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## CASPECO PROJECT COMPONENT I

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# CREATION OF SPECIAL PROTECTED AREAS FOR THE CASPIAN SEAL

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### **Background**

Creation of a network of Seal Special Protected Areas (SSPAs) for the Caspian seal throughout the Caspian is a major expected output of the CaspEco project COMPONENT 1.

The Caspian seal, *Phoca caspica*, is the only marine mammal in the Caspian and is an endemic species. The population has declined by more than 90% over the past century to a maximum of about 100,000 animals at the present time. This decline has, in the past, been mainly due to unsustainable hunting. At the present time other causes of mortality have exacerbated the decline, including fisheries by-catch, poaching, habitat destruction, pollution and disease. In October 2008, the IUCN status of the Caspian seal was changed from 'vulnerable' to 'endangered'.

The Caspian seal species consists of a single transboundary population, migrating freely throughout the Caspian. Conservation of this species is therefore the joint responsibility of a five Caspian littoral States. The present SSPA plan will be based on the outline included in the Caspian Seal Conservation Action Plan (CSCAP; March 2007), which has been ratified by all 5 littoral States, and is designed to implement Article 14 of the 2003 Tehran Convention with respect to Caspian seals.

### **Aims of the SSPA network**

This draft document represents the first step towards developing the SSPA network. The document proposes two sea areas and 17 coastal sites as potential protected areas (Table 1; Fig. 1), together with the rationale for each proposal. These are separated into three categories:

#### Category 1. An established area of seal habitat currently used fully by seals.

Aims of SSPAs: to maintain the integrity of the habitat and to identify and eliminate threats either to the habitat itself or to the seals within it.

#### Category 2. An established area of seal habitat no longer used fully or regularly by seals, or used only by a few animals.

Aims of SSPAs: to identify past and current threats to the habitat or seals within it, identify the reasons why seal use of the area is reduced and take all necessary steps to improve the status of the habitat by eliminating current threats and thereby increase the use of the habitat by seals.

#### Category 3. A known area of historical seal habitat not currently used at all by seals.

Aims of SSPAs: Identify the reasons why seals no longer use the area and take all necessary steps to restore the habitat by eliminating known threats and demonstrate the return of seals to the protected area.

### **Discussion and selection of SSPAs**

This concept document is being distributed to all relevant authorities and stakeholders in all five littoral states. Authorities and stakeholders in each country are requested to collaborate to select candidate SSPAs in their territory, either from the list in Table 1 or from other information, and develop a proposal with cost estimates for implementing the SSPA(s) in their

territory. The cost estimate should include scientific monitoring, equipment, personnel, training (in-country or abroad) and 'Seal Centre' office space.

Draft proposals and any queries should be forwarded to the CaspEco SSPA team coordinators as soon as possible. The next stage in SPA selection will take place at a dedicated CaspEco project regional meeting for SSPA project participants.

### **Planned Implementation of SSPAs**

The implementation steps for candidate SSPAs will be:

1. *Baseline monitoring of seals in the designated SSPA.* This is to be carried out in conjunction with qualified seal scientists working with the Darwin, and CaspEco projects. Some baseline monitoring has already been carried out for some sites.
2. *Planning and implementation of protection measures.* This is to be carried out by the relevant authorities.
3. *Monitoring of seals in the operational SSPA.* This is to be carried out using the same scientists, methods and reporting as for the baseline monitoring.
4. *Assessment of SSPA effectiveness.* Assessment of the effectiveness of the SSPA protection measures will take place at intervals throughout the CaspEco project. Measures of success will include increasing numbers of seals and demonstrably reduced seal mortality.

### **Development of a coherent network of SSPAs**

The SSPAs selected for development during the 2-year CaspEco project will be selected on the basis of their potential for success, and thereby providing a firm and practical basis for the future development of the network. It is possible that other potential areas from the proposed list may be added or substituted later in the project, or after the end of the project, depending on initial success in the initial project.

The ultimate aim is for SSPA implementation to be coordinated by all Caspian countries (via the Seal Centres) in such a way that essential Caspian seal habitats and the corridors and coastal areas between them are protected in such a way that there will be no future impediment to seals migrating to different parts of the Caspian.

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## I. BACKGROUND

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The CaspEco project COMPONENT I refers specifically to 'Ecosystem-based management of aquatic bioresources in the Caspian Sea'. The project's objective is to strengthen regional environmental governance and apply new thinking to the sustainable management and conservation of the Caspian's bioresources. The project supports the littoral states' efforts to halt the decline in bioresources and to restore depleted fisheries in the Caspian Sea, through the implementation of agreed actions defined in the Caspian Strategic Action Plan (SAP). The major focus of GEF involvement will be to assist the countries to agree on the political commitments made and introduce institutions and reforms to catalyze implementation of policies to reduce over-fishing and to benefit communities.

A major expected Output under this Component is the Terms of Reference for creation of a network of Seal Special Protected Areas (SSPAs) throughout the Caspian.

