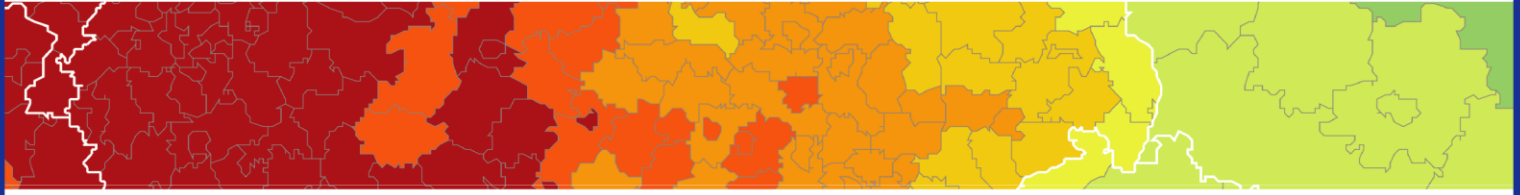


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MSP-LSI – Maritime Spatial Planning and Land-Sea Interactions

Targeted Analysis
Version: 20/02/2020

Final Case Study Report: Slovenia

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Authors

Sue Kidd, Stephen Jay, Hannah Jones, Leonnie Robinson, Dave Shaw – University of Liverpool (UK)

Marta Pascual, Diletta Zonta, Ecorys (Belgium)

Katrina Abhold, Ina Kruger , Katriona McGlade, Ecologic Institute (Germany)

Dania Abdhul Malak, Antonio Sanchez, University of Malaga (Spain)

Advisory Group

Project Steering Group: Holger Janssen, Ministry of Energy, Infrastructure and Digitalization Mecklenburg-Vorpommern, Germany (Lead Stakeholder); Lenca Humerca-Solar, Ministry of the Environment and Spatial Planning, Directorate Spatial Planning, Construction and Housing, Slovenia, Katarzyna Krzwda & Agata Zablocka, Ministry of Maritime Economy and Inland Navigation, Department for Maritime Economy, Poland, Sandra Momcilovic, Ministry of Construction and Physical Planning, Croatia, Katharina Ermenger and Gregor Forschbach, Federal Ministry of Transport and Digital Infrastructure, Division G 31 European Spatial Development Policy and Territorial Cohesion, Germany, Lodewijk Abspoel, Ministry for Infrastructure and Water Management, Netherlands.

ESPON EGTC

Michaela Gensheimer, Senior Project Expert, Johannes Kiersch, Financial Expert

Version 20/02/2020

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Final Case Study Report: Slovenia

MSP-LSI – Maritime Spatial Planning and Land-Sea Interactions

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Abbreviations

EC	European Commission
ESPON	European Territorial Observatory Network
ESPON EGTC	ESPON European Grouping of Territorial Cooperation
EU	European Union
NUTS	Nomenclature of Territorial Units for Statistics
ICM	Integrated Coastal Management
LAUs	Local Area Units
LSI	Land-Sea Interactions
MSEG	Member States Expert Group
MSFD	Marine Strategic Framework Directive
MSP	Marine Spatial Planning
NUTS	Nomenclature of Territorial Units for Statistics
ToR	Terms of Reference
WFD	Water Framework Directive

1 Main highlights and executive summary

1.1 Governance Analysis

The analysis of the spatial planning system at a national and local level revealed the following insights:

1.1.1 Spatial Planning on the Land

In Slovenia the Spatial Planning Act of 2017 (enacted on 1st June 2018) gives overall planning responsibility, both on land and sea to the Ministry of Environment and Spatial Planning working collaboratively with national and local bodies (municipalities and other key stakeholders). As a relatively new system it is difficult to evaluate what the system can do as plan preparation is ongoing, with confidence it will be completed by 2021. In Slovenia there are two formal planning levels, national and local (municipal government). The Spatial Development Strategy of Slovenia (2004) outlines the main objectives for spatial development. At a local level municipalities have traditionally prepared very detailed zoning plans to regulate development, but as a consequence of the new Spatial Planning Act they are now required to produce more compressive spatial strategies for the whole of their territory, the so called Municipal Spatial Plan. Whilst there is no regional governmental body, Regional Development Agencies support subnational economic development and inter-municipal associations can collaborate to prepare regional strategies.

1.1.2 Spatial Planning for the Sea

Marine Spatial Planning is a new, led by the Ministry of the Environment and Spatial Planning, and supported through a trans-national European funded project, the SUPREME project. This is providing technical assistance to the development of the marine plan, through the organisation of a number of stakeholder workshops, involving national ministries, local municipalities and private sector stakeholder interests. The idea is to develop a consensus both in terms of the issues to be dealt with and agreeing a way forward. There is a strong expectation the Marine Plan will be approved by March 2021. It is interesting to note that each municipality will be expected to formally ratify the final MSP draft, which once adopted will become the official regional MSP plan.

1.1.3 Addressing LSI

The process of stakeholder collaboration organised through the SUPREME EU funded project is seeking to develop a consensus in terms of reconciling national and local priorities, whereby expansion of the Port of Koper to meet the needs of maritime transport versus the potential threats of serious coastal pollution for more locally based imperatives, (coastal tourism, mariculture and nature conservation) is a key debate. Furthermore the Water Act 2002 (most recently revised in 2015)

places a responsibility to ensure that any development whether on land or in the sea, does not have an adverse impact on water quality. This means that the good status of water quality and other water-related eco systems should be preserved.

1.2 Value Chain Analysis

1.2.1 Coastal tourism

Coastal tourism is the most important sector of Slovenia's blue economy and it has been growing steadily in recent years. On the land aspirations are for further development but not necessarily by increasing the capacity for more tourists, although there may be some of this. Instead they are seeking to extend the season and capture more income from the existing tourism market. One of the key areas for potential growth is in terms of nautical tourism where the municipalities have the competence to develop and expand existing marinas in the area, although options are fairly limited. During the summer months much of the tourism offer is full to capacity and there are concerns about overcrowding.

1.2.2 Mariculture

Mariculture is a small sector which has seen significant growth in recent years and is seen as having the potential to grow further as a replacement, in some ways for the decline in local fishing. Its spatial activities in the sea are constrained into a two designated areas and there is some potential for further growth. On shore facilities are needed for processing and transshipment of the fish and shellfish material to market, which is both locally and nationally orientated. The sector is dominated by a large number of very small local businesses

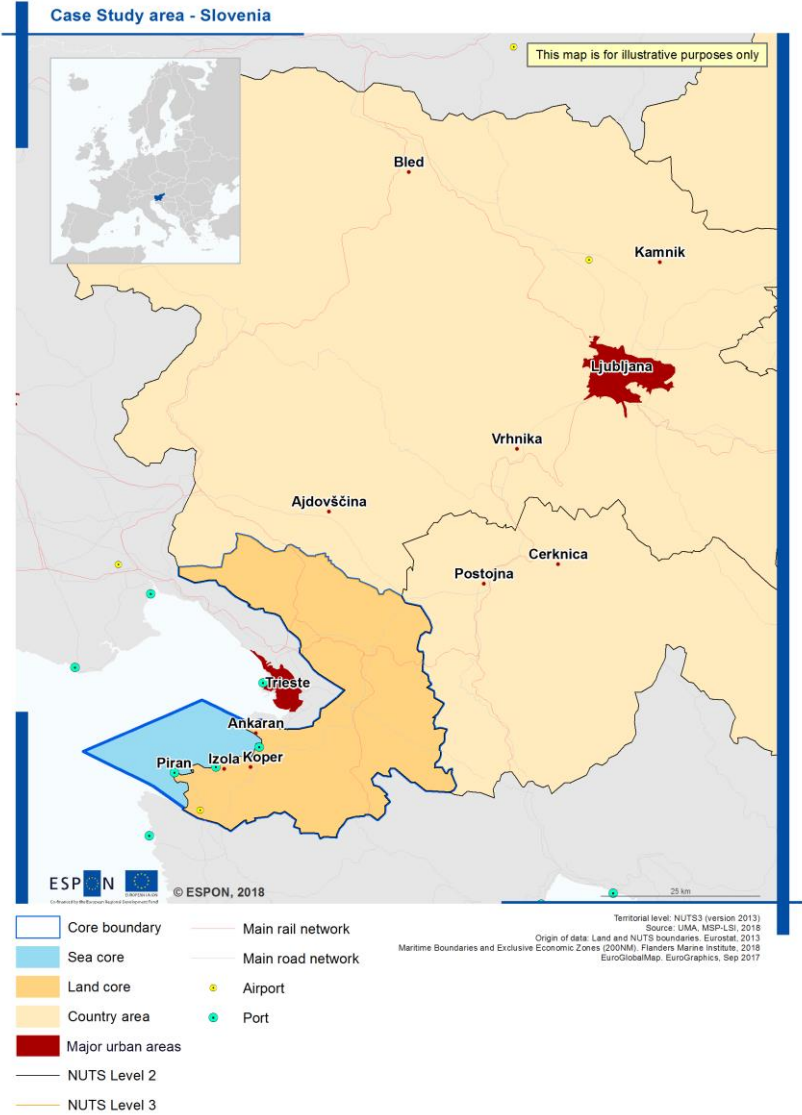
2 Introduction

2.1 Case study context

The present case study report on Slovenia is a scientific annex to the final report of an ESPON targeted analysis on Maritime Spatial Planning and Land-Sea Interactions, conducted within the framework of the ESPON 2020 Cooperation Programme. Among other objectives, the project aimed to establish the main impacts on land of key maritime activities and to explore how these are managed and incorporated in terrestrial planning. In particular, the project looked at sectors such as offshore wind energy, maritime transport, fisheries, environmental protection, coastal tourism and urban development. Slovenia is one of five case studies selected in the project, which represent different European regional seas, types of coastlines, sectors and LSI challenges. The focal sectors selected for the Slovenian case study are coastal tourism and mariculture and an understanding of what the implications for land sea interaction might be.

The core area of this case study from the marine side includes all of the marine waters that are currently claimed as part of Slovenian territory that are not disputed. On the land, we focus along the coastal strip and in particular on the area of Piran Bay, and for statistical purposes have included the NUTS 3 region. The selected focal sectors are coastal tourism (which has many varied dimensions in the case study area) and mariculture (marine aquaculture, fish and shellfish farms).

Map 1: Map of Core Case Study Area Slovenia



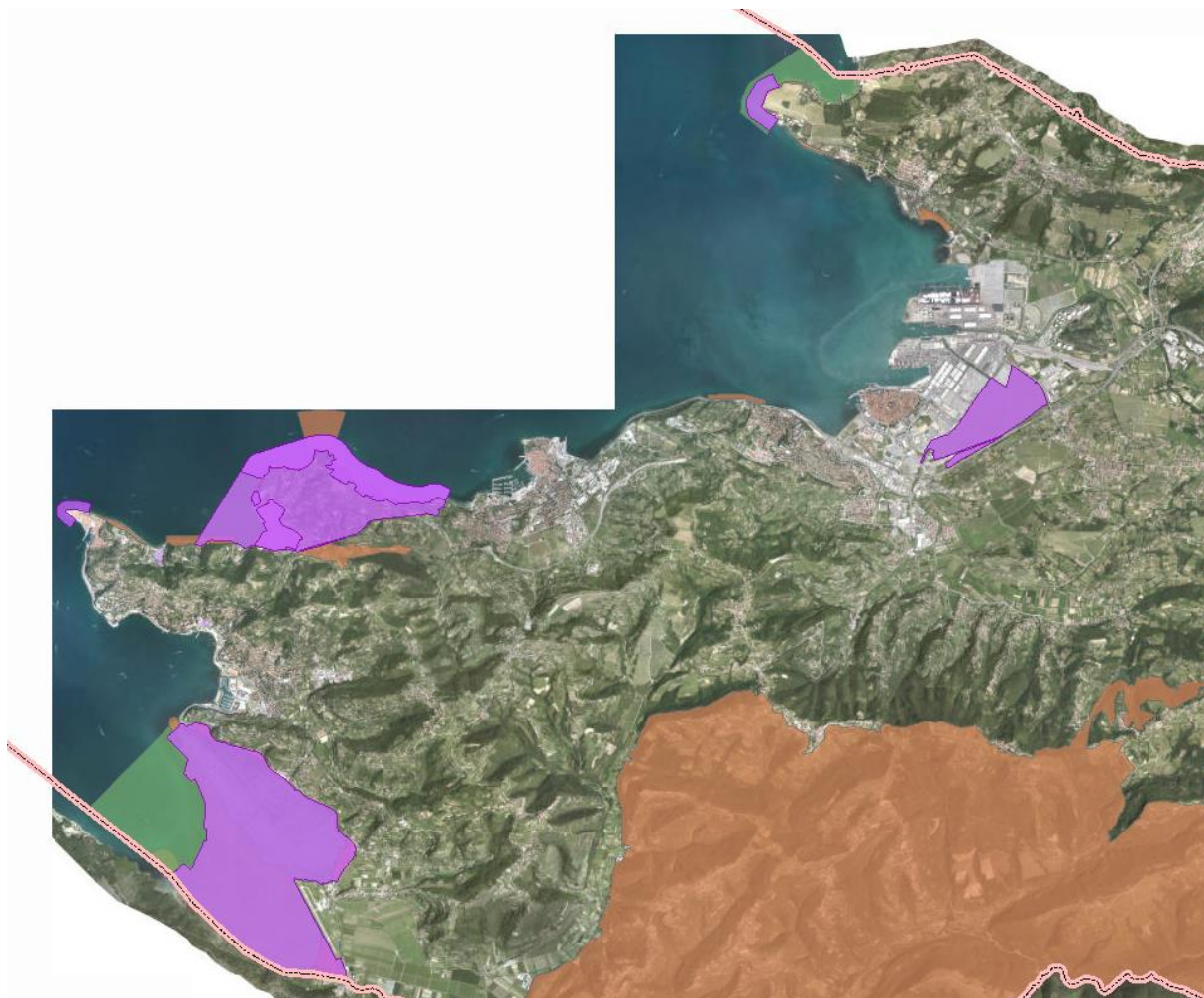
The Slovenian coast stretches approximately 46 km in length, bordering Italy and Croatia on either side.¹ Its inland waters are contained within Koper Bay, where the country’s principal and only port is located, and within Piran Bay. Key socio-economic activities on the Slovenian coast include ports, warehousing, and water projects (notably for Koper Bay) and, increasingly, coastal tourism and mariculture (for Piran Bay). Large infrastructure development is currently taking place in the area, designed to accommodate the Port of Koper’s growing need for better freight transportation.² Due to

¹ Note: Although a ruling was issued by the Permanent Court of Arbitration on 29 June 2017 determining its delineation, the territorial border between Slovenia and Croatia is still disputed / not recognised by all parties.

² Public opposition to the Divača-Koper rail upgrade has led to delays in the progress of this – currently Slovenia’s largest – infrastructure project.

its closed nature, and the limited circulation of shallow waters, the Gulf of Trieste (of which Koper Bay is a part) is an extremely sensitive part of the northern Adriatic Sea. The sea is considered at risk from various factors, including pollution from industrial and tourism activities.³ There are four key protected natural areas along the Slovenian coast: the Sečovlje Salt Pans Nature Park, Nature Reserve Strunjan, Natural monument of Cape Madona, and the Natural monument Debeli rtič⁴. There are also 13 Natura 2000 sites along the Slovenian coastline (and another two – the Strunjan Valley and Slovenian Istra, a little further inland in the coastal region)⁵. The map below provides a view on where these protected areas are within the case study area.⁶

Map 2: Protected areas along Slovenian coastline



³ <http://izola.si/obcina-izola/organi-obcine/obcinski-svet/seje/>

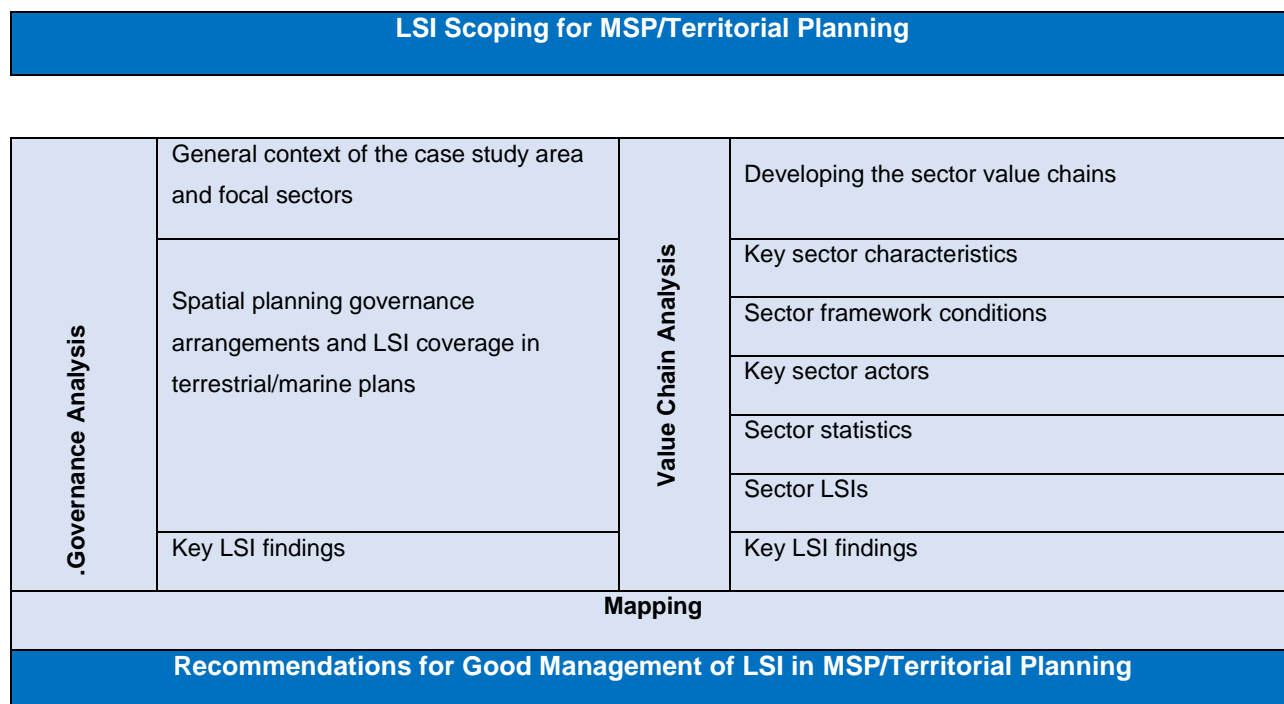
⁴ http://www.up.gov.si/si/varnost_plovbe/zavarovana_morska_obmocja/

⁵ <http://natura2000.eea.europa.eu/#>

⁶ http://gis.arso.gov.si/atlasokolja/profile.aspx?id=Atlas_Okolja_AXL@Arso&culture=en-US

2.2 LSI Scoping for MSP/Territorial Planning in Slovenia

Figure 1: A methodology to explore LSI in MSP/Territorial Planning



The methodology outlined above is designed to provide a flexible framework for LSI analysis that can be tailored for use in different contexts. It starts with an initial scoping stage where a core area for LSI examination is defined and LSI issues of particular significance in the case study context are identified. The MSP-LSI study was particularly concerned with LSI issues associated with maritime sectors and in each case 2 focal sectors were selected as the basis for more detailed LSI investigation. Following this scoping stage, 2 two aspects of analysis were undertaken related to governance and to the selected sector value chains. These analyses were supported by mapping activities which sought to provide visual material that could aid LSI understanding. Finally, based on these analyses recommendations for good management of LSI in the case studies were proposed, informed in some instances by stakeholder workshops. Further explanation of the methodology can be found in the MSP-LSI draft final report.

