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Technical Session V:
The framework for regional and international cooperation regarding wetlands
Paper 1

Shared Wetlands and River Basins of the World: Preliminary Findings of a GIS Analysis

Report prepared in support of Ramsar COP7 Technical Session V
The frameworks for regional and international cooperation
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EXECUTIVE SUMMARY

1. The purpose of this project was to highlight opportunities for international cooperation over management of wetland sites. The study was based on two assumptions:

   i. that cross-border, near-border or coastal sites may be at risk from transboundary effects, and

   ii. that sites within shared catchment basins may be similarly at risk, particularly where most of the basin and territory of more than one country are located upstream of the site.

   Geographic Information System (GIS) technology was used to analyse sets of spatial data with respect to these assumptions.

2. Of a total 955 Ramsar sites included in this study, 92 (10%) are located in part or entirely within 10km of an international border, and thus in principle may be subject to transboundary influences, such as water abstraction or drainage. See Table 1.

3. There are nine cases where Ramsar sites in adjacent countries are in contact along the international border (or appear to be at the scale of this analysis). These adjacent sites (19 in all) provide the opportunity to be managed cooperatively as integrated transboundary Ramsar sites, and this should be given high priority if it is not occurring already. See Table 2.

4. A small number of Ramsar sites, 35 in all, are both within 10km of a border and located on the coast of their respective countries and so potentially at increased risk from transboundary influences. See Table 3.

5. Almost one third of the Ramsar sites considered in this study, 267 (28%) in total, are located within catchment basins shared between two or more countries (152 of 227 basins in this analysis). The need for international cooperation is in principle likely to rise with the number of countries sharing any given basin, and with the area and number of countries upstream of that site. See Tables 4 and 5.

6. Of these 267 sites within shared basins, 191 are within basins ranked as significantly vulnerable on the basis of previous analysis (criteria: low naturalness and high water stress; WCMC, 1998). Basin vulnerability assessment can provide a tool for prioritising management intervention. See Table 6.

7. Extensive areas of wetland habitat are present within most shared catchment basins. See Tables 7 and 8. Africa has a large number of basins shared between five or more countries, most holding very extensive wetland habitats, which would potentially benefit from international cooperation. Further analysis is required to make practical use of information on wetland habitats in relation to borders and basins.

8. A number of recommendations for improving the depth and precision of this analysis, and further increasing the potential conservation benefits, are outlined in this report.

INTRODUCTION

9. This report outlines results of a project carried out for the Secretariat of the Convention on Wetlands (Ramsar, Iran, 1971) by the World Conservation Monitoring Centre (WCMC).

10. The purpose of the report is to demonstrate, on the basis of readily available information, situations where countries may have a responsibility under the Convention to cooperate in the management of wetlands and associated drainage basins.

11. The project is based on Geographic Information System (GIS) analysis of relevant global spatial datasets, some of which have been enhanced for the purpose. Results have been verified by direct inspection of paper plots of the data and of source tables. Data layers comprise: 1:1,000,000 world outline, with national boundaries; major world catchment basin

boundaries; world river systems and lakes; Ramsar sites; wetlands (as plotted and classified for the *Wetlands in Danger* atlas, Dugan, 1993); world mangrove systems.

12. **Results of this analysis should be treated as indicative, not definitive**. The project is intended to demonstrate the actual or potential need for international cooperation, based on the generalised risk factors outlined below. No attempt has been made to assess the biodiversity value of the different wetland sites and areas, nor to collate field-scale information from the literature or gather new field data.

13. Most emphasis is on areas declared under the terms of the Ramsar Convention. This is because Ramsar sites are clearly delimited and identifiable areas, and the spatial data are well-suited to GIS analysis, but preliminary use has been made of spatial data on wetland habitat areas.

RAMSAR SITES AND INTERNATIONAL BORDERS

Research goal

14. The purpose of this phase of the investigation was to determine which Ramsar sites are in contact with, or in close proximity to, an international border. The limit of the 'close proximity' zone was arbitrarily set at a distance of 10 km; the analysis could be repeated using some other value (e.g., five or 50 km). Existing Ramsar sites were sorted into two groups: 1) those in contact with or close to an international border; 2) those not in close proximity.

15. The main working assumption in this case is that, other factors being equal, close proximity to an international border is likely to increase the susceptibility of the site to transboundary influences (e.g., drainage, groundwater pollution) and hence increase the potential need for international cooperation. A second assumption is that sites that are in contact across international borders must be highest priority for international cooperation, where this is not currently in place.

Procedures and data quality

16. Ramsar sites are represented by site boundaries where these are digitised, or by circles based on centroid coordinates and proportional to site area, where site boundaries are not digitised. WCMC has developed digital coverage of site boundaries for 692 sites (66 for the purpose of this project); only location coordinates are available for the remaining 263 sites. The basic list of sites, a total of 955, was retrieved from the Ramsar Convention website (list dated 27 October 1998). All Ramsar sites within 10km of an international border have been identified by using a GIS to relate the boundaries and proportional circles in this dataset to national boundaries.

17. Accuracy is considered satisfactory for the purposes of the project, given the global scope of the analysis. The fact that proportional circles are used to represent Ramsar sites lacking digital boundary data will cause some error in the distance calculations. This will probably be

insignificant in most cases, but is liable to introduce significant error where sites are highly elongated.

Principal results

18. Of the total 955 Ramsar sites considered here, 92 (10%) are situated in part or entirely within 10km of an international border (Table 1).

19. Nine wetland regions include Ramsar sites that are, or appear to be on the basis of data used in this analysis, in direct contact across international borders. These sites present an opportunity to be managed as integrated transboundary Ramsar sites, and international cooperation to this end should be treated as high priority (where not already in place).

20. These high priority sites are listed in Table 2. Some of these sites, e.g., Danube delta area, are also 'downstream' sites susceptible to influence originating in other countries in upper parts of the basin in which they occur, and are also coastal sites and thus susceptible to cross-border marine impacts.

21. A significant number of near-border sites are also directly on the coast of their respective countries, and so are potentially at increased risk from transboundary factors. These sites are listed in Table 3.

Next steps needed

22. A set of Ramsar sites that may be at risk from transboundary factors, and therefore deserving of international cooperation, has been identified. Further analysis is required, using different and where possible more fine-scaled data to qualify potential levels of risk. For example, sites where human settlements around the international border are known to draw water from a shared groundwater resource, or are downstream of known sources of waterborne pollutants, may be regarded as at high risk. Information on the biodiversity value of different sites, and their importance to human communities, would also contribute to prioritisation of sites. Management regimes in adjacent Ramsar sites apparently in contact along an international border should be assessed with a view to improved harmonisation where necessary.

RAMSAR SITES AND INTERNATIONAL CATCHMENT BASINS

Research goal

23. The purpose of this phase of the investigation was to determine which Ramsar sites are known to be located within international catchment basins, i.e., basins shared between two or more countries. Existing Ramsar sites were sorted into three groups:

    i. those within shared basins,
    ii. those within basins situated within a single country, and
    iii. those located outside catchment boundary dataset used in this analysis (see below) and which therefore could not be attributed to shared or non-shared basins.

24. The first working assumption is that in principle, and ignoring the complexity of case-specific factors, the need for international cooperation over any given Ramsar site increases in parallel with the number of countries sharing the basin in which it is located.

25. A second assumption is that the need for cooperation will rise according to the number and area of countries within the basin upstream of any given site. In other words, sites at the mouth of the drainage system, where they may be subject to the influence of activities taking place in all of the upstream countries, are likely to be higher priority for international cooperation than upstream sites close to the watershed of the basin.

Procedures and data quality

26. Both the datasets used in the previous exercise (Ramsar sites, national boundaries) were analysed against the major world catchment boundaries dataset. This procedure allows all Ramsar sites situated within shared basins to be identified, and any given basin to be ranked according to the number of countries sharing it.

27. The 'shared basins' part of the analysis is limited by the coverage and quality of the catchment basin boundary dataset. Global level datasets are typically based heavily on computed flow patterns over landscape represented by a digital elevation model (DEM); this is sufficient for many purposes but does not necessarily capture actual flow patterns, especially in regions with even topography and low slope. Sources differ over the exact boundaries of most catchment basins, and in some cases therefore over the number and identity of countries sharing them.

28. We have assembled a basin boundary dataset that combines elements from different sources and which has been matched so far as possible with conditions on the ground as represented in conventional small- to medium-scale printed maps (see Annex for note on sources). The dataset includes 227 principal basins, including the world's larger systems and a geographic sample of smaller catchments.

29. This dataset has been expanded for the purpose of the present project, starting with the set containing 151 basins used for a catchment condition analysis in WCMC (1989). However, many transboundary basins are very small indeed at world scale (see Anon., 1978), and within the limits of the present project it has not been possible to include these small basins. A total of 214 major international basins were recognised in 1978 (Anon.), and since that date, fragmentation of previous country units (e.g., former USSR) has increased the number of shared basins. The dataset used here includes 152 international basins (13 of which are shared by five or more countries). Although this suggests that a significant number of shared basins are likely to be missing from the present dataset, the great majority of these are likely to involve two countries only. The present analysis does include all the larger basins, most of those involving three countries, and probably all those involving more than three countries.

Principal results

30. Of the 955 Ramsar sites considered in this study, 267 (28%) are located within the international drainage basins included in our dataset (Table 4). Of these 267 sites, 62 are also within 10km of an international border.

