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EUROPEAN UNION MANAGEMENT PLAN 2009-2011

SCAUP

Aythya marila

EUROPEAN COMMISSION

environment

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EUROPEAN UNION MANAGEMENT PLAN FOR Scaup *Aythya marila*

2009 - 2011

The European Commission (DG ENV B2) commissioned this Management Plan for Scaup.

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Executive summary

The Scaup *Aythya marila* is listed on Annex II/2 of the EU Birds Directive as a species for which hunting can be permitted only in some countries. However, the Scaup is identified as having unfavourable conservation status within Europe and the EU 25 because of large declines during the 1990s, being now evaluated as Endangered in Europe and the EU. Indeed it is the only Annex II species that it is endangered at European level, while the Black-tailed Godwit is now globally near-threatened.

The breeding range in Europe is restricted to Iceland, Norway, Sweden, Finland, Estonia, Germany and the European part of Russia. With the possible exception of the population in Iceland the breeding numbers in the Nordic countries declined much over the last 100 years.

In addition to the North west European breeding population, birds from the much larger Russian population winter in the EU, mainly in coastal waters of the Netherlands, Germany, Poland and Denmark. Britain and Ireland apparently host the bulk of the Icelandic breeding population over winter. Due to its partly nomadic behaviour outside the breeding season, numbers in wintering areas often fluctuate widely. The number of wintering Scaup in the EU underwent a very large decline (> 50%) during 1990-2000.

The reasons for the dramatic European population decline are not well understood. However, main threats to wintering Scaup in the EU appear to be (1) degradation of wintering habitat, (2) drowning in fishing nets, (3) oxygen deficiencies in wintering areas, (4) pollution – especially oil spills and (5) disturbance in wintering and breeding areas. The hunting take is small. The causes for the decline of the EU breeding population are largely unknown but human disturbance is suspected to be important.

This Plan outlines management prescriptions that aim to reverse the negative trend. It is aimed at all Member States with breeding, staging or wintering populations of Scaup. This plan outlines the actions to be taken in the period 2009 - 2011. It is the responsibility of the relevant authorities of each Member State to decide how to implement the management prescriptions of this plan. It should be followed by new versions with revised objectives that take into account the results achieved during the first phase.

The long-term objective (10 years) of the plan is to restore the Scaup to a favourable conservation status in the EU. The short-term (3 year) objectives, which are outlined in this plan are to (1) protect the wintering, staging and moulting habitats through site safeguard and control of shell fisheries and disturbance, (2) identifying and address the causes of the decline of the breeding population e.g. disturbance, (3) take action to stop drowning in fishing nets, (4) avoid oil spills, (5) introduce voluntary temporary hunting ban if appropriate and (6) collect better data on size of winter population, mortality, breeding success and links between breeding and wintering populations. To achieve these short-term objectives the plan specifies the following results to be reached during the initial three-year period:

1. A temporary voluntary hunting ban for Scaup is encouraged in Member States where the Scaup is still legal quarry, if appropriate.

2. An estimate of the annual number of Scaup shot is available from all Member States where hunting continues.

3. Important breeding sites for Scaup are identified and protected, including as SPAs as appropriate, with management plans, and the population sizes and trends are regularly monitored as part of a national monitoring program in place by the end of 2011.

4. Management actions are taken to reduce nest losses due to predation by man-induced terrestrial or avian predators.

5. All major wintering, staging and moulting sites are protected, both the roosts and feeding areas, as SPAs with management plans that focus on the needs of Scaup.

6. The need for restrictions of fishing activities to reduce by-catch is assessed where flocks of moulting and wintering Scaup regularly occur and in the breeding areas where necessary action is taken to regulate significantly damaging operations without delay.

7. On basis of an extensive research, the needs for restrictions of shell fishing activities in the Waddensea for the conservation of the population of Scaup are assessed. If necessary, supportive actions to regulate significantly damaging shell fishing activities are urgently implemented.

8. Improved pollution prevention and improved oil spill contingency planning is in place in the Baltic Sea and other marine areas important to Scaup.

9. By the end of 2011 a program for a complete census of all wintering and moulting areas of international importance for Scaup within the EU is developed and subsequently implemented. The programme should, as a minimum, include mid-winter counts every third year and surveys of moulting areas in August every six years.

10. The Member States with the main breeding populations of Scaup (Sweden, Finland and Estonia) support research that provides improved knowledge about survival rates and fecundity which allows modelling of population development and assessment of effects of additional mortalities (such as hunting, by-catch, disease outbreaks, localized impacts on survival and reproduction).

11. Research on the population structure and relatedness of the different geographic segments is supported, including the fidelity to breeding, staging and wintering sites.

0. Introduction

The Scaup *Aythya marila* is listed on Annex II/2 of the EU Birds Directive as a species for which hunting is permitted in a limited number of Member States (Belgium, Denmark, Germany, Greece, France, Ireland, Latvia, Netherlands, Romania and United Kingdom*)*. Currently there is only an open season in six EU Member States (Denmark, France, Germany, Greece, UK and Ireland).

The Scaup has been identified as having an unfavourable conservation status within Europe and the EU. It is a Category 3W Species of European Conservation Concern (SPEC) as less than half its global population is concentrated in Europe. During the 1990s it underwent such large declines in its northwest European wintering population that it is classified as "Endangered" in Europe and the EU (BirdLife International 2004a). The EU breeding population has been suffering large declines since at least the 1970s.

It is therefore important to assess the current conservation status of this species and available research information in order to appraise the current effectiveness of conservation actions, identify reasons for the observed trends and recommend options for future management to reverse the downward trend in numbers. Hence, this plan will focus upon the full implementation of the provisions of the Birds Directive as these apply for this species.

The overall format of this management plan follows the Single Species Action Plan format developed by BirdLife International for the UNEP/AEWA Secretariat. However, some parts of the plan including some tables have been modified to make it meet the specific need of a plan that covers a relatively localised species in the EU.

Ideally, the management prescriptions of this plan should cover the entire geographical range of Scaup populations concerned. However, as the implementation of the plan is part of the fulfilment of the EU Birds Directive the geographical scope of the plan is at this stage limited to the 25 EU Member States.

The first chapter of the management plan presents key information on the Scaup population. The second chapter provides tables with detailed information on the breeding and wintering populations that occur in Europe with the focus on the 25 EU Member States. Chapter 3 analyses the threats that are believed to be the causes of the decline, while chapter 4 lists the policies and legislation relevant for Scaup management in Europe.

Chapter 5 evaluates the status for Scaup in the EU and sets out long-term and immediate objectives for its future management.

Chapter 6 describes the actions to be taken in the EU for the period 2009-2011. These activities cover Member States with breeding, staging or wintering Scaup.

It is the intention that this management plan shall be revised after three years.

1. Biological Assessment

General information	The Scaup breeds at high latitudes across northern Eurasia and North America. The nominate subspecies occurs in western Eurasia where it breeds in Iceland, Scandinavia and northern Russia east to Lena River and along the Baltic coasts in Sweden, Finland, Estonia, with a few pairs in Germany. This European breeding population constitutes 25-49% of the global population. This population winters in the western Baltic, along the coasts of the North Sea and around the Black and Caspian Seas. In winter, the majority are concentrated in few areas. While the EU breeding population at 1,200-2,100 pairs is small compared to the European population (180,000-190,000 pairs), the winter population (100,000) forms a high proportion of the European total (>120,000). The breeding population in Europe and EU underwent a large decline between 1970 - 2000. Between 1990-2000 the key winter populations in Europe underwent a very large decline (>50%) and the Scaup is now evaluated as Endangered in Europe and the EU, thus being the most threatened Annex II species apart from Black-tailed Godwit.
Taxonomy	The Scaup is polytypic with two subspecies recognised. The nominate form occurs in north Europe, and Asia east to about Lena River. *A.m. mariloides* is found further east on northern Asia and western North America.
Populations	Within Western Eurasia two populations are recognised on the basis of the main wintering areas: a population wintering in northwest Europe and a population wintering in the Black Sea and Caspian Sea. In the following we will focus mainly only the northwest Europe population, although comparisons with the Caspian/Black Sea population may be important in trying to understand the causes of the declines.
Population developments	**Breeding** The breeding range of Scaup in Europe is concentrated in Russia (170,000-180,000 pairs) with no more than 5% beyond, mainly in Iceland which has 3,000-5,000 breeding pairs but also around 1,000 pairs in each of Norway, Finland and Sweden, about 50 pairs in Estonia and 5 pairs in Germany (BirdLife International 2006). The population of 900-1,100 pairs from Finland (BirdLife International 2006) stems from field studies made during 1995-98 and is considered too large for the present situation

The population breeds mainly along the Baltic coast; the northernmost Lapland holding only about 50 pairs. Bulk of the population nests in a relatively small area immediately south of the Quark, Gulf of Botnia, one of the few regions with densities comparable to the Scaup main breeding area on the Russian tundra (Haldin 1997). Smaller local populations in the southern bay of Botnia have undergone large declines during the last ten years and several were extinct by 2006 (Hario and Rintala 2007). Also the population in the Quark declined by 40% from the 1950s to the 1980s (Hilden *et al.* 1995), but during the 1990s it kept relatively constant. An up-to-date inventory in the Quark is urgently needed.

