cesine, which encompasses more than 600 ha of wetland. Designated on the Ramsar List in 1977, it became a National Nature Reserve in 1980. It is part of the Natura 2000 network and has also been declared a Wildlife Sanctuary. It has a high biological diversity. According to the Ramsar Categories Classification, the area can be defined as a combination of “intertidal marshes” and “brackish to saline lagoons”. It is a representative example of a Mediterranean wetland. It is situated along one of the main migration routes and is home to many rare and endangered birds.

²¹ Natura 200 network viewer: <http://natura2000.eea.europa.eu/#>

²² Guida ai parchi del Salento, Provincia di Lecce

- One marine protected area:
 - Porto Cesareo, which covers 16,654ha.
- Sites of the European Natura 2000 network: Table 5 lists the sites within the province which are not part of other protected areas of the province.

The terrestrial protected areas represent a total of 14,702 ha (5% of the territory).

Table 5: List of the Natura 2000 network sites in the province and which are not part of other protected areas of the region

Name of the Natura 2000 area	Site code	Surface (ha)
Alimini	IT9150011	1,407
Aquatina di Frigole	IT9150003	159
“Chiuso di Presicce” Wood	IT9150017	11
Danieli Wood	IT9150023	14
Cardigliano Wood	IT9150012	53
Cervalora Wood	IT9150029	28
Otranto Wood	IT9150016	8
“La Lizza” Wood and the “Macchia del Pagliarone”	IT9150030	476
“Macchia di Ponente” Wood	IT9150010	12
Pecorara Wood	IT9150020	23
Serra dei Cianci Wood	IT9150018	47
Masseria Zanzara	IT9150031	49
Montagna Spaccata and Rupi di San Mauro	IT9150008	258
“Li Tamari” Marsh	IT9150022	11
Specchia dall’Alto	IT9150033	435
Torre Dell’Orso	IT9150004	60
Torre Veneri	IT9150025	383

Figure 11 shows the implantation of the Natura 2000 network site on the Italian side of the Otranto Strait.

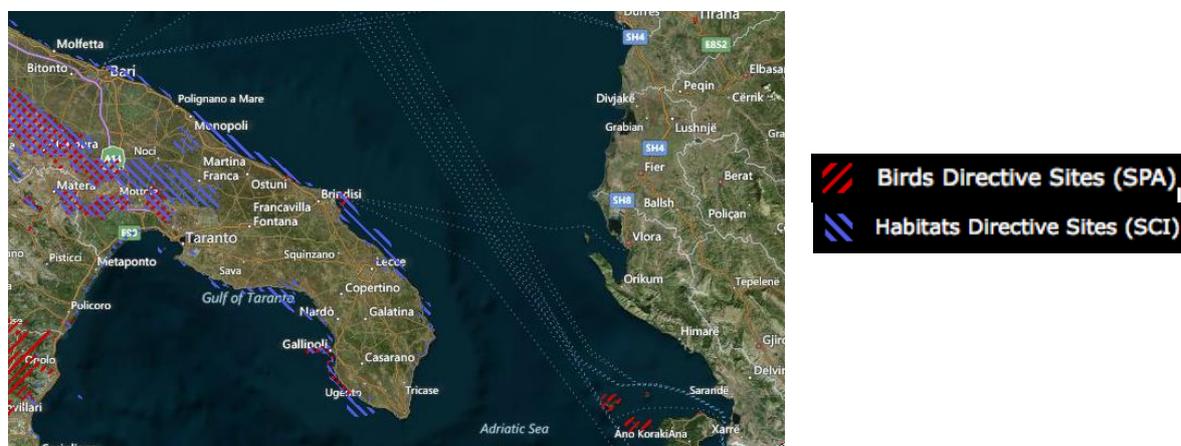


Figure 11: Implantation of the N2000 sites in the Province of Lecce

2.2.3 Migratory route

Because of its central situation in the Mediterranean Sea, Salento is a popular stopover site for migratory birds flying in from Sub-Saharan Africa. For some of them, the strait is an area of reproduction. The natural protected areas are privileged spots for their observation.

2.2.4 Rare and threatened species²³

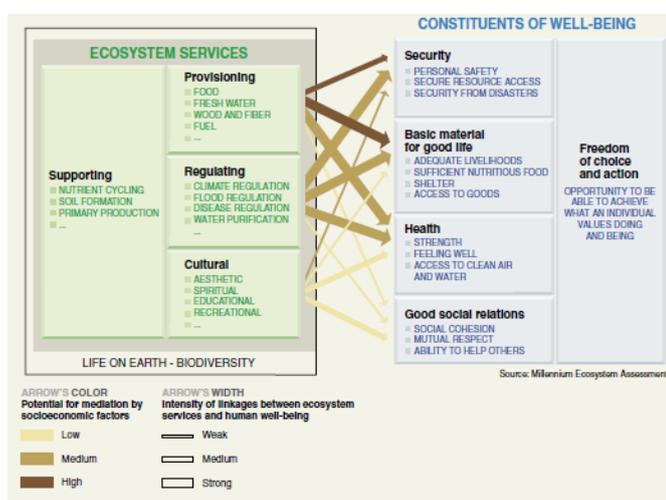
The Italian authorities, as well as the local authorities have built a list of threatened species within the area. In the province, many species are listed on either the national or local, so-called red list. Le Cesine Natural Reserve is home to many rare and endangered species.