The core land and sea areas are outlined above in Map 1 above. The core area of this case study from the marine side includes all of the marine waters that are currently claimed as part of Slovenian territory that are not disputed. On the land, we focus along the coastal strip and in particular on the area of Piran Bay, and for statistical purposes have included the NUTS 3 region. The selected focal

sectors are coastal tourism (which has many varied dimensions in the case study area) and mariculture (marine aquaculture, fish and shellfish farms).

The following sections outlines the outputs from the investigations for Slovenia case study.

3 Governance Analysis

3.1 General context of case study area and focal sectors

Slovenia is a unitary country with two levels of government; the national level and 212 municipalities. At the national (NUTS 1) level, the Ministry of the Environment and Spatial Planning is the national authority responsible for spatial planning legislation on land and leads the preparation of National Spatial Plans, environmental impact assessments, and the designation of nature conservation areas. The Ministry of the Environment and Spatial Planning also has authority - for the most part - over spatial planning at sea and is responsible for the preparation of the Slovenian MSP (see exceptions in the details of the Spatial Planning Act below). Other ministries may also propose National Spatial Plans where relevant and necessary. The main ministries involved in spatial planning, maritime affairs, and the two focal sectors of tourism and mariculture are the Ministry of the Environment and Spatial Planning (environmental, water, spatial planning affairs), Ministry of Infrastructure (maritime affairs), Ministry of Agriculture, Forestry, and Food (aquaculture), and Ministry of Economy, Development and Technology (tourism). The national government also influences spatial planning on land through its responsibility for national roads, railways and other structures of national importance, for agriculture and for heritage protection. There has been an ongoing dispute about the maritime and landward delimitation between the Slovenian and Croatian territories. Although this was settled in June 2017 by the Arbitral Tribunal, according to the Republic of Croatia the final delimitation of territorial sea between Croatia and Slovenia is still pending.⁷

There is no regional level of government in Slovenia, but Regional Development Agencies support economic development at the subnational level and may also initiate the preparation of inter-municipal Regional Spatial Plans, although this is mainly in the hands of the municipalities. Municipalities are allowed to form inter-municipal associations to prepare their Regional Spatial Plans, but this is rare in practice. The national government issues guidelines and supervises spatial planning at the level of municipalities (NUTS 3). There are four coastal municipalities in Slovenia, namely Piran, Izola, Koper, and Ankaran. Municipalities are, according to the constitution, responsible for producing spatial plans. They also produce individual zoning plans (70 for the Piran area). Municipalities are also responsible for small and special purpose ports and specific types of local infrastructure on the coast (see details on the Spatial Planning Act below).

⁷ While the map delineating the border between Slovenia and Croatia following the decision of the Court of Arbitration may be found here: <https://www.rtvlo.si/slovenija/zemljevidi-nove-meje-kot-jo-doloca-arbitrazna-razsodba/435373#tn3=0/1> (and in the official documentation http://www.vlada.si teme_in_projekti/arbitraza/) the border must, nevertheless, still be agreed upon and recognised by both countries. Such an agreement has not yet been reached (recent news, latest article dated with today's date, here: <https://www.dnevnik.si/tag/arbitra%C5%BEa>)

The highest level planning document is the Spatial Development Strategy of Slovenia (2004),⁸ which outlines the main objectives for spatial development in Slovenia. It focuses on the description and development of spatial systems of national importance and considers settlements, transport, infrastructure, environmental and landscape protection. In particular for the case study area, the Strategy states intentions to develop domestic and international maritime passenger transport by providing passenger terminals in the Port of Koper and developing and modernising existing ports in Izola, Piran and Portorož. In addition, the Strategy aims to develop “an environmentally friendly and profitable nautical tourist industry”, by developing marinas and tourist ports (especially to restore degraded areas), developing a high-quality range of tourist services and amenities, and ensuring permanent public access to seashore and beaches. To harmonise the protection of natural landscapes while also pursuing development activities, the Strategy calls for an integrated spatial concept of the Coast.

The most important piece of legislation in respect to both land-based and maritime spatial planning is the 2017 Spatial Planning Act (in force as of 1 June 2018), which regulates the planning competencies at national and municipal level. As noted above, this includes the issuing of national planning guidelines. In the context of the Slovenian case study, national guidelines of relevance include: nature conservation, sustainable mobility, the protection of immovable cultural heritage, agricultural land and water management.

The Spatial Planning Act (Article 2) includes environmental protection as one of its key objectives and Article 18 provides for an impact assessment (to include health, social activities, economic development, protection of the environment, agricultural lands, forests and landscapes, cultural heritage, human settlements and defence). Activities at sea and protection of the marine environment are not referred to in either of these Articles, making it unclear if they are actually covered. Article 22 notes that spatial development in restricted zones must be planned in accordance with sectoral regulations, unless otherwise covered by the Spatial Planning Act. Restricted zones are: areas at risk in accordance with water regulations e.g. flood, erosion; areas of major-accident hazards; and areas where defence activities are taking place. In these zones, no new development, infrastructures or activity can take place that would cause natural disasters or increase threats to the environment. The spatial area of the land-sea interface is likely to often be within restricted zones, meaning that activities in these areas would be subject to sectoral legislation such as the 2015 amendment of the Waters Act (see below).

As noted above, the Spatial Planning Act also accords special dispensation to municipalities at the land-sea interface. Article 50 gives municipalities responsibility for: ports intended for special purposes; ports with berths of up to 200 vessels, with the associated port infrastructure; ports not intended for international public traffic with the associated port infrastructure; floating piers up to 50 m in length and up to 100 m² of surface; bridging facilities on foot or bicycle routes; swimming pools and

⁸

http://www.mop.gov.si/fileadmin/mop.gov.si/pageuploads/podrocja/prostorski_razvoj/SPRS_angleska_verzija.pdf

built-up shores; a sea wall that does not exceed 7 m above the sea level; and local communal and energy infrastructures..

At the time of writing, the Municipality of Izola had issued a revised draft of its Municipal Spatial Plan⁹ in July 2018, which will go to a public draft pending a review by the members of the Municipal Council of the Municipality of Izola and a positive opinion on the environmental report. The Municipality of Piran's Office for the Environment and Spatial Planning is currently still in the planning stages for preparing its Plan.¹⁰ An important development area for Izola is the coastal belt, which, through the establishment of new and management of existing green coastal areas, will be connected to the neighbouring municipalities, taking into account the rational use of space and the vulnerability of the environment. The Municipality of Izola has many issues to consider in its Spatial Plan that require joint consideration and cooperation. Izola and its neighbouring municipalities of Koper and Piran are connected also in terms of energy supply, water supply, and the separation and treatment of wastewater; the most pressing problems are noted as arising from transport and traffic along the coast. Article 98 of Izola's Municipal Spatial Plan outlines detailed spatial implementation conditions for construction and interventions in surface water areas, for which the three main activities of relevance are fishing, recreation, and tourism. Article 99 provides detailed spatial implementation conditions for construction and interventions in water infrastructure areas, for which both recreation and tourism are relevant activities. Article 6 of the Plan stresses that the development on the Slovenian coast and at sea requires the cooperation of all coastal municipalities as well as the state – a uniformly regulated coast and a harmonised use of the sea have already been subject of a number of urban development projects. Some of these issues are expected to be addressed through National Spatial Plans.

Slovenia does not have an MSP and has no specific regulation for maritime spatial planning, but all activities at sea are covered within the 2017 Spatial Planning Act. National authorities are currently developing an MSP and two stakeholder workshops, involving municipalities as well as the private sector, have been held thus far (see section 3.3 for more details).¹¹ The formal plan for the Slovenian MSP has the deadline of March 2021.¹² The Maritime Code (established in 2001, last updated in 2017) is a key piece of legislation regarding maritime affairs. The code regulates Slovenia's maritime sovereignty, sovereign rights, jurisdiction and supervision in respect of the safety of navigation in territorial seas and internal sea waters, protection of the sea from pollution from vessels, the legal rules in seaports, property law, contractual and other obligatory relations pertaining to vessels, the registration of vessels, the limitation of a shipowner's liability, the general average, enforcement and insurance on vessels, and the conflict of laws; it does not regulate spatial planning issue

⁹ <http://izola.si/obcina-izola/organi-obcine/obcinski-svet/seje/>

¹⁰ Phone interview with Boris Kočever from the Municipality of Piran

¹¹ Phone interview with Boris Kočever from the Municipality of Piran

¹² Draft minutes from the 3rd SUPREME workshop held December 20, 2018

3.2 Spatial Planning Governance and LSI

The 2017 Spatial Planning Act (Article 23) which came into force in June 2018 covers spatial planning at sea. It takes explicit note of land-sea interactions, stipulating that “the growth and coexistence of marine activities and exploitation shall be promoted by achieving sustainable development when examining economic, environmental, social and security aspects, and taking into account the interaction and interdependence of land and sea.” The Act also contains the note that MSP is to be used to carry out the regulation of sea-based activities in order to determine the type, extent, timing of operation and the area of certain activities and marine uses. Spatial planning at sea should also contain guidelines for the preparation of spatial planning documents on land.

The Waters Act (2002, last revised in 2015) with the planning document of the Management Plan for the Marine Environment (2017) is the principal legislation that both focal sectors, coastal tourism and mariculture, are subject to. This Act has regulations that affect both activities on land and at sea. It covers (1) the management of the sea, inland and underground waters and coastal land; (2) water and coastal land management including water protection, water management, and decision-making on water use; and (3) public goods and public services in the fields of water, water facilities and installations. The objectives of the Waters Act primarily concern water protection, aiming specifically to achieve a good status of water and other water-related ecosystems, to ensure protection against the harmful effects of water, to preserve and regulate water quantities, and to promote sustainable water use.

A number of articles in the Waters Act consider LSI. For example, Article 37 on “interventions on water and coastal land,” regulates the construction of facilities on water and coastal land. Article 61 connects water management with spatial planning documents and sectoral plans, wherein protected and threatened areas shall be included in spatial planning documents and sectoral plans. The draftsman of spatial planning documents, in the process of their preparation, shall determine the interventions in the space that are related to the construction of the water infrastructure and are foreseen in the water management plans, and the minister shall issue consent if they find these documents are in compliance with the water management plans and the provisions of this Act governing interventions on water, coastal, and other land.

Article 75 of the Waters Act includes provisions for spatial planning acts and sectoral plans, and how these consider local communities, in which a water protection zone is defined and/or the water body is also intended for the supply of drinking water in another local community. Article 77 on “bathing areas” regulates where such areas may be located, how they are managed, and how they are monitored. Chapter 4.3 concerns the maintenance of water and coastal areas, with Article 150 regulating the “intervention in a space that may affect the water regime or water status.” The Waters Act also contains bylaws relevant to the two focal sectors for the Slovenian case study. For coastal tourism, the relevant bylaws are those on the organisation of bathing areas and ensuring the quality of bathing water, and (possibly) those on the concessions for the use of water for thermal spas and bathing. For

aquaculture, there are bylaws on the breeding of marine organisms (i.e. mariculture) and cultivation of freshwater organisms.

Izola's draft Municipal Spatial Plan indicates an awareness of LSI, although these are not explicitly referenced as such. It notes the sensitivity of the Adriatic Sea to land-based and marine-based activities, including pollution from settlements, tourism, unregulated wastewater treatment, maritime transport, production activities, fishing, and mariculture. Article 27 of the Plan notes that natural processes, such as tides, flooding and erosion are a limitation on land-use planning. It also requires spatial developments that are not water-related to be placed outside the areas where water is present (permanently or occasionally), and be developed in an appropriate way by keeping coastal land uninhabited and publicly accessible. Interventions in coastal areas, or where water is present, must be carried out in such a way as to take account of the morphological characteristics of waters and other landscape qualities. Water infrastructure may also be used for other purposes, if this does not contradict or restrict the implementation of the activity for which it was built. This has a bearing on decisions for sectors of the blue economy (e.g. processing of aquaculture products) which may be required to be located out of the immediate coastal zone. According to Article 69 of the Plan, certain spatial arrangements of local importance, as mentioned under Article 50 of the Spatial Planning Act and previously described, are permitted on the water surface of the sea and the land part to which they are attached. Other articles relevant to LSI include Article 70 that further outlines guidelines for environmental protection, Article 71 on cultural heritage preservation (strongly linked to the natural landscape), Article 74 on water protection, Article 75 on soil and landscape protection, Article 77 on protection against natural disasters, Article 78 on areas at risk of erosion, and Article 79 on areas at risk of flooding.

3.3 Stakeholder Involvement

The Slovenian MSP is currently under development. Many stakeholders are being involved through the SUPREME project (an EU funded project) which is providing technical assistance to the process, not just in Slovenia, but more broadly in the Eastern Mediterranean (Croatia, Greece, Italy and Slovenia). A number of workshops have included the four coastal municipalities; the national authorities overseeing environmental protection, culture, and maritime affairs; and the private sector, including representatives from marinas, fisheries, tourism, recreation. Specifically, these stakeholders included¹³:

- Ministry of the Environment and Spatial Planning
- Municipality of Koper
- Municipality of Ankaran

¹³ Preparatory for the SUPREME workshop planned for December 20, 2018

- Municipality of Izola
- Municipality of Piran
- Public institution for the promotion of entrepreneurship and development projects of Izola
- National Institute of Biology, Marine biological station Piran
- Port of Koper
- Marina Portoroz
- Landscape park Strunjan
- Ministry of Agriculture, Forestry and Food
- Ministry of the Environment and Spatial Planning
- Ministry of Defence of the Republic of Slovenia
- Administration of the Republic of Slovenia for Maritime Affairs
- Administration of the Republic of Slovenia for Maritime Affairs: Maritime inspection
- Mariculture practitioners, MYTILUS Mitja Petrič s. p.
- Institute for the Protection of Cultural Heritage of Slovenia
- Institute of the Republic of Slovenia for Nature Conservation
- Fisheries Institute of Slovenia.

In accordance with articles 67 and 73 of the national Spatial Planning Act (2017), the final draft of the MSP will eventually be ratified by each of the four coastal municipalities¹⁴. These municipal councils will adopt the MSP plan in wording identical to a decree, and publish it in their official publications with the date and number of the decision of the government or the ministry on the confirmation of the draft. Once all municipal councils have adopted the plan, will it become the official regional MSP plan.

Stakeholders, present at the SUPREME meeting in Koper on 7 November 2018, included representatives from the coastal municipalities, the marinas, architects and urban planners; the Slovenian Fisheries Research Institute; the Institute of the Republic of Slovenia for Nature Conservation; the Institute for the Protection of Cultural Heritage of Slovenia; the Ministry of the Environment and Spatial Planning; the Ministry for Agriculture, Forestry, and Food; the Regional Development Centre Koper; the Centres for the Promotion of Enterprise in Piran and Izola; the water supply authorities in Koper; and representatives from the Strunjan Nature Reserve. The draft minutes from the third SUPREME meeting held on 20 December 2018, noted that a very active stakeholder group in the preparation of the materials for the pilot project stemmed from the fisheries and aquaculture sector.

¹⁴ Phone interview with Boris Kočever from the Municipality of Piran; European MSP Platform (2018): Maritime Spatial Planning Country Information: Slovenia. Available here: https://www.msp-platform.eu/sites/default/files/download/slovenia_29.10.18.pdf

Each municipality is tasked with preparing their own Municipal Spatial Plan, and at the moment, the coastal municipality of Izola is the farthest along in that respect. The Municipality of Piran is currently preparing the strategy, or vision, of its Municipal Spatial Plan and is looking to involve local stakeholders as openly as possible in the preparation of this plan. Once having entered into force, the MSP should provide a starting point for any future municipal spatial plans drafted by the coastal municipalities – in its current iteration, however, Piran feels that the MSP may not be compatible with the priorities set out by the municipality. As commented by the Municipality of Piran during the second SUPREME workshop,¹⁵ should the Slovenian MSP follow the scenario focusing strictly on nature protection, several plans the municipality already developed in accordance with older spatial planning legislation would, in order to adhere to the scenario's requirement for no anthropogenic interventions along the coast, fall through.

