



LIFE 09 NAT/SI/000376

MANSALT
Man and Nature in Secovlje salt-pans

AFTER LIFE CONSERVATION PLAN



December, 2015

Introduction and background

The Sečovlje Saltworks are the most northerly saltworks still in operation in the Mediterranean. It covers around 650 hectares in the extreme south-west of Slovenia, next to the border with Croatia in the southern part of the Piran Municipal District.

Secovlje Salina Nature Park (KPSS) is considered as one of the most important natural and cultural heritage areas along the Adriatic coast in Slovenia and listed as part of the Natura 2000 ecological network. Rich biological and landscape diversity of the area is supported by human induced activity, traditional, still-active salt production through appropriate water management. Lack of the management and maintenance of dykes and embankments due to financial constraints in the past, can be considered as one of the major threats for the biodiversity conservation. Main LIFE project actions were thus orientated towards securing effective water management infrastructure, provision of suitable ecological conditions, but also to provision of effective management background and awareness campaign.

The project aimed to ensure effective maintenance of endangered habitats and protection of species. Targeted habitats included: 1130 Estuaries, 1140 Mudflats and sandflats not covered by seawater at low tide, 1310 Salicornia and other annuals colonizing mud and sand, 1320 *Spartina maritima*, 1410 Mediterranean salt meadows (*Juncetalia maritimi*), 1420 Mediterranean and thermo-Atlantic salt marshes and salt meadows (*Sarcocornetea fruticosi*). Targeted species included: *Aphanius fasciatus*, *Himantopus himantopus*, *Sterna hirundo*, *Sterna albifrons*, *Larus melanocephalus*, *Charadrius alexandrinus*, *Emys orbicularis*.

The goals of the project can be presented in the following targets:

TARGET 1: enabling and maintaining control over the water regime in the area

TARGET 2: Maintaining favourable conservation status for target species and habitats

TARGET 3: raising awareness on the importance of co-habitation of traditional salt-making and preserving the nature which enables sustainable development of the local communities

TARGET 4: presentation of the model of good practice in using traditional practices in reconstruction and maintenance of the saline ecosystems and planning of sustainable use of natural resources

Short overview of the actions undertaken and results

Task / foreseen in the revised proposal	Achieved	Evaluation
3.406 m of embankments and sea defence walls reconstructed	4.507 m	32% more embankments reconstructed due to the project amendments
670 m of rock sea wall reconstructed	670 m	
16 sluices for improving water exchange installed	16 sluices	
10 artificial islands (1.000 m ²) created		Several smaller islands proved to be more effective against the threat of predation and enable for effective water manipulation
8 km of edge channels dredged	9,7 km	21% more work done
650 m of fences set up	650 m	
8 ha of wetland restored (Action C9)	8 ha	The extent of the restored area remains the same, but twice as predicted materials excavated, 3,75 times bigger open water surface as foreseen.

Task / foreseen in the revised proposal	Achieved	Evaluation
2 films	2 films	
20 newsletters	22 newsletters	
5 TV appearances	10	Extremely satisfactory media coverage and interest for this LIFE project
80 workshops	93 workshops	More workshops, but less attendees due to less interest for visitation by some target groups and

		smaller size of the groups.
160.000 copies of leaflets	213.100	Originally foreseen one version of the leaflet was upgrade with updated version at the end of the project.
1 reality show	1 show	
1 web site (750.000 visits)	1.310.967 visits	Number of visits of the web site exceeded.
1 layman's report	1 layman's report	
1 guidelines for Jernej channel	1 guidelines for Jernej channel	
22 information boards	22 boards	

Continuation of the actions initiated by the LIFE project and long-term management of the site

TARGET 1: enabling and maintaining control over the water regime in the area

There were several Conservation actions, including C1, C2, C3, C4, C5, C6, C8 in the LIFE+ MANSALT project with the aim to restore the needed water management infrastructure (sea-defence walls, embankments...) to ensure protection against intrusion of waters, especially during the high tides and to enable control over the water discharges and water tables across the entire area of Secovlje Salina Nature Park.