The highest number of endemic species is concentrated in the remarkable marine habitats (e.g. hills, caves). Such species are very sensitive to changes in salinity of the water.

2.3 Significance of ecosystem services to the local livelihood

An ecosystem is a dynamic complex of plant, animal, and microorganism communities and the nonliving environment interacting as a functional unit. Ecosystem services are the benefits people obtain from ecosystems. These include *provisioning services* such as food, water, timber, and fiber; *regulating services* that affect climate, floods, disease, wastes, and water quality; *cultural services* that provide recreational, aesthetic, and spiritual benefits; and *supporting services* such as soil formation, photosynthesis, and nutrient cycling²⁴. The figure is taken

from the MEA synthesis report, which depicts the strength of linkages between categories of ecosystem services and components of human well-being that are commonly encountered, and includes indications of the extent to which it is possible for socioeconomic factors to mediate the linkage (for example, if it is possible to purchase a substitute for a degraded ecosystem service, then there is a high potential for mediation). The strength of the linkages and the potential for mediation differ in different ecosystems and regions. In addition to the influence of ecosystem services on human well-being depicted here, other factors—including other environmental factors as well as economic, social, technological, and cultural factors—influence human well-being, and ecosystems are in turn affected by changes in human well-being.



Linkages between Ecosystem Services and Human Well-being Source: MEA, 2005: pp vi

2.3.1 Significance to local revenues and social life

The Province of Lecce reaps direct benefits from the presence of rich biodiversity and natural areas. In general, the quality of the natural environment is cardinal for the tourism industry. The

²³ Piano di gestione dei Siti di Importanza Comunitaria (SIC) della RETE NATURA 2000 della Provincia di Lecce, quadro conoscitivo

²⁴ MEA, 2005

area is renowned for its biodiversity and the beauty of its landscapes. Table 5 shows the importance of the Natura 2000 network in the province. The recommendations linked to this network (i.e. urbanization and agriculture) could ensure preservation of touristic activity for the long term.

Traditional fishing also relies on the good state of the natural maritime environment. The quality of the water partly determines the availability of fish resources. To this aspect, an accident due to the dense maritime traffic in the strait would have long-term negative effects. The management of fishing resources can also help preserve fish stocks (through fishing quotas for example). Traditional fishing is well represented in the area. The large number of small traditional port attests to its significance—if not for the larger economy, at least in a cultural and social sense.

Agriturismo is also well developed in the province. With 4,118 beds to host visitors, the province represents only 2% of the national total. This number has, however, seen a quick increase between 2006 and 2011. This activity is hinged on the quality of the natural environment and its interaction with humans. While there is no precise data available to measure the full potential of this activity, there is possibility for further development²⁵.

Natural areas can be used for many different purposes. For instance, Le Cesine is used for environmental education, recreation and ecological tourism, and scientific research. The area is used in a sustainable way and to generate economic advantage for the local community in both direct and indirect ways.²⁶ One project aims to develop organic agriculture, which is however, not an easy task because it implies behaviour change in an aged farming population.

2.3.2 Cultural significance²⁷

The landscapes in the province are also remarkable for the traces left by human history.

Due to its central situation in the Mediterranean Sea and to the narrow shape of the terrain (the sea is less than 25 km away from any point in the region)²⁸, the area has faced countless attempts at invasion. The series of towers along the coast, built for protection by the inhabitants, bear testimony to the events that took place up until the 17th century. By now they have become deeply embedded elements in the landscape of the coastline. Several castles that were built for the same purpose are also present in the province.



Croce, Lecce, Italy

Among the peoples who established their presence in the area are the Greeks, the Romans, the Byzantines, the Aragonese, and the Normans, who have all left their own mark. The province has applied for inscription to the list of UNESCO world heritage sites.

In particular, the region is marked by the strong presence of the baroque architecture. Charles V made Lecce Puglia's regional capital and ordered its complete renewal. The style of the time is now present all over the province, be it in monuments or modest dwellings, and is known as Trulli.