31. Table 5 shows a number of Ramsar sites that appear to be relatively high priority for international cooperation, because they are located at or near the mouth of a large international river system, or have a number of other countries located upstream of them. This indicative list of 'downstream' sites, **intended to highlight the issue**, has been compiled by direct inspection of maps without using rigorous quantitative criteria. Two examples are illustrated in Maps 1 and 2.

Next steps needed

32. A set of Ramsar sites that may be at risk from transboundary factors, in particular from those factors liable to impact the drainage network within international catchment basins, has been identified. In principle, these sites are deserving of international cooperation. Further analysis is required, using different and where possible more fine-scaled data to qualify potential levels of risk. For example, a site in one country that is downstream of known sources of waterborne pollutants may be regarded as at high risk. Information on the biodiversity value of different sites, and their importance to human communities would contribute to the further prioritisation of sites.

RAMSAR SITES AND BASIN VULNERABILITY

Research goal

33. The objective of this part of the study was to investigate the feasibility of using additional data and assessment methods to identify possible priorities among the set of sites judged to be at possible risk; i.e., sites that also appear on independent evidence to be at risk might be regarded as priority for further investigation or management intervention.

Procedures and data quality

34. WCMC (1998) carried out a trial global assessment of the naturalness of catchment basins, and the level of stress they are likely to come under as a result of increasing water demand. It can be argued that Ramsar sites within international basins ranked as vulnerable may themselves be at significant risk.

35. The vulnerability of basins was estimated by a combined measure of present 'naturalness' and future pressure on water resources. Naturalness was estimated by a GIS analysis (by Rob Lesslie, Australia); this entailed measuring the distance of all grid points from mapped indicators of human impact and access (roads and other transport, buildings and settlements, etc.). These grid values were averaged over each basin, with the assumption that dense infrastructure and access is an indicator of low naturalness. This has been shown to be a good surrogate for other aspects of human influence on landscapes. Water resource vulnerability is

based on an analysis by Raskin et al. (1997) in which countries were scored according to estimated future pressures on water resources.

Principal results

36. Table 6 lists the 191 Ramsar sites that occur within basins assessed as higher vulnerability in WCMC (1998). As indicated in the table, 68 of these sites are also within 10km of an international border. Map 3 shows the position of a number of sites at the mouth of the Danube, a high priority complex of sites by all the criteria used in this overview study.

Next steps needed

37. This preliminary assessment of basin vulnerability could be much refined and would then provide a clear rationale for determining priorities for action. For example, countries sharing the Niger system are at high risk of increasing water stress; wetlands within the system are vulnerable and, on this basis, high priority for international cooperation. In contrast, although the Amazon system as a whole is shared between a large number of countries, it is at very low risk of water stress, and the basin as a whole is ranked at low vulnerability in WCMC (1998). However, parts of the system are severely impacted by waterborne pollutants, and drainage-specific factors of this kind need to be included in future more detailed vulnerability assessment.

WETLAND AREAS AND INTERNATIONAL CATCHMENT BASINS

Research goal

38. The intention of this exercise was to assess the need for international cooperation directed at broad areas of wetland habitat, rather than discrete wetland sites as exemplified by areas declared under the Ramsar Convention.

Procedures and data quality

39. An attempt was made to use the same procedures for areas of wetland habitat as were applied to Ramsar sites, outlined above. However, the results are in general of less value because the available spatial data relating to wetland habitats are in their present form not suitable for global analysis.

40. The wetland dataset was collated primarily in support of a major wetlands atlas (Dugan, 1993). It was based heavily on regional wetland directories produced over several years by IUCN – The World Conservation Union, WWF, UNEP and Wetlands International, supplemented by a number of national map sources. The data and the resulting maps were described as "the most comprehensive and accurate assessment of the world's wetlands compiled to date"

(Dugan, 1993), and it remains the case that there is no other global dataset more suitable for the present analysis.

41. The main limitations of this dataset for the present application are: 1) most of the wetland areas are either very large in extent, or highly fragmented, or both, and 2) in most cases, a simple classification of wetland type (based on Ramsar Convention categories) is the only attribute linked with the spatial data, and even this classification is not entirely consistent between continents. In North America the two main classes are for areas with 25-50% wetland and 50-100% wetland. More attribute data are available for most wetland areas in Africa, where a site name is also stored. Thus, in this project, it has been possible to determine from GIS analysis the relative area of wetland types within each international basin (or country), but without further analysis this information has limited application.

42. Spatial data on mangrove occurrence were derived from a global dataset collated at WCMC, as used in a recent atlas of mangroves (Spalding *et al.* 1997). A layer representing peatland soil, as a potential indicator of bog and mire habitats, was used, derived from the FAO Digital Soil Map of the World (Version 3.0).

Principal results

43. Although analysis of the proximity of Ramsar sites and international borders (outlined above) appears useful, this approach did not yield results open to ready interpretation in the case of wetland habitats. Table 7 shows the area of each main wetland type within each of the international catchment basins in this analysis. Larger basins tend to hold greater areas of wetland. Basins shared by five or more countries make up most of the drainage in continental Africa; these basins also hold very extensive areas of wetland habitat. The great extent of swamp forest in the Amazon system, and of fresh water marsh in the Ob and Parana systems, are noteworthy. The latter wetland type is widely correlated with peatlands, as in the Ob and Amur basins. Significant areas of mangrove are present around the mouth of many shared catchment basins, particularly extensive in the Ganges-Brahmaputra, Kapuas and Orinoco systems. Table 7 summarises areas of peatland and mangrove in international basins.

Next steps needed

44. Although the very limited use of the wetland area dataset in the present study did not yield results of immediate use, there is clear potential to extend this phase. In particular, a GIS could be used to analyse the extent to which wetland areas are covered by designated protected areas, and gaps could readily be identified, in terms of wetland type, country and catchment basin. This could be carried out using datasets already available at WCMC. Gap analysis of this kind would generate results with immediate application.

45. Further analysis would probably require improvements to be made to the wetland area dataset, in part by adding attribute data and in part by refining the typology used.

46. Although some use was made of data on mangrove occurrence, it was not possible within the limits of the present study to consider coastal marine wetland habitats in significant detail.

Spatial data on coral reef areas are available. These habitats could be treated in more detail in a future study.

RECOMMENDATIONS FOR FURTHER STUDY

47. A number of important steps that would collectively further improve the scope, focus and conservation benefits of this preliminary GIS analysis have been noted above. These are summarised in the paragraphs below.

48. A set of Ramsar sites has been identified that may be vulnerable to transboundary factors by virtue of their location in relation to international borders or within international catchment basins. Further analysis is required, using different and where possible more fine-scaled data, to qualify levels of risk to these sites. Data on the biodiversity value of different sites; on their importance to human communities; on occurrence of shared groundwaters, or on sources of waterborne pollutants, are among the categories of information that would contribute to this further analysis.

49. Management regimes in adjacent Ramsar sites apparently in contact along an international border should be assessed with a view to improved harmonisation where necessary.

50. Sites identified as at potential risk from transboundary effects that are also located within catchment basins identified as vulnerable on the basis of other evidence would clearly be candidates for priority attention. A preliminary high level assessment of basin vulnerability (WCMC, 1998) has been applied in this study and appears to provide a useful tool for suggesting priorities. This preliminary assessment should be developed further by including more detailed system-specific information.

51. An additional GIS study should be undertaken to analyse the extent to which wetland areas are covered by designated protected areas. Gaps in coverage could readily be identified, in terms of wetland type, country and catchment basin, and such results would have immediate applications.

52. Beyond this gap analysis, further use of the wetland areas dataset would probably require improvements to be made to the data, in part by adding attribute data and in part by refining the typology used.

53. Spatial data on coastal marine wetland habitats should be treated in more detail in a future study.

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ANNEX 1: CATCHMENT BASIN BOUNDARIES

The catchment basin boundaries used were based initially on the global dataset on the GlobalARC CD-ROM made available by CERL (the US Army Corps of Engineers Construction Engineering Research Laboratories). This is generated from a relatively coarse elevation model. Data for North America, Africa and Europe were replaced with improved boundaries generated by the United States Geological Survey (USGS) and made available at: *http://edcwww.cr.usgs.gov/landdaac/gtopo30/hydro/index.html*. The most inclusive basin boundaries, i.e., the entire drainage system passing through one river mouth (or delta region) to the sea, were used in the analysis, selected to provide a reasonable sample from each continent. A very few internally draining systems were also included. In addition, the major catchment boundaries were inspected by eye against appropriate paper maps, and adjustments made.