This would affect, for example, the 2003 plan to organise a 'green belt', including parks, promenades, tourist piers, playgrounds, recreational paths, etc., stretching from the Croatian border to Izola; setting up a platform for tourist and recreational purposes by the salt warehouses in Fazine, that would also offer moorings for passenger ships as well as communal quays, relieving pressure from the marina in Portoroz and allowing the extension of the central beach in Portoroz; the organisation of further bathing areas along the coast; the addition of a number of piers from the central beach in Portoroz to the cape of Seca; the enlargement of the marina in Lucija, as currently configured cannot accommodate larger yachts; and the organisation of communal moorings by Fazan, where an additional hotel is foreseen. These plans have been included in the strategy for the development of tourism in the Municipality of Piran, and it is envisaged that Piran will go ahead with these proposals. Only the town council of Piran can cancel these plans. Therefore, the Municipality of Piran suggested that the basis for the MSP first be run by the town council, as well as the other coastal municipalities, as their interests and plans might well be affected by what is envisaged in the MSP. At the third SUPREME workshop,¹⁶ municipalities were urged to involve their individual institutions and organisations more actively into these discussions and that the plans for the MSP be reviewed at the local town councils.

While the Municipality of Piran agrees with much of the reasoning behind the scenarios, including that certain spatial plans that would interfere too much with the natural regime be halted or reworked, it is of the opinion that many of the restrictions are too limiting. The municipalities of Piran and Ankaran are counting on their development of 'green tourism', but in order to do so successfully they will need to have something to offer. Without investments and improvements, they will no longer be competitive as tourist destinations, especially considering the many coastal developments currently taking place along the Croatian coast. Such developments, as those planned for Piran, are in line with and respectful of the natural terrain and limitations, and the Municipality of Piran therefore suggests that such developments also be considered within the MSP.

¹⁵ Comments submitted by stakeholders on the second SUPREME workshop, held November 7, 2018

¹⁶ Draft minutes from the 3rd SUPREME workshop held December 20, 2018

To already get started on their Municipal Spatial Plan, Piran is looking into meeting with the authorities in order to agree on the basis for their plan. Piran has also called for further analyses to be carried out (i.e. on the potential effects of the four scenarios, what are their financial benefits and drawbacks, of how the current and planned activities/sectors at sea are in conflict, what are or would be the environmental effects of the current and planned activities/sectors at sea) and, once this analytical basis is established, for additional stakeholder workshops to be held on the Slovenian MSP.

In the meantime¹⁷, local elections have been held to elect the new mayor of Piran, Đenio Zadković¹⁸ and what if any impact this will have on Piran's plans remains to be seen.

The Municipality of Izola in its Municipal Spatial Plan, which at the time of writing was still awaiting comments and approval by the Municipal Council, outlines their collaboration on regional planning matters with their neighbouring coastal municipalities of Piran and Koper, the Coastal-Karst statistical region, the functional region and the urban network of the border region of Italy-Slovenia-Croatia. The following strategically important networks are:

- the functional region and the urban network of the northern Adriatic (the Alpine-Adriatic area);
- the crossroads of European macro-regions (the macro-region of the Alpine region, Central, Adriatic, Ionian, Danubian and South-Eastern European areas)
- Cretan multimodal transport corridor no. 5.

Bringing stakeholders together at the regional level, the Regional Development Centre Koper is the authority of the Regional Development Agency of South Primorska for the municipalities of Ankaran, Divača, Hrpelje-Kozina, Izola, Komen, Koper, Piran and Sežana, and has issued the *Regional Development Programme for the Coastal-Karst region, i.e. the South Primorska region*, which uses Cohesion Funding.

The Marine Environment Management Plan 2017-2021 is led by the Ministry of the Environment and Spatial Planning and the municipalities, with the help of the Slovenian Water Agency. The technical inputs to the Strategy were prepared by the National Institute for Water, the Marine Biology Station Piran, the Fisheries Research Institute, the Institute of Occupational Safety, and the Slovenian Marine Mammal Society. This Plan is prepared by the Ministry, approved by the government, and must have secured the cooperation of the neighbouring countries (Croatia and Italy).

For the sector of mariculture, the *National Strategic Plan for the Development of Aquaculture 2014-2020* was prepared by the Ministry of Agriculture, Forestry and Food, including the Departments for Hunting and Fishing, Water, and Environmental Protection; the Administration for Food Safety, Veterinary Science and Plant Protection; the Environmental Protection Agency; and economic and social partners (such as the Chamber of Agriculture and Forestry of Slovenia and the Association of Breeders of Aquatic Animals, and representatives of individual forms of aquaculture).

¹⁷ The second round of elections took place on 2 December 2018

¹⁸ Šuligoj, B. (2018): "Đenio Zadković: Konec stare politike v Piranu!" in DELO, available at: <https://www.delo.si/novice/slovenija/denio-zadkovic-konec-stare-politike-v-piranu-122578.html>

For the sector of coastal tourism, the main stakeholders in the area are the Municipality of Piran and the Tourism Association Portorož, which have developed the *Tourism Development Strategy in the Municipality of Piran until 2025*, while the Ministry of Economy Development and Technology has developed the *Strategy of the Sustainable Growth of Slovenian Tourism 2017-2021*.

4 Value Chain Analysis

The following section provides an in-depth look into the two focal sectors of this case study: coastal tourism and mariculture utilising value chain approaches to inform LSI understanding and in particular identification of the main impacts on land of key maritime activities. The sections below detail: the development of the sector value chains; key sector characteristics; the framework conditions that they operate within (including links to governance and strategic plans), their key actors, as well as associated LSI. Analysis of these value chains aims to provide an understanding of their relative importance to the Slovenian case study area, as well as how they have and are expected to develop in the future. In the context of Blue Growth, these maritime sectors undoubtedly rely on land infrastructure to support and expand their activities, which should be taken into consideration in terrestrial spatial planning. Furthermore, these sectors are important for MSP plans and the development and use of maritime space, should be taken into account within national and local MSP processes.

4.1 Coastal Tourism in Slovenia

4.1.1 Developing the Value Chain - methodological clarifications

The general value chain for the maritime activity of coastal tourism was built based on the tourism value chain provided by the WTP 2013 report.¹⁹ However, because the tourism value chain from this report is very detailed, includes too many segments and it was not specifically built with the purpose of spatially highlighting the Land Sea Interactions of the Tourism Value Chain, we decided to merge the various segments of this chain into some more general combinations. This is why, the “general” value chain diagrams provided by this work differs from those existing ones in already available literature.

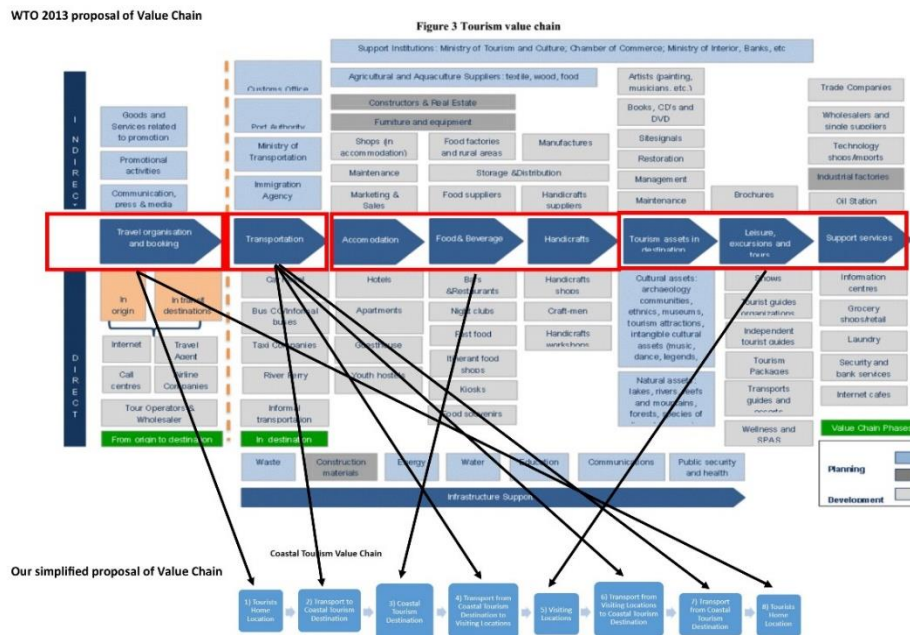
Although the focus is indeed different, the value chain approach adopted in our work remains coherent with the more general value chains presented in relevant literature e.g. the DG MARE Blue Growth Report,²⁰ the WTO global value chains. See Figures 2 and 3 showing how the WTP 2013 report value chain for tourism and the one provided by this report align.

¹⁹ World Trade Organization, 2013. Aid for Trade and Value Chains in Tourism. Page 23/Figure 3. <http://www.oecd.org/dac/aft/aidfortradeandvaluechains.htm>

²⁰

https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/docs/publications/blue_growth_third_interim_report_en.pdf

Figure 2: World Trade Organization, 2013, value chain for tourism, in line with the general value chain proposed in this report.



The following diagram shows the various segments that constitute the general value chain of Coastal Tourism²¹:

Figure 3: General Coastal Tourism Value Chain



The entire coastal tourism value chain can be summarized into the following 8 segments:

- Segment 1) Tourist Home Location. Place of origin of Tourists.
- Segment 2) Transport to Coastal Tourism Destination. Ways in which tourists transport themselves to the coastal tourism destination.
- Segment 3) Coastal Tourism Destination. Tourism destination areas (where they stay most of the time)
- Segment 4) Transport from Coastal Tourism Destination to Visiting Locations. Ways in which tourists transport themselves to visiting places.
- Segment 5) Visiting Locations. Visited places or performed activities outside of main stay area.

²¹ Including Coastal Tourism activity but excluding Passengers Transport and Cruise Tourism

- Segment 6) Transport from Visiting Locations to Coastal Tourism Destination. Ways in which tourists transport themselves from visiting places.
- Segment 7) Transport from Coastal Tourism Destination. Ways in which tourists transport themselves out of the coastal tourism destination.
- Segment 8) Tourist Home Location. Place of origin of Tourists.

4.1.2 Key characteristics of Coastal Tourism in Slovenia

Tourism is considered to be one of the most important and promising industries in Slovenia, one of the sectors that survived the economic crisis more or less unscathed²². It is of little surprise then that coastal tourism is, according to the 2018 annual economic report on the EU blue economy²³, the dominant sector of the Slovenian blue economy. Nevertheless, the Slovenian coast²⁴, it is a fragile region whose dependence is also susceptible of any environmental impacts that may occur in the area. Continued growth and development of tourism will continue to present environmental considerations for the region. In Slovenia, competition within the sector of coastal tourism comes from both Italy and Croatia. For instance, Koper competes with Trieste for cruise tourism²⁵, and the Slovenian coast competes with the Croatian coast for nautical tourism²⁶.

According to the 2017 report on Slovenian tourism issued by the national statistical office²⁷, the greatest number of overnight stays in 2016 was recorded in the Coastal-Karst (Obalno-kraška) region (2.4 million). This was followed by the Upper Carniola (Gorenjska) region (just over 2.2 million stays), where the popular tourist destinations of Bled and Bohinj are located, and Central Slovenia (Osrednjeslovenska) region (almost 1.5 million stays), where Ljubljana, the capital of Slovenia, lies.

²² It is Nice Everywhere ... – Tourists and Tourism in Figures; Povsod je lepo ... – Turisti in turizem v številkah. 2017. Statistical Office of the Republic of Slovenia, Ljubljana. ISBN 978-961-239-371-7.

Available at https://www.stat.si/StatWeb/File/DocSysFile/9626/It_is_%20nice_everywhere.pdf

²³ The 2018 annual economic report on the EU blue economy. 2018. European commission DG MARE. ISBN 978-92-79-81757-1. Available at <https://publications.europa.eu/en/publication-detail/-/publication/79299d10-8a35-11e8-ac6a-01aa75ed71a1>

²⁴ Phone interview with Boris Kočevar from the Municipality of Piran

²⁵ Trieste and Koper fight over luxury cruise ships - Trst in Koper v boju za luksuzne križarke. 2012. Anton Grizold. Available at <https://www.slovenskenovice.si/novice/slovenija/trst-koper-v-boju-za-luksuzne-krizarke>

²⁶ We almost do not have our own, we adore theirs - Svojega skoraj nimamo, njihovega obožujemo. 2015. Dejan Vodovnik, Delo. Available at <https://www.delo.si/nedelo/svojega-skoraj-nimamo-njihovega-obožujemo.html>

²⁷ It is Nice Everywhere ... – Tourists and Tourism in Figures; Povsod je lepo ... – Turisti in turizem v številkah. 2017. Statistical Office of the Republic of Slovenia, Ljubljana. ISBN 978-961-239-371-7.

Available at https://www.stat.si/StatWeb/File/DocSysFile/9626/It_is_%20nice_everywhere.pdf

In 2016, over 4.3 million tourist arrivals (domestic and foreign tourists) were recorded in accommodation establishments across Slovenia. There were 1.3 million domestic tourist arrivals and 3 million foreign tourist arrivals, thus the ratio between domestic and foreign overnight stays was 34% vs. 66%. **Most foreign tourists, visiting Slovenia that year, originated from Italy (17%), Austria and Germany (10% each), Croatia (5%), and the Republic of Korea (4%).** In the summer of 2015, the high season, as many as 77% of all foreign tourists visited Slovenia in order to spend their holidays, 9% for business reasons, and 4% spent a night in Slovenia en route to elsewhere. In 2016, Germans most commonly visited mountain resorts, Italians seaside resorts, and Austrians health (spa) resorts. Domestic tourists mostly visited health (spa) resorts (38% of all domestic arrivals), and it was only among these types of resorts that domestic arrivals exceeded the number of foreign arrivals.

According to the 2017 report on Slovenian tourism issued by the national statistical office²⁸, in 2015 as many as 86% of foreign tourists came to Slovenia in cars (62%) or airplanes (24%). Other means of transport included buses (5%), campervans (4%), trains (2%), motorcycles (1%) and other (2%).

As exemplified by its high numbers for tourist arrivals and tourist of overnight stays, the Coastal-Karst region is a distinctive tourist region. In 2017, nearly 850,000 tourist arrivals were recorded in the region, of which 36% were domestic and 64% were foreign²⁹. In 2017, of the over 2.5 million tourist overnight stays recorded in the region, 39.5% were domestic and 60.5% foreign (compared to 2.2 million tourist overnight stays recorded in 2014, of which 41% were domestic and 59% foreign³⁰). Of foreign tourist arrivals, Italians comprised 24% of the total, Austrians 19%, and Germans 11% of the total, and of foreign tourist overnight stays Austrians made up for 20.5%, Italians 20%, and Germans 14%. Despite contributing to being a key tourist group for Slovenia as a whole, in the Coastal-Karst statistical region Croatians made up 1% of all foreign tourist overnight stays and under 2% of foreign tourist arrivals.

At the municipal level, the Municipality of Piran has been leading in terms of the number of tourist overnight stays of any municipality in Slovenia, and in 2017 the number of tourist overnight stays totalled 1.64 million³¹.

The Piran Bay spans between the capes of Madonna and Savudrija, its shape and orientation offering good protection against the bora and southern winds. **It is one of the prime Istrian anchorage points, due to its natural position and related characteristics of the sea, as**

²⁸ *Idem*

²⁹ SI-STAT Data Portal - Podatkovni portal SI-STAT. Statistical Office of the Republic of Slovenia, Ljubljana. Available at <https://pxweb.stat.si/pxweb/Database/Ekonomsko/Ekonomsko.asp>

³⁰ Obalno-kraška region - Obalno-kraška regija. 2014. Statistical Office of the Republic of Slovenia. Available at <https://www.stat.si/obcine/si/2014/Region/Index/12>

³¹ The most tourist overnight stays in the Municipality of Piran - Največ turističnih nočitev v Občini Piran. 2018. Svet Kapitala. Available at: https://svetkapitala.delo.si/aktualno/najvec-turisticnih-nocitev-v-obcini-piran-6633?meta_refresh=true

well as due to the proximity and favourable connections for the entire Central European and southern Adriatic areas³²;

The coastal town of Portorož, located in Piran Bay, is the leading tourist resort in Slovenia. Here, tourism had its origins in the mid-19th century, when the area was visited for its medicinal salt-mud baths. The town, with its surrounding area, offers a number of wellness and spa centres³³ to this day, often part of the more high-end hotels. The entire shore of Portorož is one bathing beach, which in the high season welcomes upwards of 15,000 bathers³⁴. Just meters from the shore, numerous hotels, bungalows, apartments, campgrounds, and the tourist settlement Bernardin offer accommodation, with 44 of the most popular options listed on Portorož's tourist portal³⁵ and Tripadvisor listing 77 properties. Portorož offers its guests numerous recreational activities, including a sporting airfield, where aeroplanes for up to 50 passengers may take off and land, and a large dock for motorboats and yachts constructed to promote yachting tourism and where boats, sailboats, and wind-surf-boards can be rented. Tennis courts, swimming pools with warmed seawater, a mini golf course, a bowling hall, water skiing, and fishing include some other activities on offer³⁶. In the evenings, tourists may enjoy the town's casino, a number of clubs, cafes and restaurants, as well as a host of gastronomic experiences. A third of the 27 restaurants listed on Portorož's tourist portal are located within the town's hotels³⁷, while Tripadvisor lists 51 in total. With its combined facilities, Portorož is also a place for congress tourism.

The coastal town of Piran is located just three kilometres along the coast from Portorož, on the western most point of Slovenian Istria. The Piran salt pans, established in 804, were the reason why the Mediterranean walled town flourished³⁸. The world-class fleur de sel (salt flower) is still produced today using age-old methods. The Piran salt pans encompassed the salt pans in the area of Lucija and Portorož, as well as the smaller Strunjan salt pans, and the larger Sečovlje salt pans. Today, the historic and picturesque town, with its preserved Venetian architecture, draws in many tourists. 16 of the most popular options for accommodation for Piran are listed on Portorož's tourist portal (which includes information for

³² Hydrography – Hidrografija. Available at <http://www.hidrografija.si/p4/4-1.php>

³³ Wellness. 2018. Tourist Association of Portorož. Available at <https://www.portoroz.si/en/experience/wellness>

³⁴ Portorož. Turist Biro. Available at <http://www.turistbiro-ag.si/?choice=portorozinfo&lang=eng>

³⁵ Plan your stay | Accommodation. 2018. Tourist Association of Portorož. Available at <https://www.portoroz.si/en/plan-your-stay/accommodation>

³⁶ Portorož. Turist Biro. Available at <http://www.turistbiro-ag.si/?choice=portorozinfo&lang=eng>

³⁷ Experience | Cuisine | Restaurants. 2018. Tourist Association of Portorož. Available at <https://www.portoroz.si/en/experience/cuisine/restaurants>

³⁸ Piran: the town of salt. 2019. Slovenian Tourist Board. Available at <https://www.slovenia.info/en/places-to-go/attractions/piran-and-salt-pans>

both coastal towns)³⁹, with Tripadvisor listing 47 properties in total. The tourist portal also lists 13 restaurants, many of which are located along the coastline with an ocean view, while Tripadvisor lists 53 restaurants in total.