Furthermore, many cultural events related to the culinary customs and natural seasons, take place in the region during the spring and summer. Among the 60 so-called "sagre" and "feste" that take place in the province, there are such named the "*sagra*" of the fried fish or the "*sagra*" of the landscape under the tower. Natural resources and landscapes are thus deeply rooted in the local culture. Indeed, the prior sagra mentioned gives a clue to the importance held by the sea in the local culture.

²⁵ Strategie di sviluppo per la città rurale: proposte, professore Giovanni Zurlini, Lab. di Ecologia del Paesaggio, Dipartimento di Scienze e Tecnologie Biologiche ed Ambientali, Università del Salento

²⁶ Finistauri, N. Le Cesine. Available at: Ramsar.org

²⁷ Sagre Salento website: <http://www.sagresalento.com/sagre-lecce.html>

²⁸ Google Earth

2.4 Main biodiversity pressures and related impacts

2.4.1 Drivers of pressures on biodiversity

2.4.1.1 Human activities

The traditional agricultural practices that practiced in the area do not necessarily involve significant use of artificial fertilizers or pesticides. Hence, this activity might not have intensive impacts on the natural environment. For instance, the production of olive oil does not generate anthropic pressures on the environment.

Tourism on the other hand, might be the key source of pressure on the environment. It is concentrated on 8 km of beach in the June-September season. Nevertheless, no major infrastructure in relation to tourism is present in the area. Nonetheless, coastal tourism increases the fragility of the dunes, resulting in an intensification of coastal erosion, which in itself is a natural phenomenon (see the following section on natural pressures). The geopolitically strategic position of the province could be the reason for numerous military installations²⁹. Those structures contribute to the increase of man-made ground cover, leading to several negative impacts (such as difficulties in water infiltration, the reduction of arable land, etc.).

Due to strong marine currents, rubbish drifts across the seas and ends up on beaches. The natural environment and the biodiversity of the coastal zone suffer from this kind of waste. Waste comes not only from the sea but also from the land. Pollution changes the salinity of the water, which strongly impacts endemic species of the marine habitats.

Industrial activities are located along the coast in specific areas (e.g. Brindisi): steel industries, power plants burning hydrocarbons.

Building is limited on areas that are located close to the coast (100 m from the sea). Local authorities are in charge of the urban planning.

Finally, the pipeline construction project might possibly affect coastal erosion. An impact assessment is being carried out by the Region.

2.4.1.2 Natural pressures

Natural erosion of the coast is observed as an intense natural phenomenon. This phenomenon is a result of the strong wind. This issue is complex to deal with at the level of the Province, because the Province is not in charge of coastal management.

²⁹ Website *osservatorio sui balcani di brindisi*: http://www.pugliantagonista.it/osservbalcanibr/lista_basi_puglia.htm

3 Responses for an integrated management of biodiversity and natural environment

3.1 Policies

3.1.1 European policies

As presented previously, the Habitats and Birds directives are widely implemented in the Italian side of the strait. Aside from them, other key EU legislations the strait have to comply with include the **Marine Strategy Framework Directive**.

Regarding fishery policy, Italy adopts the **Common Fisheries Policy (PCP)**. Due to decreasing fish stocks, a Common Fisheries Policy has been implemented in 2003. It allows **reconciliation between the principle of sustainable management of fisheries resources and the socio-economic and territorial imperatives of fishing activities**: quota reduction, modification of fishing gear, etc. Financial support for this initiative comes from the European Fisheries Fund (EFF).

December 2012 saw the launch of **the maritime strategy for the Adriatic and Ionian seas (MSAIS)**³⁰. It assesses the needs and potential of sea-related activities and sets out a framework to coordinate efforts between all maritime stakeholders. The four pillars of the strategy are

- “A stronger blue economy;
- A healthier marine environment;
- A safer maritime space;
- Responsible fishing activities.”

The MSAIS will be part of a broader local strategy implemented under the auspices of the EU. This **macro-regional strategy (EU Strategy for the Adriatic and Ionian Region - EUSAIR)** is set to promote the economic and social prosperity of the region by improving its attractiveness, competitiveness and connectivity. It shall focus on

- “Innovative maritime and marine growth
- Accessibility and connection of the region
- Preserving, protecting and improving the quality of the environment
- Regional attractiveness (by supporting the sustainable development of coastal, inland and maritime tourism).”

³⁰ European commission: communication from the commission to the European Parliament, the council, the European economic and social committee and the committee of the regions; A maritime strategy for the Adriatic and Ionian seas

3.1.2 National legislation

Collecting date mussels is prohibited by legislation in Italy. This is not the case in Albania.

3.1.3 Initiatives and actions

- Cross-border initiatives

The INTERREG European programme

The European programme for cross border cooperation INTERREG aims at reinforcing economic and social cohesion inside the EU. This initiative creates a special framework for cross-border, transnational and interregional cooperation. The programme is divided into several periods.³¹

1990/1994 - INTERREG I: provided support to projects dealing with institutional separation of trans-border communities, or the distance of these borders to the main economic centres.