ANNEX 2: KEY TO ISO A3 COUNTRY CODES

(some of which are used in tables and Map 3)

AFG	AFGHANISTAN
ALB	ALBANIA
DZA	ALGERIA
ASM	AMERICAN SAMOA
AND	ANDORRA
AGO	ANGOLA
AIA	ANGUILLA
ATA	ANTARCTICA
ATG	ANTIGUA AND BARBUDA
ARG	ARGENTINA
ARM	ARMENIA
ABW	ARUBA
AUS	AUSTRALIA
AUT	AUSTRIA
AZE	AZERBAIJAN
BHS	BAHAMAS
BHR	BAHRAIN
BGD	BANGLADESH
BRB	BARBADOS
BLR	BELARUS
BEL	BELGIUM
BLZ	BELIZE
BEN	BENIN
BMU	BERMUDA
BTN	BHUTAN
BOL	BOLIVIA
BIH	BOSNIA AND HERZEGOWINA
BWA	BOTSWANA
BVT	BOUVET ISLAND
BRA	BRAZIL
IOT	BRITISH INDIAN OCEAN TERRITORY
BRN	BRUNEI DARUSSALAM
BGR	BULGARIA
BFA	BURKINA FASO
BDI	BURUNDI
KHM	CAMBODIA
CMR	CAMEROON
CAN	CANADA
CPV	CAPE VERDE
CYM	CAYMAN ISLANDS
CAF	CENTRAL AFRICAN REPUBLIC
TCD	CHAD
CHL	CHILE
CHN	CHINA
CXR	CHRISTMAS ISLAND
CCK	COCOS (KEELING) ISLANDS
COL	COLOMBIA
COM	COMOROS
COG	CONGO
COD	CONGO, THE DEMOCRATIC REPUBLIC OF THE
COK	COOK ISLANDS
CRI	COSTA RICA
CIV	COTE D'IVOIRE
HRV	CROATIA (local name: Hrvatska)
CUB	CUBA
CYP	CYPRUS
CZE	CZECH REPUBLIC
DNK	DENMARK
DJI	DJIBOUTI
DMA	DOMINICA
DOM	DOMINICAN REPUBLIC
TMP	EAST TIMOR
ECU	ECUADOR
EGY	EGYPT
SLV	EL SALVADOR
GNQ	EQUATORIAL GUINEA
ERI	ERITREA

EST	ESTONIA
ETH	ETHIOPIA
FLK	FALKLAND ISLANDS (MALVINAS)
FRO	FAROE ISLANDS
FJI	FIJI
FIN	FINLAND
FRA	FRANCE
FXX	FRANCE, METROPOLITAN
GUF	FRENCH GUIANA
PYF	FRENCH POLYNESIA
ATF	FRENCH SOUTHERN TERRITORIES
GAB	GABON
GMB	GAMBIA
GEO	GEORGIA
DEU	GERMANY
GHA	GHANA
GIB	GIBRALTAR
GRC	GREECE
GRL	GREENLAND
GRD	GRENADA
GLP	GUADELOUPE
GUM	GUAM
GTM	GUATEMALA
GIN	GUINEA
GNB	GUINEA-BISSAU
GUY	GUYANA
HTI	HAITI
HMD	HEARD AND MC DONALD ISLANDS
VAT	HOLY SEE (VATICAN CITY STATE)
HND	HONDURAS
HKG	HONG KONG
HUN	HUNGARY
ISL	ICELAND
IND	INDIA
IDN	INDONESIA
IRN	IRAN (ISLAMIC REPUBLIC OF)
IRQ	IRAQ
IRL	IRELAND
ISR	ISRAEL
ITA	ITALY
JAM	JAMAICA
JPN	JAPAN
JOR	JORDAN
KAZ	KAZAKHSTAN
KEN	KENYA
KIR	KIRIBATI
PRK	KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF
KOR	KOREA, REPUBLIC OF
KWT	KUWAIT
KGZ	KYRGYZSTAN
LAO	LAO PEOPLE'S DEMOCRATIC REPUBLIC
LVA	LATVIA
LBN	LEBANON
LSO	LESOTHO
LBR	LIBERIA
LBY	LIBYAN ARAB JAMAHIRIYA
LIE	LIECHTENSTEIN
LTU	LITHUANIA
LUX	LUXEMBOURG
MAC	MACAU
MKD	MACEDONIA, THE FORMER YUGOSLAV REPUBLIC
MDG	MADAGASCAR
MWI	MALAWI
MYS	MALAYSIA
MDV	MALDIVES
MLI	MALI
MLT	MALTA
MHL	MARSHALL ISLANDS
MTQ	MARTINIQUE
MRT	MAURITANIA
MUS	MAURITIUS
MYT	MAYOTTE
MEX	MEXICO
FSM	MICRONESIA, FEDERATED STATES OF
MDA	MOLDOVA, REPUBLIC OF
MCO	MONACO
MNG	MONGOLIA
MSR	MONTSERRAT
MAR	MOROCCO
MOZ	MOZAMBIQUE
MMR	MYANMAR
NAM	NAMIBIA
NRU	NAURU
NPL	NEPAL
NLD	NETHERLANDS
ANT	NETHERLANDS ANTILLES
NCL	NEW CALEDONIA
NZL	NEW ZEALAND
NIC	NICARAGUA
NER	NIGER
NGA	NIGERIA
NIU	NIUE
NFK	NORFOLK ISLAND
MNP	NORTHERN MARIANA ISLANDS
NOR	NORWAY
OMN	OMAN
PAK	PAKISTAN
PLW	PALAU
PAN	PANAMA
PNG	PAPUA NEW GUINEA
PRY	PARAGUAY
PER	PERU
PHL	PHILIPPINES
PCN	PITCAIRN
POL	POLAND
PRT	PORTUGAL

PRI	PUERTO RICO
QAT	QATAR
REU	REUNION
ROM	ROMANIA
RUS	RUSSIAN FEDERATION
RWA	RWANDA
KNA	SAINT KITTS AND NEVIS
LCA	SAINT LUCIA
VCT	SAINT VINCENT AND THE GRENADINES
WSM	SAMOA
SMR	SAN MARINO
STP	SAO TOME AND PRINCIPE
SAU	SAUDI ARABIA
SEN	SENEGAL
SYC	SEYCHELLES
SLE	SIERRA LEONE
SGP	SINGAPORE
SVK	SLOVAKIA (Slovak Republic)
SVN	SLOVENIA
SLB	SOLOMON ISLANDS
SOM	SOMALIA
ZAF	SOUTH AFRICA
SGS	SOUTH GEORGIA & THE S. SANDWICH ISLANDS
ESP	SPAIN
LKA	SRI LANKA
SHN	ST. HELENA
SPM	ST. PIERRE AND MIQUELON
SDN	SUDAN
SUR	SURINAME
SJM	SVALBARD AND JAN MAYEN ISLANDS
SWZ	SWAZILAND
SWE	SWEDEN
CHE	SWITZERLAND
SYR	SYRIAN ARAB REPUBLIC
TWN	TAIWAN, PROVINCE OF CHINA
TJK	TAJIKISTAN
TZA	TANZANIA, UNITED REPUBLIC OF
THA	THAILAND
TGO	TOGO
TKL	TOKELAU
TON	TONGA
TTO	TRINIDAD AND TOBAGO
TUN	TUNISIA
TUR	TURKEY
TKM	TURKMENISTAN
TCA	TURKS AND CAICOS ISLANDS
TUV	TUVALU
UGA	UGANDA
UKR	UKRAINE
ARE	UNITED ARAB EMIRATES
GBR	UNITED KINGDOM
USA	UNITED STATES
UMI	UNITED STATES MINOR OUTLYING ISLANDS
URY	URUGUAY
UZB	UZBEKISTAN
VUT	VANUATU
VEN	VENEZUELA
VNM	VIET NAM
VGB	VIRGIN ISLANDS (BRITISH)
VIR	VIRGIN ISLANDS (U.S.)
WLF	WALLIS AND FUTUNA ISLANDS
ESH	WESTERN SAHARA
YEM	YEMEN
YUG	YUGOSLAVIA
ZMB	ZAMBIA
ZWE	ZIMBABWE

Table 1. Ramsar sites within 10km of an international border

country	Ramsar site	area (ha)	primary shared river basin
BWA	Okavango Delta System	6,864,000	Zambezi
BOL	Lago Titicaca (Sector Boliviano)	800,000	Amazon
ZAR	Parc national des Virunga	800,000	Zaire
ROM	Danube Delta	647,000	Danube
BGD	The Sundarbans	596,000	Ganges-Brahmaputra
PNG	Tonda Wildlife Management Area	590,000	Fly
PER	Lago Titicaca (Peruvian sector)	460,000	Titicaca
URY	Bañados del Este y Franja Costera	435,000	Lagoon Mirim
IRN	Shadegan Marshes & mudflats of Khor-al Amaya & Khor Musa	400,000	Tigris-Euphrates
PRY	Río Negro	370,000	Parana
RUS	Lake Khanka	310,000	Amur
DEU	Schleswig-Holsteinisches Wattenmeer	299,000	
PRY	Tinfunque	280,000	Parana
ZMB	Bangaweulu Swamps: Chikuni	250,000	Zaire
NLD	Waddenzee (Wadden Sea)	249,998	
ZAF	Natal Drakensberg Park	242,813	
BFA	Parc National du W	235,000	Volta
MWI	Lake Chilwa	224,800	Zambezi
NER	Parc National du W	220,000	Niger
MNG	Mongol Daguur (Mongolian Dauria)	210,000	Amur
RUS	Torey Lakes	172,500	Amur
TGO	Parc national de la Keran	163,400	Volta
DNK	Vadehavet (Wadden Sea)	150,482	
BRA	Pantanal Matogrossense	135,000	Parana
DEU	Wattenmeer, Ostfriesisches Wattenmeer & Dollart	121,620	
RUS	Pskovsko-Chudskaya Lowland	93,600	Narva
GIN	Iles Tristao	85,000	
CRI	Humedal Caribe Noreste	75,310	San Juan
SEN	Delta du Saloum	73,000	
ZAR	Parc national des Mangroves	66,000	
RUS	Kurgalsky Peninsula	65,000	Narva
CHL	Laguna del Negro Francisco y Laguna Santa Rosa	62,460	
AUT	Neusiedlersee, Seewinkel & Hanság	60,000	Danube
GUF	Basse-Mana	59,000	Maroni
ARG	Río Pilcomayo	55,000	Parana
HRV	Lonjsko Polje & Mokro Polje (incl. Krapje Djol)	50,560	Danube
IRN	Hamun-e-Saberi & Hamun-e-Helmand	50,000	Helmand
GTM	Laguna del Tigre	48,372	Usumacinta
AUT	Donau-March-Auen	38,500	Danube
NLD	Oosterschelde & Markiezaatmeer	38,000	Schelde
UKR	Shatsk Lakes	32,850	Dnieper
UKR	Kyliiske Mouth	32,800	Danube

