

WHAT FUTURE for WATERBIRDS?

A Call to Action

Waterbirds include the albatrosses and shearwaters admired by sailors and rarely seen on shore; they are the gregarious gulls and pelicans working the coastlines and the graceful herons and flamingos poised over still, shallow waters; the rare Whooping Crane and abundant Common Murre are both waterbird species; and the secretive rails in the marshes, the ostentatious puffins and boobies of the rocky cliffs, and the graceful loons of open lakes fall into this diverse group of aquatic species.

These birds constitute a natural resource of great intrinsic, human and ecological value that needs to be protected and fostered through appropriate management. Spectacular in appearance or in numbers, waterbirds are conspicuous representatives of their exotic, mysterious, and wild aquatic worlds.

Throughout history, they have figured prominently in human culture, serving as sources of food and ornamentation, as well as folkloric or totemic figures. Even today, many serve as symbols of cultural identity, conservation organizations, environmental programs, or locales. Waterbirds are a favorite of birdwatchers, who number nearly a hundred million people and contribute significantly to communities and businesses in their pursuits. Some species are a boon to sportsmen, such as the seabird flocks leading anglers to their catch. Beyond their cultural significance, waterbirds are often useful as indicators of environmental quality and ecosystem health. The conservation of waterbirds can help protect the broader landscape in which they occur.

Despite their value, or perhaps because of it, waterbirds have not always fared well at the hands of humans. In one case, the harm was irreversible. The last sighting of the Great Auk in 1852 heralded the extinction of this colonial waterbird species through direct hunting impacts. Fortunately, the mass destruction of egrets by market hunting in the late 1800s and early 1900s was stemmed in time, and in fact, led to the modern conservation movement in North America. Yet as illustrated by the crash of the Brown Pelican population in the Gulf of Mexico due to contaminants, waterbirds are still at risk due to human activities. Species such as the Short-tailed Albatross, Newell's Shearwater, Black-vented Shearwater, Black-footed Albatross, Bermuda Petrel, and Hawaiian Coot, listed by the World Conservation Union (IUCN) as vulnerable, could share the Great Auk's fate unless they receive proper conservation attention.



Sandhill Cranes

Sunbittern ➤ Sandhill Crane ➤ Common Crane ➤ Whooping Crane ➤ Limpkin ➤ Sungrebe ➤ Yellow Rail ➤

Some waterbirds continue to be threatened by direct impacts of human activities. Longline and gill net fisheries kill large numbers of seabirds through entanglement and drowning. Oil spills from ships and chronic bilge discharge sicken and kill hundreds of thousands of waterbirds. Impacts from exposure to pesticides and other chemicals, which caused population declines in Double-crested Cormorants and Brown Pelicans in the 1960s and 1970s, continue to threaten waterbirds in places throughout the Americas. Food concentrated in aquaculture ponds and hatchery facilities attracts herons, cormorants, terns, and pelicans, and may result in legal or illegal killing by distressed fish farmers. Citizens sometimes look upon



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Common Tern

waterbirds with disfavor when nesting or roosting congregations in urban and suburban environments conflict with aesthetic standards. Public disaffection with waterbirds, warranted or not, may be among their greatest long-term threats.

The habitats of waterbirds—the important sites on which they depend for nesting, feeding and wintering—are also at risk due to human related and natural threats. Hydrologic change of freshwater wetlands, degradation of coastal and marine habitats, and depletion of the food base all adversely affect waterbirds. Habitat loss and degradation can cause population declines. For example, the Marbled Murrelet has declined dramatically due to the destruction of its nesting habitat from logging of old growth forests along the Pacific Coast of North America. More insidious are patch-by-patch losses occurring in wetlands and other aquatic habitats, as they are drained, channelized, manipulated, over-fished, plowed, or altered in response to human pressures. Even cumulatively, these may go unnoticed due to the piecemeal fashion of loss. For some species, such as the Double-crested Cormorant and Ring-billed Gull, habitat changes have resulted in artificial food sources and subsequent population increases and expansion. These may threaten other bird species or result in human conflicts. Without active and

appropriate management, most waterbird habitats will no longer provide for healthy and diverse populations of waterbirds.