Sweden has a population of 250-1,000 pairs following declines of more than 80% during the 1990s (BirdLife International 2006). They are mainly found in the north west on mountain lakes surrounded by birch forest. Less than 200-300 pairs breed along the coast of the Baltic Sea from Gotland northwards (SOF 1990, Haldin 1997). The Swedish population has been declining greatly over the last 100 years particularly in the southern part of its range (SOF 1990). In the Stockholm archipelago, a 50% reduction in breeding numbers was observed between 1937-38 and 1974-76 and numbers along the Baltic coast are still declining (SOF 1990).

It has been a regular breeder since the 1950s in **Estonia** with a small and declining population of some 50 pairs in the 1990s (Haldin 1997, Snow & Perrin 1998, BirdLife International 2006). A population of 5 pairs has now established in **Germany** (BirdLife International 2006).

The Icelandic breeding population, estimated at 3,000 – 5,000 pairs, is the largest remaining in north west Europe and is considered largely stable (BirdLife International 2006). Some 1,000-1500 pairs breed in Norway (BirdLife International 2006) where it was believed to be considerably more common in the 19th century (Haftorn 1971).

With the possible exception of the population in Iceland the breeding numbers in the Nordic countries have declined much over the last 100 years. Since the mid-1960s these breeding populations have been characterized by large fluctuations and in some areas the population has declined quite drastically, while in others the mean population size has remained stable over long periods (Haldin 1997).

Wintering

The Scaup is mostly migratory although small numbers in the southern part of the breeding range may stay close to the breeding area. It is highly gregarious outside the breeding season and often congregates in large flocks of several thousands at sea and in large inland lakes. In severe winters it is estimated that over 90% of the Scaup that winter in northwest Europe are concentrated in fewer than ten sites (Tucker & Heath 1994).

In most winters the majority occur in coastal waters of the Netherlands, Germany, Denmark, Poland and the UK (Tucker & Heath 1994, BirdLife International 2004a), however due to its partly nomadic behaviour outside the breeding season numbers in wintering areas often fluctuate widely (Snow and Perrins 1998).

The Northwest European wintering population was estimated at 310,000 in the late 1980s by Laursen *et al.* (1997) It was believed to be largely stable between 1970 and 1990 but declined significantly in all key wintering countries between 1990 and 2000 (BirdLife International 2004a) and in 1997-1999 only 54,000 – 129,000 Scaup were recorded (Gilissen *et al.* 2002).

The **Netherlands** and **Germany** have by far the biggest EU wintering populations of Scaup.

The **Dutch** number of wintering Scaup fluctuated between 70,000 and 130,000 between 1979-1988 (Tucker & Heath 1994), between 29,000 and 73,000 between 1997 and 1999 (Gilissen *et al*. 2002) and down to 53,000 in 1999-2001 (BirdLife International 2004a). In December 2002, 120,000 were counted (van Roomen *et al.* 2004), but the observed decreasing trend has continued in recent years (van Roomen *et al*. 2005).

In **Germany** the winter population was estimated at 30,000 – 55,000 in 1982 (Tucker & Heath 1994), 14,311 – 57,350 between 1997-1999 (Gilissen *et al*. 2002) and at 20,000-80,000 in 1995-2000 (Wahl et al. 2003; BirdLife International 2004a).

In **France**, a small (marginal) population winters in a few sites. The distribution and number has undergone a rapid decline since 1994 (Deceuninck *et al*. 2006). Only a few hundreds birds were counted in 2005 and 2006, while average numbers peaked at 2,200 in the years 1980-1990 (LPO-Wetlands International 2006).

Prior to the 1970s the **Danish** waters were probably the most important wintering area for the northwest European winter population (Pihl *et al*. 2003). When the first counts of the marine area of Denmark were carried out from airplanes in 1969-1973 between 42,000 to 95,000 were observed (Joensen 1974). During aerial counts between 1987 and 1991 only 13,000 – 38,000 were located (Laursen *et al.* 1997) and in January 2001 only 9,100 Scaup were observed in Danish waters (Pihl *et al.* 2001).

There appears to have been a shift in wintering areas for Scaup from the shallow Danish waters towards the south-eastern part of the Baltic off **Poland, Latvia** and **Lithuania**. Now Danish numbers can be exceeded by those in Poland and the UK.

The population wintering in **Britain** (9,200 birds) and **Ireland** (1,500-3,000 birds) is composed mainly of Icelandic birds, but also contains some birds of continental origin, especially in cold winters (Kirby *et al.* 1993). The British population is now concentrated on the Solway Firth.

In addition to the Northwest European population some 100,000-200,000 Scaup, presumably of Russian breeding origin, winter in the Black and Caspian Seas (Rose & Scott 1996).

Population assessment

The Scandinavian and Finnish breeding population have been in decline since at least 1970, while the trend in the large Russian population is unknown.

Recent numbers of wintering Scaup in northwest Europe are significantly lower that figures from the late 1980s. However, numbers fluctuate much even between successive years. This is probably caused by its nomadic and highly gregarious behaviour outside the breeding season. If just a few large flocks are overlooked during winter counts, this has a significant influence on the total number recorded.

The overall trend in numbers of wintering Scaup in northwest Europe seems to be a large decline. This has been particularly notable in Denmark, but also in the Netherlands where numbers are lower now than in the 1970s. The trend in Germany between 1990 and 2000 is one of decline (Wahl *et al*. 2003), but is less clear because numbers fluctuate widely between winters.

Distribution throughout the annual cycle	In the west Palaearctic only small numbers of males have been recorded making post-breeding movements to moulting sites, in particular to the Ijsselmeer in the Netherlands where up to 1,000 moulting males have been recorded in late July (Cramp & Simmons 1977). Migration away from the breeding areas in northern Russia starts in mid-August to early September. The migration peaks in the Baltic region are in October, and Scaup arrive in the Netherlands and Britain in late October to December (Cramp & Simmons 1977, Rose & Scott 1996). Migration is mainly recorded in coastal areas. The species seems to be nomadic in winter. The main wintering area in northwest Europe used to be the brackish inner Danish waters where it mainly occurs off the east coast of Jutland and south of Funen, along the German Baltic coast and the Dutch Waddensea and Ijsselmeer. Since the early 1990s it seems to have shifted along the north coast of Poland in some years (Durinck *et al.* 1994) along with Latvia and Lithuania. Usually numbers in the Netherlands peak in January/February (Van Roomen *et al*. 2004). Return migration begins in late February with the main passage through the Baltic region in May. The birds arrive at the main breeding areas on the Russian tundra in late May or early June (Cramp & Simmons 1977).
Survival and productivity	The annual mortality among adult birds ringed in Iceland in the 1950s was 52% (Boyd 1962) and almost nothing has been published regarding the European population in the subsequent decades. This excludes the possibility of making meaningful analysis of annual mortality or survival of this species in Europe and the EU. Annual mortality of wintering birds in the IJsselmeer by drowning in fishnets is estimated at 10-20 % (data from 1978-1990, Van Eerden *et al.* 1999). There is very little published productivity data for the Scaup. In a study from Alaska the survival of Scaup was monitored during two successive years (2002-2003). Estimated duckling survival to 30 days was 0.24 in 2002 and 0.03 in 2003. Gull predation is suspected to be the cause of the low survival in 2003 (Walker & Lindberg 2005). In a three-year study in Finland, nest losses (n=137 nests surveyed) amounted to 13%, mostly due to flooding, and brood losses ranged 68-90% resulting in fledging rates of 0.23-1.02/pair (Hilden 1964).

