Management Guidance Procedure
Ramsar Convention Bureau

Ringkøbing Fjord Ramsar Site, Denmark
2-3 September 1996

Final Report, June 1997

1. Executive Summary

Ringkøbing Fjord was designated for the List of Wetlands of International Importance, maintained under the Convention on Wetlands (Ramsar, Iran, 1971), in September 1977.

The site was designated for the Ramsar List mainly because of its importance for staging and nesting waterbirds. However, since 1979, drastic declines in the numbers of several staging species have been recorded, coinciding with a collapse in the submerged macrophytic vegetation of the Fjord.

Ringkøbing Fjord was included in the 'Montreux Record' (a global register of Ramsar sites in need of priority conservation attention) in 1990, with the agreement of the Danish Government, and in the light of information contained in the Danish National Report to the 4th CoP.

In 1994, the Ramsar Bureau invited all Contracting Parties with sites included in the Montreux Record to submit information about the latest situation. The Danish Government provided information about the progress of the Skjern Å restoration project, whilst the 1996 Danish National Report expressed 'the firm conviction of the Danish Government that the site should be removed from the Montreux Record' in light of the progress made to date, and further improvements expected in the future.

An official Bureau visit, in the framework of the Ramsar Management Guidance procedure, and hosted by the National Forest and Nature Agency, took place in September 1996. Following a series of field visits, presentations and discussions, the Bureau's Regional Coordinator for Europe prepared the present report for submission to the Danish authorities and to the Ramsar Secretary General. The report includes a series of conclusions and recommendations (see paragraphs 22-33).

Subject to the successful implementation of the recommendations made, it is concluded that removal of the site from the Montreux Record could be envisaged by the time of the next Conference of Parties, to be held in May 1999.

2. Introduction

2.1 Background

1. Ringkøbing Fjord was designated for the List of Wetlands of International Importance, maintained under the Convention on Wetlands (Ramsar, Iran, 1971), in September 1977. The Ramsar site covers 27,520 ha and the boundary is shown in Appendix I. The Fjord is also designated as a Special Protection Area under the EU Directive on the

Conservation of Wild Birds (409/79/EEC).

2. The Ministerial Order for Nature Conservation at Ringkøbing Fjord was recently revised, with a new text issued in January 1996 (Ministry of Environment and Energy, 1996). This sets out a system of zonation to protect the most ecologically sensitive areas from disturbance (general access, hunting, wind-surfing).

3. The Fjord is shallow and brackish, being connected with the North Sea by sluices. The main source of freshwater inflow is the River Skjern (Skjern Å) which enters the south-eastern corner of the Fjord. Once forming the largest delta in Denmark, the lower River Skjern was regulated in the 1960s, though some areas of wetland vegetation remain around the mouth of the river. The Tipperne peninsula, projecting into the southern part of the Fjord, is bordered by reed-fringed, shallow-water areas and is covered by meadows used in part for hay cutting and extensive grazing. Amongst the other key parts of the site is Klægbanken, a long, narrow, uninhabited island about half way along the eastern shore of the Fjord.

4. Ringkøbing Fjord was designated for the Ramsar List mainly because of its importance for staging and nesting waterbirds. Financial constraints have prevented regular aerial counts of the whole site (the large size of which dictates the use of aircraft for complete coverage). However, since 1979, drastic declines in the numbers of several staging species have been recorded by census work at Tipperne nature reserve. Comparison of the average number of autumn bird-days during the periods 1973-1979 and 1980-1995 showed declines of between 45% and 84% for Mute Swan *(Cygnus olor)*, Bewick's Swan *(C. columbianus bewickii)*, Wigeon *(Anas penelope)*, Pintail *(A. acuta)* and Coot *(Fulica atra)*. Klægbanken formerly held the world's largest breeding colony of Mute Swans, with some 500-600 cygnets reared in 1978/79. Only 16 cygnets were recorded in 1996. (Andersen-Harild & Madsen, 1996).

5. The decrease in numbers of staging and nesting waterbirds coincided with a collapse in the submerged macrophytic vegetation of the Fjord. Prior to 1979, the shallow-water areas were covered with *Ruppia, Potamogeton, Myriophyllum, Chara* spp. etc., while *Zostera* occurred in deeper water. During the 1980s and early 1990s, the vegetation cover, and hence food supply for many waterbirds, was much sparser than in former times (Andersen-Harild & Madsen, 1996).