In addition to these two coastal towns, focal points for tourism in the Piran Bay, the municipality of Piran also includes the settlements of Lucija and Sečovlje, as well as Strunjan (Strunjan, with its own bay, is not part of the Piran Bay area). Although in the past, numerous smaller and larger salt pans (including in Koper, Izola, and Lucija)⁴⁰ were in operation in the Gulf of Trieste and Istria regions, to this day only the salt pans in Sečovlje and Strunjan have been preserved and organised to form part of larger, natural reserves. These salt pans use purely traditional tools and methods for the production of salt which, together with the unique natural features and rich biodiversity of the landscape parks that they are located in, make for a popular tourist attraction. Further inland in the municipality of Piran, Slovenian Istra boasts numerous and mainly small-scale vineyards, olive groves and orchards, as well as old stone villages, likewise drawing in tourists.

Beyond Piran Bay, Izola and Koper are of importance to Slovenia's coastal tourism, in large part because of their larger marinas and ports that are able to welcome additional boats and larger ships. The cruise terminal at the Port of Koper is at a nascent stage, nevertheless cruise vessels bound for the Adriatic and the Mediterranean dock there on a regular basis and in 2017 trips to Koper or visits to various tourist attractions in the surrounding area attracted a total of 68 cruise vessels with 72.175 passengers⁴¹. In terms of shipbuilding, the dock of Izola's shipyard was sold and relocated to Cyprus several years ago. The Yacht Centre Izola remains on site⁴², where vessels may be repaired. A number of companies elsewhere in Slovenia (e.g. in Begunje) manufacture smaller boats, sailboats, and yachts. As its shipbuilding industry grew smaller over time, Slovenia decided to develop its nautical tourism industry, focusing on sailing and yachting tourism⁴³. Between the marinas of Portorož, Izola,

³⁹ Plan your stay | Accommodation. 2018. Tourist Association of Portorož. Available at <https://www.portoroz.si/en/plan-your-stay/accommodation>

⁴⁰ Slovenian Saltworks - Immeasurable pride and tragic fate - Slovenske soline - Neizmeren ponos in žalostna usoda. 2012. MMC RTV SLO, Sečovlje. Available at <https://www.rtvsl.si/tureavanture/novice/slovenske-soline-neizmeren-ponos-in-zalostna-usoda/287325>

⁴¹ Cruise Terminals. 2015. Luka Koper, Port of Koper. Available at <https://www.luka-kp.si/eng/terminals/single/cruise-terminal-255>

⁴² Yatch Center Izola - Jahtni Center Izola. 2011. Available at <http://en.yachtcenter.si/>

⁴³ Nautics and shipbuilding in Slovenia - Navtika in ladjedelništvo v Sloveniji. ICON project / Competitiveness of SMEs - Innovation and cooperative entrepreneurship co-funded within the framework

Cross-border cooperation program Slovenia-Italy 2007-2013 from the European Regional Development Fund and national funds. GZS Regional Chamber of North Primorska. Available at http://www.icon-project.eu/docs/wp/5/nautic_SLO.pdf

and Koper (listed from biggest to smallest in terms of capacity), there are about 1,450 berths at sea and an additional 370 berths available on land⁴⁴.

4.1.3 Framework conditions affecting Coastal Tourism

4.1.3.1 International, national and sub-national governance

The **Strategy of Sustainable Growth for Slovenian Tourism (2017-2020)**⁴⁵, developed by the Ministry of Economy, Development, and Technology, aims to introduce the Hotel stars system of categorisation. The Strategy also aims to simplify the guidelines for HACCP for restaurants and catering. The **Strategy of Sustainable Growth for Slovenian Tourism (2017-2020)** and the **Tourism Development Strategy in the Municipality of Piran until 2025**, developed by the Tourism Association Portorož, are the main planning documents relevant for the development of tourism in Piran Bay.

According to the survey carried out as part of the preparatory work for the Tourism Development Strategy in the Municipality of Piran until 2025⁴⁶, the highest scores were awarded to the elements of safety, friendliness of locals, nature, and professionalism of those working in the tourism sector – the lowest scores were awarded to night life, shopping, beaches, and transport infrastructure.

In 2018, the Piran tourism strategy was published. The Municipality is prioritising the continued improvement of public infrastructure within their strategy for the development of tourism, with a focus on bike paths, bathing areas, parks, the historical centre of town, the coastal belt, accommodation capacities, marinas, airport, event venues, etc., with the view of doing so in a sustainable and environmentally friendly way. The main goals of the Piran tourism strategy are:

- **Reducing seasonality and ensuring year-round tourist demand**

By 2025, the ratio between overnight stays in the seasonal months (June-September) and non-seasonal months (October-May) should be 50:50. This goal will be achieved through increased sales of services during the off-peak season.

- **Growth in the volume of tourism**

The target range of the number of overnight stays in 2025 is 1,800,000, which represents an average 2% annual growth.

⁴⁴ Where to tie your boat? – Kam privezati svojo barko? 2018. Svet Kapitala. Available at <https://svetkapitala.delo.si/ikonomija/kam-privezati-svojo-barko-6150>

⁴⁵

http://www.mgrt.gov.si/fileadmin/mgrt.gov.si/pageuploads/turizem/Strategija__trjanostne_rasti_slovenskega_turizma_2017-2021/2018_04_MGRT_Strategija_trjanostne_rasti_slovenskega_turizma_2017-2021_web_novo.pdf

⁴⁶ <https://www.piran.si/index.php?page=static&item=625>

- **Halting the decline in the average length of stay**

In the coming years, the goal is to stop this decline through the development of the services and activities on offer, which will keep guests at the destination for longer, and restructuring the markets in favour of those seeing a longer length of stay.

- **Restructuring demand with the aim of reducing dependence on large markets**

- The objective in the next period is to strengthen demand from markets with a small market share so that the four largest markets will fall below 70%. **Increase the consumption of hotel guests: by 2025 the average daily consumption per guest in the main season should be 120 euros per person (accommodation and out-of-house consumption)**

Currently, the spending is estimated at 105 euros, namely 60 euros for accommodation and 45 euros for additional consumption at the destination.

In addition to these main objectives, there will also be a focus on the destination to:

- Maintain a leading position in Slovenian tourism;
- Introduce state-of-the-art technological solutions for tourism offers and services;
- Raise awareness of the preservation of the natural and cultural environment;
- Increase the quality and supply of staff;
- Be a green and pristine destination, with well-managed parks;
- Be the place to go for hiking, trekking, running and cycling all 12 months of the year;
- Establish a system of raising awareness of the local population about the importance of tourism with the goal of creating a tolerant environment to the development of tourism;
- Encourage cooperation between stakeholders in the area.

The action plan issued as part of this strategy is divided into 8 key areas, on the basis of which tourism activities will be developed:

- **The sun and the sea** – consisting of 33 actions, including a strategy for the management of traffic, increased free public transport within the city centre, the organisation of public maritime transport between municipalities, the organisation of maritime transport connections between the salt pan areas, renovations of beaches, renovations of hotels, the active marketing of the anchorage in Piran for luxury passenger ships, digital promotion of activities and experiences at sea, etc.

- **Culture and heritage** – consisting of 25 actions, including the organisation of one international exhibition annually, the organisation of exhibitions about the cultural heritage of Slovenian Istra, renovations of cultural monuments, the development of destination souvenirs, ensuring better accessibility to sites of cultural heritage for persons with disabilities, etc.

- **Health and well-being** – consisting of 10 actions, including building a new thermal hotel, the further development of wellness programmes, the promotion of health services through the brand Terme Portorož, renovations of four star hotels, the creation of meditation zones, the promotion of investment into health tourism (e.g. beauty clinics, dental clinics), etc.

- **Events and business meetings** – consisting of 28 actions, including training for events managers, the active inclusion of cultural associations in events activities, the development of new events, a strategy for the sustainable development of the traditional events and activities of the region, encouraging the organisation of further flight connections to the area, setting up permanent indoor and outdoor structures for events and business meetings, renovations of congress venues, additional memberships in larger, international MICE organisations, etc.

- **Gastronomy** – consisting of 21 actions, including the introduction of a system of local labels for regional culinary products, the development of a system of quality standards for local products, additional and new gastronomy festivals outside of the high season, promoting local gastronomy, organising international competitions for chefs, introducing Michelin chef evenings, introducing more fine dining and five star restaurants, renovations of existing fine dining restaurants, etc.

- **The experience of nature** – consisting of 26 actions, including the organisation of new hiking paths in the surrounding area, the maintenance of educational paths in the Strunjan nature reserve, improved management of certain parks and natural areas, organising a summer shuttle to the salt pans, investment in and further development of the hotel and area of Padna, investments and further developments in St. Peter, Nova vas, and Lucije, the conservation of the damaged salt works houses, digital promotion of activities and experiences in the nature, etc.

- **Fun and free time** – consisting of 12 actions, including increasing the number of entertainment events in the high season, more actively involving hotels and other stakeholders in the development of coordinated entertainment programmes, introducing a destination newspaper detailing ongoing activities, developing a local digital platform for ticket sales and online bookings, etc.

- **Sport tourism and recreation** – consisting of 23 actions, including organising and improving markings on bike and walking paths, introducing a network of e-bikes, a strategy for the promotion of biking, development of additional water sports, organising sporting events, building swimming pools and recreational areas, candidature for the global youth championship 420, carrying out the global championship 470, carrying out a summer yachting school, developing golf capacities, etc.

According to the Municipality of Piran⁴⁷, tourism is a top priority for the municipality, however not only because of its economic importance for the region but also for how fragile it is. For example, there are crude-oil bearing cargo ships that cross Slovenian waters on their way to Trieste, where they unload their oil. Slovenian waters are solely used for crossing, yet in the event of an oil spill, the entire region's tourism industry would be affected. With the region's economic dependence on tourism, it would be important to determine appropriate courses of action and plan contingencies should such an event transpire; it is therefore important, according to the Municipality, to carefully develop and implement their tourism strategy.

Tourism Development Strategy in the Municipality of Piran until 2025 stresses the importance of cooperation between all actors in the region towards a successful implementation thereof. Another issue, mentioned by the Municipality of Piran, is that hotels, as stakeholders, are not as engaged in building a common local strategy as hoped for, and that on account (and resulting in) ongoing privatisation⁴⁸, many hotels are indebted, their ownership scattered, and profits, for the time being, are going towards paying off debts rather than into the local economy. The lack of involvement in local tourism strategies on the side of hotels, according to the Municipality of Piran, also impacts lower out-of-house (hotel) consumption, something the strategy aims to address.

4.1.3.2 Economic framework conditions

Slovenian marinas have an excellent location, since they are closest to Central Europe and offer an excellent starting point for sailing and cruising both to the Croatian coast and islands as well as past the bay of Trieste towards Venice⁴⁹.

In terms of infrastructure such as ports, in the Piran Bay the smaller city port of Piran and the slightly larger marina in Portorož are the most suitable anchorage points for smaller boats – in the former, the communal berths are largely occupied by locals' boats for the majority of the year. Other possible areas for anchorage include the stretch along the coast between Piran and Cape Bernardin, where the maximum depth is 17 m. It is also possible to anchor at the opposite, south-west coast of the bay, along the Savudrija peninsula, at a distance of about 300 m from the coast and depth of up to 16m. A pier under the Kanegra hotel complex (up to 3 m in depth) is another possibility. When choosing an anchor spot in the bay, it is necessary to take into consideration the areas where anchorage is prohibited, namely the vicinity of the Portorož fishing reserve (Fonda fish farm), the area around the underwater pipes between Piran and Cape Bernardin, and the area of the Underwater Natural Monument of Cape Madonna, where the Marine Biology Station is located. Anchorage and motor-driven

⁴⁷ Phone interview with Boris Kočevar from the Municipality of Piran

⁴⁸ <https://novice.svet24.si/clanek/novice/slovenija/5b65e12d4724a/razprodaja-slovenskih-hotelov-veliko-zanimanje-za-prodajo-mimo-postopka>

⁴⁹ <https://svetkapitala.delo.si/ikonomija/kam-privezati-svojo-barko-6150>

navigation is also prohibited in the central area of the Strunjan natural reserve. The coastal waters along the salt pans of Sečovlje are very shallow (maximum 1.5 m in depth), thus anchorage and navigation are prohibited in the narrower canals of the Sečovlje salt pans. Navigation is also prohibited in the central areas of the bay where aquaculture activities take place.

Other ways to reach the vicinity of the Piran Bay by sea⁵⁰ is to make use of the neighbouring marina in Izola or the marina of Koper. While Marina Portorož boasts the highest number of berths, at 667 at sea and 350 on land, the marina in Izola offers over 700 berths (at sea), and the smallest marina, that of Koper, has the capacity of 69 berths at sea and 20 more on land⁵¹ (the Port of Koper accommodates larger, rather than local or smaller tourist, vessels). **A recent analysis of Slovenian nautical tourism⁵², shows that the number of vessels has fallen by more than thirty percent between 2005 and 2015**, and by more than forty percent between 2009 and 2015 – this is true for both larger marinas, Portorož and Izola. If these marinas are failing to fill up their capacities, the opposite is true of the so-called communal berths; these are intended for locals, and the number of applicants far exceeds the capacity. Okolje Piran, which manages 352 such moorings, notes these are fully occupied and there are currently 333 applicants are on the waiting list..

Passenger traffic at the cruise terminal at the Port of Koper is showing growing numbers, with cruise vessels bound for the Adriatic and the Mediterranean docking there on a regular basis – in 2017, the Port of Koper recorded 68 passenger ship arrivals, which brought 72,175 passengers, compared to 18 passenger ships and 1,100 passengers arriving in 2005, the year the cruise terminal opened⁵³. Summer periods offer fast ship transport from Venice and Trieste. Piran Bay offers sightseeing ships (e.g. Burja and Laho), and water taxis may be hired for shorter trips.

If travelling by air, the closest airport is Aerodrom Portorož, only 7 km away from the main town centre, which is also suitable for smaller aircraft. Aerodrom Portorož is the third international airport in Slovenia, seeing nearly 26,000 passengers in 2013 and 22,500 in 2012, in planes of generally up to 10 and sometimes 60 seats⁵⁴. The closest, larger international airports are Trieste Ronchi Airport (Trieste, Italy 80 km away from Portorož), and Ljubljana's Jože Pučnik Airport, the central airport of Slovenia, is only 140 km away.

⁵⁰ Plan your stay | How to reach us. 2018. Tourist Association of Portorož. Available at <https://www.portoroz.si/en/plan-your-stay/how-to-reach-us>

⁵¹ Where to tie your boat? – Kam privezati svojo barko? 2018. Svet Kapitala. Available at <https://svetkapitala.delo.si/ikonomija/kam-privezati-svojo-barko-6150>

⁵² Where to tie your boat? – Kam privezati svojo barko? 2018. Svet Kapitala. Available at <https://svetkapitala.delo.si/ikonomija/kam-privezati-svojo-barko-6150>

⁵³ Passenger Terminal - Potniški Terminal. 2015. Luka Koper, Port of Koper. Available at <https://luka-kp.si/slo/terminali-191/single/potniski-terminal-255>

⁵⁴ About the airport - O letališču. 2015. Aerodrom of Portorož. Available at <https://www.portoroz-airport.si/si/o-nas/o-letaliscu/letalisce>

Traveling by rail is another option, as the Koper train station, where over 180 train and coach companies connect Koper with 36 countries⁵⁵. The train station is also connected to the bus station, ensuring smooth transfers to local buses. Regular bus routes connect the Piran Bay to Croatian Istria or Trieste in Italy, whereas a shuttle bus runs every 20 minutes between the towns of Piran and Portorož. Portorož and Piran are also linked with the most important road networks in Slovenia. The fastest route is by highway from Ljubljana or Trieste, or by regional road from Pula. Portorož's tourist portal offers information on parking⁵⁶ as well as information on accessible tourism⁵⁷. The municipality of Piran offers bike rentals to locals and tourists alike, at a competitive cost⁵⁸.

According to the 2017 report on Slovenian tourism issued by the national statistical office⁵⁹, in 2015 as many as 86% of foreign tourists came to Slovenia in cars (62%) or airplanes (24%). Other means of transport included buses (5%), campervans (4%), trains (2%), motorcycles (1%) and other (2%).

Competition within the sector of coastal tourism comes from both Italy and Croatia. For instance, shipbuilding activities in Slovenia have decreased over time⁶⁰, while these are active sectors in Italy and Croatia⁶¹, Koper competes with Trieste for cruise tourism⁶², and the Slovenian coast competes with the Croatian coast for nautical tourism⁶³.

Competition from other sectors within the coastal area as well as nationally may arise with respect to the further development of the sector, however might not be significant given the economic importance of coastal tourism for the Slovenian coast.