The Caspian seal, *Phoca caspica*, is the only marine mammal in the Caspian sea, and is an endemic species. The species is a single transboundary population, which migrates freely throughout the Caspian basin. At the present time, the size of the entire population of Caspian seals is thought to be a maximum of about 100,000 animals, with about 6,000 -15,000 pups born annually in the past three years. This population size represents about a 90% decline over the past century, and more than 80% decline in the past three generations, or 50 years. This decline has, in the past, been primarily due to unsustainable hunting, mainly of pups on the ice. In recent years, other causes of mortality have exacerbated the decline, including fisheries by-catch, poaching, habitat destruction, pollution and disease. In October 2008, the IUCN status of the Caspian seal was changed from 'vulnerable' to 'Endangered'.

The plan for developing the Special Protected Areas for seals (SSPAs) will be based on the outline plan in the Caspian Seal Conservation Action Plan (CSCAP), Fourth Draft (March 2007), which has been ratified by all five Caspian littoral states. The network of SSPAs would be a show-case as the first network of protected areas of priority habitat in the 'SPACE' network of protected habitats to be established in each part of the Caspian. Further, the SSPA plan is based on the understanding that the SSPA TOR will be acted upon by each of the Caspian littoral state Governments, which will mobilize and leverage human and financial resources to create the SSPA(s) in their sector of the Caspian.

## II. CSCAP PLAN FOR PROTECTED AREAS FOR CASPIAN SEALS (2007)

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The CSCAP plan was initially drafted in 2005 by international seal specialists (Caspian International Seal Survey) for the Caspian Environment Programme. The plan was intended to be implemented under Article 14 of the 2003 Tehran Convention. The plan was considered carefully by scientists from each Caspian littoral state (members of the Caspian Seal Conservation Network, or CSCN) in 2006, and the amended plan then presented again to the CEP regional biodiversity action group meeting. The plan was further edited by the CEP, presented to the Governments of the littoral States, who ratified it in 2007.

Item 1 in the Plan refers to the establishment of an appropriate body to coordinate measures to conserve Caspian seals. A Regional Seal Centre was agreed, to be comprised of representatives from each Caspian State. However, the CaspEco plan is a variant on this, for an RSC to be established in Kazakhstan, with a network of associated centres in each littoral state. Kazakhstan is suggested as the focal Seal Centre, owing to the importance of Kazakhstan as the principal area for seal breeding and moulting, and therefore the focus of much current research into the population biology and ecology of the Caspian seal.

Item 2 in the plan is the Conservation of seals and habitats. All of the components of this item will play an integral guiding role in the development of SSPAs. Item 2 is therefore reproduced here in full.

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### CSCAP 2. CONSERVATION OF SEALS AND HABITATS

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2.1. To take appropriate measures for the protection of key habitats and for ensuring the preservation of areas which are essential to the maintenance of the vital biological functions of seals (breeding, feeding, and rest).

To identify and/or create special protected areas for seals conservation and to take appropriate measures, i.e.

- to ensure that the protected areas cover the main birth, nursery, resting and foraging areas of seals and ensure that the protected areas cover a sufficient proportion of seals in all seasons in all parts of the Caspian;
- to ensure that designations of seal protected areas are based on well-defined criteria of critical habitats, according to international standards
  - Define habitat and diet requirements for the different age groups;
  - Take appropriate measures to survey and identify seal breeding, foraging and resting sites in all seasons in all areas for different age groups within the jurisdiction of each Caspian State;
  - Take appropriate measures to identify areas within which the highest densities of breeding seals are most likely to occur on ice;

Develop measures to define new protected areas and define restricted activities within it. Define any remedial measures required to restore seal habitat (haul-out sites).

2.2. Preservation of habitats and seals, within and outside protected areas, from undue disturbance or changes resulting, directly or indirectly, from human activities.

- To ensure that the seal reserves are created in such a way that human impact on disturbance to the seal population is limited to a minimum.
  1. Create protected areas (may be seasonal - winter) within the ice-field where highest breeding seal densities most likely to occur. Elaborate specific definition of seasonal protected area allowing seal conservation following seals movements on the ice according to annual variations in ice condition;
  2. Create if necessary new protected areas at seal haul-out islands and surrounding water.
  
- To reduce disturbance by ice-breakers and other shipping.
  1. Prepare proposals to make changes in Shipping Regulations and other industrial activity to circumvent shipping routes as far as possible from seal breeding areas.
  
- To reduce the number of seals caught as by-catch and ensure that seals are not deliberately killed by fishermen.
  1. Release seals trapped in 'pareh' nets (type of beach seining) unharmed;
  2. Prevent deliberate killing of seals encountered during fishing operations such as tulka fishing and using of gill-nets;
  3. In coordination with other designated organizations strength measures to prevent illegal setting of fishing nets which may entrap and drown seals;
  4. Prevent deliberate killing of seals encountered during fishing operations such as tulka fishing and using of gill-nets;
  5. In coordination with other designated organizations strength measures to prevent illegal setting of fishing nets which may entrap and drown seals;
  6. Research ways of reducing seal by-catch in legally-set fishing nets.

### 2.3. Identification areas of degraded seals habitat and explore possibilities for restoring such habitat (haul-out sites) or creating new habitat to compensate.