Life history	Breeding	Feeding	Outside breeding season
	According to Haftorn 1971 and Cramp & Simmons 1977: Breeding starts in June (Norway). The nests are usually near water. In some coastal areas nests are associated with colonies of gulls and terns. Nests are usually hidden under bushes. Clutch size is normally 6 –11. Incubation 27 – 28 days. Fledging period c. 35 – 40 days. Age of first breeding 2 years.	According to Snow and Perrins 1998: Omnivorous, though molluscs predominate in many Palaearctic wintering areas. In the Ijsselmeer the birds predominantly feed on the colonized stock of zebra mussel *Dreissena polymorpha* (van Eerden and Zijlstra 1986). In the Dutch Wadden Sea the main food is young Mussels (*Mytilus edulis*). In the western Baltic the birds feed preferably on *Mytilus* spp. (e.g. Böhme 1993). At lake Myvatn in Iceland they mainly feed on aquatic insects (Chironomidae and Simuliidae) (Gardarsson and Einarsson 2004). The birds feed by diving, preferring water 6 – 12 m deep, but frequently reaching 30 m (Madsen 1954, Cramp and Simmons 1977). Scaup in the Ijsselmeer prefer to feed in shallow waters, up to 5 m deep (de Leeuw 1999). The large population that used to winter in eastern Scotland fed on waste grain expelled from distilleries via sewage outfalls but seriously declined due to the introduction of modern sewage systems (Campbell 1984).	This species generally winters at sea and, to a much lesser extent, at large inland lakes. During daytime the birds regularly form large flocks near shore or on coastal lakes, sometimes mixing with Tufted Duck *Aythya fuligula*. On the Baltic coast these flocks feed during the night on shallow banks with mussel beds or sea grass beds offshore.

Habitat requirements	**Breeding/moulting** The large Russian population mainly breeds on shallow lakes and pools in low arctic or sub-arctic tundra and wood tundra zones at high latitude (Snow and Perrins 1998). In Fennoscandia Scaups breed in two rather different habitats: on mountain lakes in upland birch region (Haapanen and Nilsson 1979), and on small islands and skerries in the outer archipelago of the Baltic Sea. In Finland it almost exclusively breeds on small islands along the Baltic coast. The Scaup is not colonial but in dense breeding areas nests are sometimes within 1 m of each other (Snow and Perrins 1998). **Winter** In winter it mainly occurs in dense flocks of hundreds or thousands along the coast, on brackish lagoons, in estuaries and in sheltered bays and shallow marine waters. It is sometimes also found on inland seas and, less commonly, on large lakes. In the Netherlands very large concentrations winter in the Ijsselmeer/Markermeer area - large freshwater lakes where they are exploiting Zebra Mussels. Scaup wintering in north European seas and Dutch Ijsselmeer feed at night (Nilsson 1969, Kirby *et al.* 1993), while those in the south feed during the day (Cramp and Simmons 1977). They usually concentrate where large food resources, such as mussel beds or waste grain from sewage outfalls, occur. When wintering on coastal lakes they appear to fly offshore to feed at night e.g. on the German Baltic coast (Leipe 1986). In freshwater habitats Scaup is often associated with Pochard *Aythya ferina* and Tufted Duck *A. fuligula*.

Table 1. *Geographical distribution of Scaup Aythya marila during the year (EU 25 only)*

Breeding	**Formerly breeding** *(date of extinction)*	**Migrating** *(July – October & February – May)*	**Non breeding visitor** *(October – March)*
• Estonia • Finland • Sweden • Germany	-	• Finland • Estonia • Latvia • Lithuania • Netherlands • Poland • Sweden • Denmark • Germany	• Austria • Belgium • Denmark • Estonia • Finland • France • Germany • Greece • Italy • Latvia • Lithuania • Ireland • Netherlands • Poland • Spain • Slovakia • Portugal • Sweden • UK

Information about breeding and prenuptial periods available in "Key Concepts of Article 7(4) of Directive 79/409/EEC"

2. Available key knowledge

In a number of tables, this chapter provides a summary of up-to-date knowledge on the size of breeding and wintering populations and trends of the populations of Scaup that occur in the EU. Furthermore, knowledge on bag statistics is shown in Table 4.

Table 2. *European breeding population of Scaup Aythya marila.*

Country	Breeding pairs	Quality	Year(s) of the estimate	Breeding population trend direction and magnitude (%)	Reference
Estonia	30-60	2	1998	decreasing 20-29	BirdLife International 2006
Finland	900-1,100	2	1999-2001	stable 0-19	BirdLife International 2006
Germany	5	1	1995-1999	increasing 30-49	BirdLife International 2006
Iceland	3,000-5,000	2	2000	increasing 0-19	BirdLife International 2006
Norway	1,000-1,500	3	1990-2003	stable 0-19	BirdLife International 2006
Russia	170,000-180,000	2	1990-2000	stable 0-19	BirdLife International 2006
Sweden	250-1,000	3	1999-2000	decreasing ≥80	BirdLife International 2006
Totals	**175,000-189,000**				

Breeding population data quality:
1: reliable quantitative data, 2 incomplete quantitative data, 3 no quantitative data

Table 3. *Wintering population numbers of Scaup Aythya marila in Europe.*

Country	Wintering population (individuals)	Quality	Year(s) of the estimate	Trend in numbers	Baseline population	Reference
Albania	1-6		1995-2002	(F)		BirdLife International 2004a
Austria	72-131	1	1997-1999	?	-	BirdLife International 2004a
Belgium	0-30	1	1995-2000	0	-	BirdLife International 2004a
Croatia	11-100	3	2002	?	-	BirdLife International 2004a
Denmark	9,100	3	2001	- 2	-	Pihl *et al*. 2001
Estonia	100-500	2	1998	0	-	BirdLife International 2004a
Finland	10-50	2	1999-2001	0	-	BirdLife International 2004a
France	2,000-3,000 750-2400	1	1998-2002 2000-2006	-1	1993	BirdLife International 2004a Deceuninck et al. 2006
Germany	20,000-80,000	1	1995-2000	- 2	-	BirdLife International 2004a
Greece	0-7	2	1995-1999	0		BirdLife International 2004a
Hungary	5-30		1997-2001	F		BirdLife International 2004a
Iceland	10-150		1978-1994	0		BirdLife International 2004a
Ireland	1,500-3,000		1994-2000	-		BirdLife International 2004a
Italy	100-400	2	2002	0	-	BirdLife International 2004a
Latvia	0-200	1	1990-2001	F	-	BirdLife International 2004a
Lithuania	0-10	1	1992-2002	0	-	BirdLife International 2004a
Moldova	20-235		1990-2000	0		BirdLife International 2004a
Netherlands	53,000 (120,000)	1	1999-2001 Dec 2002	- 2	-	BirdLife International 2004a, (van Roomen et al. 2004)
Norway	500-2,000	1	1993-1996	0	-	BirdLife International 2004a
Poland	5,000-15,000	3	1992-1997	F	-	BirdLife International 2004a
Portugal	Present					BirdLife International 2004a
Serbia & MN	5-20	1	1990-2002	F	-	BirdLife International 2004a
Slovakia	0-70		1995-1999	?		BirdLife International 2004a
Slovenia	0-20		1990-2000	F		BirdLife International 2004a

Spain	4-27	1	1990-2001	0	-	BirdLife International 2004a
Sweden	1,000-1,500	1	1998-2001	+2	-	BirdLife International 2004a
Switzerland	14-44		1998-2002	F		BirdLife International 2004a
UK	9,200	1	1990-1999	-1	-	BirdLife International 2004a Kershaw, M., & Cranswick, P. A. 2003.
Total	**> 120,000**					BirdLife International 2004a

Wintering population data quality:
1: reliable quantitative data, 2 incomplete quantitative data, 3 no quantitative data

Wintering population trend: + 2 large increase, + 1 small in crease, - 2 Large decrease, - 1 Small decrease, 0 Stable, F Fluctuating.