⁵⁵ Trains to Koper. Trainline. Available at <https://www.thetrainline.com/en/stations/koper>

⁵⁶ Plan your stay | Be mobile around the town | Parking. 2018. Tourist Association of Portorož. Available at <https://www.portoroz.si/en/plan-your-stay/be-mobile-around-the-town/parking>

⁵⁷ Plan it | Accessible tourism. 2018. Tourist Association of Portorož. Available at <https://www.portoroz.si/si/nacrtuj/dostopni-turizem>

⁵⁸ Piranko. 2011. Available at <http://www.piranko.si/>

⁵⁹ It is Nice Everywhere ... – Tourists and Tourism in Figures; Povedo je lepo ... – Turisti in turizmu v številkah. 2017. Statistical Office of the Republic of Slovenia, Ljubljana. ISBN 978-961-239-371-7. Available at https://www.stat.si/StatWeb/File/DocSysFile/9626/It_is_%20nice_everywhere.pdf

⁶⁰ Izola Shipyard is moving - Ladjedelnica Izola se seli. 2007. MMC RTV SLO. Available at <https://www.rtvsl.si/gospodarstvo/ladjedelnica-izola-se-seli/71993>

⁶¹ On which economic sectors does Croatia bet - Na katere gospodarske sektorje stavi Hrvaška. 2013. Privredni Vijesnik. Available at <https://izvozniki.finance.si/8827039?cctest&>

⁶² Trieste and Koper fight over luxury cruise ships - Trst in Koper v boju za luksuzne križarke. 2012. Anton Grizold. Available at <https://www.slovenskenovice.si/novice/slovenija/trst-koper-v-boju-za-luksuzne-krizarke>

⁶³ We almost do not have our own, we adore theirs - Svojega skoraj nimamo, njihovega obožujemo. 2015. Dejan Vodovnik, Delo. Available at <https://www.delo.si/nedelo/svojega-skoraj-nimamo-njihovega-obožujemo.html>

However, it should be highlighted that, **due to the economic importance of the activity of coastal tourism for the Slovenian coast⁶⁴, it is a fragile region whose dependence is also susceptible of any environmental impacts that may occur in the area.** As such, for example, there are crude-oil bearing cargo ships that cross Slovenian waters on their way to Trieste, where they unload their oil. Slovenian waters are solely used for crossing, yet in the event of an oil spill, the entire region's tourism industry would be affected. With the region's economic dependence on tourism, it would be important to determine appropriate courses of action and plan contingencies should such an event transpire; it is therefore important, according to the Municipality, to carefully develop and implement their tourism strategy.

4.1.4 Key actors of Coastal Tourism in Slovenia

We gathered the most recently available information that was available through the following NACE codes businesses of coastal tourism activities.

Table 1: Coastal Tourism activities and their related NACE codes

Sector/Group		Activity	Nace code ⁶⁵
Coastal Tourism	Tourism: Accommodation	Hotels and similar accommodation	I.55.10
		Holiday and other short-stay accommodation	I.55.20
		Camping grounds, recreational vehicle parks and trailer parks	I.55.30
		Other accommodation	I.55.90
	Tourism: Transport	Retail sale of automotive fuel in specialized stores	G.47.30
		Passenger rail transport, interurban	H.49.10
		Urban and suburban passenger land transport	H.49.31
		Passenger air transport	H.51.10
	Tourism: Other	Retail sale of cultural and recreation goods in specialized stores	G.47.6
		Retail sale of other goods in specialized stores	G.47.7
		Food and beverage service activities	I.56.00
		Travel agency, tour operator and other reservation	N.79

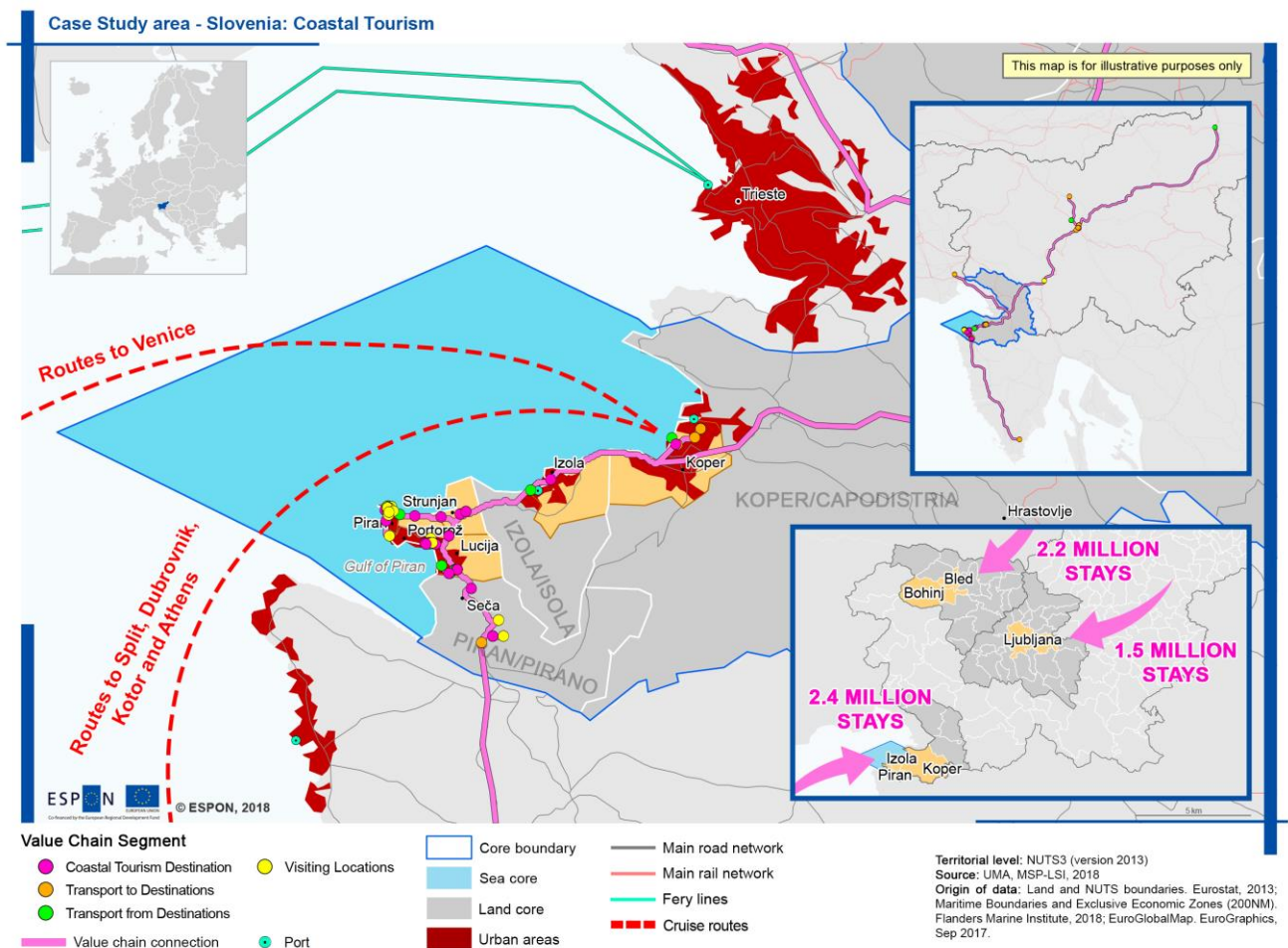
⁶⁴ Phone interview with Boris Kočevar from the Municipality of Piran

⁶⁵ NACE Rev 2 Statistical classification of economic activities in the European Community. 2008. Eurostat Methodologies and working papers, European Commission, Luxembourg. ISBN 978-92-79-04741-1. Available at <https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>

		service and related activities	
	Cruise Tourism	Cruise tourism (+ cruise transport- H.50.10)	n. a.

We observe that coastal tourism in Slovenia involves, amongst others, the following Actors within its value chain: Airports; Associations; Bus Stations; Chamber of Commerce; Cultural / natural attractions; Entertainment and Wellness services; Hotels; Hotels Companies; Land Transport services; Ministries; Visited Regions, Municipalities, Cities and Towns; Ports; Rail Transport services; Salt Pans; Restaurants; Sea and Coastal Transport services; Tourist Boards; Tourist Information Offices; Travel Agencies and Visiting Places.

Map 3: Key actors of coastal tourism in the Slovenian case study area



The mapping of actors allows us to see how coastal tourism value chain is concentrated nearby the cities of Portoroz and Piran, but also further away from Piran Bay at the cities of Koper and Izola. This coastal tourism value chain is spread almost

all along Slovenian coastline covering the Coastal-Karst (Obalno-kraška) region and other more central inland regions.

A total of 118 Actors were gathered and geo-located to understand the geographical area covered by these actors involved in the coastal tourism value chain. The map above shows how most of these actors are somehow located at the Municipality of Piran as leading in terms of the number of tourists that visit this area. Most actors are located around the cities of Portoroz and Piran, visiting places around these two cities (mostly Lucija, Sečovlje and Strunjan for their salt pans), but also further away from Piran Bay at the cities of Koper and Izola. However, this mapping of the actors also allows us to see how this coastal tourism value chain is spread almost all along Slovenian coastline covering the Coastal-Karst (Obalno-kraška) region, but also including other more central inland regions such as Upper Carniola (Gorenjska) and Central Slovenia (Osrednjeslovenska) regions for visiting other important tourist destinations such as Bled, Bohinj and Ljubljana. This can be explained as being the location of visiting places, accommodations (resorts, golf clubs, etc.) and the headquarters of tourism agencies, associations, commission, ministries and tourism departments.

4.1.5 Tailoring the value chain

The below value chain aims at bringing forward the land-sea component of activities stemming from the coastal tourism value chain in the Slovenian case study area.

Figure 4: Tailored coastal tourism value chain in the Slovenian case study area



Each segment of the value chain corresponds to specific activities and their land-sea dynamics. Two boxes are depicted within a green frame and in a bigger size than the remaining ones, suggesting that the value chain segments 'Coastal Tourism Destination' and 'Visiting Locations' are particularly relevant to the Slovenian case study.

Figure 4 highlights sub-segments 3 and 5 from the general value chain of coastal tourism for Slovenia as being of significance for this sector.

Sub-segments 4 and 5 are not of such importance as visiting locations are usually around those destination areas, and the distances to visitor destinations are usually short and take less than ½ a day.

4.1.6 Statistical information on the sector

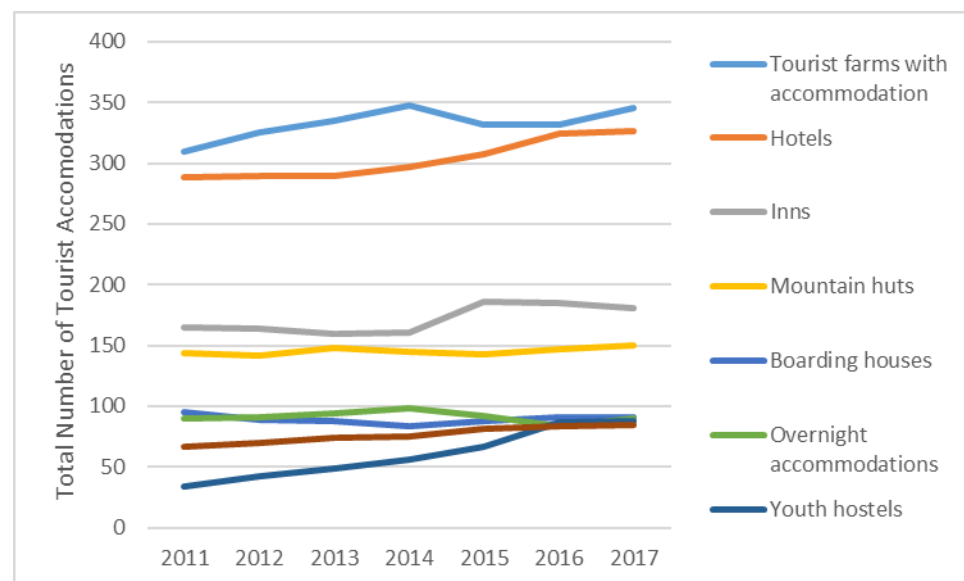
The following section aims at providing additional insight on the key characteristics of the coastal tourism sector in the Slovenian case study area. The statistical information has been retrieved from the most recently available sources, and generally includes data on relevant accommodation facilities, number of tourists and sector employment

It is of little surprise that coastal tourism is, according to the 2018 annual economic report on the EU blue economy, the dominant sector of the Slovenian blue economy. In 2016, coastal tourism contributed 45% of all blue economy jobs, 31% of the GVA, and 41% of overall profits stemming from the blue economy. Piran Bay, and its coastline, which is 19 km in length, is the centre of much of this coastal tourism activity.

According to the Slovenian Statistical Office, for the Municipality of Piran, the total number of tourist arrivals has steadily been growing, with 383,277 tourists (153,284 domestic and 229,993 foreign) visiting Piran in 2010 and 534,874 tourists (176,858 domestic and 358,016 foreign) most recently, in 2017. The total number of overnight tourists stays has consequently also increased, with 1,314,509 total overnight stays (525,809 for domestic tourists and 788,250 for foreign) in 2010 and 1,649,251 stays (541,544 domestic and 1,107,707 foreign) in 2017. In 2017, Italians made up the largest group of foreign tourists, at 86,153, while Austrians came in close second, at 82,703. In terms of overnight tourist stays, however, Austrians were the largest group with 261,015 overnight stays in 2017, followed by Italians with 218,702.

If we look at the total number of tourist accommodation establishments per types in Slovenia in 2017, we observe (see Figure 5) that all types of accommodation have tended to increase in numbers from 2011 up to 2016 whilst these have stabilised more recently.

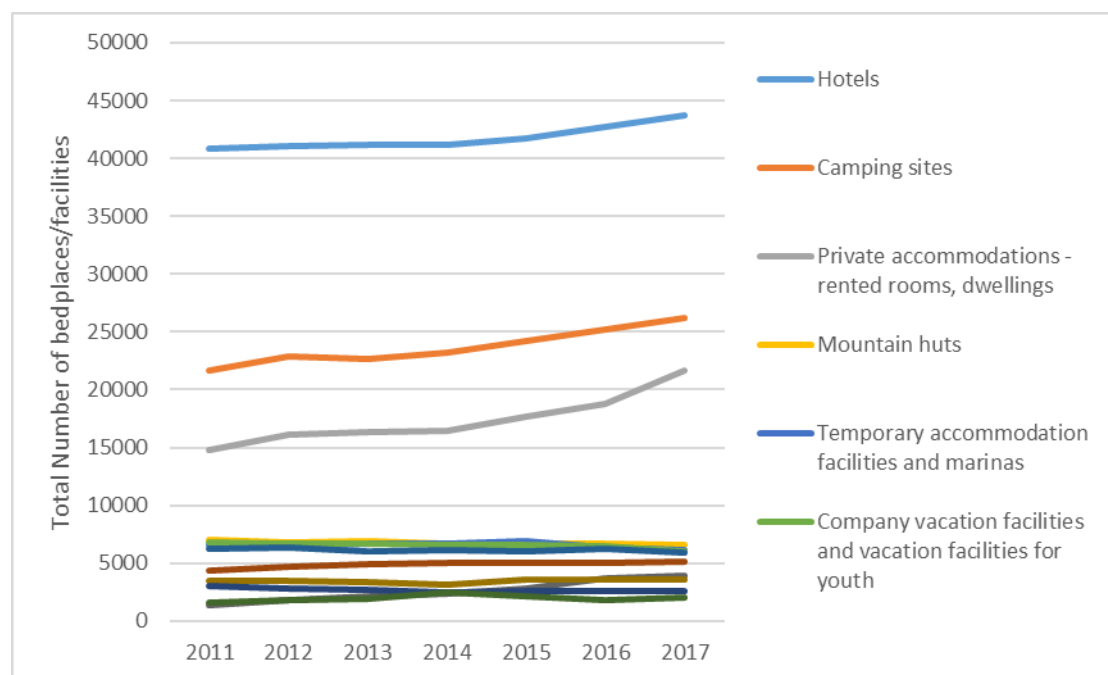
Figure 5: Total number of tourist accommodation establishments per types in Slovenia in 2017



Source: Republic of Slovenia Statistical Office RS. SI-STAT Data Portal. Available through <https://www.stat.si/StatWeb/en/Field/Index/24>

If we look at the total number of bed places, these have increased since 2011 predominantly amongst Hotels, Camping sites and Private Accommodation (rented rooms and dwellings). The number of beds at other accommodation providers seems to have remained stable or has declined marginally.

Figure 6: Total number of tourist bed places in Slovenia in 2017



Source: Republic of Slovenia Statistical Office RS. SI-STAT Data Portal. Available through <https://www.stat.si/StatWeb/en/Field/Index/24>

However, in terms of accommodation capacity in the Municipality of Piran, there seems to have been a slight decline in the number of bed-spaces. In 2010, the total number of rooms was 5,875, the total number of bed-places was 15,040, of which the number of permanent bed-places was 13,976. In 2017, the total number of rooms was 5,706, the total number of bed-places 14,734, of which the number of permanent bed-places was 13,317. The difference here is not too significant, however considering the increase in the annual number of tourist arrivals and overnight stays, it might be that the “high season” is gradually being extended to include spring and autumn which is consistent with the national and local tourism strategies. According to the background information contained within the Tourism Development Strategy in the Municipality of Piran until 2025, whilst between 2008 to 2017 the total number of bed-places decreased (from 14,930 to 14,446), taking the whole year into account, 28.60% in 2017 of all the coastal accommodation’s capacity was occupied compared with 25.56% in 2008. All the hotels and other accommodation were fully booked in the months of July and August- there was almost 100% occupancy.

4.1.7 Identification of Land-Sea Interactions of coastal tourism in Slovenia

Apart from the coastal and maritime dimension of coastal tourism, the sector has important onshore components and implications.

Hereafter, we focus our attention on specific land and sea impacts of coastal tourism, which are very much related to the economic development of the Slovenia case study area. They are organized in three typologies: environmental; socio-economic; technical⁶⁶.

Environmental LSIs:

- intensive use of space and resources which may lead to poor water and environmental quality;
- pollution, noise or species' disturbance;
- building new marinas, piers or berths has an impact on marine and coastal habitats;
- impacts on fish stocks

Socio-economic LSIs:

- competition for coastal space with sectors such as mariculture, and port development;
- impacts on income and job creation in coastal communities (direct employment at the port, or secondary from increased tourism spend in/at local businesses);
- impact on fish stocks, potentially leading to changes in commercial fishing activities and subsequent impact on fishermen's income, jobs and fishing communities

Technical LSIs:

- innovation in terms of infrastructure to limit environmental pressures;
- provision of suitable access of boating locations (access to marinas, boat ramps, moorings);
- impacts on land infrastructure (increased beach access through roads and car parks).