- To identify haul-out areas for resting and breeding which were formerly used, but which are now not used, or used less than formerly.
  1. Chart, from historical records, sites used formerly and at present for seal haul-out, and indicate the causes for the current disuse; suggest remedial measures;
  2. Investigate possibilities of new seal halt-out creation.
  
- To identify seal foraging areas and determine extent of obstacles created by fishing nets, industrial installations, etc.
  1. Identify seal foraging areas by telemetry studies;
  2. Chart fishing nets, boats, industrial installations activity etc in those areas and it possible negative impact on the seals;
  3. Monitor seal diet seasonally, by means of analysing contents of seal scats collected from selected haul-out sites to investigate overlapping of seal prey species and fishing activities.
  
- To identify areas where *Mnemiopsis leidyi* could damage fish stocks important for seal feeding.
  1. Coordinate with Mnemiopsis and other regional monitoring programmes to identify areas and stocks of possible seal prey species, their conditions, trends, and main factors of their decline and overlapping of these areas with seals feeding ground.

### III. DEVELOPMENT OF THE SEAL SPA (SSPA) CONCEPT

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#### OBJECTIVES OF AN SSPA

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The objectives of establishing an SSPA will depend on the present status of the seal habitat. It is suggested that potential SSPAs be classified into three main categories, as follows:

1. **Category 1. An established area of seal habitat currently used fully by seals.** The objective here would be to take measures to maintain the status quo of such an area and prevent habitat degradation or loss, fisheries by-catch, disturbance of seals, hunting or opportunistic poaching which could compromise the status of the area.
2. **Category 2. An established area of seal habitat no longer used fully or regularly by seals, or used only by a few animals.** The objective here would be to demonstrate a measurable improvement in the seal conservation status within the area, i.e. more seals using the area after it becomes an SSPA. The means of achieving this would be to identify the factors causing the habitat to be avoided by seals and prevent further habitat degradation or loss, fisheries by-catch, disturbance of seals, hunting or opportunistic poaching which are thought to have compromised the status of the area. The measurable improvement at haul-out sites will be demonstrated by verifiable seal counts (i.e. from photographs) made before implementation of the SSPA, and after the SSPA is established.
3. **Category 3. A known area of historical seal habitat not currently used at all by seals.** The objective here would be to restore the habitat for seal use. Initially it will be necessary to document historical use by seals of the site, identify the reasons why seals no longer use the site, take steps in the SSPA plan to remedy identifiable problems and prevent further human activities at the site, hunting, poaching or disturbance of seals and fisheries by-catch.

A potential SSPA will require a site evaluation, which will include assessment of existing information about seals at that site and sufficient verifiable seal counts or other data to act as reliable baseline data.

#### IDENTIFYING POTENTIAL SSPAS

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Caspian seal habitats which are suitable candidates to be considered for SSPAs include:

- a. **The north Caspian winter ice-field – essential habitat for pupping between late January and early March. This should include sea areas during the non-ice season.**
- b. **Islands - with surrounding sea area or access corridor – which are essential habitat for moulting between late March and the end of May**
- c. **Islands with surrounding sea area or access corridor - for resting (haul-out) sites throughout the year**
- d. **Seal migrating and foraging areas at sea**

Potential SSPA sites for each of these habitats and habitats will now be considered in the context of existing information and potential baseline data available for site evaluation.

**a. North Caspian winter ice-field and sea area (Category 1; Table 1; Fig. 1).**

Existing information. Almost the entire breeding component of the population migrates to the winter ice-field in the northern Caspian, as soon as this forms in December. Pups are born on the ice from late January to mid-February and are nursed on the ice surface for about a month. Between 2005 and 2009 this breeding population has consisted of between 6–21 thousand pups born on the ice, the same number of mothers, and 10–30,000 other adults. The ice field is therefore essential habitat for the species. The ice habitat preferred for pupping is relatively stable ice sheet approximately 10–40cm thick overlying at least 1m water. Ice boulders, ridges etc are favoured as partial shelter for pups, and nearby polynia (cracks or pools in the ice). Mating, which follows pupping, is thought to occur in and around polynia.

Baseline data. Baseline data on pup production on the ice and numbers of other adult seals, with measures of variance and confidence intervals, are available for each winter from 2005. These data have been obtained by an annual series of fixed-wing aerial surveys by the CISS team. Density distribution of mothers with pups and other adults on the ice field have been charted for each year using GPS data. These data show the areas which have been used most and least by breeding seals in different ice conditions and in both good and poor ice years.

Limited baseline data have now been obtained on fisheries by-catch rates along the Dagestan coast and in the Ural delta region. Data have also been recorded on frequency of industrial ship propeller entanglement in fishing nets. Qualitative and semi-quantitative data exist for 2005–09 on icebreaker routes, breeding seal density distribution and impact of ships on breeding seals.

Definition of area to be protected. By combining data on pup density distribution for all years, the sea areas most often forming ice used for pupping can be defined. However, since a reduction in the ice in future years of warmer winters may be predicted, it is essential also to protect the sea and coastal areas which are not used by the seals for breeding in normal, ice-bound winters, but may become essential habitat in a future with warmer winters. Therefore the entire area of the north Caspian which becomes ice-bound should become an SSPA, with efforts focused on areas where human activities and industrial development could impact breeding seals during the ice season.