All the above mentioned conservation actions were successfully concluded. These actions provided essential input to re-build or re-construct the infrastructure and thus covered the costs for initial investments.

Two groups of activities are needed to secure functioning of the infrastructure and overall protection of the area against uncontrolled flooding:

- a) Maintenance of the existing water management infrastructure (reconstructed through LIFE+ MANSALT project) and
- b) Continuation of reconstruction works in the upper areas of the Secovlje Salina area with the aim to prevent or reduce negative impacts of flooding from the inland catchment areas (rivers Dragonja and Drnica)

In order to maintain existing water management infrastructure, the Beneficiary will apply for the concession to undertake the public service of water management for the area of Secovlje Salina. The tender for that concession will be prepared by the Ministry of Environment and the concession should be given for a period of several years (the usual practices for such concessions is up to five years). By being selected for the implementation of the public service of water management, the company will be given resources to regularly maintain all the sections of reconstructed water infrastructure within LIFE+ MANSALT project,

undertaken under the Conservation actions C1 and C6 (sea defence walls), C2 (outflow sections of the Drnica river) and C8 (outflow section of the Jernej channel). The embankments along the rivers Dragonja, Drnica, Jernej channel and sea-defence line between the outflow of the Dragonja river and Jernej channel are part of the state designated water management infrastructure and the Ministry for Environment is responsible to maintain this infrastructure.

In case the concession for water management public service works will be granted to another company (as a result of public tender), the Beneficiary (responsible for management of the Secovlje Salina Nature Park and Natura 2000 site) will provide necessary input and provide guidelines and recommendations for maintenance and management of the infrastructure concerned in order to safeguard favourable conservation status of species and habitats in the Secovlje Salina.

Channels Pichetto (C3) and Curto (C4), also subject of LIFE+MANSALT reconstruction works, are not part of the public water management infrastructure but are listed as part of the infrastructure of the Nature park. All the land and infrastructure in the Park is owned by the Republic of Slovenia. The Beneficiary will undertake maintenance work on the embankments of these two channels as part of the yearly management plan of the Park. The Plan is approved by the Ministry of the Environment which also provides funding for implementation of the Plan.

Continuation of reconstruction works in the upper areas of the Secovlje Salina area with the aim to prevent or reduce negative impacts of flooding from the inland catchment areas (rivers Dragonja and Drnica) as part of the Reconstruction programme, approved and financed by the Republic of Slovenia is tentatively already secured by approval of the provisional programme 2016-2017. Once the two year's programme is formally approved, the Beneficiary will be pleased to provide a copy.

With continuation of the Reconstruction programme additional sections upwards from the river and channel outflows (in the direction towards Secovlje settlement; areas of Conservation actions C2 – Drnica river, C5 – Jernej channel) the area of Secovlje Salina will gradually improve its ability to provide protection also against inland waters.

Activities that will be undertaken by the Beneficiary include regular inspection and evidence of potential damage to the infrastructure. Minor scratches in the earth embankments will be immediately repaired. For eventual damage detected on the stone walls, only intervention works to prevent further damage could be undertaken. Comprehensive repair and reconstruction (if needed) will be undertaken within the implementation of the yearly programme of the public service of water management.

The Beneficiary will continue with regular patrolling and maintenance of the embankments by mowing the vegetation and removal of excessive vegetation.

TARGET 2: Maintaining favourable conservation status for target species and habitats

The most important activity to secure favourable conservation status of targeted species and habitats is the maintenance and control over the water regimes. This activity will be continued on a daily basis, as all the needed infrastructure to enable this operation has already been set up through LIFE+ MANSALT project and accompanying Reconstruction programme. For the area of Fontanigge it is of vital importance to manage waters through the newly established gates on the outflow of the Pichetto channel. This manipulation

enables discharging rain waters from the area to the sea during the times of low tides, refreshing waters in the inside parts of the saline habitats by bringing sea waters during higher tides and exchange of waters and thus provision of oxygen and food.

Beneficiary will also continue with daily regulation of the internal water flows by manipulation with wooden and other sluices. Sluices will also regularly be maintained. Action plan for target bird species (LIFE+ MANSALT Action A3) determined adequate and needed manipulation of water regimes for the benefits of target and other species and habitats and manipulation of waters will take under consideration these guidelines.