Table 2 provides additional information on **specific land-sea implications per each segment of the coastal tourism value chain**. Each segment has, in fact, direct or indirect land-sea interactions. Naturally, these are more apparent at the land-sea interface where segments of the value chain are occurring, such as operation services at terminals or the maritime transport of passengers. Table 2 highlights the key LSIs for the two key value chain segments of coastal tourism in the Slovenian case study area, 'Coastal tourism destination' and 'Visiting locations'.

⁶⁶ As defined in the European Commission Report "Land Sea Interactions in Maritime Spatial Planning Report". 2018. Available at http://ec.europa.eu/environment/iczm/pdf/LSI_FINAL20180417_digital.pdf

Table 2: LSI linkages to segments of the value chain- Coastal Tourism

Segments of the Value Chain	Main elements characterizing the LSI
1) Tourists Home Locations	Impact of waste management; Employment and Income generation; Impacts on land infrastructure
2) Transport to Coastal Tourism Destination	Accessibility to Infrastructure; Employment and Income generation, Impacts on land infrastructure
3) Coastal tourism destination	Impact of waste management; Displacement of other sectors, Employment and Income generation; Impact on coastal processes; Invasive non-native species; Impact on air quality, Impacts on land infrastructure; Pollution, noise or species' disturbance
4) Transport from Coastal Tourism Destination to Visiting Locations	Accessibility to Infrastructure; Employment and Income generation, Impacts on land infrastructure; Pollution, noise or species' disturbance
5) Visiting locations⁶⁷	Impact of waste management; Displacement of other sectors, Employment and Income generation; Impact on coastal processes; Invasive non-native species; Impact on air quality, Impacts on land infrastructure
6) Transport from Visiting Locations to Coastal Tourism Destination	Accessibility to Infrastructure; Employment and Income generation, Impacts on land infrastructure
7) Transport from Coastal Tourism Destination	Accessibility to Infrastructure; Employment and Income generation, Impacts on land infrastructure generation; Impacts on land infrastructure; Pollution, noise or species' disturbance
8) Tourists home location	Impact of waste management; Employment and Income generation; Impacts on land infrastructure

4.2 Mariculture in Slovenia

4.2.1 Developing the Value Chain - methodological clarifications

The general value chain for the maritime activity of mariculture (i.e. aquaculture activities in marine waters) was built based on previous marine mariculture value chain literature such as DG MARE Blue Growth Report⁶⁸. However, some other segments were added to these value

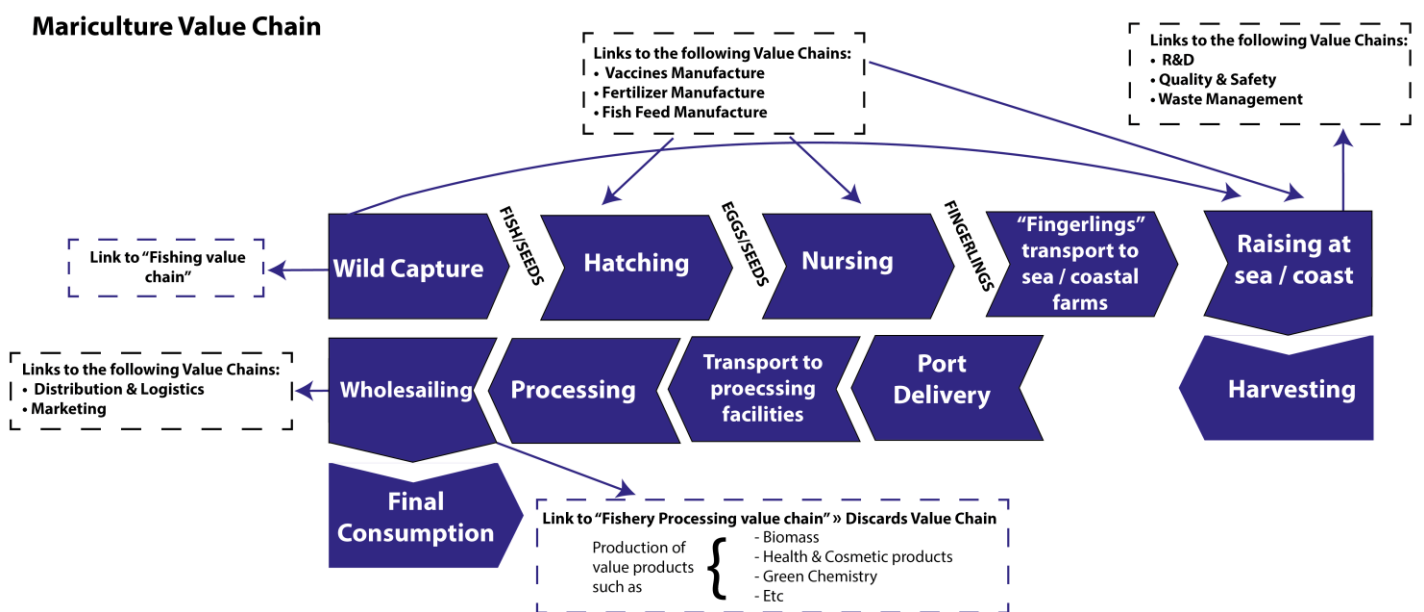
⁶⁷ Highlighted LSI if visiting locations are located at the Land Sea interface. Not to be highlights if these are inland.

⁶⁸ Blue Growth, Scenarios and drivers for Sustainable Growth from the Oceans, Seas and Coasts, Third Interim Report, Rotterdam/Brussels, 13 March 2012, Available at: https://ec.europa.eu/maritimeaffairs/sites/maritimeaffairs/files/docs/publications/blue_growth_third_interim_report_en.pdf

chains so as to spatially highlighting the Land Sea Interactions of the mariculture value chain process from the wild capture of fish and seeds to the final consumption of the products. The segments of the value chain were selected in terms of the spatial nature of each of the process steps, so as to show the spatial allocation of these segments for the LSIs analysis.

The following diagram shows the various segments that constitute the general value chain of Fish and Shellfish Mariculture:

Figure 7: General Value Chain for Mariculture



The entire mariculture value chain process can be summarized into the following 11 segments:

- Segment 1) Wild capture. Fish and shellfish production needs to be captured in the wild in the form of small fish or seeds.
- Segment 2) Hatching. Captured or imported small fish or shellfish seeds are then brought into hatcheries so that they reproduce and create eggs or more seeds.
- Segment 3) Nursing. Selected small fish and seeds are then brought into nursery areas (inland or at sea) for increasing in size until they become what is known as "fingerlings".

- Segment 4) Fingerlings transport to sea/coastal farms. Fingerlings are transported (by sea if the nursing takes place at sea; or by land transport if nursing takes place inland) to where the mariculture farms are located (sea (offshore) or coastal areas).
- Segment 5) Raising at sea/coast. Fingerlings are then raised at these farms until they reach a size suitable for the market.
- Segment 6) Harvesting. Species are then harvested from the farms.
- Segment 7) Port Delivery. Species are then delivered to the Ports and storage there (if needed).
- Segment 8) Transport to processing facilities. Products (if they need processing) will be transported to the processing facilities (wherever these are located).
- Segment 9) Processing. Products (if they need processing) will undertake the processing at the processing facilities (wherever these are located).
- Segment 10) Wholesaling. Products are sold through the distribution and logistics structure of the area to retailers, final consumers, etc.
- Segment 11) Final Consumption. Products are finally consumed.

4.2.2 Key characteristics of Mariculture in Slovenia

In Slovenia, in the coastal (southwest) region, there is mariculture⁶⁹ along the Slovenian coast, which is 46km in length, the waters are on average 20km deep.

The Waters Act⁷⁰ (2002, last updated in 2015) has designated three areas for the cultivation of shellfish and one area for the cultivation of fish. Total surface area designated for mariculture is 1,180,000 m², (see Table 3 and Map 4)⁷¹.

Table 3: Surface of areas for the cultivation of shellfish and for the cultivation of fish

		Shellfish Rights – Available	Water (260,000 m ²)	Shellfish Rights - Granted	Water (240,000 m ²)	Fishing Rights - Available	Water (80,000 m ²)	Fishing Rights - Granted	Water (40,000 m ²)
Sečovlje	866,000 m ²	14 lots	(260,000 m ²)	13 lots	(240,000 m ²)	2 lots	(80,000 m ²)	1 lot	(40,000 m ²)
Strunjan	133,000			6 lots	(99,000 m ²)				

⁶⁹ National Strategic Plan for the Development of Aquaculture in the Republic of Slovenia for the Period 2014-2020 -- Nacionalni Strateski Nacrt Za Razvoj Akvakulture v Republiki Sloveniji Za Obdobje 2014-2020. 2014. Government of the Republic of Slovenia. Available at http://www.mkgp.gov.si/fileadmin/mkgp.gov.si/pageuploads/podrocja/Ribistvo/NSNA_2014_2020.pdf

⁷⁰ Water Act (ZV-1) - Zakon o vodah (ZV-1). 2002. Legal information system. Available at <http://pisrs.si/Pis.web/pregledPredpisa?id=ZAKO1244>

⁷¹ http://gis.arso.gov.si/atlasokolja/profile.aspx?id=Atlas_Okolja_AXL@Arso&culture=en-US

	m ²				
Debeli rtič	180,000 m ²		3 lots (90,500 m ²)		

Source ⁷².

Map 4: Mariculture locations in Slovenia



On the Slovenian coast there are two locations with fish breeding cages (located exclusively in Sečovelje) and 26 shellfish breeding locations (located in Sečovelje, Strunjan and Debeli rtič).

⁷² National Strategic Plan for the Development of Aquaculture in the Republic of Slovenia for the Period 2014-2020 -- Nacionalni Strateski Nacrt Za Razvoj Akvakulture v Republiki Sloveniji Za Obdobje 2014-2020. 2014. Government of the Republic of Slovenia. Available at http://www.mkgp.gov.si/fileadmin/mkgp.gov.si/pageuploads/podrocja/Ribistvo/NSNA_2014_2020.pdf

The cultivation of fish, shellfish and other marine animals is mainly carried out in fishing reserves. In the Slovenian sea, two fishing reserves were established for the protection of fishery resources and aquaculture: The Portorož fishing reserve and the Strunjan fishing reserve.

The Portorož fishing reserve comprises the inner part of the Piran Bay and its salt pans. The border runs from the Monfort salt warehouse in Portorož to the abandoned quarry in Kanegra on the Savudrija peninsula. The Strunjan fishing reserve comprises the sea along the coast of Strunjan Rtič and the inner part of Strunjan Bay (between Pacug and Rtič Strand) with the accompanying lagoon Štuja in soline.

For shellfish, mainly mussels are bred (*Mytilus galloprovincialis*), and in recent years, in smaller quantities, a special variety of clams (*Venus verrucosa*). All shellfish, cultivated within all three areas along the Slovenian coast, must be purified before reaching the market, on account of the high numbers of microorganisms present in the breeding areas. PROSUB and MYTILUS are the main shellfish breeders on the Slovenian coast.

Fish are bred only in the Piran Bay, in Secovlje; there is only one fish farm on the Slovenian coast (Fonda Fish Farm⁷³). The types of fish bred at this farm are mainly sea bass, and in smaller amounts two varieties of bream. According to the Ministry of Agriculture, **there is also a potential for cultivating seaweed, for both food and cosmetic purposes, along the Slovenian coast**⁷⁴.

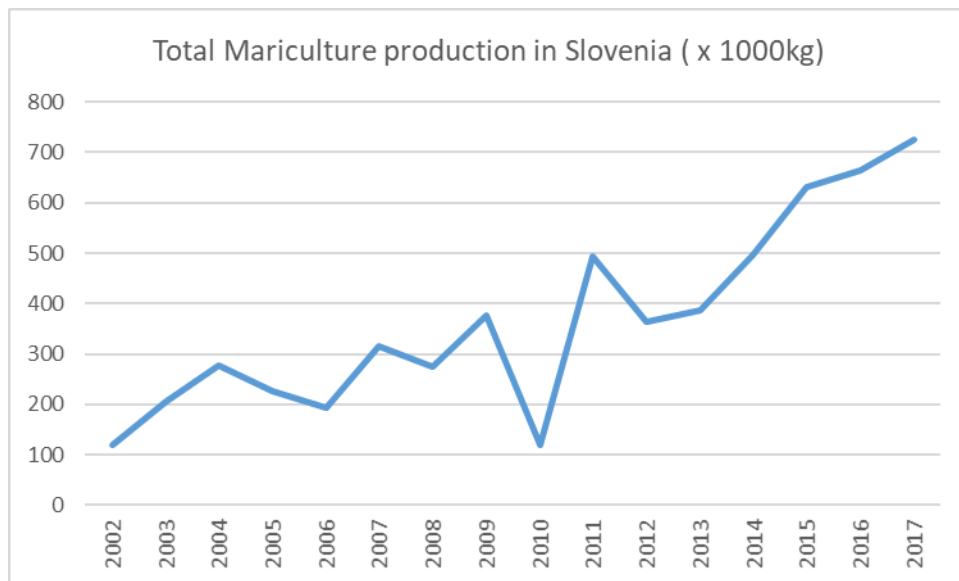
Due to the reduction of fishing areas and, consequently, the significant decline in catches of marine organisms over the past 20 years, **the importance of mariculture is however becoming increasingly important for the country. National authorities estimate that in the Slovenian sea and the coast there are still opportunities to increase and develop mariculture**, to which end they have issued terms of reference to research the possibilities for developing mariculture in Slovenian waters.

Total mariculture production values have showed a continuously increase in production in Slovenia since 2002 and these values are expected to continue increasing in the near future (see Figure8).

⁷³ Fish with a Mark of Origin. 2019. Fonda. Available at <http://www.fonda.si/en/>

⁷⁴ Aquaculture – Akvakultura. Ministry of Agriculture, Forestry and Food. Available at http://www.mkgp.gov.si/delovna_podrocja/ribistvo/akvakultura/

Figure 8: Total Mariculture production evolution in tonnes in Slovenia



On the coast, a few shellfish breeding sites can raise up to 250 tonnes of mussels annually, while the one fish farm breeds 100 tonnes of sea bass⁷⁵.

An important characteristic of Slovenian aquaculture farms is their relatively small size (most farms are micro enterprises, employing up to 9 persons) and consequent small average production, which mainly covers the needs of the local market. Most mariculture products are sold to the national market⁷⁶. Fish Farm Fonda, for example, sells their product to supermarkets, restaurants, and hotels located primarily locally and nationally, with some buyers stemming from the neighbouring countries of Italy and Austria (however not beyond). There has not been any significant cooperation among breeders thus far. The reasons for this are likely the fragmented nature of the sector, the small production quantities and apparent self-sufficiency of the breeders, and their general focus on the national market. At the national level, the only organisation that brings breeders together is the Association of Breeders of Aquatic Animals⁷⁷, which at times organises technical conferences and excursions. Any further cooperation among breeders exists mainly at the individual level.

Micro and small enterprises dominate the market; generally the market is made up of self-employed individuals or limited companies. In 2012, according to the National Statistical Office, the sector of aquaculture had 39 employees in mariculture (28 full-time and 11 part-

⁷⁵ Aquaculture – Ribogojstvo. Agricultural Chamber of Slovenia. Available at: <http://www.kgzs.si/gv/kmetijstvo/ribogojstvo.aspx>

⁷⁶ National Strategic Plan for the Development of Aquaculture in the Republic of Slovenia for the Period 2014-2020 -- Nacionalni Strateski Nacrt Za Razvoj Akvakulture v Republiki Sloveniji Za Obdobje 2014-2020. 2014. Government of the Republic of Slovenia. Available at http://www.mkgp.gov.si/fileadmin/mkgp.gov.si/pageuploads/podrocja/Ribistvo/NSNA_2014_2020.pdf

⁷⁷ Association of Breeders of Aquatic Animals - Društvo Rejcev Vodnih Živali Slovenije. Available at <https://www.bizi.si/DRUSTVO-REJCEV-VODNIH-ZIVALI-SLOVENIJE/>

time). While specific data on the number of people employed in mariculture in later years is not publicly available, the difference in the total number of people employed in aquaculture in the year 2012 (210) and in the year 2017 (198) is not significant. In the year 2016, Fish Farm Fonda had 18 employees, and was the only company in aquaculture sector in Slovenia listed as having more than 9 employees. According to the National Statistical office, when looking at the number of companies vs. the number of employees in the sector of aquaculture and fisheries in Slovenia (for which information is available), the numbers are very similar. In 2016, for example, the number of companies in the sector was 211, and of employees, 229. In 2017 the number of companies was 196, and of employees, 210. This implies that **in aquaculture, as in mariculture, typically companies are in fact self-employed individuals**; such is the case for MYTILUS, one of the three main actors in mariculture on the Slovenian coast.

From the information available, fish farm and shellfish companies normally also take care of the wild harvesting (sub-segment 1), breeding (hatching, nursing and fingerlings transport, sub-segments 2-4), raising at sea/coast (sub-segment 5) and harvesting (sub-segment 6) of the products. PROSUB, one of the main actors in the cultivation of shellfish, has set up a shellfish purifying facility on the coast, which according to the information available is the only facility of its kind in the core area.

Most of Slovenian aquaculture gets distributed nationally, meeting the demand of the national market. Fish Farm Fonda, the only fish farm on the Slovenian coast, has expended some effort into selling as much of their product as possible as close to the place of production, so at "0 km". At the moment 70% of Fonda's sea bass is sold on the national market, about 20% to Italy, and the rest to Austria, where demand is growing⁷⁸. Mytilus, which breeds up to 250 tonnes of shellfish a year on the Slovenian coast, has the aspiration to meet the national demand for shellfish, covering all Slovenia⁷⁹.