Threats to breeding seals on the north Caspian ice. Anthropogenic threats to breeding seals on the ice are commercial hunting of pups, opportunistic poaching, sturgeon nets set around the ice edge, ghost (abandoned) fishing nets floating under the ice, and also noise, disturbance and ice destruction caused by industrial ice-breakers.

Objectives of a north Caspian sea and winter ice-field SSPA.

1. To prohibit all seal hunting on the ice. At present commercial hunters originate only from Russia (although Kazakhstan has been allocated a quota in recent years), but their hunting area apparently includes Kazakh ice. Opportunistic poaching of adults or pups may occur in Russia and Kazakhstan.



2. To prevent fishing methods which are lethal to seals in the north Caspian throughout the year, i.e. the setting of long lengths of monofilament 'wall nets' reaching from the sea surface to the sea bed.
3. To prevent the discarding of fishing net into the sea of the north Caspian and to collect and destroy discarded fishing net.
4. To require EIAs to include direct and impacts on breeding seals of all future industrial development, construction and shipping routes in the north Caspian.
5. To require prescribed mitigation measures to be taken by permitted ice-breaker traffic through seal breeding grounds in the north Caspian. These mitigation measures are currently being developed.
6. To ensure that all precautions are taken to prevent serious oil spills or other chemical discharges into the north Caspian

#### Requirements for implementation of SSPA

1. The recognition that, since the Caspian seal is a trans-boundary species, and the breeding population may shift to one side of the Russian/Kazakh border or the other depending on ice conditions, cooperation between the Russian and Kazakh authorities is necessary for workable measures to protect breeding Caspian seals and their breeding habitat.
2. Establishment of either separate but contiguous SSPAs in Kazakhstan and Russian sectors of the north Caspian, or a single cross-boundary north Caspian SSPA.
3. Government ministry lead in fulfilling SSPA objectives and funding for equipment and personnel necessary to fulfill objectives.
4. Prohibition of commercial and opportunistic hunting, trapping or netting of seals in the north Caspian
5. Government regulation of all fishing activities in the north Caspian; development of non-destructive fishing methods
6. Government initiative for development of alternative livelihood initiatives for communities currently relying on fishing, hunting and poaching in the north Caspian. Eco-tourism and other associated developments are suggested. The goal would be for local communities to be involved in, support and ultimately benefit from the SSPA.
7. Specially trained SSPA rangers to patrol the area and liaise with local communities. These should be equipped with appropriate boats and helicopters for surveillance. A positive relationship should be developed between local government, SSPA rangers and local communities. The goal is for this SSPA to become a community-orientated conservation project with the goodwill and cooperation of coastal communities

#### Monitoring requirements

1. Continuation of the annual aerial survey of seal pup production and seal density distribution

2. Monitoring by-catch rates in key coastline areas
3. Monitoring incidents of ship propeller entanglement in fishing net
4. Biannual helicopter surveys of Caspian seals at haul-out sites in the north Caspian to be carried out before ice formation (i.e. November) and after the ice melt (April).

#### Cooperation with other protected area programmes

1. A National Park in the Ural delta region is currently being developed as part of the UNESCO Biosphere programme. This project has been initiated by ENI and been approved by the Kazakh Department of the Environment. This National Park project will include the training of park rangers to international standards, and will include a major ecotourism component. The Ural delta area is an important foraging location for seals, and is also a site where seal by-catch frequently occurs. The National Park area will probably also include SW Island, which was historically an important haul-out site for seals when the ice has melted, but has become degraded habitat owing to poaching and disturbance. Restoration of SW Island, protection of seals at the island and surrounding area, and reduction of fisheries by-catch in the delta area may all be included as part of a cooperative venture with the National Park project.
2. Specific areas of the north Caspian may be identified as distinct SSPAs in addition to their inclusion of a north Caspian SSPA. Such distinct SSPAs will focus on seal habitat used by seals in the non-ice seasons, whereas the north Caspian ice-field SSPA will focus mainly on sea areas covered by potential seal breeding ice in the winter months. Evidently there would be some overlap, but this should not be a problem, since the SSPA network links should ensure that all SSPA programmes are coordinated into a linked network by the main Regional Seal Centre.

Table 1. Summary of potential candidate Caspian Seal Special Protected Areas (SSPAs)