EST	EmajSe Suursoo Mire and Piirissaar Island	32,600	Narva
RUS	Zeya-Bureya Plains	31,600	Amur
TGO	Reserve de faune de Togodo	31,000	Mono
ARG	Reserva Costa Atlantica de Tierra del Fuego	28,600	Rio Grande (AR/CI)
UKR	Tyligulskyi Liman	26,000	Dniester
DEU	Unterer Niederrhein	25,000	Rhine
LTO	Nemunas Delta	23,950	Neman
GMB	Baobolon Wetland Reserve	20,000	Gambia
YUG	Skadarsko Jezero	20,000	Drin
MKD	Lake Prespa	18,920	
HRV	Kopacki Rit	17,770	Danube
NPL	Koshi Tappu	17,500	Ganges-Brahmaputra
PAN	San San - Pond Sak	16,414	
SEN	Djoudj	16,000	Senegal
CHL	Humedal Salar de Surire	15,858	Lauca
MRT	Parc National du Diawling	15,600	Senegal
SVK	Dunajské luhy (Danube flood plains)	14,335	Danube
GTM	Manchón-Guamuchal	13,500	
NAM	Walvis Bay	12,600	
HRV	Delta Neretve	11,500	
CZE	Mokrady dolního Podyjí (floodplain of lower Dyje River)	11,500	Danube
GRC	Artificial lake Kerkini	10,996	Struma
LTO	Cepkeliai	10,590	Neman
CZE	Trebonská rybníky (Trebon fishponds)	10,165	Elbe
ZAF	Ndumo Game Reserve	10,117	Maputo
IRN	Hamun-e-Puzak, south end	10,000	Helmand
CRI	Caño Negro	9,969	San Juan
CRI	Gandoca-Manzanillo	9,445	
GRC	Evros delta	9,267	Maritsa
SVK	Wetlands of Orava Basin	9,264	Vistula
HUN	Lake Fertö	8,432	Danube
ZAF	Kosi Bay	8,000	
CAN	Creston Valley	6,970	Columbia
UKR	Kugurlui Lake	6,500	Danube
CZE	Sumavská raseliniste (Sumava peatlands)	6,371	Elbe
CHL	Salar del Huasco	6,000	
GBR	Upper Lough Erne	5,818	Bann
DEU	Unteres Odertal, Schwedt	5,400	Oder
BOL	Laguna Colorada	5,240	
LTO	Kamanos	5,195	
GRC	Lake Mikri Prespa	5,078	
SVK	Moravské luhy (Morava flood plains)	4,971	Danube
IRL	Dundalk Bay	4,768	Fane
EST	Nigula Nature Reserve	4,651	
SVK	Latorica	4,358	Danube
POL	Slonsk Reserve	4,235	Oder
NLD	Verdronken Land van Saeftinge	3,500	Schelde
FRA	Rives du Lac Léman	3,335	Rhone
LTO	Viesvilé	3,216	Neman

ARM	Lake Arpi	3,139	Kura - Araks
PER	Santuario Nacional Los Manglares de Tumbes	2,972	Zarumilla
HUN	Biharugra Fishponds	2,791	Danube
DZA	Lac Tonga	2,700	
ITA	Stagno di Corru S'Ittiri, Stagni di San Giovanni e Marceddì	2,610	
CAN	Lac Saint-François	2,214	St. Lawrence
BEL	Kalmthoutse Heide	2,200	Schelde
DZA	Lac Oubeïra	2,200	
NLD	Bargerveen	2,100	
NAM	Orange River Mouth	2,000	
AUT	Rheindelta Bodensee	1,970	Rhine
DEU	Unterer Inn, Haiming - Neuhaus	1,955	Danube
NOR	Pasvik Nature Reserve	1,910	
BEL	Vlaamse Banken	1,900	
CHN	Mai Po Marshes & Inner Deep Bay	1,513	
HUN	Rétszilas Fishponds	1,508	Danube
IRL	Lough Oughter	1,464	
IRN	Alagol, Ulmagol & Ajigol Lakes	1,400	Atrek
DEU	Bodensee: Wollmatinger Ried, Giehrenmoos & Mindelsee	1,286	Rhine
GBR	Pettigoe Plateau	1,264	
CZE	Trebonská raseliniste (Trebon peatlands)	1,080	Danube
CHE	Rade de Genève et Rhône en aval de Genève	1,032	Rhone
POL	Jezioro Siedmiu Wysp	999	Vistula
NLD	Engbertsdijksvenen	975	
BGR	Srebarna	902	Danube
IRL	Pettigo Plateau	900	Foyle
POL	Jezioro Swidwie	891	Oder
AUT	Stauseen am Unteren Inn	870	Danube
SVK	Orava River and its Tributaries	865	Danube
CHE	Bolle di Magadino	661	Po
CZE	Lednické rybníky (Lednice fishponds)	650	Danube
SVN	Secoveljske soline (Secovlje salt pans)	650	
YUG	Ludasko Lake	593	Danube
CAN	Alaksen	586	
BEL	Zwin	530	
BEL	Marais d'Harchies	525	Schelde
UKR	Kartal Lake	500	Danube
ZAF	Orange River Mouth	500	Orange
BEL	Schorren van de Beneden Schelde	420	Schelde
SVK	Poiplie	411	Danube
CHE	Lac artificiel de Klingnau	355	Rhine
BGR	Durankulak Lake	350	
CHE	Les Grangettes	330	Rhone
LUX	Haff Réimech	313	Rhine
HUN	Tata, Öreg-tó (Old Lake)	269	Danube
HUN	Szaporca	257	Danube

CZE	Krkonoská raseliniste (Krkonose mountains mires)	230	Elbe
SVK	Cicovské mrtve rameno (Cicov oxbow)	135	Danube
LIE	Ruggeller Riet	101	Rhine
RUS	Khingano-Arkharinskaya Lowland	0	Amur

Note. Some sites have boundaries mapped in digital format; for this analysis sites without boundary data were represented by circles proportional to site area plotted around centroid coordinates. The analysis involved measuring distance from the edge of the site to the nearest international border. Sites represented by circles may in fact be more or less distant from the border, depending on their actual shapes. The left-most column includes standard ISO country codes. Sites are listed in order of decreasing size.

Table 2. Transboundary Ramsar areas

#	Country	Ramsar site	area (ha)	
1	Romania	Danube Delta	647000	coastal
	Ukraine	Kyliiske Mouth	32800	coastal
2	Netherlands	Waddenzee (Wadden Sea)	249998	coastal
	Germany	Wattenmeer, Ostfriesisches Wattenmeer & Dollart	121620	coastal
	Netherlands	Boschplaat	4400	coastal
3	Panama	San San - Pond Sak	16414	coastal
	Costa Rica	Gandoca-Manzanillo	9445	coastal
4	Bolivia	Lago Titicaca	800000	
	Peru	Lago Titicaca	460000	
5	Burkina	Parc National du W	235000	
	Niger	Parc National du W	220000	
6	Mongolia	Mongol Daguur (Mongolian Dauria)	210000	
	Russia	Torey Lakes	172500	
7	Austria	Neusiedlersee, Seewinkel & Hanság	60000	
	Hungary	Lake Fertö	2870	
8	Austria	Donau-March-Auen	38500	
	Czech Republic	Mokrady dolního Podyjí	11500	
9	Germany	Unterer Inn, Haiming - Neuhaus	1955	
	Austria	Stauseen am Unteren Inn	870	

Note. This table lists the nine pairs of adjoining Ramsar sites (three sites in the Waddenzee region) that occur within adjacent countries but are (or appear to be) in contact along the international border. Sites on or very near the coast are listed at the top of the table.

Table 3. Ramsar sites on the coast and within 10km of an international border

country	Ramsar site
ARG	Reserva Costa Atlantica de Tierra del Fuego
BEL	Schorren van de Beneden Schelde
BGD	The Sundarbans
CAN	Lac Saint-François
CHN	Mai Po Marshes & Inner Deep Bay
CRI	Humedal Caribe Noreste
CRI	Gandoca-Manzanillo
DEU	Wattenmeer, Ostfriesisches Wattenmeer & Dollart
DEU	Schleswig-Holsteinisches Wattenmeer
DNK	Vadehavet (Wadden Sea)
GIN	Iles Tristao
GMB	Baobolon Wetland Reserve
GRC	Evros delta
GUF	Basse-Mana
HRV	Delta Neretve
IRL	Dundalk Bay
IRN	Shadegan Marshes & mudflats of Khor-al Amaya & Khor Musa
ITA	Stagno di Corru S'Ittiri, Stagni di San Giovanni e Marceddì
LTO	Nemunas Delta
MRT	Parc National du Diawling
NAM	Walvis Bay
NLD	Waddenzee (Wadden Sea)
NLD	Oosterschelde & Markiezaatmeer
NLD	Verdronken Land van Saeftinge
PAN	San San - Pond Sak
PNG	Tonda Wildlife Management Area
ROM	Danube Delta
RUS	Kurgalsky Peninsula
SEN	Delta du Saloum
SVK	Orava River and its Tributaries
SVN	Secoveljske soline (Secovlje salt pans)
UKR	Kyliiske Mouth
URY	Bañados del Este y Franja Costera
ZAF	Orange River Mouth
ZAR	Parc national des Mangroves