A Vision for Waterbird Conservation in the Americas

Threats to waterbirds and their habitats have stimulated a significant response by individuals and organizations concerned with their conservation. The Waterbird Conservation for the Americas initiative (the Waterbird initiative) was launched in 1998 to link these efforts, and is an international, broad-based, voluntary partnership dedicated to waterbird conservation. In Canada, the U.S., and Mexico,

it complements the initiatives existing for other bird groups, specifically the North American Waterfowl Management Plan, Partners in Flight, and the national Shorebird Plans, all of which come together in the North American Bird Conservation Initiative (NABCI). In addition, the Waterbird initiative addresses conservation of waterbirds in the Caribbean, Central America, and open waters of the Pacific and Atlantic.

The vision of Waterbird Conservation for the Americas is that the distribution, diversity, and abundance of populations and habitats of breeding, migratory, and nonbreeding waterbirds are sustained or restored throughout the lands and waters of North America, Central America, and the Caribbean.

It is recognized that sustainability is inherently hard to quantify and judge. Sustainability implies that populations are healthy and vigorous, and that human-caused adversities do not affect demographic parameters in ways that reduce populations below what existing ecosystems or ecosystems managed at varying capacities

should support. Sustainability does not imply stasis in population size, trend or distribution. Sustainability must be achieved at all scales and within contemporary social and economic contexts. It is particularly difficult to quantify sustainability on a continental scale, as it must be extrapolated from smaller scales. Finally, sustainability will need to be most precisely defined for species under threat, including both rare and abundant species.

Four goals were developed to achieve the vision for waterbirds:

■ Species and Population Goal

To ensure sustainable distributions, diversity and abundance of waterbird species throughout each of their historical or naturally expanding ranges in the lands and waters of North America, Central America, and the Caribbean.

■ Habitat Goal

To protect, restore, and manage sufficient high quality habitat and key sites for waterbirds throughout the year to meet species and population goals.

■ Education and Information Goal

To ensure that information on the conservation of waterbirds is widely available to decision makers, land managers, the public, and all whose actions affect waterbird populations and their habitats.

■ Coordination and Integration Goal

To ensure that coordinated conservation efforts for waterbirds in the Americas continue, are guided by common principles, and result in integrated and mutually supportive waterbird conservation actions.

A Common Framework

Achieving the vision for waterbird conservation will involve activities over a huge geographical area, multiple scales of planning and implementation, and involvement of numerous partners from government and nongovernmental organizations, from the scientific community, and from local citizenry. Thus, it is highly desirable that the various stakeholders agree to common definitions,

foundations, tenets, priorities, strategies and structures to the extent possible.

Waterbird Conservation for the Americas: The North American Waterbird Conservation Plan (the Plan) provides a common framework for managers and conservationists to proceed with actions intended to benefit waterbirds. It aims to facilitate continent-wide planning and monitoring, national-state-provincial conservation planning and action, regional planning and coordination, and local habitat protection and management.

A Matter of Scale

Conservation of waterbirds is an international matter. Many species considered in the Plan range through a number of countries in the Plan area, and the distributions of some species extend to other continents. Wintering habitats used in one country may be supporting breeding populations in another. Populations that migrate across international borders must be evaluated at continental or even global scales. Moreover, some resource issues, such as fish stock management, are inherently international. Thus, maintaining waterbird populations in the Americas at levels necessary for their long-term conservation requires that planning, inventory, monitoring, and management action be carried out as international activities. Conservation at this largest scale is the principal focus of this Plan.



Common Loon

Buff-banded Rail ➤ Guam Rail ➤ Clapper Rail ➤ King Rail ➤ Virginia Rail ➤ Corn Crake ➤

Conservation of waterbirds is a national matter. Most national governments have responsibility for managing birds, especially endemic and migratory species. National governments are also responsible for habitat management on government lands and in varying degrees for regulation of factors affecting habitat quality, such as pollution, wetland protections, and land development. It is recommended that national governments and other stakeholders consider development of national strategies to guide waterbird conservation at this scale.