Site	Site no.	Country	GPS	Category		
				1	2	3
<b>BREEDING</b>						
North Caspian winter ice-field & sea area		Kz & Rf		X		
<b>MOULTING</b>						
Komsomolets Bay	A	Kaz	45° 28.2'N 52° 44.6'E	X		
M. Zemchuzniya	B	Russ	45° 02.7'N 48° 18.3'E	X		
Kenderli	C	Kaz	42° 44.5'N 52° 33.5'E	X?		
Zhilhov & Dardanellis	D	Azerb	40° 16.6'N 50° 36.0'E	X		
Osushnoy Isl	E	Turkm	39° 44.1'N 53° 04.2'E		X	
Ogurchinsky Isl (S)	F	Turkm	38° 47.9'N 53° 04.4'E		X	
<b>HAUL-OUT</b>						
M. Zemchuzniya	B	Russ	45° 02.7'N 48° 18.3'E	X		
Kenderli	C	Kaz	42° 44.5'N 52° 33.5'E			
Zhilhov & Dardanellis	D	Azerb	40° 16.6'N 50° 36.0'E	X		
Tyuleni Isl, Kara Bogaz	G	Turkm	41° 01.8'N 52° 51.2'E	X		
Rybachy Island	H	Kaz	44° 43.8'N 50° 20.9'E	X		
SW Island, Ural delta	I	Kaz	46° 45.9'N 51° 39.9'E		X	
Bekdash	J	Turkm	41° 32.2'N 52° 31.0'E		X	
Osushnoy Isl	E	Turkm	39° 44.1'N 53° 04.2'E		X	
Ogurchinsky Isl (S)	F	Turkm	38° 47.9'N 53° 04.4'E		X	
Tyuleni Isl	K	Russ	44° 27.7'N 47° 30.5'E			X
Chechen Isl	L	Russ	44° 02.6'N 47° 45.7'E			X
Kulali Isl & archipelago	M	Kaz	44° 51.9'N 50° 12.5'E			X
Bautino Bay (sand-bar)	N	Kaz	44° 35.6'N 50° 13.8'E			X
Shakhova Kosa	O	Azerb	40° 11.4'N 50° 22.3'E			X
Essenguly	P	Turkm	37° 48.3'N 53° 47.8'E			X
Gomishan & Miankaleh	Q	Iran	36° 58.2'N 54° 00.1'E			X
<b>AT-SEA FORAGING AREAS</b>						
Kulali archip.-W.Mangyshlak sea area		Kaz			X	



Fig. 1. Potential candidate Seal Special Protected Areas (SSPAs). Red: Category 1, Blue: Category 2, Orange, Category 3. Sea icon indicates potential at-sea SSPAs

**b. Islands – with surrounding sea area or access corridor – which are essential habitat for moulting between late March and the end of May**

1. **Category 1 sites (Table 1; Fig. 1).** The most important sites for seals during the spring moult so far identified are (A) *Komsomolets Bay in Kazakhstan*; (B) *Mala Zemchuzniya in Russia*; (C) *Kenderli Island in Kazakhstan (to be confirmed)* and (D) *Zhilhov Island, the Dardanelli rocks and associated islands offshore from the Apsheron Peninsula in Azerbaijan*. All are used by large numbers of seals at the present time.

In April 2009 about 7,400 seals were counted on M. Zemchuzniya during the moult, and at least 25,000 seals on more than 30 small, reed-covered islands in the shallow water of Komsomolets Bay. Taken together, these two sites therefore account for more than 70% of the adult breeding population estimated from the ice survey. The 25,000 seals in Komsomolets Bay account for at least a quarter of the entire Caspian seal population. The extent to which Caspian seals feed during their moulting period is not known. However, it is important to maintain open corridors between Komsomolets Bay and the sea so that it is possible for moulting seals to go to sea, feed, and return to the moulting sites. Komsomolets Bay is also an important area for birds.

The importance of conserving the integrity of these sites cannot be overestimated. Other potential moulting sites in the Caspian seem to have been largely abandoned by seals at the present time, so these two sites appear to be the last refuges for moulting seals in the north Caspian. Although Komsomolets Bay and M. Zemchuzniya may be included within a north Caspian SSPA, their importance is so great that each requires its own protected area policies, implementation and monitoring.

Zhilhov Island and the Dardanelli rocks off the Apsheron peninsula in Azerbaijan were used by fairly large numbers of moulting seals (possibly around 500) in April 2008 and 2009 (though apparently not in 2007). This area of seal habitat is important to preserve, since it appears to be the final stronghold for seals on the Apsheron Peninsula, which hosted many thousands of seals up to the middle of the 20<sup>th</sup> century.

The coastal area to the south of Mangistau in Kazakhstan was surveyed for the first time in November 2009, and c. 600 seals were found on the Kenderli Island, Mangistau. Although it remains to be confirmed in the Spring 2010 helicopter survey, it seems likely that this site may also be used by moulting seals in the spring.

These two sites, off the Apsheron peninsula and the S. Mangistau coast appear now to be the most important potential moulting sites for seals in the mid-Caspian. It is therefore essential that their integrity is protected. A large resort development is currently underway on the coast adjacent to Kenderli Island. It will be essential to ensure that the construction and operation of this resort does not impact negatively on the seal haul-out. There is a possible opportunity here to incorporate seal-watching ecotourism into ecologically sustainable development of this resort, if this area should be selected as an SSPA.

**Category 2 sites (Table 1; Fig. 1).** Other sites which are currently important moulting sites, or have been in the past 2–3 years, are **(E) Osushnoy Island, Turkmenistan** and **(F) the south of Ogurchinsky Island in Turkmenistan**. There are records of 300–500 seals on Ogurchinsky Island during April 2006 and 2007, and at least one group of about 120 seals during the April moulting period in 2008; however, no seals were found there in April 2009. About 75 seals were counted on Osushnoy Island in April 2001, but zero seals were counted there in April 2007 or April 2009.