Table 4. *National conservation and hunting status and bag statistics of Scaup Aythya marila in the European Community.*

Country	Status in national Red Data Book	Hunting Status	National open season	Regional open season	Annual bag size (period)	Annual Statutory Bag Statistics	Highest responsible national authority
Belgium		P					
Denmark	-	H	1 October - 31 January	None	300 (2001-2002)	Yes	Ministry of Environment
France	Rare (red list)	H	21 August - 31 January[1]	-	100 - 200	No	Ministry of Environment
Germany	-	H/P	1 October - 15 January	Protected in some regions	c. 500	Yes, but for "Ducks" as a group	-
Greece	-	H	15 September - 10 March		?		-
Latvia		?			?		
Netherlands	-	P	1 September - 31 January		-	-	-
UK (Northern Ireland)	-	H	1 September - 31 January		?	-	-
Ireland	-	H	1 September - 31 January	-	?	-	-
Total					***c.* 2,000**		

Key: P = protected; H = species is huntable and open season declared.

[1] Only hunting from the coast and inland as hunting at sea has been prohibited in France since 1968.

3. Threats

This chapter gives an overview of current human activities that are believed to have a negative impact on the European population of Scaup. To describe the importance of threats to the European Scaup population, the following categories are used:

> Critical*:* a factor causing or likely to cause **very rapid declines** (>30% over 10 years);
> High: a factor causing or likely to cause **rapid declines** (20-30% over 10 years);
> Medium*:* a factor causing or likely to cause relatively **slow, but significant, declines** (10-20% over 10 years);
> Low: a factor causing or likely to cause **fluctuations**;
> Local: a factor causing or likely to cause negligible declines;
> Unknown: a factor that is likely to affect the species but it is unknown to what extent.

1. Habitat loss/degradation (human induced)

Breeding

Almost nothing appears to be known about the causes of the decline in the breeding population in Scandinavia, Finland and Estonia.

Outside the EU, in the north eastern tundra of European Russia (where most of the European wintering population nests), breeding densities of Scaup and other duck species are also thought to have declined. Breeding reductions in some of these areas are thought to be due to factors associated with **oil and gas exploration** including habitat modification, pollution and an increase in hunting activity (Mineyev 1998).

Wintering

Losses of feeding opportunities in some wintering areas of the Scaup are considered to be a problem.

Over-harvesting of mussels and cockles in the Dutch Wadden Sea has been shown to have a dramatic impact on the distribution of Eider *Somateria mollissima* (Piersma and Camphuysen 2001, Reneerkens *et al*. 2005), and may also lead to degradation of feeding opportunities for Scaup. The over-harvesting of *Spisula subtruncata* in the Dutch North Sea may be significant to Scaup as well.

Eutrophication causes a decline in the extension of sea grass *Zostera* spp. beds, an important feeding habitat in spring during the spawning season of herring in the western Baltic Sea, as well as an oxygen deficiency in marine waters which may lead to serious negative impact upon the food resources of the Scaup.

On the other hand eutrophic water can cause artificially high concentrations of Scaup, as in Britain where large concentrations were found in the Firth of Forth, until sewage treatment was improved in the 1970s (Campbell 1984).

Poorly located **offshore wind farms** also pose a potential threat.

Offshore extraction of sand and gravel in the Baltic Sea is usually done in the shallows which form the most important feeding grounds and might result in a reduction in feeding grounds.

The **milder winters** experienced over the last 10-15 years, which are often considered to be mainly human induced, seem to have caused a shift in wintering areas for Scaup from the shallow Danish waters towards the south-eastern part of the Baltic of Poland, Latvia and Lithuania.

Importance

For **areas of breeding** in the EU the importance of habitat loss/modification is set at Unknown.

For the **wintering areas** in the EU the importance of habitat loss/modification for the European wintering group is set at Unknown.

2. Harvesting

According to the Birds Directive, the Scaup may be hunted in then EU countries but does not appear to be commonly hunted in any of these with reported bag figures indicating a few thousand birds killed annually overall.

Breeding/staging

Subsistence spring hunting is reported on a serious scale in the Russian breeding grounds (Cramp & Simmons 1977) and may have recently increased because the increase in oil and gas exploitation has improved access to these areas (Mineyev 1998).

Winter

With a population of > 120,000 birds an estimated annual bag of *c* 2,000 birds in the EU (Table 6) or about 2,500 including crippling (Mooij 2005) do not constitute a significant threat to the north-west European population amounting to no more than 2% of the population. However, in a severely declining species, the mortality from hunting is likely to be additive.

In Denmark, which used to have one of the largest documented takes, the annual bag has declined significantly. In the late 1960s the average bag was c. 7,000 (but with large variations between years), while in the second half of the 1990s it was down at less than 1,000 (Bregnballe *et al*. 2003). In the 2002/2003 hunting season the take was estimated at less than 300 (Clausager 2004).

Hunting bag records are not always species specific; e.g. in Denmark where Scaup are grouped with nine other diving duck species, which may lead to errors in estimating the annual take for a single species. In Denmark the number of the individual species is estimated from (small) samples of wings sent in by the hunters.

Importance

- For the northwest European wintering group the importance of hunting is provisionally set at Low.

3. By-catch

Drowning as a result of by-catch appears to be widespread, in particular in the Baltic Sea.

It is judged to be an important problem for wintering Scaup off the **Latvian, Lithuanian, Polish and German coasts** as well as in **Dutch** waters (Grimm 1985, Stempniewicz 1994, Van Eerden *et al*. 1999, Zydelis and Dagys 2000).

In **Poland** Stempniewicz (1994) estimated that more than 1,300 Scaup drown in nets annually in the Gulf of Gdańsk resulting in a mortality of 10.6 % of the maximum number recorded. On the **German** Baltic coast the gillnet fishery concentrates on the most important nocturnal feeding sites for Scaup. Grimm (1985) estimated that up to 8 % of c. 35,000 Scaup staging in Wismar Bay drowned in gillnets each winter. In the Dutch Ijsselmeer a similar mortality of 9.4% to 10-20 % per year involving probably 11,600 Scaup/year was estimated from data for 1978-1990 by Van Eerden et al. (1999). This means that every year by-catch may cause losses of 5-10 % of the total population, a proportion which can be expected to have negative impacts on a population level.

Importance

- For the European wintering group the importance of by-catch is provisionally set at medium.

4. Pollution

The habit of congregating during moult and over winter makes the Scaup vulnerable to oil spills. Large oil tankers frequently pass through areas in the Baltic, notably Danish waters, which hold large wintering flocks. Pihl and Laursen (1994) considered oil pollution a major potential threat to Scaup wintering. In spite of this no major losses due to oil spills have been reported for the last ten years.

Oil pollution may also operate indirectly, at least temporarily, by reducing prey (bivalve) densities.

Importance

- For the **winter areas** in the EU the importance of pollution is provisionally set at Potentially Low/medium

5. Human disturbance

Summer/staging

Little is known about the reasons behind the decline of the breeding population in the EU. However, as the majority breed along the coast of the Baltic Sea, disturbance from human activities in particular caused by **recreational boating** could potentially reduce the survival of broods. For instance, Mikola *et al.* (1994) found in the Velvet Scoter that increased duckling

mortality to predation due to disturbance by boats could be an important factor contributing to local population reductions in Finland.

Wintering

Disturbance from **hunting** may be a problem, though its effect is currently unquantified and may be low as the species largely feeds nocturnally (Pihl and Laursen 1994). Recently introduced **high-speed catamarans** are another source of potential disturbance worthy of investigation. Also poorly located **offshore wind farms** could be a source of disturbance to Scaup.

Increased disturbance from recreational activities like in the Wismar Bay from 1990 onwards may reduce the amount of available wintering habitats (especially daytime roosts).

Importance

- For **breeding areas** in the EU the importance of disturbance is provisionally set at Unknown but possibly Medium.