The numbers of mammal predators, especially martens and foxes, but also domestic cats and dogs, have increased in the last years. The LIFE- MANSALT project initiated actions, which aimed to prevent access for these predators to the core bird breeding colonies (especially *Sterna hirundo*, *Sterna albifrons*, *Charadrius alexandrinus*, *Himantopus himantopus*), proved to be successful, although absolute protection against mammal predation cannot be secured. These actions include dredging out of the edge channels (filled with deep water) around "islands" with breeding colonies and setting up fences.

Beneficiary commits itself to maintain the works on removal of sediments from selected sections of the LIFE+ MANSALT created edge channels (Conservation action C8), however the length of yearly cleaned channels could not be as high as during the time of LIFE secured funding. It is expected that in up to 300 m of edge channels sediments could be removed (in one year). Basic maintenance works on fences will also be continued.

Protection of target bird species against aerial predation (especially Crows) is even more demanding. In collaboration with the University of Primorska we will seek for students willing to continue observations of the behaviour of birds at breeding colonies when Crows are attacking these areas. Recommendations to solve or limit the impact of increase of predatory birds will be sought.

There has been over 60 earth islands created within the LIFE+ MANSALT project. Some of them will gradually disappear due to erosion and wave actions. The Beneficiary will maintain regular maintenance work for all the islands created for the European Pond Turtle (Conservation action C 9).

In case of the needed interventions on the embankments and other water infrastructure it will be possible to use part of the dredged earth surface for creation of smaller artificial islands to replace existing ones, if the works will be undertaken in the colder half of the year. It is, however, impossible to quantify exactly the numbers and extent of such earth structures to be set in the future years.

It can be predicted that some invasive plant species will gradually start to colonize the newly established water habitat for the European Pond Turtles (Conservation action C 9). The Beneficiary will monitor the presence and abundance of invasive plant species and undertake measure to control expansion of these plants. Measures will include regular inspection and mowing and removal of invasive plants.

Purchase of the equipment within the LIFE+ project is considered as an important contribution to the implementation of the work. Equipment purchased within LIFE+ MANSALT project will continue to be used in securing favourable conditions for target habitats and species. Key role is entrusted to the floating dredging machine and other machines for implementation of maintenance works. All the equipment will continue to be signed with LIFE logos.

Monitoring of selected species and habitats will be continued (Actions E); it will include regular monitoring of breeding populations of all target breeding birds species (*Charadrius alexandrinus*, *Himantopus himantopus*, *Sterna albifrons*, *Sterna hirundo*) and other species that benefited from LIFE+ MANSALT project, especially *Recurvirostra avosetta*, *Tadorna tadorna*, *Tringa totanus* and others). In addition, counts of *Larus melanocephalus*, another target species, staging in the Secovlje area will also be continued. The extent and methods used for monitoring will be as far as possible the same as performed through the LIFE+ MANSALT project to enable accurate comparison and identification of the population trends.

Periodical monitoring of the extent of the target habitat types with estimation of their conservation status will also be performed using aerial photo sampling.

Monitoring of the target fish (*Aphianus fasciatus*) and turtle (*Emys orbicularis*) populations will not be continued by the Beneficiary as it extends available resources and capacities. However, in cooperation with outside research and university institutions, the Beneficiary will seek support for potential sampling and thus monitoring of the populations of these two species.

TARGET 3: raising awareness on the importance of co-habitation of traditional salt-making and preserving the nature which enables sustainable development of the local communities

Activities aimed at focusing and raising environmental awareness of target groups (visitors, local inhabitants, general public) will mainly be continued. These include:

-“Big Brother” show: equipment purchased through LIFE+ MANSALT programme (camera, transmitters of the signals to the computers in the centre for visitors, TV monitor) will stay in place also after the end of the LIFE project. Live picture from the nesting colonies will be transmitted during breeding season to the visitor centre. Outside breeding seasons “best moments” filmed during the breeding season will also be presented in the form of shorter videos.