6. Like all Contracting Parties to the Ramsar Convention, Denmark is required to prepare a triennial report on implementation of the treaty. These reports are submitted to the Conference of the Parties, which, in recent years, has met in 1990 (Montreux, Switzerland), 1993 (Kushiro, Japan), and 1996 (Brisbane, Australia).

7. At the 1990 Conference, the Convention established a mechanism known in short as the 'Montreux Record'. This is a register of designated Ramsar sites in need of priority conservation attention. Guidelines for operation of the Montreux Record were established in 1993 and revised in 1996. The current guidelines are attached as Appendix II to this report. Although all decisions relating to Montreux Record wetlands remain the prerogative of the Contracting Party concerned, the Bureau may, on request, arrange for a site visit (or a longer expert mission) in the framework of the Convention's Management Guidance Procedure.

8. Ringkøbing Fjord was included in the Montreux Record in 1990, with the agreement of the Danish Government, and in the light of information contained in the Danish National Report, which stated: 'Since the establishment of the sluices at Hvide Sande in 1931, the water level and salinity have dropped in Ringkøbing Fjord. After the regulation of the Skjern River in the 1960s, increased sedimentation in the southern part of the Fjord has taken place. Since 1979, a marked eutrophication of the Fjord resulting from the presence of phosphates and nitrates (fertilizers) has been registered, causing a severe reduction of the macrophyte vegetation and, as a consequence, a decline in the number of dabbling ducks, Coots and swans' (Jepsen *et al.,* 1990).

9. The 1993 Danish National Report (Jepsen *et al,* 1993) provided information on the planned restoration of the Skjern Å: 'Wetland areas in the River Skjern estuary, which flows into Ringkøbing Fjord, were reclaimed and drained in the 1960s. Thereby, natural meadows and reed-beds in the delta area were changed into intensively cultivated arable land. The river itself was channelized over a stretch of 23km before it flows into the Fjord. In order to prevent further deterioration of the formerly rich habitats and minimize discharge of ochre and nutrients from fertilizers etc. into the Fjord, the Danish Parliament decided in May 1987 that the river estuary should be largely converted back to a more natural, original state and that several hundreds of hectares of arable land near the river should be re-established as wetlands'.

10. In 1994, by means of a Diplomatic Notification, the Ramsar Convention Bureau invited all Contracting Parties with one or more sites included in the Montreux Record to submit information about the latest situation, for the attention of the Ramsar Standing Committee. In response, the Danish Government provided information about the progress of the Skjern Å restoration project. This information was amplified by the 1996 Danish National Report (Jepsen *et al,* 1996), which also expressed 'the firm conviction of the Danish Government that the site should be removed from the Montreux Record' in light of the progress made to date, and further improvements expected in the future.

11. During the 1996 Brisbane Conference, informal consultations between the Danish Delegation and the Ramsar Bureau resulted in the Bureau's Technical Officer for Europe, Mr Tim Jones, being invited to Denmark to visit Ringkøbing Fjord, and to take part in discussions with Danish experts, with a view to eventual removal of the site from the Montreux Record.

2.2 *Itinerary for Ramsar Bureau visit*

12. The official Bureau visit, hosted by the National Forest and Nature Agency, took place over two days: 2-3 September 1996. The itinerary was as follows:

Monday 2 September

08.45 Participants met for brief introduction in Ringkøbing.

09.00-15.00 Field visit to Ringkøbing Fjord, stopping at: the pumping station downstream of Skjern along the Skjern Å; Tipperne reserve; Nymindegab (lunch); sluice gates at Hvide Sande. See Appendix III.

15.00-
18.30 Presentations by:

Palle Uhd Jepsen, National Forest & Nature Agency (Introduction/context)
Tim Jones, Ramsar Convention Bureau (Ramsar Convention/Montreux Record)
Jørgen Jørgensen & Lise Rasmussen, Ringkøbing County (Fjord ecosystem) *
Pelle Andersen-Harild, National Environmental Research Institute (waterbirds of Ringkøbing Fjord)*
Peter llsøe, National Forest & Nature Agency (Skjern Å restoration)*

Tuesday 3 September

09.00-
12.30 Round table discussion led by the Ramsar Bureau, including definition of joint conclusions.

*The technical papers presented by Danish experts on September 2 are contained in Appendix IV.

3. Conclusions and Recommendations

13. The technical presentations made by Danish experts on 2 September provided an excellent introduction to the current and former environmental status of Ringkøbing Fjord (Jørgensen and Rasmussen); to the changes in waterbird numbers (Andersen-Harild and Madsen); and to the Skjern Å restoration project (llsøe). Some of the conclusions drawn by Andersen-Harild and Madsen are outlined in paragraphs 4-5 of the Introduction to this report.