- For the **wintering areas** in the EU the importance of disturbance for the European wintering group is set al Low/Local.

6. Human-induced predation

Summer

In Stockholm archipelago, Sweden, the presence of Mink (*Mustela vison*) has probably contributed to the disappearance of the species in most localities during the last decades (Åke Andersson, *pers. comm*.).

Importance

- For breeding areas in the EU, the importance of man-induced predation is set at Unknown but possibly Medium.

4. Policies and legislation relevant for management

Table 5. *International conservation and legal status of the Scaup Aythya marila.*

World Status[2] (Criteria)	European and EU Status[3]	SPEC category[4]	EU Birds Directive Annex	Bern Convention Annex	Bonn Convention Annex	African-Eurasian Migratory Waterbird Agreement	Convention of International Trade on Endangered Species
Least Concern	Endangered	3W	Annex II/2	Appendix III	Appendix II	Column C 1[5]	Not listed

Member States / Contracting parties obligations

Scaup is listed on Annex II/2 in the EU Birds Directive, and can only be hunted in those ten Member States specifically mentioned in the Birds Directive: Belgium, Denmark, Germany, Greece, France, Ireland, Latvia, Netherlands, Romania and United Kingdom.

[2] BirdLife International/IUCN Red List assessment.
[3] BirdLife International (2004a).
[4] BirdLife International (2004a).
SPEC 3: Species whose world populations are not concentrated in Europe, but which have an unfavourable conservation status in Europe.
[5] Populations numbering more than around 100,000 individuals which could significantly benefit from international cooperation and which do not fulfil the conditions in respect of either Column A or B.

Table 6. *Brief overview of management measures and restoration planning processes currently underway, which benefit Scaup Aythya marila in Member States.*

MEMBER STATE	TITLE	CATEGORY	HUNTING ACTIONS	HABITAT/ SPECIES ACTION	OTHER ACTIONS
Netherlands	Reduction of fisheries in Ijsselmeer	I			P
Netherlands	Reduction of shell fisheries in Waddenzee	I			I
Finland	Large-scale eradication of Minks in the Quark as an EU LIFE project	I	G	P, S	P, S

KEY:

Category:
R = restricted measure
I = integrated management plan

Action:
C = completed
I = in progress
P = planned in near future

Hunting actions:
G = general hunting ban
B = bag limits
r = regional hunting ban
S = shortened hunting period
D = hunting days limited
H = hunting hours limited
O = other (please specify)

Habitat/species actions:
c = introduction of captive birds
w = introduction of wild birds
h = improvement of habitat quality
a = appropriate agricultural practices
m = minimisation of adverse effects of harvesting, roads etc.
p = predator control
d = prevention of disturbance
s = site safeguard
o = other (please specify)

Other actions:
r = research
p = public awareness
e = education campaigns
s = surveys, censuses and monitoring
o = other (please specify)

5. Framework for Action

Priority statement/evaluation

The majority of the Scaup that breeds in Europe is found on the tundra of northern Russia. Small populations are also found in Iceland, Finland, Sweden, Norway, Estonia and Germany. This population winters in northwest Europe, in particular in the southern part of the Baltic Sea off Poland and Germany, in the inner Danish waters and in the Netherlands. The Icelandic population mainly winters in Britain and Ireland.

The breeding population in Sweden and Finland has been in decline for decades, while the small populations in Estonia probably started declining in the 1980s. Since the 1990s, the number of Scaup that winters in northwest Europe has declined dramatically from an estimated 310,000 in the late 1980s to 120,000 in the late 1990s. Since the Nordic, Estonian and Icelandic populations make up only 10-15% of the northwest European winter population, the decline must mainly involve birds breeding in Russia.

The causes of the declines are not well known but numerous factors have been identified. In the wintering areas, drowning as a result of by-catch in fishing nests, degradation of feeding opportunities, including through intensive shell fisheries and offshore sand and gravel extraction, and potentially contamination in connection with oil pollution, are believed to be the most important.

Although the Scaup is hunted in several EU Member States the take may be small, although there is scant bag data. Inevitably this hunting mortality is contributing to the decline in the northwest European winter population while not being a major cause of it.

The factors identified contributing to the Scaup decline, however, do not appear - even when interacting – to explain the massive decline observed over the last 10-15 years. Unknown factors perhaps associated with the breeding ground such as changes in food-resources or habitat change may also be important. Only further research and analyses can determine what factors are contributing to the decline.

The much larger population of Scaup in North America is also in decline but it appears to be more dramatic and to have started earlier that in Europe. As is the case in Europe and east Siberia, Scaup breeds in both tundra areas and in boreal forests in the US and Canada. While the breeding population in the Alaskan tundra areas appears stable, populations in the boreal forests have declined since the mid-1950s (Austin *et al*. 2000). The causes of the Scaup decline in North America is little known, but contaminants, lower female survival, and reduced recruitment due to changes in food resources or breeding-ground habitats are believed to be the primary factors (Austin *et al*. 2000).

To monitor the size, trend and distribution of the population wintering in the EU, surveys should be carried out to include complete coverage of all moulting and wintering areas. Such surveys may also become of increasing value in considering the new risks potentially posed by offshore wind farms, fishing activities and high-speed ferries.

Monitoring of breeding populations, in particular the poorly known inland populations, are also much needed to identify the factors affecting Scaup distribution and population trends, and to provide further information concerning population dynamics.

To better understand the mechanism and processes important in determining Scaup populations, there is a clear need for more research. In particular studies are needed to provide improved knowledge about survival rates and fecundity which would allow modelling of population development and assessment of the effects of additional mortalities (such as hunting, by-catch, disease outbreaks, localized impacts on survival and reproduction). There is also a need to know more about the population structure and relatedness of its different geographic segments, bird fidelity to breeding, staging and wintering sites, i.e. how consistent birds from different breeding populations are in using their breeding, moulting and wintering areas, and migration routes.

This management plan presents a framework for the protection of the Scaup population in EU. But to become effective each of the countries with breeding and/or wintering populations should develop its own national plan that describes management activities on the basis of what is presented here. It is, however, the responsibility of the relevant authorities of each Member State to decide how to implement the management prescriptions of this plan.

Purpose of the action plan

The Scaup has been in recent dramatic decline as a breeding and wintering bird in most of the EU countries where it occurs. Recognising that the Scaup has an unfavourable conservation status in EU due to a large decline, the long-term objective (10 years) of the plan is:

> To restore the Scaup to a favourable conservation status in EU[1].

This plan aims to address the most urgent issues to halt the decline of the Scaup population in EU, but at the same time restrict the activities to be carried out to a realistic level. Thus, the short-term objectives outlined in this plan will focus on:

- Protecting wintering, staging and moulting habitats through site safe guard and control of shell fisheries and disturbance.
- Identifying and addressing the causes for the decline of the breeding populations e.g. disturbance.
- Minimising mortality caused by drowning in fishing nests and hunting.
- Introducing voluntary temporary hunting ban if appropriate.
- Avoiding oil spills
- Collecting better data on size of winter population, mortality and breeding success and links between breeding and wintering populations.

[1] The EU Habitats Directive (92/43/EEC) states that a species's conservation status will be taken as Favourable when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis.

This plan applies for a three year period after which it should be evaluated and revised. This should include an assessment of the results during the first three years. During this process the short-term objectives for the next Scaup Management Plan should be identified, that most effectively will lead to the recovery of the northwest European winter population of Scaup and the achievement of the long-term objective to restore the Scaup to favourable conservation status.

Results for the period 2009-2011

This section outlines the Results to be achieved during the first 3-year period of Scaup management within the EU. The Results outlined below (and the corresponding Activities in Chapter 6) are targeted at the authorities responsible for the implementation of the provisions of the Birds Directive in the Member States. In the Logical Framework Analyses (LFA) table on Table 6, the Results with corresponding Activities, verifiable indicators, means of verification and assumptions are summarised.

Policy and legislative actions

In view of the especially serious decline being experienced by this species, hunters should be invited to take a precautionary approach and adopt a temporary voluntary ban for this species, at least until the main causes of the decline and means to address them can be elucidated and perhaps until appropriate recovery action is in progress or the population has sufficiently recovered. For countries that will not introduce such a ban, an essential component when managing a huntable species is detailed information on the number of birds shot per year. This type of information is currently lacking from some Member States where Scaup hunting is permitted. Collection of reliable and updated bag data is therefore a key Activity of this plan.