**c. Islands –with surrounding sea area or access corridor –for resting (haul-out) sites throughout the year**

1. **Category 1 sites (Table 1; Fig. 1).** **(B) Mala Zemchuzniya in Russia.** M. Zemchuzniya appears to be used by seals throughout the year. About 500 seals were found there during a helicopter survey in November 2008 and about 600 seals in late October 2009; this was the only site in the Russian sector where seals were located in those surveys. **(D) Zhilhov Island and surrounding islands in Azerbaijan.** The Zhilhov archipelago off the Apsheron Peninsula in Azerbaijan was used by c. 500 seals in January 1996. 60 seals in July 2007, about 500 seals between October and December 2007 and 2008, and large groups of seals seen in the water at that time. Seal by-catch was reported in December 2007. These islands were also used by large numbers of seals (up to about 500) in the post-moult period of May–June in 2008 and 2009 (though not in 2007). There is anecdotal information from fishermen to suggest that large numbers of seals are most likely to be present when herring or kilka shoals are also present in the area. **(E) Tyuleni Islands, Kara Bogaz, Turkmenistan.** This small group of rocks has been regularly used by up to 30 seals between February and October 2007, and up to 100 seals in August 2009. Monofilament wall nets are regularly set in shallow water c. 500m from the rocks. Seal by-catch may be especially common in the spring (as seals are dispersing from the north Caspian). **(G) Rybachi Island (Kulali Archipelago, Kazakhstan);** c. 60+ seals recorded in November 2007, up to c. 30 seals on the same sand-bar in November 2008 and c. 150 in November 2009. However, this is a non-permanent sandbar.
2. **Category 2 sites (Table 1; Fig. 1).** **(H) SW Island, Ural delta, Kazakhstan.** This sandy island has been an important haul-out site, but appears to be used only sporadically at the present time. However, c. 300 live seals were recorded there in October 2007, a few seals have been noted in the surrounding water on several occasions since then, and signs of seal presence on the island were noted in October 2009. A few dead seals have been found there in the past few years, and anecdotal information suggests that seals on the island may be harassed by poachers. **(I) Bekdash in northern Turkmenistan.** Seals (up to c. 250) were regularly reported in this area between February and September 2007; however, there are no recent counts and no information on habitat, haul-out, disturbance etc. **(E) Osushnoy island, Turkmenbashi Bay, Turkmenistan.** The sea area around Osushnoy was apparently frequented by small numbers of seals in May and June 2009, and there is anecdotal information of a few seals still using the island for haul-out. **(F) Ogurchinsky Island, Turkmenistan.** There is anecdotal information from V. Krylov of 10,000–13,000 seals using the sandy

skerries off the southern tip off Ogurchinsky in 1983–84, and c.50 breeding females and pups were recorded in the 1980s. However, in 2001 only 3 live pups and c. 6 dead (killed) pups were recorded. Because of the records of pupping on sandy skerries, Ogurchinsky is of scientific as well as conservation interest. However, seal numbers appear to have fallen dramatically in the past few years. At least c. 60 seals were recorded in May 2008, but only 0–4 seals in May–June 2009.

3. **Category 3 sites (Table 1; Fig. 1).** These are sites which are thought to have been used for haul-out by seals in the past, but which appear to have been abandoned as haul-out sites at the present time. **(J) Tyuleni Island and (K) Chechen Island, Dagestan, Russia.** (Tyuleni island is inhabited by meteorological station staff who keep cattle and engage in fishing, while Chechen island is regularly visited by fishermen). **(L) Kulali, Morskoi Islands and archipelago, Kazakhstan.** Although these islands are believed to be established traditional haul-out site for seals, no seals have been observed during winter aerial surveys 2005–09 and during the spring and November helicopter surveys, 2008 and 2009. These islands are frequented by fishermen. **(M) Bautino Bay, Kazakhstan.** There is anecdotal information to suggest that seals used the sand-bar enclosing Bautino Bay for haul-out until very recently; however, there is no detailed information, and no seals have been observed there between 2007 and 2009. Bautino Bay has been recently developed as an oil depot; it is also a long-established fishing harbour and seal-hunting centre. **(N) Shakhova Kosa, Apsheron Peninsula, Azerbaijan.** This site was regularly used by more than 100 seals at a time, counted on surveys in January 1996, June 1997, 2000, and 2001, and March 2002. However, repeated surveys since autumn 2006 have found zero live seals or signs of seals there, with the exception of a record of a transient seal presence in the Shakhova area, apparently following a herring shoal, at the beginning of May 2009. Since 2006 tracks of dogs and jackals have been found on the sand-bar previously used by seals, and evidence of dynamiting fish in the vicinity of Shakhova Kosa has been recorded. **(O) Essenguly, southern Turkmenistan.** Fishermen reported up to 24 seals in April 2007 and 1–5 seals in June–August 2007 (though these seals were probably seen in the water and not at haul-out sites. Protection measures for seals in the Essenguly area could enhance the value of a protected area in the adjacent Gomishan and Miankaleh area of Iran. **(P) Gomishan and Miankaleh coasts, Iran.** This area includes the Gulfs of Gomishan and Gorgan, at the SE extremity of the Caspian, adjacent to the Turkmenistan border, and includes Ashoora Deh island, believed to be former seal haul-out area. Seals have been observed in the water in Gorgan over the past three winters and in Gomishan during winter 2008–09. There are currently several fishing stations in this area. A protected area for seals has been proposed by the CSCN scientists in Iran.