14. Jørgen Jørgensen and Lise Rasmussen showed how the large volumes of nitrogen and phosphorous entering the fjord led to the disappearance of macrophytes and the dominance of blue-green algae. In the early 1970s, the bottom of the fjord was vegetated as far down as 3.25m and visibility depths of >2m were recorded. As a result of eutrophication, annual average mean visibility depth was reduced to 0.6m and macrophytes did not grow below 0.8m. Further information has been made available in a paper prepared by Ringkøbing County experts in October 1996, after the Bureau visit, and attached to this report as Appendix V.

15. Jørgensen and Rasmussen also reported on operation of the sluices at Hvide Sande. The sluice operating guidelines were changed in 1987 to increase water exchange and to increase salinity. However, it was not until further modifications were introduced in the second half of 1995 that the desired salinity level was reached. More detailed information can be found in an additional paper prepared by Ringkøbing County in October 1996 and included as Appendix VI to this report.

16. Measures to reduce phosphorous inputs to the fjord (e.g. through improved sewage treatment) have been successful, but no reduction in nitrogen has been observed. The Skjern Å may still carry a significant nitrogen loading when run-off from its largely agricultural catchment is high. Conversely, exceptionally low runoff in the 1995/96 winter is thought to be one of the factors (together with increased salinity and bivalve

grazing) which resulted in low phytoplankton biomass (20% less than normal) and visibility depths significantly above the long-term monthly average during 1996 (highest summer mean since 1986 and highest annual mean since 1980). However, the Bureau understands that the improvement in 1996 visibility depths was not sufficient to influence vegetation in the deeper parts of the fjord.

17. Finally, Jørgensen and Rasmussen noted that the management objective for the Fjord is: 'to re-establish the conditions of the early seventies, with good visibility and wide-covering bottom vegetation'. Models set up to assess the likely impact of the Skjern Å restoration showed that it would be possible to meet the management objective almost completely by reduction of nutrient load (through the Skjern restoration) and by increased water exchange at a mean salinity of 1.0 % (through the new sluice operating guidelines). A summer salinity exceeding 1.2% is essential in order to avoid dominance of blue-green algae.

18. Peter llsøe reported on the channelization of the Skjern Å between 1963 and 1969 and the drainage and cultivation of the former delta. In addition to the direct loss of habitat for wetland birds (especially for nesting and staging), European Otter *(Lutra lutra),* Atlantic Salmon *(Salmo salmo)* and other fauna and flora, the elimination of the delta caused negative impacts on water quality in Ringkøbing Fjord (loss of denitrification and phosphorous retention functions; increased discharge of ochre). This decline in nutrient removal coincided with a time of increasing N and P runoff from intensive agriculture and urban centres.

19. Following political approval in 1987, a restoration project was developed and initiated in 1991. The project aims to restore 2,000 ha - about half of the drained area. Land within the project area is being acquired by the State, through a voluntary land sale and/or exchange scheme, prior to commencement of technical works in 1997, for a three-year period. The restored area will include 350 ha of lakes, 23 km of meandering river, 450 ha of reed-swamp, 100 ha of scrub and 1,100 ha of freshwater meadows. It is estimated that the restoration will remove at least 15% of the nitrogen and 10% of the phosphorus carried by the river.

20. The oral presentations of the technical papers were followed by a considerable period of informal discussion. At the suggestion of the Ramsar Bureau representative, a workshop-style exercise resulted in the definition of proposed objectives for the Ramsar site, divided into two time periods: short-term (1-5 years) and longer-term (5-10+ years). These objectives were set out on 'flip charts', texts from which are reproduced in Appendix VIII. It is emphasized that these are the results of informal discussion, and have no official status. Nevertheless, the Ramsar Bureau representative found the exercise to be a useful tool for clarifying a number of issues.

21. As a result of the field visits, presentations and discussions, the Ramsar Bureau offers the following conclusions and recommendations:

22. The past and present environmental status of Ringkøbing Fjord is well studied and recorded.

23. The ecological character of the Ramsar site has changed adversely since designation for the Ramsar List in 1977. Inclusion in the Montreux Record was appropriate.

24. The reasons for this ecological deterioration have been identified, and significant efforts are being made to reverse the situation, notably through more environmentally appropriate operation of the sluices at Hvide Sande and restoration of the nutrient and sediment retention functions of the Skjern delta.

25. However the management measures being taken are still at a relatively early stage (for example, the technical/construction work of the Skjern Å restoration have not yet commenced).