Results of the implementation of this Management Plan should therefore be that by the end of 2009:

1. A temporary voluntary hunting ban for Scaup is encouraged in Member States where the Scaup is still legal quarry, if appropriate.

2. An estimate of the annual number of Scaup shot is available from all Member States where hunting continues.

Management of breeding, staging and wintering populations

The breeding populations are declining in all Member States where Scaup occurs in significant numbers (Sweden, Finland and Estonia). In particularly the population along the coast of the Baltic Sea has decreased significantly over the last decades. Although the causes for the decline in the Nordic countries and Estonia are largely unknown, it is suspected that disturbance from human activities is important. Results of the implementation of this Management Plan should be that by the end of 2011:

3. Important breeding sites for Scaup are identified, protected (also as SPAs with management plans) and the population sizes and trends are regularly monitored as part of a national monitoring program in place by the end of 2011.

4. Management actions are taken to reduce nest losses due to predation by man induced terrestrial or avian predators.

Management of human activities

In winter Scaup usually concentrates in few sites and in most winters more than 90% occur in Important Birds Areas (BirdLife International 2004). The habit of the Scaup to congregate in flocks of hundreds to tens of thousands makes this species particularly vulnerable to oil spills but also drowning in fishing nets. Results of the implementation of this Management Plan should thus also be that by the end of 2011:

5. All major wintering, staging and moulting sites are protected, both the roosts and feeding areas, as SPAs with management plans that focus on the needs of Scaup.

6. The need for restrictions of fishing activities to reduce by-catch is assessed where flocks of moulting and wintering Scaup regularly occur and in the breeding areas where necessary, and action is taken to regulate significantly damaging operations without delay.

7. The feeding ecology of the Scaup population and the influence of shell fishing-activities in the Dutch part of the Waddensea and North Sea on the population will be subject of integrated research in the period 2009-2011. Based on the results of this and other research, the needs for restrictions of shell fishing activities in the Waddensea for the conservation of the population of Scaups can be assessed and, if necessary, supportive actions to regulate significantly damaging shell fishing activities can be identified and urgently implemented.

8. Improved pollution prevention and improved oil spill contingency planning is in place in the Baltic Sea and other marine areas important to Scaup.

International co-operation

A monitoring program of wintering and moulting areas for Scaup (and other seaduck) within the EU is much needed (there has been no complete censuses since 1993). Regular, co-coordinated surveys would provide vital new data on the population size, trends and identify key wintering and moulting areas. Such surveys could be arranged by the Seaduck Specialists Group under IUCN and Wetlands International, with the support of the authorities responsible for the implementation of the provisions of the Birds Directive in each relevant Member State. Results of the implementation of this Management Plan should thus also be:

9. By the end of 2011 a program for a complete census of all wintering and moulting areas of international importance for Scaup within the EU is developed and subsequently implemented. The programme should, as a minimum, include mid-winter counts every third year and surveys of moulting areas in August every six years.

Research

Many aspects of the breeding and winter ecology of the Scaup are little known. To better understand the mechanism and processes important for Scaup populations dynamics there is a clear need for more research, including ringing. New and more thorough data are needed on breeding success, fledging period, survival estimates, ratio of young to adult and male to female, age at first breeding, philopatry and longevity. Also ringing of birds in the EU breeding grounds is needed to determine their main wintering areas. This research may also help understand which factors (if any) cause problems in the breeding area in Russia. Results of the implementation of this Plan should thus also be that by 2011:

10. The Member States with the main breeding populations of Scaup (Sweden, Finland and Estonia) support research that provides improved knowledge about survival rates and fecundity which allows modelling of population development and assessment of effects of additional mortalities (such as hunting, by-catch, disease outbreaks, localized impacts on survival and reproduction).

11. Research on the population structure and relatedness of the different geographic segments is supported, including the fidelity to breeding, staging and wintering sites.

6. Activities

In the following two tables are listed the Results to be achieved by the end of 2011 for breeding and staging/wintering Scaup respectively, with the corresponding activities to be carried out by the relevant Member States.

Table 7. *Actions in all countries in the EU with breeding population of Scaup Aythya marila (Finland, Sweden, Estonia, Germany) – the scale for Priority and Time Scale is given at the bottom of Table 8.*

Result	*Priority*	*National activities*	*Time scale*	*Means of verification*
Important breeding sites for Scaup are identified and protected (also as SPAs, with management plans*)* and the population sizes and trends are regularly monitored *as part of a national monitoring program in place.*	High	Identify and protect all important breeding sites of Scaup.	Short	Publication/web-site of relevant national authority in Member States and report to Ornis Committee by national delegate.
Management actions are taken to reduce nest losses due to predation by man-induced terrestrial or avian predators.	High	Promote the use of effective management actions at major breeding sites.	Short	Publication/web-site of relevant national authority in Member States and report to Ornis Committee by national delegate.
The Member States with the main breeding populations of Scaup support research that provides improved knowledge about survival rates and fecundity which allows modelling of population development and assessment of effects of additional mortalities.	High	Support research on Scaup breeding ecology	Long	Paper and/or report produced documenting new information.

Result	*Priority*	*National activities*	*Time scale*	*Means of verification*
Research on the population structure and relatedness of the different geographic segments is supported, including the fidelity to breeding, staging and wintering sites.	Medium	Support research on population structure and relatedness of the different geographic segments.	Long	Paper and/or report produced documenting new information.

Table 8. *Actions in all countries in the EU with moulting, staging and/or wintering population of Scaup Aythya marila – the scale for Priority and Time Scale is given at the bottom of the table.*

Result	***Priority***	***National activities***	***Time scale***	***Means of verification***
A temporary voluntary hunting ban for Scaup is encouraged in Member States where the Scaup is still legal quarry, if appropriate.	Low	Member States promote voluntary hunting bans with the support of hunters associations.	Medium long	Official documentation.
An estimate of the annual number of Scaup shot is available from all Member States where hunting continues.	Medium	Ensure that an annual estimate of harvest totals is available from all countries where hunting of this species is continuing.	Short	Publication/web-site with official bag statistics in relevant Member States available.
All major wintering, staging and moulting sites are protected, both the roosts and feeding areas, as SPAs with management plans that focus on the needs of Scaup.	High	All relevant roosts and nocturnal feeding sites are covered by SPAs with appropriate legislation.	Short	Official documentation.

Result	*Priority*	*National activities*	*Time scale*	*Means of verification*
The need for restrictions of fishing activities to reduce by-catch is assessed where flocks of moulting and wintering Scaup regularly occur and in the breeding areas where necessary, and action is taken to regulate significantly damaging operations without delay.	High	Support research on the by-catch impact on the wintering population to prepare the recommendations on the rules/time-limits of the gill-net fishery and take appropriate action to regulate the fisheries without delay.	Short	Official documentation.
The feeding ecology of the Scaup population and the influence of shell fishing-activities in the Dutch part of the Waddensea and North Sea on the population will be subject of integrated research in the period 2009-2011. Based on the results of this and other research, the needs for restrictions of shell fishing activities in the Waddensea for the conservation of the population of Scaups can be assessed and, if necessary, supportive actions to regulate significantly damaging shell fishing activities can be identified and urgently implemented.	High	Support assessment of the impact of shell fishing in Dutch Wadden Sea on feeding opportunities for wintering Scaup	Short	Paper and/or report produced documenting new information.

Result	*Priority*	*National activities*	*Time scale*	*Means of verification*
Improved pollution prevention and improved oil spill contingency planning is in place in the Baltic Sea and other marine areas important to Scaup.	Medium	Improve pollution prevention and oil spill contingency planning in Baltic sea and other marine areas important to Scaup.	Medium	Paper and/or report produced documenting new information.
A program for a complete census of all wintering and moulting areas of international importance for Scaup within the EU is developed and subsequently implemented.	High	Support development and implementation of mid-winter and summer surveys[6].	Medium	Data for regular Scaup mid-winter counts from all sites of international importance in Member States are present in IWC database.
Research on the population structure and relatedness of the different geographic segments is supported, including the fidelity to breeding, staging and wintering sites.	Medium	Support studies of the population structure and relatedness of the different geographic segments.	Medium	Paper and/or report produced documentation new information.

