# Strategy for Waterbird Monitoring in the Black Sea Region

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Kyiv
2003

Strategy for Waterbird Monitoring in the Black Sea Region / Ed. I.Chernichko, V.Kostyushin. Kyiv, 2003.— 23 p.

This Strategy for Waterbird Monitoring in the Black Sea Region, prepared within the framework of the project “Importance of Black Sea Coastal Wetlands in Particular for Migratory Waterbirds”, gives a brief review of the current status of waterbird monitoring in Black Sea countries and specifies the main directions for its development. It is aimed at improving knowledge relating to the current state of waterbird populations in the region and at strengthening measures regarding their conservation

English editing: T.Nash-Collins

Layout: I.Sirenko

The development and publication of the Strategy for Waterbird Monitoring in the Black Sea Region is supported by Wetlands International through a grant from the Ministry of Agriculture, Nature Management and Fisheries of the Netherlands and the Ministry of Foreign Affairs of the Netherlands (Matra Fund / Programme International Nature Management)

ISBN 905882960X

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# Acknowledgments

The idea of the necessity of creating and realising a common strategy for waterbird monitoring in the Black Sea region has been expressed by ornithologists from the different countries for a long time. However, the opportunity for the implementation of this idea appeared only when Wetlands International's Black Sea Programme began the realisation of the project 'Importance of Black Sea Coastal Wetlands in Particular for Migratory Waterbirds', financed by the Matra Fund / Programme International Nature Management.

During the project's implementation, working groups of experts were created in seven countries and their activities directed by the national coordinators. The international coordination for the preparation of the Strategy was carried out by I.Chernichko, Head of the Black Sea ornithological station (Ukraine), with support from Wetlands International's Black Sea programme, coordinated by V.Kostyushin.

We are very grateful to all participants in the project, without whose efforts the preparation of the Strategy would have been impossible, namely:

**Bulgaria:** Lubomir Profirov, Milko Dimitrov, Anton Kovachev, Bozidar Ivanov, Nikolay Petkov, Petar Iankov, Sergey Dereliev, Ventzislav Delov, Dimitar Georgiev, Dimitar Nankinov, Svetlana Dalakchieva;
**Georgia:** Iracli Goradze, Rezo Jordania, Alexander Gavashelishvili;
**Moldova:** Alexei Andreev;
**Romania:** Mihai Marinov, Grigore Baboianu;
**Russia:** Viktor Belik, Anatoliy Gineev;
**Turkey:** Sunay Demircan;
**Ukraine:** Olga Yaremchenko, Antonina Rudenko, Anatoliy Korzyukov, Ivan Rusev.

We are also grateful to the sponsors for their financial support, both in the preparation of this Strategy and in the realisation of the project as a whole.

*Vasiliy Kostyushin*,

Black Sea programme Coordinator,
Wetlands International.

# Acronyms

| | |
|---|---|
| AEWA | – African-Eurasian Waterbird Agreement |
| Bonn Convention | – Convention on the Conservation of Migratory Species of Wild Animals |
| Bucharest Convention | – Bucharest Convention on the Protection of the Black Sea against Pollution |
| DHKD | – Dogal Hayati Koruma Dernegi |
| GEF | – Global Environment Facility |
| GEF-BSEP | – GEF Programme for the Environmental Management and Protection of the Black Sea |
| EUCC | – European Union for Coastal Conservation |
| IBA | – Important Bird Areas Programme |
| IUCN | – World Conservation Union |
| IWC | – International Waterbird Census |
| Ramsar Convention | – Convention on Wetlands of International Importance especially as Waterfowl Habitat |
| SPECs | – Species of European Conservation Concern |
| WIWO | – Foundation Working Group International Wader and Waterfowl Research |
| WWF | – World Wide Fund for Nature |

# Introduction

Black Sea coastal wetlands cover large areas. Wetlands of international importance alone cover more than 2.49 million hectares. 38,4% of this area is located in Russia, 29.6% in Ukraine, 23.6% in Romania; and the remaining 8,4 in Turkey, Bulgaria and Moldova. Large wetlands can attract huge amounts of waterbirds during winter or in migration periods. Smaller territories can also be very valuable for waterbirds due to a high diversity of biotopes, a more moderate climate and rich stocks of food. It is unquestionable that the Black Sea wetlands provide conditions necessary for migration and for the stop-over of many millions of different waterbirds on their way from Eurasia to the Mediterranean, Africa and the Middle East countries as well as for their wintering and breeding. The results of a special survey by Wetlands International are a good illustration of this. In August 1998, more than 1.4 million waterbirds were counted in the Sivash.

Black Sea wetlands and adjacent territories have been changing rapidly in recent years. On the one hand degradation of natural biotopes has taken place, on the other hand new biotopes, including artificial wetlands, have been created. In parallel with the reduction of the volume of water brought by the rivers of the Black Sea basin and the deterioration of its quality, the above-mentioned changes have had a major impact on the species composition and number of birds using wetlands in the Black Sea region. At the same time, the changes at regional level have been insufficiently investigated by ornithologists and there has been no interaction in relation to field research and information exchange between experts from the different countries. All this means that it has not been possible to either give an adequate assessment of the processes occurring, or to estimate the degree of threats to separate bird species or wetlands, as well as ensuring necessary conservation measures. A first step in the decision- making process for these specified problems should be the creation and implementation of a common Strategy for waterbird monitoring in the Black Sea Region.

# 1. Aim and objectives of the Strategy

The preparation and realisation of this Strategy aims to obtain data necessary for the protection of rare and threatened bird species within the whole of Europe, including populations breeding in wetlands of the Black Sea coast as well as wintering or migrating. Monitoring more common and regionally important waterbird species will provide the conservation community with valuable information on the wellbeing of the wetlands. These data will give an indication as to the effective solution of the problems currently faced by Black Sea wetlands.