26. Nevertheless, assuming that the restoration project is implemented as planned, and the newly-applied sluice guidelines maintain the desired levels of salinity (without too excessive temporary fluctuation from either the seasonal or annual target means), removal of the site from the Montreux Record could be envisaged by the time of the next Conference of Parties to the Ramsar Convention in 1999.

27. The Bureau welcomes the input received from the operators of the sluiceway at Hvide Sande (Appendix VII), which is controlled by the Harbour Authority, on behalf of the Ministry of Transport, and with the support of a technical advisory committee (members represent the Ministry of Transport, the Ministry of Agriculture, Ringkøbing & Ribe County Councils, and fjord fishery organizations).

28. A revised Ramsar Information Sheet (see Appendix II) for the site should be provided to the Bureau as soon as possible, for incorporation into the Ramsar Database. Additional information on the current national nature conservation designations and regulations applying to the site would be particularly useful. In the context of revising the Information Sheet, it could also be useful to consider the scope for eventual extension of the Ramsar site (e.g. after the Skjern Å restoration has been successfully implemented). It would also be useful for a Montreux Record questionnaire (see also Appendix II) to be completed, so that the procedure of eventual removal of the site can be completed as smoothly as possible.

29. Efforts should be made to strengthen the existing exchange of information between the different 'actors' involved with management of the site; during the visit, it was apparent that such increased exchange could have very beneficial effects.

30. An integrated monitoring programme should be incorporated into the overall management strategy of the Skjern Å restoration project.

31. Monitoring of the site as a whole should, if possible, include resumption of regular aerial counts of waterbirds.

32. It would be very useful if the experience gained at Ringkøbing Fjord could be distilled into a 'lessons learned' (positive and negative) case study for use at other sites where restoration measures are required, and/or where removal of a site from the Montreux Record is under consideration.

33. It is suggested that the Ramsar Scientific & Technical Review Panel (STRP) be invited to review this report at their next meeting (February 1998) in order to provide further guidance to the Danish authorities and the Ramsar Bureau on the removal of the site

from the Montreux Record.

4. Acknowledgements

34. On behalf of the Ramsar Convention Bureau, I would like to express my appreciation of the efforts made by all concerned, in particular the National Forest & Nature Agency and the County of Ringkøbing, to ensure that the time available during my short visit was used as effectively as possible.

35. In addition to all those who presented papers and/or took part in technical discussions (Pelle Andersen-Harild, Peter Ilsøe, Palle Uhd Jepsen, Jørgen Jørgensen, Ann-Grethe Ragborg, Lise Rasmussen), my thanks to everyone at Tipperne field station for their warm welcome and insight, and to Elm Mundbjerg of the National Forest & Nature Agency office in Oksbøl for ensuring that arrangements for the meeting ran smoothly.

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5. References cited in the text

Andersen-Harild, Pelle and Jesper Madsen, 1996. *Waterfowl and submerged vegetation in Ringkøbing Fjord, 1973-1995.* Internal Report. National Environmental Research Institute, Kalø. (Reproduced as part of Appendix iv to this report).

Ilsøe, P., 1996. *The River Skjern Delta Restoration Project.* Unpublished report. National Forest & Nature Agency, Oksbøl. (Reproduced as part of Appendix IV to this report).

Jepsen, Palle Uhd (ed.), 1990. *Danish Report 1990 on the Ramsar Convention, Denmark and Greenland.* Ministry of the Environment, National Forest and Nature Agency. Hørsholm.

Jepsen, Palle Uhd, Søgaard, B., Ragborg A-G., Møller, H.S. (eds.), 1993. *Danish Report 1993 on the Ramsar Convention, Denmark and Greenland.* Ministry of the Environment, National Forest and Nature Agency. Copenhagen.

Jepsen, Palle Uhd, Ragborg A-G., MøIler, H.S. (eds.), 1996. *Danish Report 1996 on the Ramsar Convention, Denmark and Greenland.* Ministry of the Environment and Energy, National Forest and Nature Agency. Copenhagen.

Jorgensen, J. and L. Rasmussen, 1996. *Status of the environmental state of Ringkobing Fjord.* Unpublished report. Ringkobing County, Ringkobing. (Reproduced as part of Appendix IV to this report).

Ministry of Environment and Energy, 1996. *Bekendtgøorelse om fredning og vildtreservat i Ringkøbing Fjord.* Bekendtgørelse nr. 3, 2 January 1996.

6. Appendices [not include in this scanned version]