The left-most column includes standard ISO 3 country codes

Table 4. Ramsar sites within international catchment basins

country	Ramsar site	area (ha)	within 10km of border?	river basin name	number of countries sharing basin
ROM	Danube Delta	647000	yes	Danube	17
AUT	Neusiedlersee, Seewinkel & Hanság	60000	yes	Danube	17
HUN	Lake Balaton	59800		Danube	17
HRV	Lonjsko Polje & Mokro Polje (incl. Krapje Djol)	50560	yes	Danube	17
AUT	Donau-March-Auen	38500	yes	Danube	17
UKR	Kyliiske Mouth	32800		Danube	17
HUN	Hortobágy	23121		Danube	17
UKR	Sasyk Lake	21000		Danube	17
UKR	Shagany-Alibei-Burnas Lakes System	19000		Danube	17
HRV	Kopacki Rit	17770	yes	Danube	17
YUG	Obedska Bara	17501		Danube	17
HUN	Gemenc	16873		Danube	17
HUN	Kis-Balaton	14745		Danube	17
SVK	Dunajské luhy (Danube flood plains)	14335		Danube	17
CZE	Mokrady dolního Podyjí (floodplain of lower Dyje River)	11500	yes	Danube	17
DEU	Chiemsee	8660		Danube	17
HUN	Lake Fertö	8432	yes	Danube	17
DEU	Donauauen & Donaumoos	8000		Danube	17
DEU	Ammersee	6517		Danube	17
UKR	Kugurlui Lake	6500		Danube	17
DEU	Starnberger See	5720		Danube	17
POL	Stawy Milickie Nature Reserve (Milicz fishponds)	5325		Danube	17
CZE	Litovelské Pomoraví	5122		Danube	17
HUN	Pusztaszer	5000		Danube	17
SVK	Moravské luhy (Morava flood plains)	4971		Danube	17
SVK	Latorica	4358	yes	Danube	17
HUN	Kiskunság	3903		Danube	17
HUN	Bodrogzug	3782		Danube	17
HUN	Lake Kolon at Izsák	2962		Danube	17
HUN	Biharugra Fishponds	2791		Danube	17
HUN	Mártély	2232		Danube	17
DEU	Unterer Inn, Haiming - Neuhaus	1955	yes	Danube	17
YUG	Stari Begej/Carska Bara Special Nature Reserve	1767		Danube	17
HUN	Rétszilas Fishponds	1508		Danube	17
HUN	Béda-Karapancsa	1150		Danube	17
CZE	Trebonská raseliniste (Trebon peatlands)	1080	yes	Danube	17
HUN	Ócsa	1078		Danube	17
AUT	Untere Lobau	1039		Danube	17

HUN	Velence - Dinnyés	965		Danube	17
DEU	Ismaninger Speichersee & Fischteichen	955		Danube	17
BGR	Srebarna	902	yes	Danube	17
AUT	Stauseen am Unteren Inn	870	yes	Danube	17
SVK	Orava River and its Tributaries	865		Danube	17
CZE	Lednické rybníky (Lednice fishponds)	650	yes	Danube	17
HRV	Crna Mlaka	625		Danube	17
YUG	Ludasko Lake	593	yes	Danube	17
SVK	Rudava River Valley	560		Danube	17
UKR	Kartal Lake	500		Danube	17
HUN	Kardoskút	488		Danube	17
HUN	Pacsmag Fishponds	485		Danube	17
SVK	Turiec Wetlands	467		Danube	17
SVK	Senné-rybníky (Senné fishponds)	442		Danube	17
SVK	Poiplie	411		Danube	17
HUN	Tata, Öreg-tó (Old Lake)	269	yes	Danube	17
HUN	Szaporca	257	yes	Danube	17
DEU	Lech - Donau - Winkel	239		Danube	17
AUT	Hörfeld-Moor	173		Danube	17
SVK	Parízské mociare (Pariz marshes)	141		Danube	17
SVK	Cicovské mrtve rameno (Cicov oxbow)	135	yes	Danube	17
AUT	Sablatnigmoor	100		Danube	17
AUT	Pürgschachen Moor	62		Danube	17
AUT	Rotmoos im Fuschertal	58		Danube	17
BFA	Parc National du W	235000	yes	Niger	10
NER	Parc National du W	220000	yes	Niger	10
MLI	Walado Debo/Lac Debo	103100		Niger	10
BFA	La Mare d'Oursi	45000		Niger	10
MLI	Séri	40000		Niger	10
MLI	Lac Horo	18900		Niger	10
UGA	Lake George	15000		Nile	9
ZAR	Parc national des Virunga	800000		Zaire	9
COG	Réserve Communautaire du Lac Télé/Likouala-aux-Herbes	438960		Zaire	9
ZMB	Bangaweulu Swamps: Chikuni	250000		Zaire	9
BWA	Okavango Delta System	6864000		Zambezi	8
MWI	Lake Chilwa	224800		Zambezi	8
ZMB	Kafue Flats: Lochinvar & Blue Lagoon	83000		Zambezi	8
PER	Pacaya Samiria	2080000		Amazon	7
BRA	Mamirauá	1124000		Amazon	7
PER	Reserva Nacional de Junín	53000		Amazon	7
PHL	Olango Island Wildlife Sanctuary	5800		Amazon	7
ECU	Reserva Biológica Limoncocha	4613		Amazon	7
ARM	Lake Arpi	3139	yes	Kura - Araks	6
TCD	Lac Fitri	195000		Lake Chad	6
DEU	Unterer Niederrhein	25000	yes	Rhine	6
CHE	Rive sud du lac de Neuchâtel	3063		Rhine	6
AUT	Rheindelta Bodensee	1970	yes	Rhine	6
DEU	Bodensee: Wollmatinger Ried, Giehrenmoos & Mindelsee	1286	yes	Rhine	6

CHE	Baie du Fanel et Le Chablais	1155		Rhine	6
NLD	Naardermeer	752		Rhine	6
DEU	Rhein, Eltville - Bingen	475		Rhine	6
CHE	Lac artificiel de Klingnau	355	yes	Rhine	6
LUX	Haff Réimech	313		Rhine	6
CHE	Lac artificiel de Niederried	303		Rhine	6
CHE	Kaltbrunner Riet	150		Rhine	6
LIE	Ruggeller Riet	101	yes	Rhine	6
TGO	Parc national de la Keran	163400	yes	Volta	6
GHA	Songor Lagoon	28740		Volta	6
BFA	La Mare aux hippopotames	19200		Volta	6
IND	Loktak Lake	26600		Ganges-Brahmaputra	5
IND	Sambhar Lake	24000		Ganges-Brahmaputra	5
NPL	Koshi Tappu	17500	yes	Ganges-Brahmaputra	5
IND	Keoladeo National Park	2873		Ganges-Brahmaputra	5
DEU	Niederelbe, Barnkrug - Otterndorf	11760		Elbe	4
CZE	Trebonská rybníky (Trebon fishponds)	10165	yes	Elbe	4
DEU	Elbauen, Schnackenburg - Lauenburg	7560		Elbe	4
CZE	Sumavská raseliniste (Sumava peatlands)	6371	yes	Elbe	4
DEU	Niederung der Untere Havel/Gülper See	5792		Elbe	4
DEU	Helmestausee Berga-Kelbra	2790		Elbe	4
CZE	Novozámecky a Brehynsky rybník (Novozámeckv/Brehynsky fishponds)	923		Elbe	4
DEU	Mühlenberger Loch	675		Elbe	4
CZE	Libechovka and Psovka Brook	350		Elbe	4
CZE	Krkonoská raseliniste (Krkonose mountains mires)	230	yes	Elbe	4
PAK	Chashma Barrage	34099		Indus	4
IND	Wular Lake	18900		Indus	4
PAK	Kinjhar (Kalri) Lake	13468		Indus	4
PAK	Taunsa Barrage	6576		Indus	4
IND	Harike Lake	4100		Indus	4
PAK	Thanedar Wala	4047		Indus	4
PAK	Haleji Lake	1704		Indus	4
PAK	Uchhali Complex (including Khabbaki, Uchhali and Jahlar Lakes)	1243		Indus	4
PAK	Tanda Dam	405		Indus	4
PAK	Drigh Lake	164		Indus	4
ISR	Hula Nature Reserve	300		Jordan	4
ZAF	Nylsvley Nature Reserve	3970		Limpopo	4
FRA	Etangs de la Petite Woëvre	5300		Meuse	4
NLD	De Biesbosch (southern part)	1700		Meuse	4
NLD	Deurnese Peelgebieden	1450		Meuse	4
NLD	Groote Peel	900		Meuse	4
POL	Biebrza National Park	59233		Neman	4
LTU	Nemunas Delta	23950	yes	Neman	4