The **Priority** of each Result is given, according to the following scale:

- Essential: an action that is needed to prevent a large decline in the population, which could lead to species or subspecies extinction.
- High: an action that is needed to prevent a decline of more than 20% of the population in 20 years or less
- Medium: an action that is needed to prevent a decline of less than 20% of the population in 20 years or less
- Low: an action that is needed to prevent local population declines or which is likely to have only a small impact on the population across the range.

The **Time scales** attached to each Activity use the following criteria:

[6] Main staging areas (e.g. Lübeck Bay) have to be surveyed in a single day, because large flocks change their roosts from day to day. Data from surveys covering periods of several days may be biased. Simultaneous aerial surveys would be the best measure.

- Immediate: completed within the next year.
- Short: completed within the next 1-3 years
- Medium: completed within the next 1 – 5 years.
- Long: completed within the next 1 – 10 years
- Ongoing: an action that is currently being implemented and should continue.
- Completed: an action that was completed during the preparation of the Management Plan.

Table 9. *Summery of objectives/results and activities of the Scaup Aythila marila Management Plan 2009-2011*.

DESCRIPTION	***VERIFIABLE INDICATORS***	***MEANS OF VERIFICATION***	***ASSUMPTIONS***
Purpose: To restore the Scaup to a favourable conservation status in EU	The EU Scaup population is restored.	The European Threat Status classification of Scaup.	The Scaup Management Plan approved and supported by EU and Member States.
Results 2007-2008: 1. A temporary voluntary hunting ban for Scaup is encouraged in Member States where the Scaup is still legal quarry, if appropriate. 2. An estimate of the annual number of Scaup shot is available from all Member States where hunting continues. 3. Important breeding sites for Scaup are identified and protected, *including as SPAs as appropriate, with management plans*, and the population sizes and trends are regularly monitored *as part of a national monitoring program in place by the end of 2011*. 4. Management actions are taken to reduce nest losses due to predation by man-induced terrestrial or avian predators. 5. All major wintering, staging and moulting sites are protected, both the roosts and feeding areas, as SPAs with management plans that focus on the needs of Scaup. 6. The need for restrictions of fishing activities to reduce by-catch is assessed where flocks of moulting and wintering Scaup regularly occur and in the breeding areas where necessary, and action is taken to regulate significantly damaging operations without delay.	1. Hunting season temporarily closed. 2. National bag reporting system developed and data on annual number of Scaup shot is collected. 3. The coastal breeding population of Scaup in the EU is found mainly inside protected areas. 4. Management Plans and Schemes are being implemented at key Scaup *Aythila marila* breeding sites. 5. All staging and wintering sites, which regularly supports more than 1% of the relevant Scaup population are designated as SPAs. 6. The need for restrictions of fishing activities to reduce by-catch where wintering and moulting flocks occur is assessed in relevant Member States.	1. Publication/web-site with official hunting seasons in relevant Member States is available. 2. Publication/web-site with official bag statistics in relevant Member States is available. 3. Publication/web-site of relevant national authority in Member States and report to ORNIS Committee by national delegate. 4. Publication/web-site of relevant national authority in Member States and report to ORNIS Committee by national delegate. 5. Publication/web-site of relevant national authority in Member States and report to ORNIS Committee by national delegate. 6. Publication/web-site of relevant national authority in Member States and report to ORNIS Committee by national delegate.	Member States have adequate resources and commitment to take responsibility for Scaup management in accordance with the Birds Directive obligations.

7. The feeding ecology of the Scaup population and the influence of shell fishing-activities in the Dutch part of the Waddensea and North Sea on the population will be subject of integrated research in the period 2009-2011. Based on the results of this and other research, the needs for restrictions of shell fishing activities in the Waddensea for the conservation of the population of Scaups can be assessed and, if necessary, supportive actions to regulate significantly damaging shell fishing activities can be identified and urgently implemented.	7. The need for restrictions of shell fishing to improve food availability where wintering and moulting flocks occur is assessed in relevant Member States.	7. Publication/web-site of relevant national authority in Member States and report to ORNIS Committee by national delegate.	
8. Improved pollution prevention and improved oil spill contingency planning is in place in the Baltic Sea and other marine areas important to Scaup.	8. Improve pollution prevention and oil spill contingency planning is available.	8. Publication/web-site of relevant national authority in Member States and report to ORNIS Committee by national delegate.	
9. By the end of 2011 a program for a complete census of all wintering and moulting areas of international importance for Scaup within the EU is developed and subsequently implemented. The programme should, as a minimum, include mid-winter counts every third year and surveys of moulting areas in August every six years.	9. A program for a complete census of all wintering and moulting areas of international importance for Scaup within the EU by 2011.	9. Data for Scaup mid-winter counts and moulting areas of international importance in Member States are present in IWC database.	
10. The Member States with the main breeding populations of Scaup (Sweden, Finland and Estonia) support research that provides improved knowledge about survival rates and fecundity which allows modelling of population development and assessment of effects of additional mortalities (such as hunting, by-catch, disease outbreaks, localized impacts on survival and reproduction).	10. Studies on breeding parameters and dynamic initiated in key breeding countries in the EU.	10. Papers and/or reports produced documenting new information.	
11. Research on the population structure and relatedness of the different geographic segments is supported, including the fidelity to breeding, staging and wintering sites.	11. Studies on population structure supported by countries where Scaup breed, moult and winter.	11. Papers and/or reports produced documenting new information.	

7. References

Åke Andersson, *pers. comm.*

Austin, J.E., Afton, A.D., Anderson, M.G., Clark, R.G., Custer, C.M., Lawrence, J. S., Pollard, J.B and Ringelman, J.K. (2000). - Declining Scaup Populations: Issues, Hypotheses, and research Needs. Wildlife Society Bulletin 28: 254-263.

Böhme, D. (1993). - Zur Nahrungsökologie überwinternder Tauchenten in der Wohlenberger Wiek/Wismar-Bucht. Beitr. Vogelkd. 39: 257-284.

Bregnballe, T., Asferg, T., Clausager, I., Noer, H., Clausen, P. And Christensen, T.K. (2003). - Vildtbestande, jagt og jagttider i Danmark 2002. Faglig rapport fra DMU, nr. 428

BirdLife International (2004a). - Birds in Europe: population estimates, trends and conservation status. *Cambridge, U.K.: BirdLife International.* (BirdLife Conservation Series No.12).

BirdLife International (2004b). - *Birds in the European Union: an status assessment*. Wageningen, The Netherlands: BirdLife International.

BirdLife International (2006*)* - European Bird Database*. BirdLife International: Wageningen, The Netherland.*

Boyd, H. (1962). - *In* The Exploitation of natural animal populations (ed. Le Cren and Holdgate). Oxford, 85-95.

Campbell, L.H. (1984). - The impact of changes in sewage treatment on seaduck wintering in the Firth of Forth, Scotland. Biological Conservation 28: 173 – 180.

Clausager, I. (2004). - Vingeindsamling fra jagtsæsonnen 2003/04 I Danmark. *Faglige raport fra Danmarks Miljøundersøgelser* Nr. 504. 76 pp.

Cramp, S. & Simmons, K. E. L. (eds). (1977). - *Handbook of the Birds of Europe, the Middle East and North Africa. The Birds of the Western Palearctic*. Volume 1. OUP, Oxford.

Deceuninck B., Maillet, N., Dronneau, Ch., Ward, A. & Mahéo R. (2006). - Dénombrements d'Anatidés et de foulques hivernant en France -Janvier 2005. WI / LPO/MEDD. 40 p.

De Leeuw, J.J. (1999). - Food intake rates and habitat segregation of Tufted Duck *Aythya fuligula* and Scaup *Aythya marila* exploiting Zebra Mussels *Dreissena polymorpha*. Ardea 87: 15-31

Durinck, J., Skov, H., Jensen, F.P. & Pihl, S. (1994). - *Important wintering areas for wintering birds in the Baltic Sea. 1994.* National Environmental Research Institute, Copenhagen.