Conservation of waterbirds is a regional matter. Between seasons and years, local sites of populations may shift within larger geographic or ecological regions. Regional conservation action requires cooperation among neighboring political units such as states, provinces, and nations. Conservation planning at this scale will be addressed in regional waterbird plans and will be implemented through regional partnerships of private conservationists and waterbird biologists in state, provincial, and national governments.

Conservation of waterbirds within large nations is a state and provincial matter. In Canada, provincial governments have principal responsibility for habitat and for the management of some waterbirds. In the U.S., states have principal statutory and/or constitutional responsibility for all wildlife within state borders—managing hunting, parks, sanctuaries, and other activities affecting waterbirds—and concurrent jurisdiction with the federal government on migratory species.

Conservation of waterbirds is a local matter. Local commitment to waterbird conservation is essential. Local governments in many countries are responsible for zoning, development permitting, and local environmental quality. Nesting and roosting waterbirds are particularly affected by local conditions. Fortunately, the congregatory behavior of most waterbirds provides opportunities for effective, efficient conservation action at the local scale. Also, because different species utilize the same habitats, common conservation principles and similar

management themes can be enacted that would positively affect a suite of species. Conservation at the local scale will be addressed through local planning and actions of local constituencies, especially community-based organizations.

Geographic Extent of the Plan

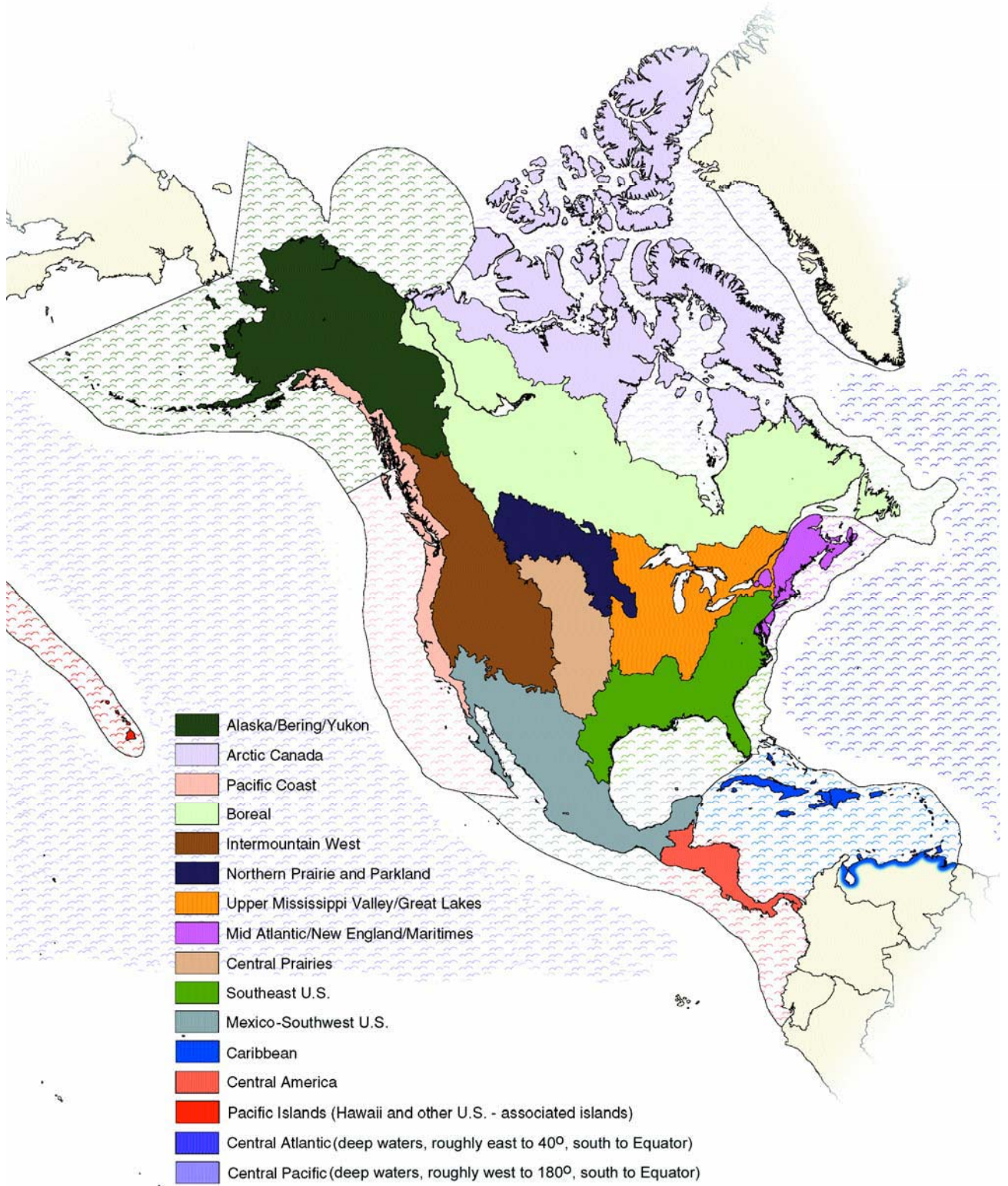
The geographic extent of this Plan is immense. As shown in Figure 1, it includes North America, Central America, the islands and waters of the Caribbean, the Pacific Ocean including the U.S.-associated Pacific Islands, and the western Atlantic Ocean including Bermuda.