LTU	Cepkeliai	10590	yes	Neman	4
LTU	Zuvintas	7500		Neman	4
LTU	Viesvilé	3216	yes	Neman	4
GAB	Wongha-Wonghé	380000		Ogooue	4
NAM	Etosha Pan, Lake Oponono & Cuvelai drainage	600000		Okavango	4
ZAF	Seekoeivlei Nature Reserve	4754		Orange	4
ZAF	Barberspan	3118		Orange	4
ZAF	Blesbokspruit	1858		Orange	4
PRY	Río Negro	370000		Parana	4
BRA	Pantanal Matogrossense	135000	yes	Parana	4
ARG	Río Pilcomayo	55000	yes	Parana	4
PRY	Estero Milagro	25000		Parana	4
ARG	Laguna de los Pozuelos	16224		Parana	4
SEN	Djoudj	16000	yes	Senegal	4
MRT	Parc National du Diawling	15600		Senegal	4
GRC	Artificial lake Kerkini	10996	yes	Struma	4
UKR	Shatsk Lakes	32850		Vistula	4
SVK	Wetlands of Orava Basin	9264		Vistula	4
POL	Jezioro Karas	815		Vistula	4
POL	Jezioro Luknajno	710		Vistula	4
RUS	Lake Khanka	310000	yes	Amur	3
CHN	Zhalong	210000		Amur	3
MNG	Mongol Daguur (Mongolian Dauria)	210000		Amur	3
RUS	Torey Lakes	172500	yes	Amur	3
CHN	Xianghai	105467		Amur	3
RUS	Lake Udyl & the mouths of the Bichi, Bitki & Pilda Rivers	57600		Amur	3
RUS	Lake Bolon & the mouths of the Selgon & Simmi Rivers	53800		Amur	3
RUS	Zeya-Bureya Plains	31600	yes	Amur	3
RUS	Khingano-Arkharinskaya Lowland	0	yes	Amur	3
UKR	Prypiat River Floodplains	12000		Dnieper	3
UKR	Hamun-e-Puzak, south end	10000		Dnieper	3
GMB	Baobolon Wetland Reserve	20000		Gambia	3
IRN	Stokhid River Floodplains	10000	yes	Helmand	3
FIN	Koitilaiskaira	34400		Kemijoki	3
FIN	Martimoaapa - Lumiaapa	7400		Kemijoki	3
ZAF	Ndumo Game Reserve	10117		Maputo	3
GRC	Evros delta	9267	yes	Maritsa	3
RUS	Tobol-Ishim Forest-steppe	1217000		Ob	3
RUS	Lower Dvuobje	540000		Ob	3
RUS	Upper Dvuobje	470000		Ob	3
RUS	Chany Lakes	364848		Ob	3
RUS	Islands in Ob Estuary, Kara Sea	128000		Ob	3
RUS	Wetlands in the Lower Bagan area	26880		Ob	3
POL	Slowinski National Park	18247		Oder	3
DEU	Unteres Odertal, Schwedt	5400	yes	Oder	3
POL	Slonsk Reserve	4235	yes	Oder	3
CZE	Poodrí	1500		Oder	3

DEU	Peitzer Teichgebiet	1060		Oder	3
POL	Jezioro Siedmiu Wysp	999	yes	Oder	3
NLD	Oosterschelde & Markiezaatmeer	38000	yes	Schelde	3
NLD	Verdronken Land van Saeftinge	3500	yes	Schelde	3
BEL	Kalmthoutse Heide	2200	yes	Schelde	3
BEL	Marais d'Harchies	525	yes	Schelde	3
BEL	Schorren van de Beneden Schelde	420	yes	Schelde	3
BOL	Lago Titicaca (Sector Boliviano)	800000		Titicaca	3
PER	Lago Titicaca (Peruvian sector)	460000		Titicaca	3
LVA	Teicu un Pelecares bogs	24000		W. Dvina	3
IRN	Miankaleh Peninsula, Gorgan Bay & Lapoo-Zaghmarz Ab-bandan	100000		Atrek	2
IRN	Alagol, Ulmagol & Ajigol Lakes	1400	yes	Atrek	2
GBR	Upper Lough Erne	5818		Bann	2
MEX	Humedales del Delta del Rio Colorado	250000		Colorado	2
CAN	Creston Valley	6970		Columbia	2
USA	Connecticut River Estuary & Tidal Wetlands Complex	6484		Connecticut	2
GNB	Lagoa de Cufada	39098		Corubal	2
UKR	Dniester-Turunchuk Crossrivers Area	76000		Dniester	2
UKR	Alam-Pedja Nature Reserve	26000		Dniester	2
UKR	Northern Part of the Dniester Liman	20000		Dniester	2
RUS	Veselovskoye Reservoir	309000		Don	2
RUS	Lake Manych-Gudilo	112600		Don	2
ESP	Laguna de Villafáfila	2854		Douro-Duero	2
YUG	Skadarsko Jezero	20000		Drin	2
IRL	Pettigo Plateau	900	yes	Foyle	2
PRT	Ria Formosa	16000		Guadiana	2
ESP	Embalse de Orellana	5500		Guadiana	2
ESP	Las Tablas de Daimiel	1928		Guadiana	2
ESP	Laguna de Manjavacas	231		Guadiana	2
ESP	Lagunas de Alcázar de San Juan	160		Guadiana	2
ESP	Laguna del Prado	52		Guadiana	2
ESP	Laguna de la Vega (o del Pueblo)	34		Guadiana	2
KOR	The High Moor, Yongneup of Mt. Daeam	106		Han	2
IDN	Danau Sentarum	80000		Kapuas	2
SWE	Hornborgasjön	6370		Klaralven	2
SWE	Dättern	3920		Klaralven	2
FRA	Basse-Mana	59000		Maroni	2
USA	Cache River - Cypress Creek Wetlands	24281		Mississippi	2
USA	Horicon Marsh	12912		Mississippi	2
USA	Catahoula Lake	12150		Mississippi	2
USA	Sand Lake National Wildlife Refuge	8700		Mississippi	2
USA	Cheyenne Bottoms State Game Area	8036		Mississippi	2
USA	Caddo Lake	3237		Mississippi	2
TGO	Reserve de faune de Togodo	31000	yes	Mono	2
ESP	Aiguamolls de l'Empordà	4784		Muga	2
RUS	Pskovsko-Chudskaya Lowland	93600	yes	Narva	2
RUS	Kurgalsky Peninsula	65000	yes	Narva	2
EST	Emajõe Suursoo Mire and Piirissaar Island	32600	yes	Narva	2

EST	Tyligulskyi Liman	26000		Narva	2
EST	Muraka Nature Reserve	12400		Narva	2
EST	Endla Nature Reserve	8050		Narva	2
ARG	Laguna Blanca	11250		Negro	2
ITA	Mer Bleue Conservation Area	3100		Po	2
ITA	Pian di Spagna - Lago di Mezzola	1740		Po	2
ITA	Valle di Gorino	1330		Po	2
ITA	Valli del Mincio	1081		Po	2
CHE	Bolle di Magadino	661	yes	Po	2
ITA	Palude Brabbia	459		Po	2
ITA	Torbiere d'Iseo	324		Po	2
ITA	Isola Boscone	201		Po	2
ITA	Palude di Ostiglia	123		Po	2
ITA	Lago di Tovel	37		Po	2
FRA	Camargue	85000		Rhone	2
FRA	La Petite Camargue	37000		Rhone	2
FRA	Rives du Lac Léman	3335	yes	Rhone	2
CHE	Rade de Genève et Rhône en aval de Genève	1032	yes	Rhone	2
CHE	Les Grangettes	330	yes	Rhone	2
MEX	Cuatrociénegas	150000		Rio Grande (US/MEX)	2
CRI	Caño Negro	9969		San Juan	2
CAN	Quill Lakes	63500		Saskatchewan-Nelson	2
CAN	Delta Marsh	23000		Saskatchewan-Nelson	2
CAN	Beaverhill Lake	18050		Saskatchewan-Nelson	2
CAN	Last Mountain Lake	15602		Saskatchewan-Nelson	2
CAN	Oak Hammock Marsh	3600		Saskatchewan-Nelson	2
CAN	Long Point	13730		St. Lawrence	2
CAN	Lac Saint-Pierre	11952		St. Lawrence	2
CAN	Minesing Swamp	6000		St. Lawrence	2
CAN	Valle Bertuzzi	3100		St. Lawrence	2
CAN	Lac Saint-François	2214	yes	St. Lawrence	2
CAN	Matchedash Bay Provincial Wildlife Area	1840		St. Lawrence	2
CAN	Point Pelee	1564		St. Lawrence	2
CAN	St. Clair	244		St. Lawrence	2
PRT	Estuário do Tejo	14563		Tagus	2
PRT	Paúl de Boquilobo	529		Tagus	2
KGZ	Issyk-kul Lake	629800		Tarim (Yarkand)	2
SWE	Tavvavuoma	28700		Tornio	2
GTM	Laguna del Tigre	48372		Usumacinta	2
GRC	Axios, Loudias, Aliakmon delta	11808		Vardar	2
RUS	Brekhovsky Islands in the Yenisei estuary	0		Yenisey	2
CAN	Old Crow Flats	617000		Yukon	2
PER	Santuario Nacional Los Manglares de	2972		Zarumilla	2

	Tumbes

Note. This table lists Ramsar sites situated within our sample dataset of 152 international catchment basins. They are ordered first by number of countries sharing the basin, then by basin, then by area.