***Objectives of the Strategy are as follows:***

- improve the conservation of waterbirds and coastal wetlands of the Black Sea by providing necessary data on waterbird populations;
- give insight into the current status and trends in waterbird populations, especially for species with a global and a European conservation status;
- establish a sound basis for collaboration between waterbird specialists, as well as between waterbird and wetland specialists in the region.

***Objectives will be realised through:***

- the creation of international and national coordination bodies, equipped with the necessary technical means;
- the elaboration of detailed priorities for cooperation;
- the elaboration of the unified methodic base for waterbird monitoring;
- the collection of top-quality information based on the results of monitoring in each country and the realising of periodical transnational actions on special monitoring works (catching, ringing, radio- and satellite tracking etc.);
- providing top-quality storage and elaboration of the collected data;
- the efficient dissemination of gathered information through scientific publications, setting up a website, on-line conferences, bulletins etc.
- providing a strong basis for communication between specialists;
- carrying out special training and workshops on waterbird monitoring and conservation;

# 2. Seasonal types of monitoring and their importance

The importance of sites along the Black Sea coastal zone varies in relation to breeding, migrations and wintering. The coast of Bulgaria, Georgia, Turkey and Romania is more important in winter, while owing to a great forage capacity, and the fact that they cover huge areas, wetlands in Russia and Ukraine are vital for the migration and breeding of a majority of waterbird species along the Afro-Eurasian flyways. There is also a big difference in the level of monitoring activity between the Black Sea countries. In spite of the fact that waterbird monitoring in the Black Sea region has a long history, we are far from saying that monitoring has sufficient temporal and spatial coverage.

Very briefly, characteristics of the monitoring situation in different Black Sea countries are as follows:

**Bulgaria.** The monitoring of breeding birds is quite well developed and regularly conducted. A midwinter census, which began in Bulgaria in 1977, is already a traditional monitoring activity and today involves over 100 people working in 20 teams. After 1995, within the framework of the Biodiversity Conservation Programme, surveys on the numbers of migratory and wintering birds were carried out in most of the internationally important coastal wetlands by fortnightly monitoring. Population numbers' estimates were compiled for 46 species of birds, including species of European and national importance for conservation. Future plans and schemes for species monitoring, its periodicity and methods have been developed.

**Georgia.** Only two ornithological surveys were conducted in wetlands in Soviet times, aside from the counts or monitoring. Some of the ornithological conservation initiatives and studies were carried out in the 1990s. Information was collected mainly in part of the central and southern Kolkheti wetlands (including three years monitoring) as well as in the River Chorokhi delta area. The major part of the central Koikheti and the north Kolkheti wetlands has not been surveyed. Further seasonal surveys need to be conducted throughout the whole study area, in accordance with a regular monitoring programme.

**Moldova.** Proper bird monitoring in wetlands has not been carried out. Observations were more regular during the 1970s and 80s and very irregular in the 1990s. Available data does not assume direct evaluation of the current status of bird populations. Data on the lower part of the Pruth River are extensive, however it borders upon a fish farm in the Manta area, while information about bird populations in the natural habitats of the Beleu Lake and the Manta floodplain is insignificant. Data on the Dniester is mainly devoted to the Kuchurgan liman.

**Romania.** Waterbird monitoring in the breeding season and winter is regular, however migration and summering types of monitoring are less developed. The Bird Monitoring Strategy for the Danube Delta Biosphere Reserve is a good background for developing a monitoring scheme for wetlands along the Romanian Black Sea coast. Strategies for three main types of monitoring are described: the monitoring of breeding birds nesting in colonies, the monitoring of species nesting individually and the monitoring of wintering and migrating species.

**Russia.** Special programmes for ornithological monitoring in the wetlands of the region are absent. Only the monitoring of waterbirds in the migratory season has a regular pattern, but covers only selected areas, including the Don delta. Monitoring in other seasons is either irregular or on a small scale and covers very small areas. Attempts at waterbird resources estimation have been undertaken, but mainly this has been devoted to game species.

**Turkey.** There is no special waterbird monitoring programme in Turkey. The most important wetlands have been surveyed, however. Kizilirmak Delta is of special importance for wintering waterbirds and

the site was surveyed during the different projects (partly winter and partly breeding monitoring). The monitoring situation is the same in Terkos Golu.

**Ukraine.** Waterbird monitoring in the Black Sea wetlands of Ukraine has a history of more than half a century. In the area of the Black Sea Biosphere Reserve monitoring colonial breeding birds was begun as early as the 1930s and 40s. Later monitoring was carried out in the deltas of the large rivers such as the Danube and the Dniester, as well as in some other places. In the 1970s, in Ukraine, active monitoring of the seasonal migrations of birds took place. Later, after the USSR joined the Ramsar Convention monitoring wintering waterbirds has become regular practice.

The monitoring of waterbirds today, which is conducted by ornithologists from various scientific organisations, nature reserves and non-governmental and other organisations, includes many wetlands. In breeding and winter seasons monitoring is carried out regularly. In other seasons, it is irregular and covers small areas. As a whole the monitoring of waterbirds in Ukraine is insufficiently advanced and does not give the high-grade data required on the state of the waterbird population.