The Plan area is organized into several planning regions (see Figure 1), which were created in order to facilitate planning at a scale that was practical, yet allowed a landscape-level perspective. The regional boundaries are based on a combination of political considerations and ecological factors. The Central American nations and their coastal zones are combined into one planning region, as are all of the Caribbean Islands. In Canada, the U.S., and Mexico, planning regions are based on composites of Bird Conservation Regions (BCRs) and Pelagic Bird Conservation Regions (PBCRs) (see Figure 2). The BCRs are terrestrial geographic areas having similar habitats and were developed to provide a consistent spatial framework for NABCI's bird conservation strategy¹. The PBCRs were created specifically for this Plan as marine analogs of terrestrial BCRs, in order to address the conservation needs of seabirds. They are very similar to the Large Marine Ecosystems developed by IUCN, the U.S. National Oceanic and Atmospheric

The Plan area includes the interests of 29 nations:

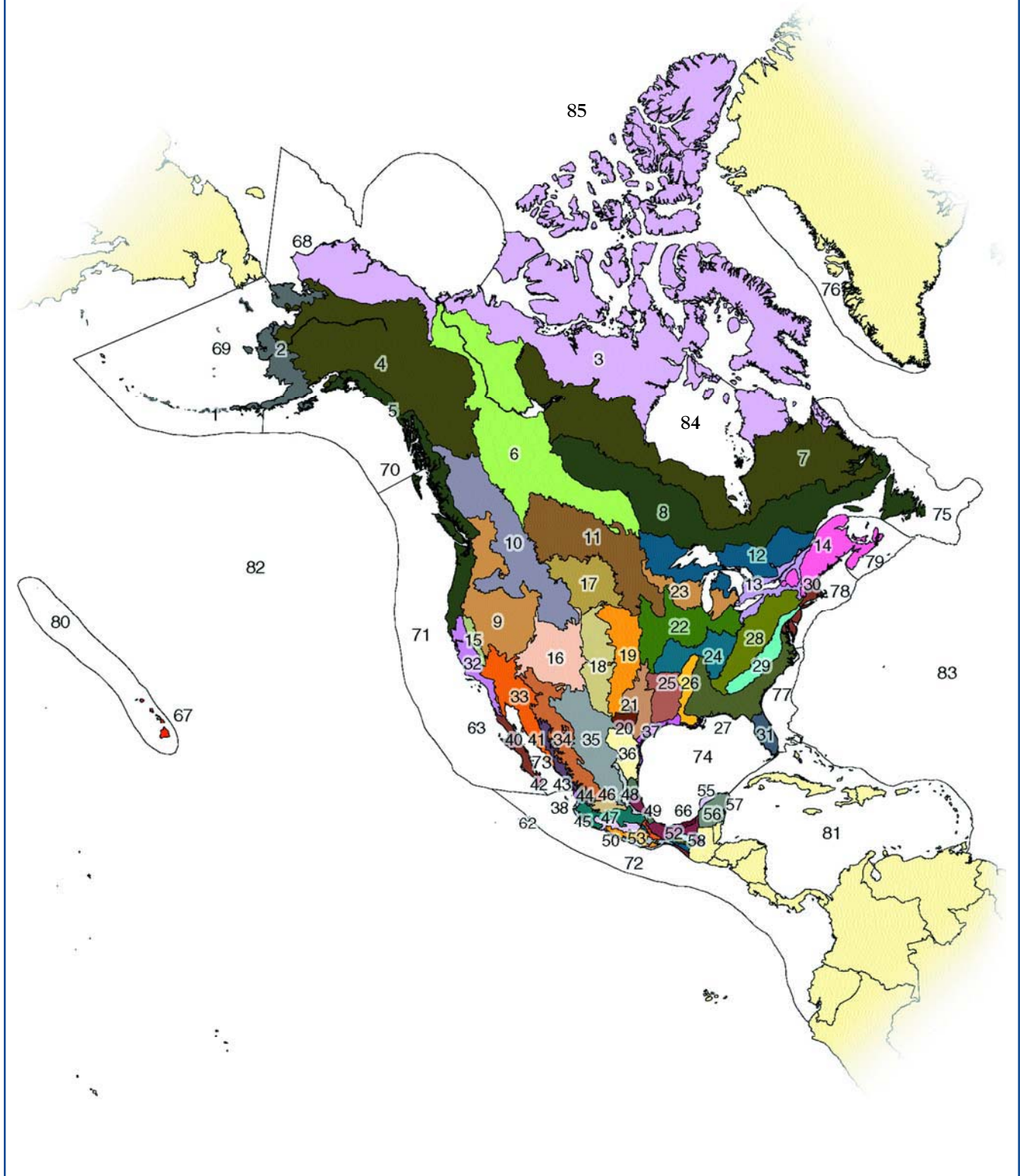