Table 5. Possible priority 'downstream' Ramsar sites

country	Ramsar site	area (ha)	within 10km of an international border?	river basin name	number of countries sharing basin
BWA	Okavango Delta System	6864000		Zambezi	8
BOL	Lago Titicaca (Sector Boliviano)	800000		Titicaca	3
ROM	Danube Delta	647000	yes	Danube	17
BGD	The Sundarbans	596000	yes		0
PER	Lago Titicaca (Peruvian sector)	460000		Titicaca	3
URY	Bañados del Este y Franja Costera	435000	yes		0
IRN	Shadegan Marshes & mudflats of Khor-al Amaya & Khor Musa	400000	yes		0
MEX	Humedales del Delta del Rio Colorado	250000		Colorado	2
BFA	Parc National du W	235000	yes	Niger	10
NER	Parc National du W	220000	yes	Niger	10
RUS	Pskovsko-Chudskaya Lowland	93600	yes	Narva	2
IRN	Hamun-e-Saberi & Hamun-e-Helmand	50000	yes		0
GNB	Lagoa de Cufada	39098		Corubal	2
NLD	Oosterschelde & Markiezaatmeer	38000	yes	Schelde	3
EST	Emajõe Suursoo Mire and Piirissaar Island	32600	yes	Narva	2
DEU	Unterer Niederrhein	25000	yes	Rhine	6
GMB	Baobolon Wetland Reserve	20000		Gambia	3
SEN	Djoudj	16000	yes	Senegal	4
MRT	Parc National du Diawling	15600		Senegal	4
CAN	Lac Saint-Pierre	11952		St. Lawrence	2
GRC	Axios, Loudias, Aliakmon delta	11808		Vardar	2
DEU	Niederelbe, Barnkrug - Otterndorf	11760		Elbe	4
IRN	Hamun-e-Puzak, south end	10000	yes	Helmand	3
GRC	Evros delta	9267	yes	Maritsa	3
DEU	Elbauen, Schnackenburg - Lauenburg	7560		Elbe	4
DEU	Niederung der Untere Havel/Gülper See	5792		Elbe	4
NLD	De Biesbosch (southern part)	1700		Meuse	4
DEU	Mühlenberger Loch	675		Elbe	4
RUS	Khingano-Arkharinskaya Lowland		yes	Amur	3

Note. This is an indicative list of sites inside one country that have the greater part of the catchment basin in which they occur 'upstream' and within one or more other countries, and which may be considered priorities for international cooperation. A small number of these (e.g., Lake Titicaca, PN du W, Danube Delta) are also transboundary Ramsar areas (see Table 2). Sites are listed in order of decreasing size.

Table 6: Ramsar sites within vulnerable catchment basins

	Ramsar site	within 10km of an international border?
ARM	Lake Arpi	yes
ATF	La Petite Camargue	
AUT	Donau-March-Auen	yes
AUT	Hörfeld-Moor	
AUT	Neusiedlersee, Seewinkel & Hanság	yes
AUT	Pürgschachen Moor	
AUT	Rheindelta Bodensee	yes
AUT	Rotmoos im Fuschertal	
AUT	Sablatnigmoor	
AUT	Stauseen am Unteren Inn	yes
AUT	Untere Lobau	
BFA	La Mare aux hippopotames	
BFA	La Mare d'Oursi	
BFA	Parc National du W	yes
BGD	The Sundarbans	yes
BGR	Srebarna	yes
BOL	Lago Titicaca (Sector Boliviano)	yes
BWA	Okavango Delta System	yes
CAN	Lac Saint-François	yes
CAN	Lac Saint-Pierre	
CAN	Long Point	
CAN	Matchedash Bay Provincial Wildlife Area	
CAN	Mer Bleue Conservation Area	
CAN	Minesing Swamp	
CAN	Point Pelee	
CAN	St. Clair	
CHE	Baie du Fanel et Le Chablais	
CHE	Bolle di Magadino	yes
CHE	Kaltbrunner Riet	
CHE	Lac artificiel de Klingnau	yes
CHE	Lac artificiel de Niederried	
CHE	Les Grangettes	yes
CHE	Rade de Genève et Rhône en aval de Genève	yes
CHE	Rive sud du lac de Neuchâtel	
CZE	Krkonoská raseliniste (Krkonose mountains mires)	yes
CZE	Lednické rybníky (Lednice fishponds)	yes
CZE	Libechovka and Psovka Brook	
CZE	Litovelské Pomoraví	
CZE	Mokrady dolního Podyjí (floodplain of lower Dyje River)	yes
CZE	Novozámecky a Brehynsky rybník (Novozámeckv/Brehynsky fishponds)	
CZE	Poodrí	
CZE	Sumavská raseliniste (Sumava peatlands)	yes
CZE	Trebonská raseliniste (Trebon peatlands)	yes
CZE	Trebonská rybníky (Trebon fishponds)	yes

DEU	Ammersee	
DEU	Bodensee: Wollmatinger Ried, Giehrenmoos & Mindelsee	yes
DEU	Chiemsee	
DEU	Donauauen & Donaumoos	yes
DEU	Elbauen, Schnackenburg - Lauenburg	
DEU	Helmestausee Berga-Kelbra	
DEU	Ismaninger Speichersee & Fischteichen	
DEU	Lech - Donau - Winkel	
DEU	Mühlenberger Loch	
DEU	Niederelbe, Barnkrug - Otterndorf	
DEU	Niederung der Untere Havel/Gülper See	
DEU	Peitzer Teichgebiet	
DEU	Rhein, Eltville - Bingen	
DEU	Starnberger See	
DEU	Unterer Inn, Haiming - Neuhaus	yes
DEU	Unterer Niederrhein	yes
DEU	Unteres Odertal, Schwedt	yes
ESP	Embalse de Orellana	
ESP	Laguna de la Vega (o del Pueblo)	
ESP	Laguna de Manjavacas	
ESP	Laguna de Villafáfila	
ESP	Laguna del Prado	
ESP	Lagunas de Alcázar de San Juan	
ESP	Las Tablas de Daimiel	
FRA	Camargue	
FRA	Etangs de la Petite Woëvre	
FRA	Rives du Lac Léman	yes
GHA	Songor lagoon	
GMB	Baobolon Wetland Reserve	yes
GTM	Laguna del Tigre	yes
HRV	Crna Mlaka	
HRV	Kopacki Rit	yes
HRV	Lonjsko Polje & Mokro Polje (incl. Krapje Djol)	yes
HUN	Béda-Karapansca	
HUN	Biharugra Fishponds	yes
HUN	Bodrogzug	
HUN	Gemenc	
HUN	Hortobágy	
HUN	Kardoskút	
HUN	Kis-Balaton	
HUN	Kiskunság	
HUN	Lake Balaton	
HUN	Lake Fertö	yes
HUN	Lake Kolon at Iszák	
HUN	Mártély	
HUN	Ócsa	
HUN	Pacsmag Fishponds	
HUN	Pusztaszer	
HUN	Rétszilas Fishponds	yes
HUN	Szaporca	yes

HUN	Tata, Öreg-tó (Old Lake)	yes
HUN	Velence - Dinnyés	
IND	Harike Lake	
IND	Keoladeo National Park	
IND	Loktak Lake	
IND	Sambhar Lake	
IND	Wular Lake	
IRN	Hamun-e-Puzak, south end	yes
IRN	Hamun-e-Saberi & Hamun-e-Helmand	yes
IRN	Shadegan Marshes & mudflats of Khor-al Amaya & Khor Musa	yes
ITA	Isola Boscone	
ITA	Lago di Tovel	
ITA	Palude Brabbia	
ITA	Palude di Ostiglia	
ITA	Pian di Spagna - Lago di Mezzola	
ITA	Torbiere d'Iseo	
ITA	Valle Bertuzzi	
ITA	Valle di Gorino	
ITA	Valli del Mincio	
LIE	Ruggeller Riet	yes
LUX	Haff Réimech	yes
LVA	Teicu un Pelecares bogs	
MEX	Pantanos de Centla	
MLI	Lac Horo	
MLI	Séri	
MLI	Walado Debo/Lac Debo	
MRT	Parc National du Diawling	yes
MWI	Lake Chilwa	yes
NER	Parc National du W	yes
NLD	Naardermeer	
NPL	Koshi Tappu	yes
PAK	Chashma Barrage	
PAK	Drigh Lake	
PAK	Haleji Lake	
PAK	Kinjhar (Kalri) Lake	
PAK	Tanda Dam	
PAK	Taunsa Barrage	
PAK	Thanedar Wala	
PAK	Uchhali Complex (including Khabbaki, Uchhali and Jahlar Lakes	
PER	Lago Titicaca (Peruvian Sector)	yes
POL	Biebrza National Park	
POL	Jezioro Karas	
POL	Jezioro Luknajno	
POL	Jezioro Siedmiu Wysp	yes
POL	Slonsk Reserve	yes
POL	Slowinski National Park	
PRT	Estuário do Tejo	
PRT	Paúl de Boquilobo	
PRT	Ria Formosa	
PRT	Sapais de Castro Marim	

ROM	Danube Delta	yes
RUS	Lake Manych-Gudilo	
RUS	Veselovskoye Reservoir	
SEN	Djoudj	yes
SVK	Cicovské mrtve rameno (Cicov oxbow)	yes
SVK	Dunajské luhy (Danube flood plains)	yes
SVK	Latorica	yes
SVK	Moravské luhy (Morava flood plains)	yes
SVK	Orava River and its Tributaries	yes
SVK	Parízské mociare (Pariz marshes)	
SVK	Poiplie	yes
SVK	Rudava River Valley	
SVK	Senné-rybníky (Senné fishponds)	
SVK	Turiec Wetlands	
SVK	Wetlands of Orava Basin	yes
TGO	Parc national de la Keran	yes
UGA	Lake George	
UKR	Dniester-Turunchuk Crossrivers Area	
UKR	Kartal Lake	yes
UKR	Kugurlui Lake	yes
UKR	Kyliiske Mouth	yes
UKR	Northern Part of the Dniester Liman	
UKR	Prypiat River Floodplains	
UKR	Sasyk Lake	
UKR	Shagany-Alibei-Burnas Lakes System	
UKR	Shatsk Lakes	yes
UKR	Stokhid River Floodplains	
UKR	Tyligulskyi Liman	yes
UKR	Yagorlytska Bay	yes
USA	Cache River - Cypress Creek Wetlands	
USA	Caddo Lake	
USA	Catahoula Lake	
USA	Cheyenne Bottoms State Game Area	
USA	Horicon Marsh	
USA	Sand Lake National Wildlife Rufuge	
YUG	Ludasko Lake	yes
YUG	Obedska Bara	
YUG	Stari Begej/Carska Bara Special Nature Reserve	
ZAF	Barberspan	
ZAF	Blesbokspruit	
ZAF	Nylsvley Nature Reserve	
ZAF	Orange River Mouth	yes
ZAF	Seekoeivlei Nature Reserve	
ZAR	Parc national des Virunga	yes
ZMB	Kafue Flats: Lochinvar & Blue Lagoon	

Note: Basins ranked as vulnerable on the basis of low naturalness and high predicted water stress; see text and WCMC (1998). The left-most column includes standard ISO 3 country codes.