1994/1999 – INTERREG II: was built to reinforce the cooperation in trans-boundary regions inside and outside Europe. The concerned issues were economic isolation, the defence of local populations, and the protection of the environment.

2000-2006 – INTERREG III: was divided into three strands (cross border cooperation, transnational cooperation, inter-regional cooperation). A special emphasis was put on the sustainable development of the concerned areas³².

The INTERREG II programme supported cooperation between Italy and Albania (measure 3.2).

The objectives were largely oriented towards developing knowledge and enforcing protection of the natural environment in the strait.

The INTERREG III programme included a section dedicated to cooperation in the Adriatic Sea: *INTERREG IIIA Adriatic new neighbourhood program*. It replaced the section of INTERREG II. It included coastal Italian regions, among which Puglia, the whole territory of Croatia, Bosnia and Herzegovina, Albania and the State Union of Serbia and Montenegro. The total funding amounted to more 100 million euros.³³



Figure 13: geographic perimeter of the INTERREG IIIA Adriatic New Neighbourhood Programme

3.2
than

The University of Lecce carried out a study to analyse the economic activities developed between Italy and Albania resulting from the INTERREG program. Around 15 projects were analysed. The main weakness that was highlighted was the absence of common instruments for governance.

The programme does not exist anymore under the form of a bilateral cooperation. For the period 2007 – 2013, it has been replaced by the Adriatic Instrument for Pre-Accession Assistance.

³¹ Initiative communautaire INTERREG II 1994-1999: un premier bilan, 01/2000

³² Europa website: http://europa.eu/legislation_summaries/regional_policy/provisions_and_instruments/g24204_en.htm

³³ European Union, Programme Summary of the Adriatic New Neighborhood Programme INTERREG IIIA PROGRAMME

The Adriatic Instrument for Pre-Accession Assistance (Adriatic IPA)

This programme ran from 2007 to 2013 and was put in place in order to facilitate the cooperation between Greece, Italy, Slovenia, Albania, Bosnia and Herzegovina, and Croatia.

This programme continued on the work of two former programmes: Italy-Adriatic and Italy-Albania (respectively part of INTERREG II and INTERREG III). As for those two programmes, the aim was largely “strengthening sustainable development capabilities in the Adriatic region through a concerted strategy of action between the partners of the eligible territories”³⁴. The global goal can be divided into three objectives:

- To foster sustainable economic growth;
- To further develop the attractiveness and quality of life in maritime border regions;
- To promote social cohesion and cooperation.

In order to achieve these objectives, three main priorities have been defined:

- Priority 1: Economic, social and institutional cooperation resources (30% of total funding)
- Priority 2: Natural and cultural resources and risk prevention (30% of total funding)
- Priority 3: Accessibility and networks (30% of total funding)
- Priority 4: Technical assistance (10% of total funding)

The programme budget is about 298 million euros.

In this framework, action was supported by the Province and six natural parks. The objective is to develop a series of tourism activities related to nature and culture with the use of electrically powered transportation.

Legislation for trans-border cooperation of EU member states in the coming period (2014-2020) is currently under elaboration.

The Shape-project

In the framework of an Italian-Albanian program, the Shape project will test the application of the Integrated Coastal Zone Management Directive and the Maritime Area planning Directive on pilot areas (about 35-40 km of coast). The project is being implemented on each side of the Strait.

3.1.4 Unilateral actions

- **Italian initiatives**³⁵

Developing knowledge on and protecting biodiversity and natural environment

In order to improve understanding of the natural environment, as well as for its protection, several programs and organisations exist in Puglia.

The Fauna observatory, wildlife recovery Centre

It is a regional structure charged with the following missions:

- The coordination of all fauna observatories of the Province,
- The collection of data related to local fauna,

³⁴ European Commission website, regional policy INFOREGIO, development programs

³⁵ Regione Puglia website, sito istituzionale, ambiente

- Leading experiments for the improvement of the knowledge on fauna and the bettering of its state.

Regional agency for irrigation and forestry activities (ARIF)

The scope of the structure's work is focused in three activities:

- **Firefighting:** Due to the very hot and dry climate of the region, fire is a major issue. This can directly impact the quality of biodiversity and natural environment. With the destruction of vegetation, comes the reduction of habitat for local species. Regarding firefighting, the ARIF's mandate is fire prevention and extinction in sensitive areas.
- **Forestry:** ARIF's mission regarding this activity is to undertake all actions possible to maintain the local forests in good health. For example: the vivaistica management aimed at the preservation and dissemination of biodiversity in the region, the introduction of innovative elements that could lead to environmental improvement, and the improvement of energy efficiency.
- **Irrigation:** water management is a particularly sensitive issue in the region. The management of irrigation is part of the ARIF's activities. This includes maintaining both quality and quantity of water resources.