Thus, regular monitoring activities in breeding and wintering seasons are taking place in three out of seven countries — Bulgaria, Romania and Ukraine (Table 1). Migratory birds are regularly monitored in the Bulgarian and Russian wetlands. Rather irregular monitoring of migratory waterbirds takes place in the coastal wetlands of other countries. Generally it concerns autumn migration. On the coast of Georgia, Moldova and Turkey waterbird counts are irregular throughout the year. Post-breeding counts at moulting sites and monitoring of late summer movements are rather infrequent in the wetlands of Ukraine, Russia, Romania and Moldova. Generally speaking, counts are irregular in many countries and data collected on a seasonal basis and covering main periods in the annual cycle of waterbirds are also lacking.

### Priority actions

**A 2.1.** Considering the status of different types of monitoring in Black Sea countries, to develop monitoring of the wintering populations is a first level priority for the whole region, monitoring of breeding populations is a second level priority and monitoring of migration and summering/moulting is a third level priority.

Monitoring of the wintering waterbirds is the most appropriate monitoring type for the setting up of a comprehensive monitoring scheme for the whole region. Due to the long history of the International Waterbird Census in the region, monitoring wintering birds is the most developed in Black Sea

**Table 1. Status of different monitoring types in the Black Sea countries**

| Season or type of monitoring | BUL* | GEO | MOL | ROM | RUS | TUR | UKR |
|---|---|---|---|---|---|---|---|
| Breeding | $R_1$** | $I_1$ | $I_2$ | $R_1$ | $I_1$ | $I_2$ | $R_2$ |
| Migrations | $R_2$ | $I_1$ | $I_1$ | $I_1$ | $R_2$ | $I_1$ | $I_1$ |
| Moulting and summering | A | A | $I_3$ | $I_2$ | $I_4$ | A | $I_2$ |
| Wintering | $R_1$ | $I_1$ | $I_2$ | $R_1$ | $I_3$ | $I_1$ | $R_1$ |

* BUL – Bulgaria, GEO – Georgia, MOL – Moldova, ROM – Romania, RUS – Russia, TUR – Turkey, UKR – Ukraine

** R – regular monitoring ; I – irregular monitoring; A – this type of monitoring is absent

1,2,3,4 – levels of priority (very high, high, average, low), which means the importance of this monitoring type for the country according to experts' evaluation

countries and is based on a unified methodological basis. Because of insufficient coverage, however, information remains rather incomplete. Therefore, there is a good background for the improvement of this type of monitoring as well as for developing strong collaboration and communication between specialists from different countries.

Other types of monitoring have no such strong basis, but among them monitoring of breeding populations is more advanced than monitoring of migration or summering/moulting areas. Taking into account the importance of Black Sea wetlands for the breeding of many waterbird species, this type of seasonal monitoring should be at a second level priority after winter monitoring.

**A 2.2.** Taking into account the current situation in each of the Black Sea countries, to stimulate the development of the following types of waterbird monitoring, which are the most underdeveloped:

- **Bulgaria:** monitoring of spring migrations, late summer movements and moulting;
- **Georgia:** monitoring of spring and autumn migrations, wintering;
- **Moldova:** monitoring of spring and autumn migrations, wintering;
- **Romania:** monitoring of spring and autumn migrations, late summer movements and moulting;
- **Russia:** monitoring of breeding colonies, spring migrations, late summer movements and moulting, wintering;
- **Ukraine:** monitoring of spring and autumn migrations, late summer movements and moulting.

**A 2.3.** To develop a unified methodological basis for all types of seasonal monitoring (excluding the monitoring of wintering waterbirds that is already based on IWC methodology)

# 3. Waterbird species important for monitoring

Priorities for the monitoring of waterbird species depend on different factors. First of all the diversity of wetland types to which Black Sea wetlands belong, that greatly differ from each other in aspects such as climate, hydrology and biodiversity, and support many waterbird species. Moreover, it is necessary to take into account international priorities for waterbird monitoring and conservation, as well as the national ones. Existing monitoring traditions also play a certain role.

As far as it follows on from local experts' reports, monitoring priorities are usually based on different groups of waterbird species, namely:

- species of international conservation concern (IUCN, SPEC, Bonn Convention etc.);
- species of national conservation concern ( National Red Lists/ Red Data Books);
- game species;
- "pest" species (mainly fish-eating birds);
- colonising or invasive/alien species;

In some countries, besides typical waterbird species, monitoring also includes associated bird species, which inhabit biotopes related to wetlands (trees and bushes alongside wetlands, meadows, gullies, cliffs etc.) or use wetlands only as foraging places (e.g. some raptors). For example, in Ukraine waterbird monitoring covers up to 150 wetland species and up to 100 associated bird species.

Analysis of national reports and international conservation agreements revealed that the best basis for defining priorities for waterbird species monitoring is to compile a list of birds which are of AEWA concern. After consultation with local experts and excluding some African and Mediterranean species, which inhabit very small areas of the Black Sea region, a list of waterbirds for developing monitoring priorities was prepared. Based on this, experts decided on the importance each of 111 species, which is represented in the Annex. According to the list, the numbers of species covered by monitoring vary from country to country. This reflects both a difference in natural conditions (climate, landscapes, diversity of wetland types, amount and areas of wetlands) and the level of development of a national monitoring system, including the number of ornithologists and available funds. The results of the analysis of Annex are submitted in table 2.