Table 7. Wetland areas within international catchment basins

basin name	no. of countries	wetland category	area (km sq)
Amazon	7	Swamp forest	439,346
		Fresh water marsh	12,185
Amur	3	Fresh water marsh	83,299
		Floodplains	11,568
		General wetlands	4,907
		Lake	1,314
		Deltas	201
Atrek	2	Fresh water marsh	733
		Lake	270
Bann	2	Lake	386
Colorado	2	20-50% wetlands	16,071
		50-100% wetlands	5,663
		Fresh water marsh	143
Columbia	2	20-50% wetlands	34,166
		50-100% wetlands	5,688
		Lake	1,767
Connecticut	2	20-50% wetlands	18,172
Corubal	2	Fresh water marsh	1,139
Danube	17	Deltas	6,471
		Lake	2,238
		Fresh water marsh	2,141
		Alkaline/saline lake	546
Dnieper	3	Fresh water marsh	27,475
		Lake	3,276
		Tidal wetlands/estuary/mud flats	495
Dniester	2	Tidal wetlands/estuary/mud flats	736
		Lake	62
Don	2	Lake	2,379
Douro-Duero	2	Lake	382
Drin	2	Lake	931
Elbe	4	Fresh water marsh	804
		Lake	252
		Tidal wetlands/estuary/mud flats	3
Foyle	2	Lake	0
Gambia	3	Fresh water marsh	1,858
Ganges-Brahmaputra	5	Fresh water marsh	198,880
		Complex wetlands	97,630
		Floodplains	3,131
		Lake	2,810
		Salt pan	1,387
		Tidal wetlands/estuary/mud flats	557
Guadiana	2	Lake	360
Han	2	Tidal wetlands/estuary/mud flats	340

		Fresh water marsh	96
Helmand	3	General wetlands	2,863
Indus	4	Complex wetlands	81,985
		Fresh water marsh	7,721
		Lake	5,801
		Salt pan	2,917
		Tidal wetlands/estuary/mud flats	1,080
		Deltas	891
Jordan	4	Lake	160
		General wetlands	18
Kapuas	2	Swamp forest	1,457
		Lake	46
Kemijoki	3	Lake	1,512
Klaralven	2	Lake	6,040
		Fresh water marsh	2,728
Kura - Araks	6	Lake	154
Lake Chad	6	Fresh water marsh	177,364
		Lake	23,538
		Semi-permanent lake	521
		Impoundment	382
Limpopo	4	Fresh water marsh	11,308
		Impoundment	682
		Lake	10
Maputo	3	Fresh water marsh	818
		Impoundment	94
		Lake	27
		Salt pan	8
Maritsa	3	Deltas	136
		Lake	128
Maroni	2	Swamp forest	1,850
		Fresh water marsh	70
Meuse	4	Lake	37
Mississippi	2	20-50% wetlands	579,009
		50-100% wetlands	49,733
		Lake	42
Mono	2	Fresh water marsh	804
		Lake	93
Muga	2	Lake	8
Narva	2	Lake	3,392
		Fresh water marsh	1,481
Negro	2	Fresh water marsh	4,128
Neman	4	Fresh water marsh	810
		Tidal wetlands/estuary/mud flats	681
		Lake	348
Niger	10	Fresh water marsh	74,247
		Swamp forest	4,098
		Lake	2,994
		Impoundment	2,831
		Salt pan	43

Nile	9	Fresh water marsh	103,252
		Lake	84,372
		Impoundment	5,155
		Salt pan	1,537
		Lagoon	12
Ob	3	Fresh water marsh	342,857
		Lake	20,766
		Deltas	4,711
		General wetlands	1,687
		Salt pan	142
Oder	3	Lake	1,164
Ogooue	4	Fresh water marsh	8,770
		Swamp forest	582
Okavango	4	Salt pan	32,388
		Fresh water marsh	16,932
		Lake	709
		Impoundment	22
Orange	4	Salt pan	4,985
		Impoundment	1,549
		Fresh water marsh	809
Parana	4	Fresh water marsh	279,840
		Floodplains	4,807
Po	2	Lake	921
		Tidal wetlands/estuary/mud flats	564
Rhine	6	Lake	1,229
Rhone	2	Lake	702
		Tidal wetlands/estuary/mud flats	363
Rio Grande (US/MEX)	2	20-50% wetlands	9,453
		50-100% wetlands	456
		Fresh water marsh	226
		Lagoon	84
San Juan	2	Swamp forest	1,376
		Fresh water marsh	1,337
		Lagoon	343
		Lake	5
Saskatchewan-Nelson	2	20-50% wetlands	802,043
		50-100% wetlands	119,041
		Lake	60,059
Schelde	3	Tidal wetlands/estuary/mud flats	307
Senegal	4	Fresh water marsh	13,387
		Lake	306
		Impoundment	254
St. Lawrence	2	Lake	257,566
		20-50% wetlands	217,347
		50-100% wetlands	18,589
Struma	4	Lake	48
Tagus	2	Lake	929
		Tidal wetlands/estuary/mud flats	29
Tarim (Yarkand)	2	Complex wetlands	22,729

		Lake	11,498
		Salt pan	4,380
Tornio	2	Fresh water marsh	6,210
		Lake	1,081
Usumacinta	2	Lake	13
Vardar	2	Lake	40
		Deltas	18
		Tidal wetlands/estuary/mud flats	4
Vistula	4	Lake	4,999
		Fresh water marsh	863
Volta	6	Fresh water marsh	9,786
		Impoundment	7,841
		Lake	35
		Lagoon	6
W. Dvina	3	Fresh water marsh	2,045
		Lake	1,144
Yenisey	2	Lake	10,041
		Deltas	3,913
		Fresh water marsh	3,105
		Complex wetlands	1,838
Yukon	2	50-100% wetlands	208,328
		20-50% wetlands	10,015
		Lake	3,530
Zaire	9	Swamp forest	182,687
		Fresh water marsh	104,877
		Lake	44,452
		Impoundment	272
		Pools	7
Zambezi	8	Fresh water marsh	63,128
		Lake	29,767
		Impoundment	10,437
		Tidal wetlands/estuary/mud flats	66

Table 8. Area of peatland and mangrove in international catchment basins

peatland				mangrove			
shared river basin	**number of countries**	**area (km sq)**	**includes Ramsar site?**	**shared river basin**	**number of countries**	**area (km sq)**	**includes Ramsar site?**
Ob	3	368,185	yes	Ganges-Brahmaputra	5	5,541	yes
Saskatchewan-Nelson	2	147,407		Orinoco	2	1,533	
Amur	3	108,635	yes	Kapuas	2	1,052	
Kemijoki	3	29,196	yes	Niger	10	677	
Yenisey	2	23,150		Fly	2	629	yes
Ganges-Brahmaputra	5	19,040	yes	Indus	4	544	
Oulu	2	17,244		Volta	6	276	yes
Dnieper	3	14,400	yes	Barima	2	274	
Zaire	9	12,315	yes	Sepik	2	201	
Mississippi	2	10,908		Gambia	3	197	
Kapuas	2	8,505	yes	Mekong	6	196	
Syr Darya	4	6,517		Cross	2	119	
St. Lawrence	2	5,490		Saigon	2	113	
Ili	2	4,781		St John	2	96	
Oder	3	3,605	yes	Cavally	3	80	
Fly	2	3,522	yes	Sassandra	2	71	
Orinoco	2	3,433		Maroni	2	64	yes
Terek	2	2,934		Coco (Segovia)	2	59	
Tornio	2	2,834		Si	2	58	
Barima	2	2,630		Oyapock	2	56	
Zambezi	8	2,544		Lofa	2	48	
Vistula	4	1,952	yes	Senegal	4	48	yes
Danube	17	1,448	yes	Cestos	3	42	
W. Dvina	3	1,049	yes	Moa	3	35	
Olanga	2	976		Sembakung	2	32	
Elbe	4	891	yes	Zarumilla	2	29	yes
Rhine	6	854	yes	Komoe	2	27	
Neman	4	621	yes	Sanaga	2	22	
Sembakung	2	576		Amazon	7	17	
Maroni	2	550	yes	Maputo	3	16	
Amu Darya	5	266		Great Scarcies	2	16	
Yalu Jiang	2	245		Ruvuma	3	13	
Narva	2	229		Tumbes	2	12	
Sepik	2	222		Mono	2	11	
Ural	2	196		Zambezi	8	9	
Amazon	7	130		Dasht	2	8	
Coco (Segovia)	2	38		Ogooue	4	7	
Essequibo	2	34		Baraka	2	7	
Meuse	4	6		Zaire	9	6	
				Save	2	6	

Usumacinta	2	6	yes
Little Scarcies	2	4	
Mano-Morro	2	3	
Patia	2	3	