-Two films have been produced within the LIFE+ MANSALT project. The shorter, aimed for presentation to the visitors/groups at the centre for visitors will continue to be showed to every visitor of the projection room. The longer film will be offered for broadcasting both on national and commercial TV stations. Films will also be showed at occasion of special thematic or expert gatherings or meetings, if appropriate.

-It has been agreed with the Municipality of Piran that the local newsletter issued by the Municipality will continue to publish information about the developments in the Secovlje Salina, initiated through the LIFE+ MANSALT even after its conclusion; this has already been agreed with the editor of the newsletter, the Municipality. Up to four issues are predicted per year and each shall contain one page on the developments in protecting nature in the Secovlje Salina, initiated by this LIFE project.

-Information notice boards, equipped with LIFE logo will not be removed. Also, LIFE+ MANSALT leaflets and Layman’s report will available to download on the web site. Web site, providing information on LIFE+ MANSALT project will be further maintained and updated with short notices regarding development of the habitats and trends in population of the targeted species.

TARGET 4: presentation of the model of good practice in using traditional practices in reconstruction and maintenance of the saline ecosystems and planning of sustainable use of natural resources

Conservation guidelines for the Jernej channel, together with technical guidelines for maintenance of the dykes and embankments in the saline ecosystems will be available to download for others to use. The Beneficiary is a member of the steering committee for the implementation of the construction works on the right embankment of the Jernej channel and will take care that the recommendations highlighted in the Conservation guidelines aiming at protection of the targeted habitat type (river estuary) and habitat (Spartina stands) will fully be taken into consideration.

The Beneficiary will present experience gained at restoration of the saline ecosystem and reconstruction techniques at various expert meetings. Also, expert advice and exchange of experiences will be offered to the managers of similar coastal wetland ecosystems upon request and within the scope of available resources.

Conservation actions that will be performed in the future

Conservation Action	When	By whom	Estimated budget	Sources of funding
C1 – Sea defence walls	On the yearly basis	The Beneficiary (performing public service of water management)	Up to 20.000 EUR, based upon the situation on the field*	Republic of Slovenia; public service of water management
C2 – Drnica	On the yearly basis; upgrading of the LIFE concluded activities by the Reconstruction Programme activities in 2016 and 2017	The Beneficiary (performing public service of water management)	Up to 20.000 EUR, based upon the situation on the field*. Reconstruction of the additional 250 metres of the stone wall is already listed in the Yearly plan for implementation of the Reconstruction programme for 2016 with approx. Budget of 700.000 EUR.	Republic of Slovenia; public service of water management; Republic of Slovenia – Reconstruction Programme.
C3 – Pichetto	On the yearly basis	The Beneficiary as part of the regular park programme	2.500 EUR	Republic of Slovenia for the management of the Park; and Beneficiary's own incomes.
C4 – Curto	On the yearly basis	The Beneficiary as part of the regular park programme	1.500 EUR	Republic of Slovenia for the management of the Park; and Beneficiary's own incomes.

C5 – Jernej	On the yearly basis; upgrading of the LIFE concluded activities by the Reconstruction Programme activities in 2016 and 2017	The Beneficiary (performing public service of water management)	Up to 20.000 EUR, based upon the situation on the field*. Reconstruction of the additional 50 metres of the stone wall is already listed in the Yearly plan for implementation of the Reconstruction programme for 2016 with approx. Budget of 140.000 EUR.	Republic of Slovenia; public service of water management; Republic of Slovenia – Reconstruction Programme.
C6 – Rock sea wall Lera	On the yearly basis	The Beneficiary (performing public service of water management)	Up to 20.000 EUR, based upon the situation on the field*	Republic of Slovenia; public service of water management
C7 equipment	Regular use and maintenance of the key equipment (such as the floating dredging machine) for the purpose of performing public service of water management by the Beneficiary	The Beneficiary (performing public service of water management)	2.000 EUR	Republic of Slovenia – public service of water management; and Beneficiary's own incomes.
C8 edge channels	On the yearly basis	The Beneficiary as part of the regular park programme	5.000 EUR	Republic of Slovenia for the management of the Park; and Beneficiary's own incomes.
C9 habitat restoration Emys	On the yearly basis – clearance of the invasive plant species, removal of vegetation, maintenance of sluices	The Beneficiary as part of the regular park programme	1.000 EUR	Republic of Slovenia for the management of the Park; and Beneficiary's own incomes.