**Table 2. The analysis of a number waterbird species and their levels of priority for different types of seasonal monitoring**

| Country | Number of species* | Breeding season | | Migration season | | Wintering season | |
|---|---|---|---|---|---|---|---|
| | | Number of species | Average level of priority | Number of species | Average level of priority | Number of species | Average level of priority |
| Bulgaria | 101 | 32 | 2.34 | 77 | 2.45 | 43 | 2.41 |
| Georgia | 97 | 10 | 1.10 | 61 | 2.42 | 25 | 1.48 |
| Moldova | 79 | 32 | 2.16 | 39 | 2.41 | 6 | 1.17 |
| Romania | | | | | | | |
| Russia | 88 | 41 | 1.80 | 51 | 2.47 | 5 | 2.40 |
| Turkey | 79 | 29 | 1.82 | 22 | 2.09 | 61 | 1.97 |
| Ukraine | 109 | 47 | 1.60 | 85 | 2.00 | 43 | 1.77 |
| **Total** | **111** | **58** | **1.87** | **103** | **2.31** | **75** | **1.95** |

* Amount of species, for which the level of priority was determined by experts

As follows from table 2, the greatest number of species is included in the monitoring systems in Bulgaria and Ukraine, the least in Turkey and Moldova. If wishing to compare various seasons, in a season of monitoring, migrations covers the greatest number of species — 103, in second place a winter season — 75 species, and thirdly the breeding season — 58 species. When conducting comparisons between countries, it should be mentioned that the highest percentage of breeding species is covered by monitoring in Ukraine and Russia, in a season of migrations in Ukraine and Bulgaria, and during the winter period in Turkey. Among general tendencies it is necessary to note that, according to the experts, the average level of priority of waterbird species covered by monitoring is much higher in a migration period, in comparison with other seasons.

**Priority actions**

**A 3.1.** In view of international and national priorities: to prepare and to approve the list of waterbird species, which should be covered by monitoring in the Black Sea region, with the defining of priority groups of species.

Taking into account that almost all threatened species on a European and global scale that are found in the Black Sea Region are included in The African-Eurasian Waterbird Agreement, it is proposed that the Agreement be used as a basis for the list. At the same, since AEWA is oriented on the conservation of migratory species, the above-mentioned list should also take into consideration other international conservation lists, such as the IUCN Red List, the European Red List, the Bern Convention Appendixes etc as well as national Red Data Books/Lists.

**A 3.2.** To develop the monitoring of waterbirds, so that it is of a high-grade quality, covering firstly priority species groups, and as an ideal to aspire to, that monitoring succeeds in capturing all waterbird species within a region.

# 4. Key wetlands for monitoring

Collected data showed that monitoring of waterbirds is carried out in almost all wetland types along the Black Sea coast. Nevertheless there is an asymmetry in the location of monitoring territories, their amount and the real number of wetlands along the Black Sea coast and their importance for the region. Regular monitoring still does not include an optimum number of wetlands, which gives a possibility for the generalisation of monitoring results for the whole region.

Based on information from the experts of the Black Sea countries, a preliminary list of the most important sites, which are already under regular or irregular monitoring, was prepared. This list includes about 80% of Black Sea coastal wetlands and for some countries, such as Bulgaria, Georgia, Moldova and Romania nearly all the most important wetlands are listed:

***Bulgaria***

1. Durankulak Lake;
2. Shabla Lakes Complex (incl. Shabla Lake and Shabla Tuzla Lake);
3. Varna-Beloslav Lakes Complex (incl. Varna Lake, Beloslav Lake and Nature Monument "Yatata");
4. Kamchia Complex (incl. Biosphere Reserve "Kamchia", Protected Area "Kamchijski Pjasatzi" and Staroorjahovsko Marsh);
5. Pomorijsko Lake;
6. Atanassovsko Lake;
7. Vaya Lake;
8. Mandra-Poda Complex (incl. Mandra Lake, Protected Area "Poda", Tchengene skele);
9. Ropotamo Complex (incl. Alepu Marsh, Arkutino Marsh, Ropotamo River, Stamopolu Marsh);
10. Strandja coast (area between mouths of the rivers Veleka and Rezovska).

***Georgia***

1. Khidmagala fish ponds located just north of the Supsa River mouth;
2. Kaparchina Canal southern mouth areas;
3. Poti Port;
4. Maltakva Complex Pond;
5. Coastline between the Maltakva Complex Pond and the Supsa River mouth;
6. Coastline between Khobi and the northernmost part of the Rioni estuary;
7. Northern part of the Rioni estuary;
8. Coastline between the Natanebi River mouth and Ureki;
9. Paliastomi Lake (the Pichora River, Little Paliastomi, Imnati Lake, Cherpalko Canal);
10. Chorokhi River estuary;
11. Narionali Lakes;
12. Batumi bay area;
13. Coastline between the river Chorokhi and Batumi Bay;
14. Coastline between capes Green and Tsikhisdziri;
15. Coastline between Sarpi and R.Chorokhi delta;
16. Ispani wetlands;
17. Nabada wetlands;
18. Anaklia-Churia wetlands.

***Moldova***

1. Lower Pruth, (Manta-Beleu);
2. Middle Pruth, (Padurea Domneasca Reserve);
3. Lower Dniester, Talmaza-Palanca);
4. Middle Dniester (Naslavcia-Golosnita);
5. Dubasar Reservoir;
6. Ghidighici Reservoir;
7. Kuchurgan Liman.

***Romania***

1. Danube Delta and Complex Razim — Sinoie;
2. Beibugeac Lake;
3. Corbu Lake;
4. Tasaul Lake;
5. Siutghiol Lake;
6. Tabacariei Lake;
7. Techirghiol Lake;
8. Tatlageac Lake;
9. Mangalia Lake.

