Information Sheet on Ramsar Wetlands
(RIS) – 2009-2014 version


Notes for compilers:

1. The RIS should be completed in accordance with the attached Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance (Ramsar Wise Use Handbook 17, 4th edition).

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

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Mr.Darko Saveljic
Environmental Protection Agency
Montenegro, IV Proleterske 19
MN-81000 Podgorica

2. Date this sheet was completed/updated:

28 March 2013

3. Country:

Montenegro

4. Name of the Ramsar site:

The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Tivat Saline (Tivatska solila)

5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only):

a) Designation of a new Ramsar site ☑; or
b) Updated information on an existing Ramsar site ☐

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area
The Ramsar site boundary and site area are unchanged: ☐

or

If the site boundary has changed:
   i) the boundary has been delineated more accurately ☐; or
   ii) the boundary has been extended ☐; or
   iii) the boundary has been restricted** ☐

and/or

If the site area has changed:
   i) the area has been measured more accurately ☐; or
   ii) the area has been extended ☐; or
   iii) the area has been reduced** ☐

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site:
Refer to Annex III of the Explanatory Note and Guidelines, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:
   i) a hard copy (required for inclusion of site in the Ramsar List): ☑;
   ii) an electronic format (e.g. a JPEG or ArcView image) ☑;
   iii) a GIS file providing geo-referenced site boundary vectors and attribute tables ☑.

b) Describe briefly the type of boundary delineation applied:
e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The Salina is situated in the wetland area of the coastal strip of the Bay of Tivat, between the rivers Odoljenštica and Koložunja. It also covers the underwater site Jankove Vode in the area of Grbalj. Ramsar site boundaries fully match the boundaries of the Special Flora and Fauna Reserve designated on 19 November 2008 in the Official Gazette of Montenegro No. 70.

Boundaries: Starting point: Point A – the intersection between the right-hand side edge of the road running through the Salina and the Tivat – Radovići regional road (the coordinates: y 6 559 000,89 x 4 694 324,79). Along the right-hand side edge of the Tivat – Radovići regional road to the intersection with the western boundary of plot 1592, Cadastral Municipality Duraševići (y 6 558 498,77 x 4 694 452,00).

Down the edge of plot 1592 and along plot 1589, along the left bank of canal 1588 to dyke 1584. Along the dyke to the sea up to the mouth of the Široka Rijeka on the opposite side of the Salina. Along the left bank of the Široka Rijeka to the bridge of the old road through the Salina. Along the old road to plot 7929/1, along the edge of canal 1994 around the Salina to the Široka Rijeka (to the end of plot/canal
1994), along the river bank to the intersection with the Tivat – Radovići regional road at the point with the following coordinates: y 6 560 109,10 x 4 694 157,73. Further along the right-hand side of the Tivat – Radovići road to point A.

8. Geographical coordinates (latitude/longitude, in degrees and minutes):
Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

42°23'37"N 18°42'55"E

9. General location:
Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

The Salina is situated on the eastern coast of the Adriatic Sea, in the Bay of Kotor, in Montenegro (13,812 km²), in the Municipality of Tivat (46 km²). It is situated 62 km from the capital city of Podgorica. The Municipality of Tivat has a population of 13,630; out of the total population, 9,467 live in the town of Tivat (Monstat 2005). Tivat is the smallest municipality in Montenegro. Municipality is the largest administrative unit in Montenegro after the state.

10. Elevation: (in metres: average and/or maximum & minimum)
0-1 m

11. Area: (in hectares)
150 ha

12. General overview of the site:
Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Salina is situated in the wetland part of the coastal strip of the Bay of Tivat, between the rivers of Odoljenštica and Koložunja. It includes the underwater site of Jankove Vode in Grbalj. At the territory of the salina, which used to operate for centuries, grows saline vegetation from the genus of Salicornietea and Limonietela, as well as salt meadows vegetation from the genus of Juncetalia maritime and vegetation of brackish wetlands from the genus of Phragmitetalia with the Scirpetum maritime community. Since these complex types of natural vegetation on sludge-clay ground have already largely disappeared from the eastern coast of the Adriatic, the need is identified to conserve the compact area of the Tivat Saline as a safe habitat for chalophyte vegetation in all future intervention plans in this area and its surrounding.