Note that there may be other category 3 sites worthy of consideration for restoration of seal habitat, but for which we have at present no information, eg a coastal stretch in Dagestan adjacent to the border with Azerbaijan.

#### d. Seal migrating and foraging areas at sea

1. **The problem.** Conflict with both commercial and illegal fisheries is known to cause hundreds, possibly thousands, of Caspian seal deaths every year and in

many parts of the Caspian. Studies to investigate the types of fishery involved and to quantify seal mortality have now been carried out in Iran in 2000–01 and 2006–present, in Azerbaijan from 2006–present, in Dagestan in 2009, and in the Ural delta in Kazakhstan in 2009. The results of these preliminary studies have indicated that there are several types of fisheries-related seal deaths, which may include the following:

1. Seals swimming underwater become entangled and drown in monofilament 'wall' nets set for sturgeon, mullet or other fish.
2. Seals swimming in the sea become entangled in pieces of discarded monofilament net and either drown immediately or become wounded or immobilized.
3. Seals following shoals of herring or kilka close to fishing boats are harpooned by fishermen
4. Seals following shoals of mullet or kutum may become trapped in encircling 'pareh' nets and then be dragged ashore in the net and killed

Thus some seals become entangled while just swimming about or foraging in the water, while others are killed because they have come into direct conflict with fisheries when both seals and fisheries are targeting the same shoal of fish.

Accidental entanglement ('by-catch') may affect as many as 50 or more seals per kilometer of net set, depending on the season. Seals of all ages may be affected and juveniles are especially vulnerable. In many cases, seals caught in fishing nets in the north Caspian are taken to Dagestan for commercial skin processing; this appeared to have happened in the case of two of five juveniles fitted with satellite tags (by the CISS team) in Kazakhstan in 2008. In other cases the blubber of the seals may be taken for crayfish bait, or boiled down to be sold locally as medicinal oil. The scale of by-catch mortality may be several thousand animals a year, and may occur at any time of year, but appears to be most frequent in some areas when the seals are migrating. Large-scale mortality, thought to be a result of fishing by-catch, has occurred in Kazakhstan during the spring when seals are moving south. Seal mortality since 2006 in Azerbaijan has been greatest between October and January, when breeding seals are passing Azerbaijan as they head towards the north Caspian ice. Casualties at this time of year include many pregnant females.

Death resulting from direct conflict with fisheries may sometimes be diagnosed by the types of injury in the dead seal – such as harpoon holes in the body or broken skull. Considerable work has been done in Iran in investigating and quantifying this type of seal mortality, and since 2006 much progressive work has been carried out by the Darwin project seal team in Iran by holding workshops with fishermen and game wardens and developing a programme of incentives to fishermen to release trapped seals unharmed and to reduce harpoon mortality.

A further anthropogenic threat to seal foraging areas is local overfishing of commercial species using modern recently introduced methods such as radar detection of fish shoals and luring of kilka using underwater lights. This may result in (i) seals switching their diet from optimum prey species (such as herring or kilka) to low energy species, such as gobies, (ii) increasing encounters and conflicts between seals and fishing boats and nets, as seals and fisheries target the same fish shoals, and (iii) seals abandoning an area where their fish prey are scarce.



- 2 At-Sea SSPAs as a potential solution to fisheries-related seal mortality.** It is probable that killing of seals in fisheries is probably best approached by community programmes such as those now running on the Iranian coast, while SSPA creation could have a significant impact on accidental entanglement in set nets and discarded nets.

The following steps could be needed in the development of a Sea Area foraging SSPA:-

1. Identify areas where seals are frequently caught in nets; define the season most at risk (numbers of seals caught per km of set net) and the type of nets (design, length, material, mesh size, length of setting time).
2. Identify approximate sea areas where seals frequently spend time – these are usually foraging areas. These areas can be located by fitting seals with satellite tags and recording their locations. Preliminary research in this area is currently ongoing in Kazakhstan by the CISS team and will need to be extended to other areas of the Caspian for future management of seal-fisheries interactions.
3. From these data (1 and 2 above), propose sea areas where seals might most benefit from SSPA measures, and define these areas.
4. Describe the type of protection needed, with any seasonal variation. Types of protection might include:-
  - (i) Prohibiting fishing with monofilament wall nets in some or all parts of the area and in some or all seasons of the year.
  - (ii) Modifying fishing techniques or fishing net types to reduce seal entanglement.
5. Devise ways with the local community of making this feasible. This might involve
  - (i) Community workshops to understand the impact of monofilament wall nets and discarded nets on seals and understand the feeding requirements of seals and the dangers to seals from fishing net.
  - (ii) Suggesting alternative income sources for periods when fishing in an SSPA is prohibited. Setting up small businesses (such as land-based aquaculture, ecotourism-related enterprises, maintaining and monitoring SSPA)
  - (iii) Funding to subsidise changes to fishing practices, new businesses, or maintaining and monitoring SSPA ('poacher turned gamekeeper').
6. Regulate fishing methods and effort where appropriate in order to conserve local fish stocks and protect benthic fish habitats.