***Russia***

1. Don Delta;
2. Veselovskoye Reservoir;
3. Beglitskaja Spit;
4. Manych-Gudilo Lake;

5. Dinskoy Bay and Chushka Spit;
6. Kiziltashsky Liman
7. Achuevskaja Spit;
8. Khanskoe Lake

***Turkey***
1. Terkos Golu;
2. Kizilirmak Delta.

***Ukraine***
1. Kartal Lake;
2. Kugurlui Lake;
3. The Danube River islands;
4. Stensovsko-Zhebrianovskie Plavni;
5. Danube delta (Ukrainian part);
6. Sasyk Lake;
7. Shagany-Burnas Lake Complex;
8. Dniester-Turunchuk Plavni;
9. The northern part of Dniester liman.
10. Kuialnitski Liman;
11. Tiligulski Liman;
12. Yagorlytski Bay;
13. Tendrovski Bay;
14. Lebiazhi Islands;
15. Central Sivash;
16. Eastern Sivash;
17. Utlukski Liman;
18. Molochni Liman;
19. Obitochnaia Spit and Bay;
20. Krivaja Spit and Bay;
21. Coast near Alushta.
22. Coast of the Karadag.

**Priority actions**

**A 4.1.** To agree and publish list of wetlands and coastlines important for each type of seasonal monitoring.

In spite of the fact that the above list of monitored wetlands already includes the majority of the Black Sea coastal wetlands, for some countries such as Ukraine, Russia and Turkey an increase in the number of monitoring sites could be recommended. Developing of the lists of sites for the breeding, migration, moulting and wintering of waterbirds should be based on their role in support of the populations of different species as well as national, regional, European and worldwide conservation priorities. For the initial period of the Strategy implementation a minimum list of wetlands needs to be defined, which it is possible to monitor without considerable increases in funding, yet obtain high-quality information on waterbirds of the whole Black Sea region.

**A 4.2.** To develop unified GIS-maps for wetlands included in the above-mentioned lists.

# 5. Parameters of monitoring

A scheme for the collection of monitoring data on waterbirds has not been unified and is different in each country, excluding the winter season. Rather detailed parameters have been developed in Romania and Bulgaria. The complete list of parameters also exists in Ukraine. In the past few years the parameters used in Ukraine have been specified and modified in the programme Regional Ornithological Monitoring. Concerning the winter census, the requirements for conducting the census and a system of key parameters have already been developed and are successfully used in IWC frameworks.

Taking into consideration methods traditionally used for census, the unified methodological basis should be prepared according to the principle of minimum necessary parameters. Irrespective of what methods of the census will be used, for some species it is an absolute census, for others it is a relative one with further extrapolation, the total number of birds for each waterdbird species per each wetland/monitoring area should be given. This will enable populations of waterbirds to be estimated for the whole Black Sea region.

It is important that monitoring work carried out in the various countries should be synchronised as far as possible within a time scale that allows for the receipt of comparable materials for large areas. With this purpose in mind, the following approximate terms are proposed for the conducting of different types of seasonal monitoring, and which have a recommendational character:

***Monitoring of wintering birds***

Within the IWC terms for a midwinter census, the dates are usually 17–25 January. It therefore makes sense to add a census in the second half of December — 15–21 December and February — 20–26 February to the above-mentioned one, since this is the time of formation and the final stage of wintering in the Black Sea region wetlands before splitting up takes place.

***Monitoring of spring migrations***

Census work takes place in the areas of seasonal concentrations — 21–27 March, 11–17 April, and 15–21 May; the latter being the most important period for arctic migratory birds (waders).

***Monitoring of breeding birds***

Terms for monitoring work are traditionally connected with the breeding phenology of different taxonomic groups.

***Monitoring of autumn migrations***

Terms for census work in the areas of seasonal gatherings are the following 11–17 August, 11–17 September, 3–9 October and 1–7 November.

***Monitoring of summering and moulting***

Terms for census work are traditionally dependent on the summering and moulting phenology of different taxonomic groups: Anatidae, Gruidae, Laridae, Charadriidae etc, — probably after mid June, July and August.

**Priority actions**

**A 5.1.** To ratify a unified set of simple and capacious parameters of monitoring that do not require radical change to the traditional regime of the work and/or big financial expenditures

**A 5.2.** To agree dates for different types of monitoring activity with key implementing organisations

# 6. Key implementation organisations

Waterbird monitoring in Black Sea countries is realised by various state organisations as well as non-government organisations. They play different roles depending on the number of ornithologists in a staff and available funds for fieldwork. Many of them conduct field research using not only national funds, but they also receive international support. The organisations that play the most significant roles in waterbird monitoring are as follows:

***Bulgaria:***
- Bulgarian Society for the Protection of Birds;
- Bulgarian-Swiss Biodiversity Conservation Programme;
- Bulgarian Ornithological Centre.

***Georgia:***
- Regional Activity Centre for Black Sea Biodiversity Conservation, Georgian Marine Ecology Institute;
- Georgian Pipeline Company — Environmental Department.

***Moldova:***
- NGO "Biotica"

***Romania:***
- INCDDD;
- The Danube Delta Biosphere Reserve Authority;
- Romanian Ornithological Society;
- Pro-Delta — Tulcea;
- Mare Nostrum — Constanta.

***Russia:***
- Southern Branch of Research Institute of Hunting and Animal Production of RAAS;
- Kuban State University;
- Rostov State Pedagogical University.

***Turkey:***
- NGO DHKD.

***Ukraine:***
- Azov-Black Sea Ornithological Station (coordinating organisation);
- Danube Biosphere Reserve;
- Odessa University;
- Nature Heritage Fund;
- NGO "Istros";
- Odessa Zoo;
- Kinburn Regional Landscape Park;
- Black Sea Biosphere Reserve;
- "Lebiazhi Islands" Nature Reserve;
- Karadagski Nature Reserve;
- Regional Landscape Park "Meotida".