European Commission (2008). - Key Concepts of Article 7(4) of Directive 79/409/EEC. Period of reproduction and prenuptial migration of Annex II Bird Species in the 27 EU Member States.

Gardarsson, A. and Einarsson, A. (2004). - Resource limitation of diving ducks at Myvatn: Food limits production. Aquatic Ecology 38: 285 – 295.

Gilissen, N., Haanstra, L., Delany, S., Boere, G. and Hagemeijer, W. (2002). - Numbers and distribution of wintering waterbirds in the Western Paleactic and Southwest Asia in 1997, 1998 and 1999. Results from the International Waterbird Census. *Wetlands International Global Series No. 11, Wageningen, The Netherlands.*

Grimm, P. (1985). - Die Stellnetzfischerei als eine wichtige Form nicht nur der ornithofaunistischen Nachweisführung. Naturschutzarbeit in Mecklenburg 28: 104-106.
Haapanen, A and Nilsson, L. 1979. Breeding waterfowl populations in the northern Fennoscandia. Ornis Scand. 10: 145-219.

Haftorn, S. (1971). - Norges fugler. Universitetsforlaget.

Haldin, M (1997). - The Scaup *In* Hagemeijer, W. & Blair, M. J. The EBCC Atlas of European Breeding Birds: Their distribution and Abundance. Poyser, London

Hario, M and Rintala, J. (2007). - Population trends of sea terns, the Aythya ducks, the Black-headed Gull and the Common Eider on Finnish coasts in 1986-2006. Linnut Yearbook 2006: 36-42.

Hildén. O. (1964). - Ecology of duck populations in the island group of Valassaaret, Gulf of Bothnia. Ann. Zool. Fennici 1: 153-279.

Hildén, O; Ulfvens, J; Pahtamaa, T; Haestbacka, H. (1995). - Changes in the archipelago bird populations of the Finnish Quark, Gulf of Bothnia, from 1957-60 to 1990-91 Ornis Fennica 7:115-126.

Joensen, A.H. (1974). - Waterfowl populations in Denmark 1965 – 1973. Dan. Rev. Game Biol. Vol 9 No. 1.

Kershaw, M., & Cranswick, P. A. (2003). - Numbers of wintering waterbirds in Great Britain, 1994/95–1998/99: I.Wildfowl and selected waterbirds. *Biol. Conserv*. 111: 91–104.

Kirby, J., Clee, R and Fox, A.D. (1993). - A review of the status and distribution of wintering seaducks in Britain and Ireland. Aquatic Conservation 3: 105 – 137.

Koskimies, P. (1997). - Population sizes and trends of birds in the Nordic Countries 1978-1994. *Tema Nord 1997:614*.88, Copenhagen, 88pp.

LPO-WETLANDS INTERNATIONAL (2006). - Base de données des dénombrements d'oiseaux d'eau « Wetlands International » réalisés à la mi-janvier. 1967-2006. LPO - BirdLife France, Rochefort.

Laursen, K., Pihl, S., Durinck, J., Hansen, M. Skov, H., Frikke, J. & Danielson, F. (1997). - Numbers and distribution of waterbirds in Denmark 1987-1989. *Danish Review of Game Biology* 15 (1): 1-184.

Leipe, T. (1986). - Über die Ursachen der Nachtaktivität von Bergenten (Aythia marila) und Reiherenten (Aythia fuligula) am Greifswalder Bodden außerhalb der Brutzeit. Mitt. Zool. Mus. Berl. 62, Suppl. Ann. Orn. 10: 117-125.

Madsen, F J. (1954). - On the food habits of the diving ducks in Denmark. Dan Rev. Game Biol. 2 157-266.

Mikola, J., Miettinen, M., Lehikoinen, E & Lehtila, K. (1994). - The effects of disturbance caused by boating on survival and behaviour of Velvet Scoter *Melanitta fusca* ducklings. *Biological Conservation* 67: 119-124.

Mineyev, J. N. (1998). - Dynamics of duck numbers in the east-European Tundra. *Acta Zoologica Lituanica, Ornithologia* 8: 48-50.

Mooij, J.K. (2005). - Protection and use of waterbirds in the European Union. Beiträge zur Jagd- und Wildforschung. Bd 30: 49-76.

Piersma, T. and Camphuysen, K. (2001). - What Can Peak Mortality of Eider Tell us about the State of the Dutch Wadden Sea Ecosystem? Wadden Sea Newsletter 1: 42 – 45.

Pihl, S & Laursen, K. (1994). - The Scaup. *In* Tucker, G.M. & Heath, M.F. *Birds in Europe: their Conservation Status*. Cambridge, Bird Life International.

Pihl, S., Durinck, J. & Skov, H. (1995). - Waterbird numbers in the Baltic Sea, Winter 1993. National Environmental Research Institute. 60pp. NERI Technical Report No.145.

Pihl, S., Petersen, I.K., Hounisen, J.P. & Laubek, B. (2001). - Landsdækkende optælling af vandfugle, vinteren 1999/2000. 46 s.

Pihl, S., Clausen, P., Laursen, K., Madsen, J., Bregnballe, T.(2003). - Bevaringsstatus forfuglearter omfattet af EF-fuglebeskyttelsesdirektivet. 130 s.

Reneerkens, J., Piersma, T. & Spaans, B. (2005). - De waddenzeeals kruispunt van vogeltrekwegen. NIOZ-rapport 2005-4.

Rose, P.M. & Scott, D.A. (1994). - Waterfowl Population Estimates. IWRB Publication No. 29. IWRB, Slimbridge.

Snow, D.W. & Perrins, C.M. (1998). - The birds of the western Palearctic, Concise edidition. Oxford University Press.

SOF. (1990). - Sveriges fåglar. 2:a uppl. Stockholm.

Stempniewicz, L. (1994). - Marine birds drowning in fishing nets in the Gulf of Gdansk (southern Baltic): numbers, species composition, age and sex structure. Ornis Svecica 4: 123-132.

Tucker, G.M. & Heath, M.F. (1994). - *Birds in Europe: their Conservation Status*. Cambridge, Bird Life International.

Van Eerden, M.R., W. Dubbeldam & J. Muller (1999). - Sterfte van watervogels door visserij met staande netten in het IJsselmeer en Markermeer. RIZA rapport 99.060.

Van Eerden, M.R. and Zijlstra, M. (1986). - Natuurwarden van het Ijsselmeergebied: Prognose van enige natuurwarden van het Ijlsselmeergebied by de aanlag de Markerwaard – Unpublished report from Rijksdienst voor de Ijsselmeerpolders, Lelystad, Netherlands.

Van Roomen, M., van Winden, E., Koffijberg, K., Boele, A., Hustings, F., Kleefstra, R., Schoppers, J., van Turnhout, C., SOVON Ganzen- en Zwanenwerkgroep & Soldaat, L. (2004). - Watervogels in Nederland in 2002/2003. SOVON-monitoringrapport 2004/02, RIZA-rapport BM04/09, SOVON Vogelonderzoek Nederland, Beek-Ubbergen.

Van Roomen, M., van Winden, E., Hustings, F., Koffijberg, K., Kleefstra, R., Sovon Ganzen- en Zwanenwerkgroep & Soldaat, L. (2005). - Watervogels in Nederland in 2003/2004. SOVON-monitoringrapport 2005/03, RIZA-rapport BM05.15, SOVON Vogelonderzoek Nederland, Beek-Ubbergen.

Wahl, J., J. Blew, S. Garthe, K. Günther, J. Mooij & C. Sudfeldt (2003). - Überwinternde Wasser- und Watvögel in Deutschland: Bestandsgrößen und Trends ausgewählter Vogelarten für den Zeitraum 1990-2000. Ber. Vogelschutz 40: 91-103.

Walker, J. and Lindberg, M.S. (2005). - Survival of scaup ducklings in the boreal forest of Alaska. Journal of Wildlife Management 69: 592-600.

Zydelis, R. and Dagys,M. (2002). - Bird bycatch in fishing nets in Lithuanian coastal waters in wintering season 2001-2002. Acta Zoologica Lithuanica 12 (3): 276 – 28.

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