### **3. Type of area that might be selected for an at-Sea SSPA**

SSPA areas would most probably be in shallow water, where wall nets are most likely to be set. This means they could be anywhere in the north Caspian, or in coastal areas of the middle and south Caspian. They might be in a coastal sea area in the vicinity of haul-out sites (eg the coastal waters between Zhilhoj Island and the eastern aspect of the Apsheron peninsula, or the coastal area between the Kulali archipelago and the Mangyshlak Peninsula), or they might include an identified foraging area further out to sea. For example, three juveniles with satellite tags fitted by the CISS team in November 2008 repeatedly

visited the same sea area about 45–60 km from their haul-out site and about 20–30km to the west of the Mangyshlak peninsula coastline, in water depths of between 15–30m. Since two of these three juveniles appear to have been caught in nets, this area could be one which might be considered as a candidate SSPA.

#### **4. Selection of At-Sea SSPAs**

It is suggested that stakeholders might consider nominating an area in which (i) they think that an At-Sea SSPA might benefit seals, (ii) where working successfully with the fishing community to achieve success might become a reality, and (iii) where monitoring fishing effort and by-catch and where satellite tagging, where appropriate, would be feasible. Perhaps not more than one At-Sea SSPA will be attempted as a feasibility study on behalf of the entire region during the Caspeco project period.

### **IV. PROPOSALS FOR SPECIFIC CANDIDATE-SSPAS**

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Representatives of each Caspian littoral State may propose one or more candidate SSPAs in their territory, in categories 1, 2 or 3. Candidate SSPAs (c-SSPAs) should be proposed on the basis of their potential for measurable and verifiable improvement of seal conservation status (this may require a period of baseline monitoring as well as monitoring at the SSPA after conservation measures have been put in place). Country representatives, with advice from the University of Leeds team and the Caspian Seal Conservation Network (CSCN) scientists in their country, should prepare a preliminary proposal for potential site or sites. The proposal should include:

1. Location, area and approximate boundaries of Site or At-Sea Area for the candidate SSPA(s)
2. Description of Site or At-Sea Area
3. A summary of any baseline or historical data on seal usage of the Site or At-Sea Area
4. Present perceived conservation threats to the seal at this Site or Sea Area
5. Proposed benefits to the seal at this Site or At-Sea Area from the SSPA designation
6. Conservation measures to be implemented at this c-SSPA, with itemized estimated cost, including costs of staff and equipment.
7. Verifiable seal monitoring programme at the candidate SSPA Site or At-Sea Area with itemized estimated cost, including costs of staff and equipment.
8. Potential contribution by Littoral State Government to SSPA implementation costs

### **V. DEVELOPMENT OF A COHERENT PAN-CASPIAN SSPA NETWORK**

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As soon as preliminary c-SSPA proposals have been developed by the representatives of each Caspian littoral State, a meeting will be convened to discuss all aspects of the proposals in a regional forum. CSCN scientists, government representatives and relevant NGOs should be present at this meeting. The aim of the meeting would be (i) to formulate a plan for a coherent, pan-Caspian SSPA network in order to benefit the conservation status and welfare of Caspian

seals throughout the region, and (ii) to evaluate and develop proposals or SSPAs. This plan will include proposals by countries to establish a project Seal Centre in their country. It is currently envisaged that a Regional Seal Centre will be established in Kazakhstan (either Atyrau or Aktau), with links to sister Seal Centres which currently exist or may be established in the coastal areas of other Caspian countries.

The ultimate aim of this SSPA programme is to reverse the downward trend in the Caspian seal population by eliminating threats and by protecting or creating essential habitat. Since the Caspian seal species consists (so far as is known) of a single, transboundary population, it is vitally important for the effectiveness of the SSPA project that the SSPAs chosen are selected strategically in such a way that they will form a coherent network that will benefit seals as they travel through and occupy different habitats and regions for breeding, moulting and feeding at different seasons.

All five Caspian countries have a joint responsibility for conserving the species. Such a joint responsibility is a very different concept from that of dividing hunting or fishing quotas from a shared resource, as is the concept of the Caspian Aquatic Bioresources Commission (CAB). By contrast, development of the SSPA network will require funds to be contributed by the littoral State governments, and it will be understood that the economic benefits of this investment will be long-term, and will be in the form of reshaping the infrastructure and livelihoods of some coastal Caspian communities in a more sustainable framework than at present. Much educational and PR effort in the media must be made, both at community and regional levels, to promote understanding of the aims of the project and gather support.

The aims of designing a coherent network of SSPAs as outlined in this document would fulfill many of the aims set out in s.2 of the 2007 CSCAP, which has already been ratified by the Governments of all Caspian littoral States. Further, the proposed attention to Sea SSPAs would focus much attention on sustainable fishery methods and conserving fish stocks, and thus promote the ecosystem-based approach of the CaspEco project.