**Priority actions**

**A 6.1**. To make agree and publish list of key implementing organisations, with addresses, names of responsible persons and names of wetlands/coastal zones monitored by each organisation.

# 7. Capacity building

Nowadays, excluding IWC, there is practically no real coordination of waterbird monitoring in the Black Sea region. In the majority of countries there are also no national centres that coordinate field work or collect and process information at national level. Existing national centres are not sufficiently equipped.

**Priority actions**

**A 7.1.** To establish a Black Sea Waterbird Monitoring Steering Committee for the coordination of field work, enhancing the storing, proceeding and exchanging of information. The Steering Committee should be closely related to Wetlands International's Black Sea Programme office.

**A 7.2.** To promote the establishment of National Coordination Monitoring Units in each country within the Black Sea region, by strengthening existing national and regional centres (equipment for field surveys, data processing, communication etc.).

**A 7.3.** To create a unified data bank on the wintering, migratory, breeding and summering/moulting of waterbird species under the Black Sea Waterbird Monitoring Steering Committee.

**A 7.4.** To promote the creation of a network of species' coordinators and working groups for the most important waterbird species for the Black Sea region

**A 7.5.** To conduct international training courses on bird census, conduction of actions, zoning wetlands etc.

**A 7.6.** To involve as many international organisations as possible (e.g., WWF, EUCC, BirdLife,), national governments and institutions in the organisational and financial support of waterbird monitoring

# 8. Communication and exchange of scientific information

Currently there is no strong communication and exchange of scientific information between ornithologists in Black Sea countries. Communication at present is mainly based on personal correspondence between some ornithologists, participation in different workshops, quite often not related to the Black Sea region and, to some extent, the exchanging of scientific publications.

**Priority actions:**

**A 8.1.** To conduct meetings of a Black Sea Waterbird Monitoring Steering Committee every three years.

**A 8.2.** To publish annually, in the Azov-Black Sea ornithological station's bulletin (Ukraine), the results of IWC in Black Sea countries and activities related to it (seminars, publications, projects etc). In subsequent years also to begin to publish in the bulletin results of waterbird monitoring in other seasons, firstly in the breeding season.

**A 8.3.** To set up and regularly update a special web page on the results of monitoring, field surveys, rare species recording etc., which will be located at either Wetlands International's website or at the website of one of the local organisations in the region.

**A 8.4.** Produce a review of the status of waterbirds in the Black Sea region every three to five years.

**A 8.5.** To prepare a full list of ornithologists working in Black Sea wetlands, including information on their scientific interest (taxonomic group/s, wetlands, scientific problems etc.).

# 9. Implementing the Strategy

It is supposed that the realisation of the Strategy will be carried out in several stages, each of which will have the specific priorities as outlined below.

***First stage***

This stage is mainly of an organisational nature. Among the first steps should be the establishing of a Black Sea Waterbird Monitoring Steering Committee and the defining of organisations that will play the role of National Coordination Monitoring Units. Significant attention will be given to the improvement of information exchange, and also some important steps will be taken towards the creation of a unified basis for monitoring. Tasks include:

- the preparation of a list of ornithologists working in the Black Sea region,
- the preparation of a list of key monitoring areas for each type of seasonal monitoring and of a list of key organisations for conducting monitoring,
- publishing a newsletter of the Strategy based on the Azov-Black Sea ornithological station's bulletin,
- the development of a website or the creation of a web page for the Strategy on one of the existing websites of organisations that work in the Black Sea region.

***Second stage***

The second stage is basically devoted to the improvement of the existing components of monitoring and the creation of its missing components. Monitoring of wintering birds for the whole Black Sea region should only be optimised, since the methodological basis and long-term experience in conducting monitoring already exist. The next important priority is developing breeding and migratory waterbird monitoring on a regional scale, which will demand significant efforts in the development of a methodological basis for collecting, storing and processing data as well as coordinating field work. The plan is also to create a network of the species coordinators and working groups in this second stage. Some kind of training, especially on waterbird census work, should have already been carried out at this stage.

***Third stage***

The third stage is initially aimed at the preparation of scientific reports, generalising the results of monitoring in the Black Sea region and effective utilisation of the received information for improvement of conservation endangered waterbird species, as well as the most valuable wetlands and coastal sites. It is assumed that at this stage all types of seasonal monitoring will be conducted for the whole region that will give the possibility to start compiling a three year (or five year) scientific overview of the status of a waterbird population in the region and preparing other reports. This stage should also include the development of tool monitoring (ringing, radio and satellite tracking etc.). The development and realisation of different training courses should also take place. To ensure funds for the realisation of the Strategy at all stages, active fundraising is necessary. This also applies to the development of cooperation with international environmental organisations and initiatives, national governments and various state conservation bodies.

Realisation of the Strategy, which will result in sound scientific information, a developed system for information exchange, communication and coordination of activity, will be a good framework for bird and wetland conservation as well as the raising of public awareness in the whole Black Sea region. Based on the above-mentioned results, it will be possible to develop and realise management plans for concrete wetlands and conservation action plans for separate species, publish different awareness materials and realise other conservation activities.