Research project on cave bats

The Puglia Region is funding a project to study bats. The work is in progress.

Acting to preserve soil erosion in coastal areas

Three actions were implemented on the coastal areas suffering from erosion (with a decrease of the dunes). Erosion decreased where the actions took place. The objective would be to perform such actions systematically.

Other research projects

The University of Lecce has contributed to several research projects related to biodiversity in the Otranto Strait (CocoNet: elaborating guidelines to create marine protected areas; Vectors project: to define good environmental status in the framework of the Marine Directive Framework; CIESM project: to study the impact of the human exploitation of the Mediterranean Sea).

Apart from that, there is a project to identify agricultural biodiversity that will be launched in 2014.

Project on marine water quality

This project was carried out in the framework of the Protection plan of the Province of Lecce (in progress). Some samples of marine waters have been taken and tested for a complete analysis (physical, chemical and biological).

Project on air quality

In the context of the INTERREG programme Italy-Greece, three stations to monitor air quality were implemented in Italy (with at least one on the coast).

- **Integrated management of natural environment**

Guidelines and studies for the intervention on the low coasts of Puglia

The pressure of human activities on the coasts, and the strong dependency of many economic sectors on the natural resources present in these areas have led to the creation of three guidelines. The scope is knowledge improvement of natural structures in the low coasts and the identification of elements favourable for the preservation of these areas. The three guidelines are:

- Identification of risk mitigation structures (environmentally friendly for low coasts) for each Physiographical unit;
- Structures for coastal protection;
- GIS of preparatory studies for the Draft Plan of Coastal Dynamics integrating biodiversity in planning.
- Census of Monumental Olive-trees in Puglia

Monumental olive-trees are part of the local heritage. They are an important branding tool for the region. Because of their advanced age they constitute part of the historic local biodiversity. A regional law plans to take census of all monumental trees in the region (article 5 of the regional law 14/2007).

- **Sustainable tourism**

Regional parks and natural reserves

As already mentioned in part 2.2.1 “remarkable” ecosystems and habitats, several natural parks exist in the province of Lecce. They constitute a favourable space for biodiversity, as well as a touristic resource. The administration responsible for the management of these areas is named the Strategic Planning Environment and Territory of Lecce Province.

OECD LEED policy on “sustainable tourism and local development in Apulia region”

The Organisation for Economic Cooperation and Development (OECD)’s Local Economic and Employment Development (LEED) Programme and Tourism Committee have led a study in collaboration with Apulia Region destined to aid the region in:

- Implementing more effective sustainable tourism development strategies;
- Strengthening the value of Apulia destinations and specific visitor site propositions;
- Fostering skills and capacities at local level to develop sustainable tourism and local development in an integrated way.

The objective of this programme was the creation of a report including recommendations.

The need for agricultural innovation in Puglia

In 2012, the national institution of agricultural economics, together with the region of Puglia, have published a study about the need for innovation in Puglian agriculture. The idea is to favour sustainable development of the food industry. Such a development can positively influence economic growth, competitiveness, the quality of life and of course, the natural environment.

Regional actions goes to fulfilling the demands for knowledge and innovation, and to building bridges between researchers and the actual needs of the agricultural world. Eight panels took place. One of those dealt with “Agriculture and the environment, sustainable agriculture and organic farming, animal and plant biodiversity”. The main result of its work is the creation of exhaustive lists of observed issues, needs, and research programs on the topic.

Developing in-land tourism

The Puglia Region has supported several projects (*Sistema Ambientale i culturale*) to develop in-land tourism and agrotourism with the goal of decreasing coastal pressures exerted by tourism. Local municipalities are encouraged to develop alternative tourism around natural resources and cultural values available in in-land areas. Furthermore, there is a project to participate in the European Mapping of Sustainable tourism, which will support the development of alternative tourism.

- **Sustainable transport**

In order to decrease the external pressures on coastal areas where tourism concentrates during the summer, there is a pilot project testing a service mixing public transport and private vehicles in order to

keep private cars away from the coast and to distribute the public more evenly along the coast by using public transport. It is a relevant example of an attempt towards integrated management of the coast supported by the Region. Another idea would be to develop electrical transport to visit caves in the area and limit the pressures exerted on the habitat and the bats.

3.1.4.1 Initiatives from private actors and business sectors

No initiative from private actors or business sectors has been observed in the area.

4 Governance involved in biodiversity and natural environment management

Many public Italian actors are involved in biodiversity and natural environment-related decisions or actions in the Strait of Otranto (Table 6). The scope of responsibilities of these actors are at national, regional and local levels. There are a great number of responsibilities shared between these actors. Such responsibilities are distributed between different organisations and public bodies.