Macchia and mixed bushes with coastal shrubs and tree-forms grow on the surrounding hills. The Salina’s importance for birds is particularly reflected in its capacity to provide shelter to wintering and migrating birds (Limosa limosa, Numenius arquata i Aythya nyroca).

Besides the buildings (dyke, canals ...), archeological relics have been identified at the Salina and its surroundings: fragments of Hellenistic-Roman ceramics, mainly amphoras and fragments of Corinthian skyphoi (6th century B.C.); on the Gomilica hill (Glavica, above the salina itself) there are visible remains of intersecting walls – boundaries, especially on the northern side.

There are numerous historical texts dating from different epochs on the Salina and its surroundings.
13. Ramsar Criteria:
Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the Explanatory Notes and Guidelines for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9
☑ ☐ ☑ ☑ ☑ ☑ ☑ ☑ ☑

14. Justification for the application of each Criterion listed in 13 above:
Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

**Criterion 1:** After delineations used in the EU Habitats Directive (92/43/EEC) and for the EMERALD Network set up under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) lies the site in the Mediterranean biogeographic region. After delineation in European ecological region (DMEER), it belongs to the Illyrian deciduous forest region. For both regions, the size of the saline, its explicit near-natural wetland type is exceptional and unique. The Salina is the best example of an inactive saline, but one which has biodiversity importance on the eastern Adriatic coast (800 km).

Since 19 November 2008, the Salina has been protected as a Special Flora and Fauna Reserve in Montenegro.

**Criterion 2:** Referring to IUCN Red List of Threatened Species (2006), the proposed Solana Ulcinj Ramsar site supports:

*Ophisaurus apodus* as Endangered (EN) reptile species; sea turtle *Caretta caretta*, also Endangered (EN), *Rana shqiperica* – EN B1ab(iii)

Extensive communities of halophytes in the Salina are very important because such a type of vegetation in Montenegro exists only within one more area (land around abandoned Ulcinj Salina) and it exists only in fragments within few other localities (Vuksanovic in Schneider-Jacoby et al. in print). This is valid for the rocky coast of eastern Adriatic to (Hrovat et al. 1974). Halophyte communities exemplify in the best way the history of salt production and can no longer develop under the existing economic and production situation in the region.

**Criterion 3:** Beside birds with some 111 species, which are the best-known animal group of Solana Ulcinj, a high biodiversity of mixed alkaline-freshwater environment for Montenegro and Balkan region is evident. Species as European Pond Turtle *Emys orbicularis* and Shakal *Canis aureus* are present too.

General survey of the species richness through animal groups in the Salina allow a conclusion that the Tivat Salina has an outstanding position at the national and even international levels and that supports an important proportion of biodiversity from the qualitative aspect (see the table on studied animal groups below). Sackl,P., Schneider-Jacoby,M.,Stumberger,B. (2006);The importance of the Tivat salina (Montenegro) for migrating and wintering waterbirds, including some notes on passerines. Annales. Ser.hist .nat. 16; (RZZP, 2008);Dosije zasticenog podrucja Tivatska solila. Republicki zavod za zastitu prirode. Podgorica.

<table>
<thead>
<tr>
<th>Group</th>
<th>number of species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphibians</td>
<td>4</td>
</tr>
<tr>
<td>Reptiles</td>
<td>10</td>
</tr>
<tr>
<td>Birds</td>
<td>111</td>
</tr>
</tbody>
</table>
Criterion 4: The Salina is an important resting and feeding area for migrating birds, and an important winter habitat of several species of egret, primarily great white egret and grey egret. The world’s northwesternmost population of fendak *Phalacrocorax pygmeus* (1.73% of population, between November - February) visits the Tivat Salina because of the little human impact, the size of the site and good feeding areas (WPE, 2002).

Criterion 6: The site regularly supports 1.7% of the regional population of *Phalacrocorax pygmeus* are between November and February.

15. Biogeography (required when Criteria 1 and/or 3 and/or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region: Mediterranean


16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Climate: Maximum air temperature in Tivat is on average around 30°C during the hottest months of July and August, and up to 12 or 13°C in the coldest months of January and February. The frequency of maximum temperatures shows the concentration of maximum daytime temperatures in August. Minimum air temperature in the winter months is on average around 2°C; it is around 17°C in the summer months.