# Annex

**Table 3. Importance of waterbird species for monitoring in the Black Sea countries**

| SPECIES | BUL* | GEO | MOL | ROM | RUS | TUR | UKR |
|---|---|---|---|---|---|---|---|
| 1. Gavia stellata | M4** | W3 | W1 | | | W3 | W2 |
| 2. Gavia arctica | M3W3 | W3 | W1 | | M4 | W3 | W3 |
| 3. Gavia immer | | | | | | | |
| 4. Podiceps grisegena | M3 | W2 | B1 | | B3 | W3 | B2W3 |
| 5. Podiceps auritus | W4 | W3 | W1 | | | | W3 |
| 6. Pelecanus onocrotalus | M1 | M4 | B2 | | B1 | B1W1 | B1W1 |
| 7. Pelecanus crispus | M1W1 | M4 | M2 | | B1 | B1W1 | B1 |
| 8. Phalacrocorax pygmaeus | B1M1W1 | M2 | M 1 | | | B1W1 | B1W1 |
| 9. Ardea purpurea | B3M3W3 | M2 | B2 | | B2 | B2 | B2M2 |
| 10. Egretta alba | B3W1 | M2 | B1 | | B2 | B2W1 | B3M3W3 |
| 11. Botaurus stellaris | B2W3 | M2 | B1 | | B3B | B2W2 | W3 |
| 12. Ixobrychus minutus | B3 | B1 | B4 | | B3 | B1W1 | B3M4 |
| 13. Platalea leucorodia | B1M2 | M1 | B1 | | B1 | B2M2 | B1M1 |
| 14. Plegadis falcinellus | B1M2 | M1 | B1 | | B1 | B2M3 | B1M1 |
| 15. Ciconia ciconia | B2M1 | M3 | B4 | | B1 | B3 | B2M1 |
| 16. Ciconia nigra | B3M1 | M4 | B1 | | M1 | B2 | B1M1 |
| 17. Phoenicopterus roseus | M4 | | M1 | | | | M4 |
| 18. Branta leucopsis | W4 | | | | | | M4 |
| 19. Branta bernicla | W4 | | | | | | M4 |
| 20. Rufibrenta ruficollis | M1W1 | M4 | W1 | | M1 | | M1W1 |
| 21. Anser anser | B3W3 | M1 | B2 | | B2M3W3 | W3 | B1M2W2 |
| 22. Anser albifrons | M3W1 | M1 | M3 | | M1W3 | W3 | M2W1 |
| 23. Anser erythropus | M1W1 | M4 | M2 | | M1 | | M1W1 |
| 24. Anser fabalis | W4 | | M2 | | | | M1W2 |
| 25. Cygnus olor | B3W2 | M4 | B1 | | B2 | W2 | B3W2 |
| 26. Cygnus cygnus | W2 | M4 | W1 | | M2 | W2 | M2W2 |
| 27. Cygnus bewickii | W2 | | | | M2 | W2 | W2 |
| 28. Tadorna ferruginea | B2M3 | M3 | M1 | | B2 | W2 | B1W1 |
| 29. Tadorna tadorna | B2W2 | W2 | | | B2 | W2 | B3W1 |
| 30. Anas platyrhynchos | B4M3W2 | B1 | B4 | | B2M2 | M2W2 | M2W1 |
| 31. Anas crecca | M2W3 | B1 | B3 | | M3 | W2 | M2W2 |
| 32. Anas strepera | B2M3 | W1 | B3 | | B1 | W2 | B2M2 |
| 33. Anas penelope | M3W3 | W1 | M3 | | M2 | W2 | M2W3 |

* BUL – Bulgaria, GEO – Georgia, MOL – Moldova, ROM – Romania, RUS – Russia, TUR – Turkey, UKR – Ukraine
** B – breeding, W – wintering, M- period of migration; 1,2,3,4 – level of priority (very high, high, average, low), which means the importance of this monitoring type for the country according to experts' evaluation

**Continuation of the Table 3.**

| SPECIES | BUL* | GEO | MOL | ROM | RUS | TUR | UKR |
|---|---|---|---|---|---|---|---|
| 34. Anas acuta | M3W4 | W1 | M3 | | M2 | W2 | M2W2 |
| 35. Anas querquedula | M2 | W1 | B4 | | M2 | W2 | M2W2 |
| 36. Anas clypeata | M2W2 | W1 | M3 | | B2 | W2 | M2W2 |
| 37. Marmaronetta anguistirostris | M2 | | | | | B1W1 | |
| 38. Netta rufina | M2W2 | W1 | M2 | | B2 | W2 | B1W1 |
| 39. Aythya ferina | B4M3W2 | W1 | B3 | | B2M2 | W2 | B3W2 |
| 40. Aythya nyroca | B1M1 | M1 | B1 | | B1 | W1 | B1M1W1 |
| 41. Aythya fuligula | W2 | W1 | B1 | | M2 | W2 | M2W2 |
| 42. Aythya marila | W4 | W4 | M3 | | | W2 | M2W1 |
| 43. Clangula hyemalis | W3 | | | | | | W4 |
| 44. Bucephala clangula | W3 | W1 | M3 | | W2 | W3 | W2 |
| 45. Somateria mollissima | W2 | | | | | | B1W2 |
| 46. Melanitta nigra | W2 | | | | | W3 | W2 |
| 47. Melanitta fusca | W2 | M2 | M1 | | | W3 | W2 |
| 48. Oxyura leucocephala | M1W1 | W1 | | | B1M1 | B1M1W1 | M1W1 |
| 49. Mergus albellus | W2 | W1 | W2 | | W2 | W2 | M2W2 |
| 50. Mergus serrator | M3W3 | W1 | M2 | | | W2 | B1W1 |
| 51. Mergus merganser | | M2 | M2 | | W2 | W2 | M1W1 |
| 52. Grus grus | M4 | M4 | M3 | | B1M2 | B2W2 | B1M1W1 |
| 53. Anthropoides virgo | | | | | B1 | | B1M1 |
| 54. Porzana porzana | B3M3 | B1 | B2 | | B3 | W2 | B3M3 |
| 55. Porzana parva | B3M3 | M1 | B2 | | B3 | | B2M2 |
| 56. Porzana pusilla | B3M3 | M1 | B2 | | | | B1M1 |
| 57. Fulica atra | W2 | B1 | B4 | | B2 | W2 | B2W1 |
| 58. Pluvialis squatarola | M3 | M3 | M1 | | M3 | | M2 |
| 59. Pluvialis apricaria | M3 | M3 | M1 | | M3 | W2 | M2 |
| 60. Charadrius hiaticula | M3 | M3 | M2 | | M3 | W2 | M2 |
| 61. Charadrius dubius | B2M3 | B2 | B2 | | B2 | B2W2 | M3 |
| 62. Charadrius leschenaultii | | M3 | | | M4 | | M4 |
| 63. Charadrius asiaticus | | M4 | | | M4 | | M4 |
| 64. Charadrius alexandrinus | B2M2 | M2 | | | B2 | B2W2 | B1M2 |
| 65. Eudromias morinellus | M3 | M2 | | | M4 | | M2 |
| 66. Chetussia gregaria | | M2 | | | | M3 | M3 |
| 67. Vanellus vanellus | M2W2 | B1 | B3 | | B2M3 | B2W1 | B3M2W2 |
| 68. Vanellochettusia leucura | M2 | | | | | | B1M1 |
| 69. Arenaria interpres | M3 | M2 | | | M3 | | M2 |
| 70. Himantopus himantopus | B2M2 | M1 | B1 | | B1 | B2M2 | B2M2 |
| 71. Recurvirostra avosetta | B2M2 | M1 | B1 | | B1 | B2W2 | B2M2W1 |
| 72. Tringa ochropus | M2 | B1 | M4 | | M3 | B2W2 | M3 |