The Puglia Region is responsible for the regional projects and plans (for instance, dealing with decontamination of the water and the atmosphere, disposal of urban solid waste and disposal of special waste), maritime area and transport. The Region manages the issues related to marine security in collaboration with Port authorities.

The Province has responsibilities to manage and monitor the quality of the environment (atmosphere, water, land), but no responsibilities regarding transport or marine security. It works with the Region on the territorial plans, and serves as the link between the Region and local authorities. Questions are currently being raised regarding the future of Italian Provinces. Furthermore, there are regional agencies in charge of environmental protection. The Regional Parks are involved in drawing up the management plan for the parks.

Local authorities are in charge of controlling environmental services and of planning and managing urban areas. Moreover, the maritime Park is responsible for integrated coastal management and sustainable tourism. The University of Lecce has carried out several studies for developing knowledge on biodiversity and impacts of activities on natural environment. Finally, the WWF-Italy is in charge of managing some protected natural areas, such as Le Cesine Reserve.

Le Cesine is a good example of the diversity of actors involved in environmental management: while the main owner is the State, it is under the collective responsibility of the municipality of Vernole, the Province of Lecce, the Region Apulia and the Ministry of environment. WWF-Italy manages part of this protected wetland of international importance (approximately 350ha of the protected area) by agreement with the regional authorities.³⁶

Nonetheless, we note a lack of cross-border cooperation on issues related to biodiversity and the natural environment.

³⁶ Finistauri, N. Le Cesine. Available at: Ramsar.org

Table 6: Actors involved in biodiversity and natural environment decisions and actions

Designation	
Italian side	
Ministry of environment	
The province of Lecce	
City of Lecce	
City of Otranto	
Ports (e.g. Port of Gallipoli)	
TAP AG Company	
Agenzia Regional Attività Irrigue e Forestali (ARIF)	
Settore territorio ambiente e programmazione strategica, provincia di Lecce	
Istituto Nazionale di economia agraria	
Autorita portuale I Brindisi	
Regione puglia	
Rete Natura 2000	
Regione Puglia	
Universities	
WWF	
Albanian side	
Not available	

Cross-border governance

Until now, the trans-national cooperation was framed by European programs. From 1995 to 2006, the INTERREG European programme was implemented to support cooperation between Italy and Albania. Around 60 million euros were invested in this program. The new programme for the period 2007-2013 was expected to benefit from European funds. The programme was however cancelled. Instead, it was replaced by the Adriatic Instrument for Pre-Accession Assistance that involved all countries in the Adriatic basin, and which was explicitly oriented towards the sustainable development of the region. For the 2014-2020 period, expectations are high regarding the creation of a framework to launch trans-national cooperation to new levels.

Albania not being part of the European Union is the main reason behind difficulties in cooperation. A request for exemption of member status in European institutions has been made by this country in order to participate in the European project Nostra. The NOSTRA project has served as good practice for Italy and Albania to work together. Furthermore, cross-border work has been carried out on sustainable development, to support Albania in its natural areas management.

Today, it seems that communication between the two countries is still active. The presence of an office of Puglia in Albania is an evidence of this desire for cooperation. Finally, of the two main projects in progress, one is currently being carried out in the framework of the NOSTRA project, while another to develop future common strategies is part of the next operational programme for the period 2014-2020 (representing around 25 million euros). Dealing with environmental issues is a priority in both projects. In summary, we could say that there has been institutional cooperation between Italy and Albania, but without concrete outcome so far.

The existence of an official organism of governance could permit the emergence of common projects on topics of interest for the region, in particular a regional strategy for sustainable development. In addition,

the existence of an official institution would allow for the appropriation of private and international funds for local development projects. Albania and Italy are currently working on building a joint committee.

5 Conclusions of the analysis

Socio-economic background of the Strait

The main economic characteristics of the province are a small average size of businesses, and the domination of services and industries. If agriculture does not seem to be one of the major economic sectors, it occupies a transversal role. Tourist activities might partly be correlated to the traditional agricultural landscape. Agritourism is also developing very quickly in the region with the support of local and regional public bodies. Fisheries activities are mainly traditional.

The region is marked by a high unemployment rate. It is nearly 10 points higher than in the rest of Italy. Young populations are particularly affected by this issue.

Significance of biodiversity and natural environment in the Strait

The territory is covered with several European, national, and regional natural reserves that house a high diversity of species and habitats. Terrestrial protected areas represent 5% of the province territory (16,654 ha). Marine protected areas represent 14,702 ha. The natural environment is largely present in the traditional practices and the cultural heritage of the province. The traditional ports that speckle the coast and the “sagre”, customs taking place throughout the year, are evidence to this fact.

Human and natural pressures exerted on biodiversity and natural environment

The main human activities exerting pressures on the environment might be tourism and waste generation. The presence of infrastructure directly responsible for the artificial ground cover can also have a sensible impact. In particular, many military basements are present in the province of Lecce.