Slovenia has only a few companies whose activities deal exclusively in the processing and selling fish products, both marine and freshwater. The Veterinary Administration of the Republic of Slovenia has approved 24 establishments dealing with fishery products; mostly small businesses and one larger company⁸⁰. The selling of fishery products also includes registered establishments - these are fisheries and some fishermen. Izola, on the Slovenian coast, used to have an important processing industry, with most of the town (350 families)

⁷⁸ National Strategic Plan for the Development of Aquaculture in the Republic of Slovenia for the Period 2014-2020 -- Nacionalni Strateski Nacrt Za Razvoj Akvakulture v Republiki Sloveniji Za Obdobje 2014-2020. 2014. Government of the Republic of Slovenia. Available at http://www.mkgp.gov.si/fileadmin/mkgp.gov.si/pageuploads/podrocja/Ribistvo/NSNA_2014_2020.pdf

⁷⁹ This is an entrepreneur who produces more than 250 tons of shellfish per year - To je podjetnik, ki pridelava več kot 250 ton školjk letno. 2017. Reporter.si. Available at <https://reporter.si/clanek/slovenija/to-je-podjetnik-ki-pridelava-vec-kot-250-ton-skoljk-letno-525891>

⁸⁰ Processing and Marketing - Predelava in Trženje. 2019. Ministry of Agriculture, Forestry and Food, Ljubljana. Available at http://www.mkgp.gov.si/si/delovna_podrocja/ribistvo/predelava_in_trzenje/

dependent on fishing⁸¹. The company Iris operated until the independence of Slovenia and collapsed due to the lost market and more difficult access to fish, due to limited fishing in the Gulf of Trieste. The Slovenian fish processing industry processes most of the blue fish caught in the Gulf of Trieste, while other species are imported⁸². Up until recently, Izola still had a few large processing companies – in 2011, after 130 years of operating on the Slovenian coast Delamaris⁸³ moved their operations inland, to Pivka. The processing company Delmar, after merging with Frigomar, became the second largest processing company after Delamaris, with 140 employees across Slovenia⁸⁴, but officially closed its doors in 2018, after declaring bankruptcy⁸⁵. The Slovenian fish processing industry has been on the decline first since the end of the Second World War and secondly since gaining independence, on account of the changes in access to markets and fishing zones⁸⁶.

Often, mariculture products are sold fresh, directly to supermarkets, restaurants, etc.; Fish Farm Fonda sells their famous sea bass to restaurants and hotels in the area as well as the capital, Ljubljana, and certain places in Italy and Austria, and the major supermarkets located in Ljubljana.

According to the National Strategic Plan for the Development of Aquaculture in the Republic of Slovenia (2014-2020), issued by the Ministry of Agriculture, **due to the reduction in the size of Slovenian commercial fishing zones, Slovenian marine fish catches have decreased by more than tenfold over the past 20 years**; there is therefore an interest to mitigate this loss by increasing mariculture production⁸⁷. **Trends in Slovenian mariculture currently show an increase in the production of shellfish and sea bass**. A further increase of mariculture would rely on introducing new production technologies, where natural resources will no longer be a limiting factor⁸⁸, and be based on sustainable forms of mariculture in line with environmental requirements and the available water resources⁸⁹.

⁸¹ Slediribi. Available at <http://slediribi.si/index.php>

⁸² *Idem*

⁸³ Delamaris d.o.o. Pivka. Available at <https://www.delamaris.si/o-podjetju>

⁸⁴ Frigomar goes from the shores to Delmar's roof - Frigomar gre z obale na Delmarjevo streho. 2010. Glešič Katja. Available at <http://www.vzmd.si/novice/mediji-o-malih-delnicarjih/frigomar-gre-z-obale-na-delmarjevo-streho>

⁸⁵ The Delmar bankruptcy is over - Stečaj Delmarja je končan. 2018. Katja Glešič. Available at <https://www.primorske.si/2018/03/04/stecaj-delmarja-je-koncan>

⁸⁶ Slediribi. Available at <http://slediribi.si/index.php>

⁸⁷ National Strategic Plan for the Development of Aquaculture in the Republic of Slovenia for the Period 2014-2020 -- Nacionalni Strateski Nacrt Za Razvoj Akvakulture v Republiki Sloveniji Za Obdobje 2014-2020. 2014. Government of the Republic of Slovenia. Available at http://www.mkgp.gov.si/fileadmin/mkgp.gov.si/pageuploads/podrocja/Ribistvo/NSNA_2014_2020.pdf

⁸⁸ <http://www.kgzs.si/gv/kmetijstvo/ribogojstvo.aspx>

⁸⁹ National Strategic Plan for the Development of Aquaculture in the Republic of Slovenia for the Period 2014-2020 -- Nacionalni Strateski Nacrt Za Razvoj Akvakulture v Republiki Sloveniji Za Obdobje 2014-

4.2.3 Framework conditions affecting Mariculture in Slovenia

4.2.3.1 International, national and sub-national governance

The **National Strategic Plan for the Development of Aquaculture for the period 2014-2020**, developed by the Ministry of Agriculture, Forestry, and Food, is in line with the **EU guidelines for the sustainable development of aquaculture in the EU (2002, updated 2009)**. The EU directives on water, marine strategy, and management of bathing waters have been transposed in Slovenian legislation, in the **Waters Act (2002, updated 2015)**⁹⁰.

In terms of water and marine environment management, new decrees have been drafted in recent years including: 1) the **Decree on the Water Management Plan of the Danube river and Adriatic sea basin districts**, with a detailed management plan issued for each of the two districts for the period of 2016-2021 and 2) the **Decree on the Marine Environment Management Plan**, issuing such a planning document for the period of 2017-2021.

For aquaculture, the Ministry of Agriculture, Forestry and Food has developed the **Marine Fisheries Act (2006, last updated in 2017)** as well as the **National Strategic Plan for the Development of Aquaculture for the period of 2014-2020**. In addition a new expertise is being prepared at the moment for the field of mariculture: Possibilities for enlargement of mariculture locations on Slovenian sea and shore (Ministry of Agriculture, Forestry and Food) which, if finished and adopted, may affect the future development of the area; its results will be taken into account in the MSP.

Currently in Slovenian territorial waters, fish farms are located in St. Jernej (Debeli rtič), Strunjan Bay, and Piran Bay (Secovlje), with fish-breeding cages located exclusively in Piran Bay, and there are 26 shellfish farms on the coast. A concession for the economic use of water is required for the cultivation of marine organisms, which is issued by the Ministry of the Environment and Spatial Planning or rather the Slovenian Water Agency. The **Waters Act, developed by the Ministry of the Environment and Spatial Planning in 2002 (last updated in 2015), is the principal legally-binding document of relevance for the development of aquaculture and coastal tourism** as it contains, respectively, bylaws on the breeding of marine organisms as well as for the designation of bathing areas, protected and endangered water areas, and the organisation of sailing / navigation.

For the cultivation of marine organisms at sea, the legal basis is set out in the Marine Fisheries Act ZMR-2B (Official Gazette of the Republic of Slovenia, No. 69/17 of 8 December 2017) and in the Ordinance on the Establishment of Areas for the Breeding

2020. 2014. Government of the Republic of Slovenia. Available at http://www.mkgp.gov.si/fileadmin/mkgp.gov.si/pageuploads/podrocja/Ribistvo/NSNA_2014_2020.pdf

⁹⁰ http://www.mkgp.gov.si/fileadmin/mkgp.gov.si/pageuploads/podrocja/Ribistvo/NSNA_2014_2020.pdf

of Marine Organisms (Official Gazette of the Republic of Slovenia, No 38/15), which currently defines three areas of cultivation (Debeli rtič, Strunjan and Sečovlje). Within these areas of cultivation, in accordance with the regulations in the field of water and on the basis of the application, the Ministry of the Environment and Spatial Planning or rather the Slovenian Water Agency may issue a water permit for the economic use of water for the cultivation of certain marine organisms. In the case of other forms of mariculture on the coast and coastal land, a water permit may be issued in accordance with the regulations in the field of water⁹¹. For the breeding of shellfish (Secovlje, Strunjan⁹²), a water permit may be granted for 10 years⁹³, and for the breeding of autochthonous species of fish on the coast (Piran Bay), a water permit may be granted with the duration of 20 years⁹⁴. For the breeding of fish intended for the supply of open waters, fishermen must have a special permit issued by the Minister of Agriculture and the Environment (List of holders of licenses for fish breeding, September 2018).

4.2.3.2 Economic framework conditions

The infrastructure needed for the fish breeding cage is a floating platform under which a net of varying depth is spread and anchored to the seabed. Cages are located exclusively in the Piran Bay, in Sečovlje. Shellfish farms are specialised surfaces on which shellfish are attached. The mussel (*Mytilus galloprovincialis*), requires longlines hanging from a rope that is tethered between floating anchored buoys. *Venus verrucosa* species are also grown in special containers at the bottom of the sea⁹⁵.

As **most of Slovenian mariculture gets distributed nationally** through roads in refrigerated trucks and vans, road infrastructure conditions are also of importance for the further development of the mariculture activity in the region. However, **road infrastructures are insufficient**.

Some spatial considerations to be taken into account when further developing mariculture in Slovenian waters would include the limited available and designated space for this activity, as well as the environmental protections governing this space.

Economic and non-commercial fishing (excluding sports and recreational fishing from the coast) as well as fishing vessels without special permission are prohibited within the

⁹¹ TOR issued by the Ministry of Agriculture, Forestry, and Food in 2018 on „Possibilities for increasing the potential of locations for mariculture on the coast and in the Slovenian sea“

⁹² The latest information for the third area, Debeli rtič, outlined the granting of water permits until the end of 2015 (<https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/56362>)

⁹³ <https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/59787>; <https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/86094>

⁹⁴ <https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/76776>

⁹⁵ Mariculture – Marikultura. . Ministry of Agriculture, Forestry and Food. Available at http://www.mkgp.gov.si/delovna_podrocja/ribistvo/akvakultura/marikultura/

boundaries of fishing reserves. Within the boundaries of the marked areas for mariculture farming, navigation is also prohibited, as is indicated by information boards⁹⁶.

Similarly, at the third SUPREME workshop⁹⁷, stakeholders from the fisheries sector asked to be able to carry out their activities in greater measure in the areas of separate navigation. However, because the schools of fish that the fishermen track move unpredictably, fishing vessels' trajectories could come into conflict with those of freight ships, therefore it was suggested that fishing should stick with the existing fishing zone.

At the same time, significant competition also exists from other sectors active along the Slovenian coast, such as coastal tourism, which limits the potential territory designated for mariculture activities.

All of this might indicate that there is little room for this sector to grow in terms of capture and breeding sites on the shore (i.e. in terms of volume)⁹⁸. **However, due to the reduction of fishing areas and, consequently, the significant decline in catches of marine organisms over the past 20 years, the importance of mariculture is however becoming increasingly important for the country.** National authorities estimate that in the Slovenian sea and the coast there are still opportunities to increase and develop mariculture. To this end the Ministry of Agriculture, Forestry and Food have issued terms of reference to research the possibilities for developing mariculture in Slovenian waters⁹⁹ including enlargement of mariculture locations both at sea and shore. The research may affect the future development of the area and its results will be taken into account in the Slovenian MSP activities.

The SWOT analysis, carried out for the National Strategic Plan for the Development of Aquaculture in the Republic of Slovenia for the period 2014-2020, highlights the **potential competition from the higher production and lower prices of similar products from abroad, especially since the entry of Croatia into the EU and consequently to the European Single Market in 2013**¹⁰⁰. This market competition could impact the further development of the mariculture activity in the region.

⁹⁶ Hydrography – Hidrografija. Available at: <http://www.hidrografija.si/p2/3-2-6.php>

⁹⁷ Draft minutes from the 3rd SUPREME workshop held December 20, 2018. Available at <https://onedrive.live.com/view.aspx?resid=591BA1D337CCD694!8265&ithint=file%2cdocx&app=Word&authkey=!ACmigJO5yZ4db7k>

⁹⁸ National Strategic Plan for the Development of Aquaculture in the Republic of Slovenia for the Period 2014-2020 -- Nacionalni Strateski Nacrt Za Razvoj Akvakulture v Republiki Sloveniji Za Obdobje 2014-2020. 2014. Government of the Republic of Slovenia. Available at http://www.mkgp.gov.si/fileadmin/mkgp.gov.si/pageuploads/podrocja/Ribistvo/NSNA_2014_2020.pdf

⁹⁹ TOR issued by the Ministry of Agriculture, Forestry, and Food in 2018 on "Possibilities for increasing the potential of locations for mariculture on the coast and in the Slovenian sea"

¹⁰⁰ National Strategic Plan for the Development of Aquaculture in the Republic of Slovenia for the Period 2014-2020 -- Nacionalni Strateski Nacrt Za Razvoj Akvakulture v Republiki Sloveniji Za Obdobje 2014-

Another external factor which could impact the development of mariculture in the Piran Bay area would be the yet unrecognised maritime (and land) border between Slovenia and Croatia. This creates uncertainty as to which waters may be used for commercial fishing and mariculture, by whom and, consequently, brings up barriers to the carrying out of these activities. As commented by the Municipality of Piran during the second SUPREME workshop¹⁰¹, it would be important to mark in the maps and charts for the Slovenian MSP the mariculture sites that Croatia is setting up in Piran Bay that, according to the arbitration decision, lie on the Slovenian side of the border. This difficulty should also be included in the Slovenian MSP as an issue that needs to be addressed as it presents a spatial restriction on the further development of Slovenian mariculture at sea.

4.2.4 Key actors in the Mariculture value chain

We gathered the most recently available information that was available through the NACE codes business of mariculture activity.

Table 4: Mariculture related activities and their related Nace codes

Sector/Group	Activity	Nace code ¹⁰²
Extraction of marine living resources	Marine fishing	A.03.11
	Marine aquaculture	A.03.21
	Processing and preserving of fish, crustaceans and molluscs	C.10.20
	Manufacture of oils and fats	C.10.41
	Other food products n.e.c	C.10.89
	Prepared meals and dishes	C.10.85
	Research and experimental development on biotechnology	M.72.11
	Wholesale of other food, including fish, crustaceans and molluscs	G.46.38
	Retail sale of fish, crustaceans and molluscs in specialized stores	G.47.23

2020. 2014. Government of the Republic of Slovenia. Available at http://www.mkgp.gov.si/fileadmin/mkgp.gov.si/pageuploads/podrocja/Ribistvo/NSNA_2014_2020.pdf

¹⁰¹ Comments submitted by stakeholders on the second SUPREME workshop, held November 7, 2018

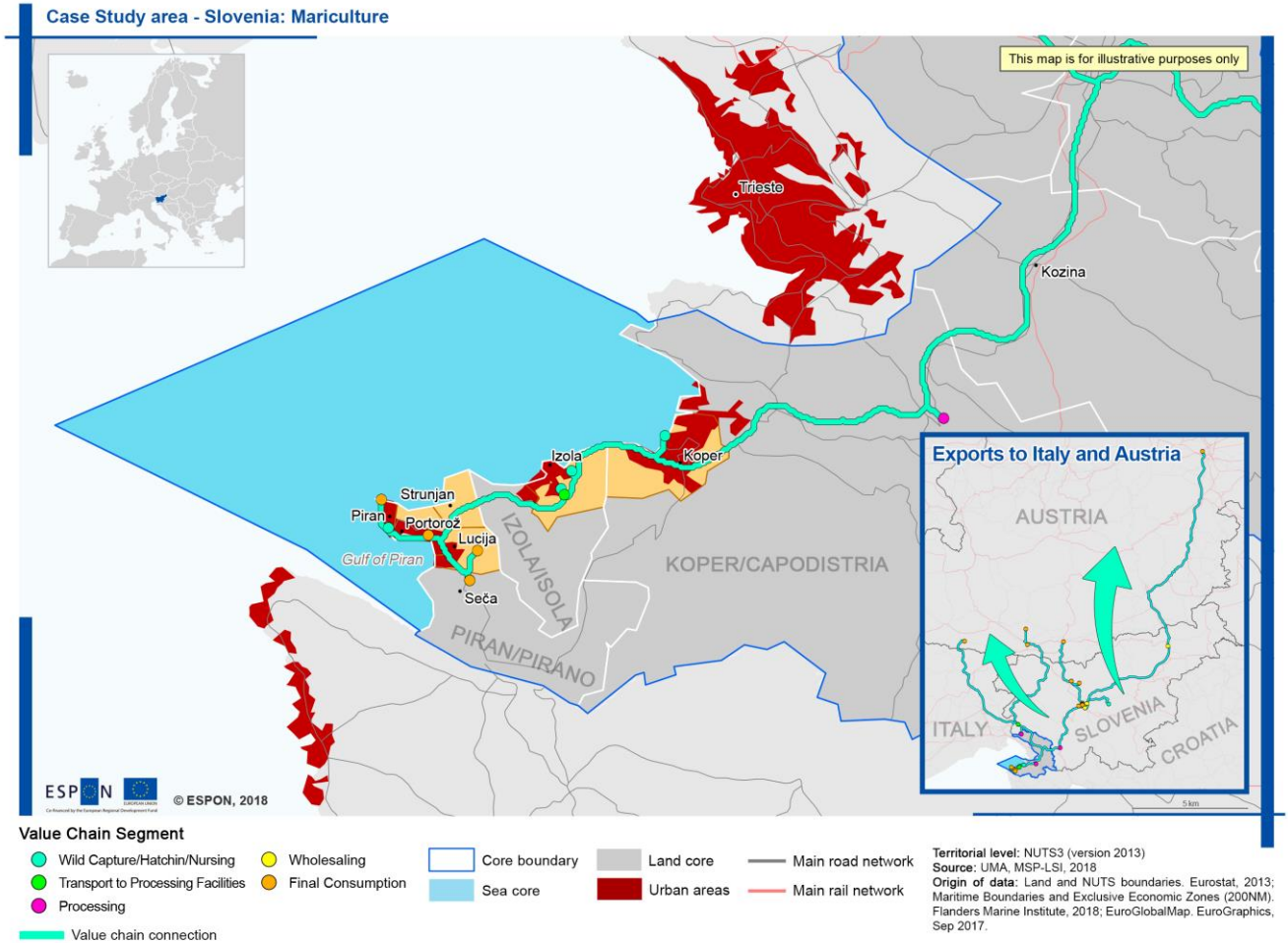
¹⁰² NACE rev. 2; Statistical classification of economic activities in the European Community. 2008. Eurostat Methodologies and working papers. European Commission, Luxembourg. ISSN 1977-0375. Available at <https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>

	Freight transport by road	H. 49.41
	Freight rail transport	H. 49.20
	Sea & Coastal freight water transport	H. 50.20
	Freight air transport	H. 51.21
	Restaurants & mobile services activities	I. 56.10

From the information that we could find¹⁰³, we observe that Mariculture in Slovenia involves, amongst others, the following Actors within its value chain: Administration; Companies (Fish Farms); Companies (Processing, Retailers); Companies (Retailers); Consumers; Inspectors; Land Transport services; Research Centres and the Water Agency.