*estimated yearly budget for performing the public service of water management is approximately 80.000 EUR; inspections of the conditions of the infrastructure reconstructed will be done regularly and based on the findings potential needed maintenance works will form part of the yearly Water Management Plan (approved by the Republic of Slovenia, Agency for the Environment, Directorate for Waters in the maximum amount of approx. 80.000 EUR). LIFE Beneficiary has been assigned a contract for implementation of the public service of water management in the LIFE MANSALT project area. Infrastructure listed under LIFE Conservation actions C1, C2, C5 and C6 is listed in the national database as public water management infrastructure.

Expected constrains and potential threats for the future favourable conservation status of habitats and species in the Natura 2000 site Sečoveljske soline

- a) The project area has been declared as the Nature Park (according to the Decree, issued by the Government of the Republic of Slovenia) and Natura 2000 site, which should prevent any harmful development within the area. However, there are plans for infrastructure development in the area adjacent to the project site. The most advancing is the plan for extension of the airstrike of the existing small airport Portoroz. Several efforts by the Beneficiary and relevant institutions have been invested in order to prevent plans to penetrate with the airstrike into the Natura 2000 site. The current proposal under the consideration by the planning authorities foresees the extension of the airstrike to the limits of the Natura 2000 site. Even if this is secured, there will be ongoing and future threats to extend the airstrike in the future. The Park management authority will (also after the conclusion of the LIFE+ MANSALT project) keep the European Commission informed about all potentially harmful plans, once they would be officially presented and/or in the process of approval, which could jeopardise the investment of the European Commission in the conservation of targeted species and habitats in this Natura 2000 sites through LIFE projects.

- b) The Beneficiary would like to underline that the border line between the Republics of Slovenia and Croatia still has not been agreed. Part of the Secovlje Salina is situated in the “grey zone” and that sub-area is often confronted with the activities that are harmful to the biodiversity assets. These include illegal construction works and hunting activities. These are forbidden, not only according to the legislation which set up the Nature park but also according to the key European conservation legislative basis, the Birds and Habitats Directives, based upon which the Natura 2000 site has been established. The Beneficiary is not in a position to influence this major political problem.

- c) The budget of the Beneficiary for management of the protected area is dependent of the resources that are – according to the agreed concession contract with the Republic of Slovenia – provided by the Ministry of Environment. The rate of funding is agreed in the Management plan for the period 2011 – 2021. Unfortunately, the Ministry is not in a position to provide agreed co-financing of the management for Secovlje Salina Nature park; the rate of co-financing of the yearly budget for the management of the Secovlje Salina Nature park by the government only reaches less than 50% of the agreed amount. If the commitments of the Ministry are not fully met in the future, the Beneficiary will not be able to guarantee fulfilment of all the agreed activities that are described above as the “Life After Life” action plan.

- d) The area of Secovlje Salina is still under potential threat of the flooding from the inland waters. However, the Agency for the Environment is recently undertaking several measures in the water-catchment areas of the Dragonja and Drnica rivers to prevent adverse impacts of inland waters in case of floods. In addition, the Reconstruction programme, coordinated by the Ministry of Environment, also strive to set up adequate protection measures to prevent flooding. It is therefore realistic to expect that flood protective measures will be fully in place in the next years, in case the Republic of Slovenia will continue to provide funding for these measures.

- e) Unpredicted geotechnical conditions could cause damage at some points along the reconstructed infrastructure. However, the Beneficiary is in position to undertake

immediate measures for prevention of further damage, while comprehensive and long-lasting solutions will require co-financing from the Ministry of Environment.

- f) The contracts for part of the workers engaged in the LIFE+ MANSALT project expired by the end of the project. The Beneficiary will try to seek other project opportunities to engage those experienced workers in potential future projects.