The area also faces intense natural erosion, due to strong winds. The answers to this natural pressure on the local environment must be sought through engagement at the regional, national, or transnational levels.

Policies, actions and initiatives contributing to an integrated management of biodiversity

European initiatives covering the Italian side

Several Policies are relevant to the management and protection of natural resources. The aim of the local, national, and European policies is to reduce the impact of human activities, and to possibly develop sustainable strategies for local development. The Marine Strategy framework is an initiative of the EU and allows reconciling the principle of sustainable management of fisheries resources and the socio-economic and territorial imperatives of fishing activities. The European network Natura 2000 protects species of community interest. The area is rich with migratory bird species, some of which are protected by this European network. On a broader range, the European strategy for the Adriatic and Ionian Regions is to promote the economic and social prosperity of the region by improving its attractiveness, competitiveness and connectivity. This strategy is built upon marine development, accessibility, and economic sustainable development.

There is a lack of competent authorities to take on responsibilities when environmental damage occurs in international waters.

Cross border initiatives covering for economic development

The Adriatic Instrument for Pre-Accession Assistance was running from 2007 to 2013, and was conceived in order to facilitate the cooperation between Greece, Italy, Slovenia, Albania, Bosnia and Herzegovina, and Croatia. It represents the continuation of the INTERREG program that included specific elements for the cooperation of Italy and Albania. The tool for international cooperation in the

region for the coming period is under discussion. The goals should be similar: "strengthening sustainable development capabilities in the Adriatic region".

Local initiatives for sustainable development and protection of the natural environment

Several initiatives show the local interest for the protection of the natural environment. The region's nature figures heavily in the local identity and traditional practices, and now appears as well to be a source of economic development and well-being. The presence of several regional and national parks allow for both the protection of local species and the valorisation of the natural capital by the touristic industry. The identification of the needs for innovation in agriculture, based on sustainable practices, also shows a desire to improve the economic development of the region by integrating and respecting natural characteristics. It is interesting to note that marine resources receive particular attention regarding both their protection and in the valuation of their economic potential. Institutions are in charge of the observation and the protection of the natural environment. In particular, the Fauna Observatory and the Wildlife Recovery Centre collect data, while the Regional Agency for Irrigation and Forestry activities is in charge of the management of the water resource and the protection of sensible areas from fire.

Governance

There is a variety of actors in Italy involved in issues related to natural environment and biodiversity, with a large distribution of competencies among them. There is no formal structure between Albania and Italy, but cross-border cooperation actions have been engaged.

5.1 How responses have addressed key pressures on biodiversity and natural environment

The responses that have been implemented in the Strait are mapped on the following tables.

Table 7: Responses to address risks and pressures exerted on biodiversity and natural environment – Otranto Strait (1/2)

Activities that take place in the Strait	Adding value to the local livelihood			Exerting risks and pressures, and impacting biodiversity and natural environment	Existing responses to address risks and pressures exerted on biodiversity and natural environment		
	Creating jobs	Creating revenues	Creating Identity & culture		Italian side (Provincia di Lecce)	Albanian Side	Cross-border
Maritime Transportation (through the strait)				Boat collision and risk of release of hazardous substances transported by boats	<ul style="list-style-type: none"> Legislation compliant with the International Regulations for Preventing Collision at Sea 	n/a	
				<i>All pressures/transversal</i>		n/a	
Traditional Fishing	✓	✓	✓	Fish stock depletion	<ul style="list-style-type: none"> Common Fisheries Policy The Fauna observatory, wildlife recovery Centre 	n/a	<ul style="list-style-type: none"> The Adriatic Instrument for Pre-Accession Assistance
Agriculture	✓	✓	✓	Reducing biodiversity	<ul style="list-style-type: none"> Strategy for the development of a sustainable agriculture Maritime strategy for the Adriatic and Ionian seas (MSAIS) The Fauna observatory, wildlife recovery Centre Census of Monumental Olive-trees in Puglia Study valuating the need for innovation in Puglia 	n/a	
Terrestrial/ Coastal tourism	✓	✓	✓	Urban development, artificialisation of land, disturbance of natural balance, destruction of ground vegetation	<ul style="list-style-type: none"> Guidelines and studies for the intervention on the low coasts of Puglia Regional parks and natural reserves OECD LEED policy on "sustainable tourism and local development in Apulia region" 	n/a	
Maritime tourism / Leisure	✓	✓	✓	Disturbance of natural balance	<ul style="list-style-type: none"> The Fauna observatory, wildlife recovery Centre OECD LEED policy on "sustainable tourism and local development in Apulia region" 	n/a	

Table 8: Responses to address risks and pressures exerted on biodiversity and natural environment – Otranto Strait (2/2)