¹⁰³ Based on publicly available information. We have inquired more information from the Municipality of Piran however they were unable to provide more detail on the sector.

Map 5: Key actors of the mariculture value chain in the Slovenian case study area



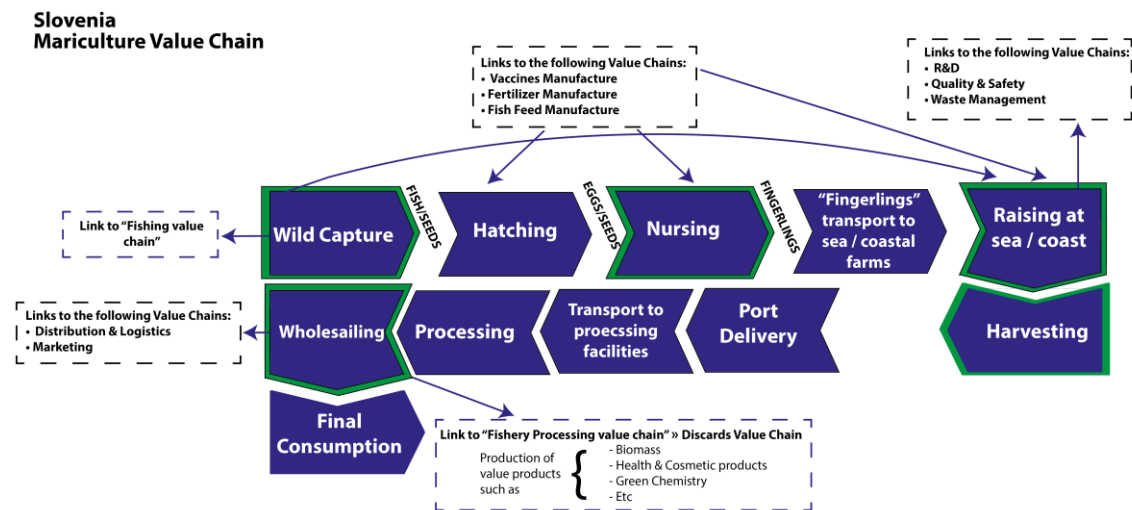
The mapping of the actors allows us to see how the mariculture value chain is concentrated along the Piran Bay and the municipalities of Piran, Izona and Koper and has inland connections outside of the Piran Bay via the main road.

A total of 35 actors were gathered and geo-located to understand the geographical area covered by these actors involved in the mariculture value chain. The map above shows how most of these actors are somehow located at along the Piran Bay and the municipalities of Piran, Izona and Koper. However, the map also shows how these actors are also found further inland Slovenia especially for those parts of the value chain where the processing occurs (and where processing businesses and facilities are located).

4.2.5 Tailoring the Mariculture Value Chain

The below value chain aims at bringing forward the land-sea component of activities stemming from the mariculture value chain in the Slovenian case study area.

Figure 9: Tailored mariculture value chain in the Slovenian case study area



Each segment of the value chain corresponds to specific activities and their land-sea dynamics. Five boxes are depicted within a green frame and in a bigger size than the remaining ones, suggesting that the value chain segments 'Wild Capture', 'Nursing', 'Raising at sea/coast', 'Harvesting' and 'Wholesaling' are particularly relevant to the Slovenian case study.

The figure above highlights sub segments 1, 3, 5, 6 and 10 from the general value chain of mariculture as mariculture activity in Slovenia is mostly focused in few fish farms dedicated to the wild harvest of fish and shellfish, its breeding (nursing and raising), as well as to the products harvest from these fish farms and domestic retailing or wholesaling.

Sub segments dealing with transport (sub-segments 4, 7 and 8) are not of such importance as fish farms are usually located nearby coastal areas, what narrows the traveling to and from those places to short distances (always in favour of 0km products). Sub segment 9 regarding processing has some minor importance in the region around Piran Bay as the market of processed products coming from the fish farms as well as the market of by-products around Piran Bay is quite limited.

4.2.6 Statistical information on the sector

The following section aims at providing additional insight on the key characteristics of the mariculture sector in the Slovenian case study area. The statistical information has been retrieved from the most recently available sources, and generally includes data on production, revenue, fishing vessels, sector employment.

According to the National Statistical Office, **the total catch in terms of kilograms per year for mariculture has gone up from 494,900 kg in 2011 to 725,900 kg in 2017. Revenues per year, this has likewise increased for mariculture from 575,811 EUR in 2011 to 969,442 EUR in 2017.**

The number of registered fishing vessels has decreased over the years, from a total of 181 in 2008, rising to a peak in 2011 with 186 registered vessels, and decreasing to 171 in 2017. In the same space of time, aquaculture capacities have somewhat increased, wherein the surface area used to cultivate shellfish rose from 41 ha in 2008 to 45 ha in 2009, then increasing to 47 ha in 2015 and to 48 ha as of 2017. The volume taken up by fish-breeding cages in 2008 was 22,000 m³, steadying at 18,000 m³ in 2009 (there is no information available after 2012).

The number of people employed in aquaculture decreased from 218 in 2010 (with a small rise in 2014 to 240 people) **to 198 people working in the sector in 2017.** Contrary to the commercial fishing sector, the proportion of full-time employees in aquaculture rose from 31% in 2010 to 42% in 2017. Similarly, in 2010 55% of those working in the sector were self-employed, compared to 42% in 2017.

The total number of companies active in fishing and aquaculture in Slovenia rose slightly over the years, from 198 in 2010 to 211 in 2016. **The vast majority of these companies are micro companies**, with between 1-9 employees; only four out of the 198 companies in 2010 were small-sized (with between 10-49 employees), and in 2016 only one. No companies were medium-sized or large. The 198 companies generated about 10.6 mio EUR in 2010, of which over half was generated by the four small-sized companies. In 2016, the 211 companies generated about 970,000 EUR, with the one small-sized company contributing nearly 15% of the total.

Table 5: Mariculture statistics for the entire Slovenian Mariculture production

	2008	2009	2010	2011
Number of employees	10	25	25	23
Funds (in Euros)	662,278	2,770,332	4,394,671	8,088,229
Capital (in Euros)	25,817	27,173	75,991	142,943
Total Revenue	3,157,406	2,502,399	2,880,017	6,091,948
Business outcome	17,625	34,292	82,249	136,981

Source:

http://www.mkgp.gov.si/fileadmin/mkgp.gov.si/pageuploads/podrocja/Ribistvo/NSNA_2014_2020.pdf

Table 6: Mariculture production in kilograms

	2012	2013	2014	2015	2016	2017
Total Mariculture (kg)	364,300	387,600	496,300	631,100	664,200	725,900
Total Mariculture (EUR)	469,050	496,740	705,290	597,580	768,860	969,442

4.2.7 Identification of land-sea interactions of Mariculture in Slovenia

Apart from the coastal and maritime dimension of mariculture, the sector has important onshore components and implications. Hereafter, we focus our attention on specific land and sea impacts of mariculture, which are very much related to the economic development of the Slovenian case study area. They are organised in three typologies: environmental; socio-economic; technical¹⁰⁴.

Environmental LSIs:

- intensive use of space and resources which may lead to poor water and environmental quality;
- pollution, noise or species' disturbance;
- building new marinas, piers or berths has an impact on marine and coastal habitats;
- impacts on fish stocks;
- the presence of algal blooming and toxic algae nearby fish cages;
- the presence of wild fish feeding on and impacting mariculture yields;
- presence of bio-toxins in shellfish;
- fish cage pressures on space;
- pressures on the environment through the introduction of alien species;
- pressures on the environment from excess nutrients and suspended particles;
- increased environmental protection demands;
- increased dangers of contributing to plastic waste in the oceans through nets;

Socio-economic LSIs:

- competition for coastal space with sectors such as offshore energy production, port development, fishing, shipping and coastal tourism;
- impacts on income and job creation in coastal communities (direct employment at the port, at the mariculture farms, at processing companies or secondary from increased tourism spend in/at local businesses, restaurants, supermarkets, etc.);

¹⁰⁴ As defined in the European Commission Report "Land Sea Interactions in Maritime Spatial Planning Report". Land Sea Interactions in Maritime Spatial Planning. 2018. European Commission. Available at http://ec.europa.eu/environment/iczm/pdf/LSI_FINAL20180417_digital.pdf

- impact on fish stocks, potentially leading to changes in commercial fishing activities and subsequent impact on fishermen's income, jobs and fishing communities;
- impacts on tourism from poor water quality (less bathing and less water recreational activities)

Technical LSIs:

- innovation in terms of infrastructure to limit environmental pressures;
- provision of suitable access of boating locations (access to marinas, boat ramps, moorings);
- impacts on land infrastructure (increased ports infrastructure and land infrastructures).

Table 7 provides additional information on **specific land-sea implications per each segment of the mariculture value chain**. Each segment has, in fact, direct or indirect land-sea interactions. Naturally, these are more apparent at the land-sea interface where segments of the value chain are occurring, such as port delivery and other operation services that mariculture facilities might need as for maintenance. The table highlights the key LSIs for the five key value chain segments of mariculture in the Slovenian case study area; 'Wild Capture', 'Nursing', 'Raising at sea/coast', 'Harvesting' and 'Wholesaling'.

Segments of the value chain such as Hatching, Raising and Harvesting might also imply LSI interactions if these are performed at near coastal areas in a closer contact between land and sea interfaces.

Table 7: LSI linkages to segments of the mariculture value chain

Segments of the Value Chain	Main elements characterizing the LSI
1) Wild capture	Impacts on fisheries; Employment and Income generation; Impacts on land infrastructure
2) Hatching ¹⁰⁵	Accessibility to Infrastructure; Employment and Income generation, Impacts on land infrastructure; Impacts on waste management; Invasive non-native species; Impact on coastal processes
3) Nursing ¹⁰⁶	Accessibility to Infrastructure; Employment and Income generation, Impacts on land infrastructure; Impacts on waste management; Invasive non-native species; Impact on coastal processes
4) Fingerlings transport to sea/coastal farms	Accessibility to Infrastructure; Employment and Income generation, Impacts on land infrastructure; Impact on air quality
5) Raising at sea/coast ¹⁰⁷	Impact of waste management; Displacement of other sectors, Employment and Income generation; Impact on coastal processes; Invasive non-native species; Impacts on land infrastructure; Pollution, noise or species' disturbance
6) Harvesting ¹⁰⁸	Accessibility to Infrastructure; Employment and Income generation, Impacts on land infrastructure
7) Port Delivery	Accessibility to Infrastructure; Employment and Income generation; Impacts on land infrastructure; Pollution, noise or species' disturbance
8) Transport to processing facilities	Accessibility to Infrastructure; Employment and Income generation, Impacts on land infrastructure; Impact on air quality
9) Processing	Impact of waste management; Employment and Income generation; Impacts on land infrastructure; Pollution, noise or species' disturbance
10) Wholesaling	Accessibility to Infrastructure; Employment and Income generation, Impacts on land infrastructure
11) Final Consumption	Accessibility to Infrastructure; Employment and Income generation, Impacts on land infrastructure

¹⁰⁵ Highlighted LSI if these are located at near coastal areas at the Land Sea interface. Not to be highlighted if these are located further offshore.

¹⁰⁶ Ibid.

¹⁰⁷ Ibid.

¹⁰⁸ Ibid.

5 Summary and Outlook

5.1 Governance Analysis

The analysis of spatial planning in Slovenia at different levels revealed the following.

5.1.1 Spatial Planning on Land

The recent Spatial Planning Act means that local planning on the land is in a period of reform and updating, with municipal authorities expected to develop strategic visions for their whole area and within this framework more details zoning plans can be developed. There is also scope for cross municipal working to produce strategies and frameworks that are based around inter-municipal co-operation. As yet this new planning framework is emergent and development opportunities within the area are somewhat constrained by environmental responsibilities in terms of areas designated for heritage and nature conservation, both on land and sea, and the requirements of the Water Act which seeks to ensure, marine and fresh water bodies remain at a good status. For many of the coastal municipalities local priorities to protect local environmental quality to support local tourism (the predominant blue economy sector in the region) is potentially threatened by a national imperative to improve the port facilities in the Port of Koper with associated increased maritime cargo transport movements and perceived increase in the threats of pollution .

5.1.2 Spatial Planning for the Sea

Marine spatial planning is in its infancy in Slovenia and its development is being supported by a trans-national European project (the SUPREME) project which is providing technical assistance to the Ministry of the Environment and Spatial Planning, the competent national body. It is anticipated that a new plan will be adopted by March 2021. It is interesting to note that each of the coastal municipalities will be expected to ratify the plan, which will in effect become a regional strategy for the four municipalities that provides the Slovenia land based interface with the Mediterranean Sea. It is still a little early to determine what the exact form of the plan will be, but certainly there is a strong emphasis on stakeholder engagement and building a consensus on the issues and an appropriate and balance way forward. The stakeholders include national ministries, local municipalities, private sector interests and environmental NGOs.

5.1.3 Addressing LSI

Collaborative stakeholder involvement through the SUPREME workshops are intended to identify critical land sea interactions and, through the use of scenarios, examine potential development trajectories. Critical stakeholders appear to be fully engage in these workshops

and willing to identify opportunities and risks associated with the risk and opportunities associated with different options. Locally based imperatives of coastal tourism, local fishing and mariculture are thought to be threatened by growth of maritime transport and the risk of pollution. Furthermore, the Water Act also places a critical responsibility on planning agencies not to allow development that will adversely affect water quality either on the land or the sea. Finally in terms of addressing LSI the municipal authorities are individually expected to ratify and adopt the MSP thereby creating a sub-regional municipal plan for the four coastal municipalities.

5.2 Value Chain Analysis

5.2.1 Coastal Tourism

Coastal tourism is the primary blue economy sector in the region, in terms of jobs and value added. Whilst during the summer months there are capacity issues (in terms of congestion and managing waste) and there is almost full occupancy rates, there might be some scope for some limited new development on the land, a much greater priority being placed on extending the season beyond the July and August peak season and capturing more tourism spend locally. That said much of the tourism spend stays within the local economy and the value chain analysis demonstrates a close concentration of actors within the coastal strip indicating a strong degree of stickability.

One of the key areas that has been identified nationally where there may be some potential for development of coastal tourism is in the field of nautical tourism where there is an identifiable shortage of berths. Berths for local sailors is often massively oversubscribed and the numbers of visiting sailors has declined by 30% between 2005-15. New marine development both in terms of land based marinas or sea based berths is largely a municipality responsibility, and there have been some recent developments, but this are limited due the constraints noted earlier.

5.2.2 Mariculture

Mariculture is a small but growing activity within the region and it is seen as having further potential for growth in part to offset the decline in local fishing activities. The industry comprises a large number of very small micro enterprises whose activities are confined to a small number of areas with Slovenian marine space, who serve both a local and national market. Further growth potential to some extent depends on reserving further space within the marine environment although much of the necessary infrastructure is often land based.

5.3 Recommendations for Good Management of LSI in Slovenia

It is acknowledged that Slovenia is relatively early in its journey of preparing its MSPs and it is confident that the new plan will be adopted by March 2021. The process appears to be an excellent process of stakeholder engagement that is being facilitated in part through the SUPREME project with good representation from national and local governmental bodies and the relevant sector interests in discussion of key issues and agendas for the plan. An interesting and innovative feature of the MSP arrangements is the requirement that coastal municipalities will have to endorse the marine plan, and hence it will become a *de facto* marine regional plan for the coastal municipalities. This reinforces the need to effective collaborative working.

Based on the work associated with this report, including a workshop held in Koper in January 2019 the following observations/recommendations can be made.

Recommendation 1

It is important to acknowledge the innovative governance approach to adoption of the MSP in Slovenia which means that the coastal municipalities will be expected to collectively adopt the MSP and hence it will become *de facto* a local regional plan that municipalities will have to embrace within their planning processes.

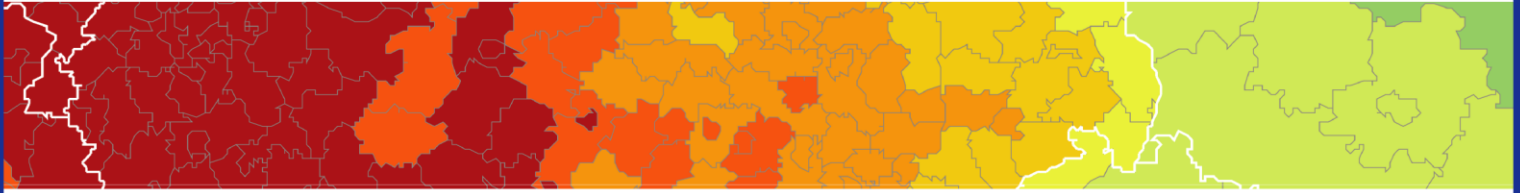
This approach means that the plan preparation must be taken in a truly collaborative manner and the evidence to date that this is the designed approach that is being undertaken and facilitated by the SUPREME project. Furthermore it also provides the opportunity for land sea interactions of the key maritime sectors to be properly understood and evaluated. Early discussions have revealed a tension between a national priority to improve national port facilities with the perceived increased threat of coastal pollution to other key critical local sectors, notably coastal tourism and mariculture.

Recommendation 2

Because the same national body produces both the National Spatial Plan and the MSP plan there is scope to ensure that both take fully cognisance of LSI and include a 'one-space' perspective in a holistic territorial planning agenda.

Recommendation 3

The momentum of stakeholder discussions based around the SUPREME project is impressive and there is a need to think creatively about building local institutional capacity and maintaining wider stakeholder dialogue on these issues once the project comes to an end.



ESPON 2020 – More information

ESPON EGTC

4 rue Erasme, L-1468 Luxembourg - Grand Duchy of Luxembourg

Phone: +352 20 600 280

Email: info@espon.eu

www.espon.eu, [Twitter](#), [LinkedIn](#), [YouTube](#)

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