**Continuation of the Table 3.**

| SPECIES | BUL* | GEO | MOL | ROM | RUS | TUR | UKR |
|---|---|---|---|---|---|---|---|
| 73. Tringa glareola | M2 | M2 | M4 | | M3 | B2W2 | M2 |
| 74. Tringa nebularia | M2 | M 2 | M4 | | M3 | | M2 |
| 75. Tringa totanus | B3M3 | B1 | M4 | | B3 | B2W2 | B2M2 |
| 76. Tringa erythropus | M3 | W2 | M2 | | M3 | B2W2 | M2 |
| 77. Xenus cinereus | | M3 | | | M3 | | M3 |
| 78. Tringa stagnatilis | M2 | M2 | M2 | | M2 | | M1 |
| 79. Actitis hypoleucos | M3 | B1 | B3 | | M3 | | M3 |
| 80. Phalaropus fulicarius | | | | | | M2 | M4 |
| 81. Phalaropus lobatus | M3 | M2 | | | M2 | | M2 |
| 82. Philomachus pugnax | M3 | M2 | M4 | | M2 | | M1 |
| 83. Calidris minutà | M3 | M2 | M2 | | M2 | M2W2 | M2 |
| 84. Calidris temminckii | M3 | M2 | | | M4 | M2 | M2 |
| 85. Calidris ferruginea | M3 | M2 | M2 | | M2 | M2W2 | M1 |
| 86. Calidris alpina | M3W3 | M2 | M3 | | M2 | M2W2 | M1 |
| 87. Calidris canutus | | M2 | | | | | M3 |
| 88. Calidris alba | M4W4 | M2 | | | M2 | M2W2 | M3 |
| 89. Limicola falcinellus | M2 | M2 | | | M4 | M2 | M1 |
| 90. Lymnocryptes minimus | M4 | M2 | M3 | | M4 | | M2 |
| 91. Gallinago gallinago | M3 | W1 | M3 | | M3 | M2W2 | M2 |
| 92. Gallinago media | M1 | W1 | M2 | | M2 | M2 | M3 |
| 93. Numenius tenuirostris | M1W1 | | | | M1 | | M1 |
| 94. Numenius arquata | M2W2 | M3 | M2 | | M1 | M2W2 | B1M1W1 |
| 95. Numenius phaeopus | M2 | M3 | M1 | | M1 | M2 | M1 |
| 96. Limosa limosa | M3 | M1 | M3 | | M2 | M3W2 | B1M2 |
| 97. Limosa lapponica | | M4 | | | | M2 | M2 |
| 98. Glareola pratincola | B2M 2 | M3 | M1 | | B1 | M2W2 | B2M2 |
| 99. Glareola nordmanni | M2 | M3 | M1 | | B1 | | B1M1 |
| 100. Larus ichthyaetus | W3 | W1 | | | B2M2 | W2 | B1M1 |
| 101. Larus audouinii | M2 | M4 | | | | B2W1 | |
| 102. Larus armenicus | | M3 | | | | B2W2 | |
| 103. Larus melanocephalus | B2M2 | M2 | | | B2 | W2 | B2M2 |
| 104. Larus genei | B3M2W3 | M2 | M4 | | B2 | | B2M2 |
| 105. Chlidonias leucopterus | M3 | M1 | B2 | | M3 | B2 | B2M2 |
| 106. Chlidonias niger | M3 | M3 | B3 | | M3 | | B2M 2 |
| 107. Gelochelidon nilotica | B2M3 | M4 | | | B2 | B2 | B1M2 |
| 108. Hydroprogne caspia | M3 | M4 | M3 | | B1 | | B1M2 |
| 109. Thalasseus sandvicensis | B2M2 | W1 | | | M4 | | B1M2 |
| 110. Sterna hirundo | B2M3 | W1 | B3 | | B3 | B2M2 | B1M2 |
| 111. Sterna albifrons | B2M2 | W1 | B1 | | B2 | B2M2 | B1M2 |