Tivat has on average 113 days per year with maximum temperatures 25°C or higher, most of them occurring in July and August (around 29 days per month). Tivat has on average 37.3 tropical days per year, with maximum daytime temperatures 30°C or higher. such tropical days are recorded mainly in June, July, August and September. The area of Herceg Novi has on average approximately 28 frosty days per year, with lowest temperatures in 24h below 0°C. Such days are characteristic for December, January and February, and – on rare occasions - March.

Average annual precipitation in Tivat is 1429.2 l/m².

Wind, as a climate element, shows different results at different stations (for the period 1981-1995) for frequency patterns of speed and direction, as well as calm spells. The frequency of phenomena for the overall coastal area is characterized by predominant northeast and southwest winds, while some stations record certain specificities. For Tivat, these are as follows: south-east (8.74 %); west-southwest (7.9 %); east-southeast and south (6.4% respectively).
17. Physical features of the catchment area:
Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

The Salina is situated in the Tival Field and is a cove. Above the Salina, to the north, rises Mount Lovčen. The Salina has contact with the Adriatic Sea via the Bay of Kotor. The soil is mainly brown to dark grey; it is rich in peloid generated by organic matter decomposition.

The climate features of the area vary from continental on Mount Lovčen (cold winter, fresh summer) to sub-Mediterranean (dry summer, wet winter) around the Salina. More than 75% of precipitation occurs between November and May.

18. Hydrological values:
Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

No information available.

19. Wetland Types

a) presence:
Circle or underline the applicable codes for the wetland types of the Ramsar “Classification System for Wetland Type” present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the Explanatory Notes & Guidelines.

Marine/coastal: ✓ A • B • C • D • E • F • ✓ G • H • I • ✓ J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp • Ts • U • Va • Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • ✓ 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:
List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

J,A,G,5

20. General ecological features:
Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The Salina is filled with storm water and water from very low tides in the western basin, which is the largest one. Basins are covered mainly in halophyte vegetation, grass, and sometimes reed. The strip encircling the site intended for designation under Ramsar is covered in reed. Dykes are covered mainly in *Laurus nobilis* and *Punica granatum*

The western section, mainly under water due to the tide, hosts the largest population of *Limicolae* in this region of Montenegro.

21. Noteworthy flora:
Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare,
endangered or biogeographically important, etc. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.

Salicornia europaea, Juncus maritimus, Carex sp. and Phragmites sp. are the most widespread representatives of flora of the Salina. Halophyte vegetation in Montenegro can also be registered on some beaches and at the Ulcinj Salina, which is the most important bird area and East Adriatic site for this vegetation.

Halophyte vegetation falls among the most endangered vegetation in Montenegro, primarily because it is situated in artificial ecosystems whose future is uncertain, since humans dictate the ecological conditions in them.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.

14 representatives of amphibians and reptiles have been recorded at the site, together with 111 bird species - 49 attached to water habitats.

A large number of representatives of Limicolae winter at the Salina. During migration, numerous flocks of duck Anas sp. and egret Egretta, Ardea…visit the site to rest and recharge.

23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

The first data on Tivat Salina salt basins originate from the medieval texts which describe the importance it had for the economy of the neighbouring town of Kotor, whose prosperity was largely based on salt production and sale. Even the Town Charter regulated salt production, import, export and sale.

As far back as 1683, when this area was occupied by the Turks, it was stated that the current Salina site was important for salt production and that it accounted for 81% of the local population's total income. According to the data from the historical archives, the activities at the Salina were always closely monitored by the salt producers (foundation preparation, building dykes, canals, ducts); salt harvest, which took place between April and October, involved all local population capable of work and draft animals.

The Salina is included in all the historical maps of this area.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box □ and describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
ii) ☑ sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

The salt deficit in the Mediterranean in the past centuries was addressed by constructing salinas such as the one in Tivat. They were critical for the development of the nearby town of Kotor (UNESCO site). Hundreds of years ago, one part of the Bay of Tivat was rearranged into a salina, thus enabling the creation of an ecosystem such as the one present today at the salina.

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

a) within the Ramsar site:
Land ownership is mixed with predominating state ownership (more than 70%)

b) in the surrounding area:
Mixed – state and private.
The largest building in the contact zone of the Salina is the Tivat Airport, one of the two international airports in Montenegro.

25. Current land (including water) use:

a) within the Ramsar site:
This is a former hunting area of the local hunters’ association.

b) in the surroundings/catchment:
Mainly used for tourism and shell farming.