Activities that take place in the strait	Exerting risks and pressures, and impacting biodiversity and natural environment	Existing responses to address risks and pressures exerted on biodiversity and natural environment		
		Italian side (Provincia di Lecce)	Albanian Side	Cross-border
Urban planning / territorial planning	Artificialisation of land, Coastal development, coastal erosion, impact on marine ecosystems	<ul style="list-style-type: none"> • EU Strategy for the Adriatic and Ionian Region – EUSAIR • Regional agency for irrigation and forestry activities (ARIF) 	n/a	<ul style="list-style-type: none"> • The Adriatic Instrument for Pre-Accession Assistance
Marine planning		<ul style="list-style-type: none"> • EU Strategy for the Adriatic and Ionian Region – EUSAIR • Guidelines and studies for the intervention on the low coasts of Puglia 	n/a	
Improving governance between actors and joint strategies		<ul style="list-style-type: none"> • Guidelines and studies for the intervention on the low coasts of Puglia 	n/a	<ul style="list-style-type: none"> • The Adriatic Instrument for Pre-Accession Assistance

6 Recommendations for improving an integrated management of biodiversity and natural environment

GOVERNANCE

- Implement a unique structure that could represent the Strait at International, European and National levels.
- Give long term perspectives to the cooperation between countries of the adriatic (EU and non EU member states)
- Develop tools for the cooperation at the scale of the regional or provincial scale
- Clarify governance in charge of taking decisions on biodiversity-related issues and implementing actions
- Develop a network of actors gathering public institutions, private sectors, and researchers in each key sector
- Develop cooperation between Albania and Italy in the framework of technical initiatives
- Develop a formal structure to work on the responsibilities of actors in the case of damage on biodiversity and natural environment in international waters.

KNOWLEDGE

- Develop, update and share a common and cross-border knowledge on:
 - Biodiversity and natural environment (e.g. complete and share on-going inventories);
 - The impacts of human and natural pressures on biodiversity and natural environment.
- Clarify pressures exerted on biodiversity and natural environment and related impacts.
- As a priority, clarify the pressures responsible for coastal erosion. Furthermore, the intensity of maritime traffic and its impact on natural resources has not been assed.
- Specify the impacts of tourism on the coastal and inner environment..

ACTION

- Share experience and best practices between cross-border partners
- Enhance the promotion of jobs and training and the identification of job opportunities in relation to the integrated management of biodiversity and natural environment, with cross-border partnerships, for instance in the following sectors: marine transport, tourism, local planning, fisheries, agriculture.
- Duplicate the work with local communities in natural protected areas to develop local benefits and at the same time increase protection of biodiversity.

6.1 Towards the implementation of good practices developed by other NOSTRA partners

During the workshop that took place in Reggio Calabria in February 2014, the NOSTRA partners were asked to identify the best practices developed by other partners of the Network they would like to implement in order to achieve their ideal Strait. The partners of the Otranto Strait expressed their interest for the following best practices.

Towards “EGTC Action plan for Biodiversity Preservation”

Biodiversity is a challenge for the Otranto Strait. If actions and initiatives have been taken on the Italian side, less actions to date have been implemented in the Albanian side. Moreover the scope of the actions taken by the Italian side of the Strait and the related outcomes may be reduced due to a lack of consistent actions implemented on the Albanian Side. The priority is to engage a joint action plan to preserve biodiversity. To ensure the decision-taking process and the definition of roles and responsibilities to manage biodiversity, establishing a formal joint dedicated structure is a relevant idea.

Towards “CAST (Coastal Actions for Sustainable Tourism)”

The CAST project implemented in the Dover Strait aims to strengthen coastal tourism by identifying new opportunities to attract and retain visitors and improve products and services while guaranteeing the sustainability of tourism. It would be an interesting initiative to develop this important economic activity in a sustainable manner on the Albanian and Italian Coasts, in a cooperative work, searching for common innovations and solutions to improve product, quality, communication, marketing and research are vital. The project focused on a joint analysis of the area, common marketing actions, and a pilot study in coastal management. They strive to change perceptions through tools such as jointly branded campaigns, study trips, joint website about coastal activities. However, in the case of the Otranto Strait, the initiative must integrate the issue of valuing inland areas, in order to decrease the pressure of tourism on the coasts.

Towards “Kvarken Council Joint governance”

The Kvarken Council is a cross-border cooperation association formed by public authorities from Finland and Sweden. It has had approximately 100 different cooperation projects in infrastructure, communications, tourism, university cooperation, food, business, education, culture, etc.

In the case of the Otranto Strait, initiatives have been taken to increase cooperation and joint actions between the two sides of the strait, but there is no formal structure between Albania and Italy. Implementing a formal structure inspired by the example of the Kvarken Council would be a step ahead towards further cooperation.

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