26. Factors (past, present or potential) adversely affecting the site’s ecological character, including changes in land (including water) use and development projects:

a) within the Ramsar site:
This is a former hunting area of the local hunters’ association.

Illegal bird pouching and the quality of water of the two rivers flooding the site may have a significant impact on the ecological conditions.

The Salina lagoon which became a man-made salina is currently abandoned and inactive and is filled with water by tides (max 20 cm), by drainage of water from the surrounding hills and fields and by flooding of the two rivers of Kolozuna and Odoljensticie, bringing pollutant-contaminated water.

b) in the surrounding area:
Possible construction of tourism infrastructure, especially high-rise facilities.

27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

The Tivat Salina was designated a Special Flora and Fauna Reserve in November 2008, in the course of implementation of the Coastal Zone Spatial Plan. This is the highest degree of protection under national legislation – the Law on Nature Protection from 2008.

In 2007, the site was awarded the status of IBA – internationally Important Bird Area in Montenegro;

It also enjoys the Emerald status under Bern Convention since 2006.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ☒; Ib ☐; II ☒; III ☐; IV ☒; V ☐; VI ☒

c) Does an officially approved management plan exist; and is it being implemented?:

Management Plan is being drafted.

d) Describe any other current management practices:

Tivat Salina are already under national protection, by the Decision of the Republic Institute for the Nature Conservation (no. 01/12 from 26th August 2008), and are registered in the Central Register of protected natural areas of Montenegro, which is confirmed by the certificate of registration in the Central Register of protected natural areas (Official Gazette of Montenegro, no. 70/08 from 19th November 2008). The protection category is a special strict nature reserve (IUCN category I), defined as a special flora-fauna reserve.

When it comes to the activities carried out in the special flora-fauna reservation Tivat Salina, national legislation in Montenegro, in the category of strict and special natural reservations, set the restrictions to those activities which may impair the value of this biological reservation, in other words, the main purpose of this area is to monitor and preserve essential nature and to conduct scientific research which can not jeopardize basic features and performance of the processes, and that is also forbidden to carry out activities that may have negative influence on its characteristics, including, among others, various forms of economic and another usage (Law on Environmental Protection, Article 38).

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

The Management Plan is being drafted.
Following the adoption of the new Law of Nature protection and their adoption by the Parliament of Montenegro, it is expected that by the end of 2013, the month will be determined by the Manager of Tivat Salina and he will bring the management plan.

It will give recommendations concerning the conservation action at the Salina.

29. Current scientific research and facilities:
   e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Ornithofauna monitoring has been implemented annually since 1999.

International Waterfowl Counts (IWC) is also part of regular activities implemented on the site.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:
   e.g. visitors’ centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

The Management Plan will give recommendations concerning these activities.

31. Current recreation and tourism:
   State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

So far, hunting tourism and bird watching have been organized at the Salina. The Management Plan, which is being drafted, will recommend the direction for developing the tourism offer at the saline; in any case, there will be no habitat or biodiversity exploitation.

32. Jurisdiction:
   Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

The Salina is under the jurisdiction of the Municipality of Tivat and is included in the Specific Purpose Spatial Plan for the Coastal Zone of Montenegro.

33. Management authority:
   Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Municipality of Tivat, Secretariat for Urban Planning and Nature Protection; responsible officer for nature protection: Marija Nikolić, urban-tivat@t-com.me

Public Enterprise Coastal Zone of Montenegro.

Head of Department: Aleksandra Ivanović, marine biologist
Phone: 00382 33452709
E-mail: aleksandra.ivanovic@morskodobro.com

Environmental Protection Agency

Darko Saveljic, ornithologist
34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.


- **Prostorni plan područja posebne namjene za morsko dobro (“Sl. list RCG”, br. 30/07)**


Službeni list SRCG (Official Gazette), 2006: Rješenje o stavljanju pod zaštitu rijetkih, prorijedenih, endemičnih i ugroženih biljnih i životinskih vrsta. Službeni list SRCG, br. 76/06, Podgorica.
Uredba o projektima za koje se vrši procjena uticaja na životnu sredinu (Sl. list RCG, br. 20/07)
Uputstvo za primjenu kategorija upravljanja zaštićenim prirodnim dobrima -IUCN Svjetska komisija za zaštićena područja (IUCN/WCPA) -1999 godine
Zakon o zaštiti prirode (“Sl. list CG”2008,

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