Canada, United States (including Pacific and Caribbean islands), Mexico, Guatemala, Belize, Honduras, El Salvador, Nicaragua, Costa Rica, Panama, Venezuela (the Caribbean islands), Bermuda, Bahamas, Jamaica, Cuba, Haiti, Dominican Republic, Anguilla, Antigua & Barbuda, St. Kitts & Nevis, Dominica, St. Lucia, St. Vincent & the Grenadines,	Barbados, Granada, Trinidad & Tobago, Netherlands (the islands of Aruba, Bonaire, Curacao, Saba, St. Eustatius, St. Maarten), France (St. Pierre et Miquelon Archipelago, the islands of Martinique, Guadeloupe, St. Martin, St. Barthelemy), Great Britain (the islands Turks & Caicos, Cayman Islands, British Virgin Islands, Montserrat)
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Figure 1. Geographic Extent of *Waterbird Conservation for the Americas: The North American Waterbird Conservation Plan*, Showing Waterbird Conservation Planning Regions



Yellow-breasted Crake ➤ *White-browed Crake* ➤ *Zapata Rail* ➤ *Colombian Crake* ➤ *Paint-billed Crake* ➤

Figure 2. Bird Conservation Regions



Spotted Rail  Purple Swamphen  Purple Gallinule  Azure Gallinule  Common Moorhen 

Figure 2 Legend

BCRs

- 1 Aleutian/Bering Sea Islands
- 2 Western Alaska
- 3 Arctic Plains and Mountains
- 4 Northwestern Interior Forest
- 5 Northern Pacific Rainforest
- 6 Boreal Taiga Plains
- 7 Taiga Shield and Hudson Plains
- 8 Boreal Softwood Shield
- 9 Great Basin
- 10 Northern Rockies
- 11 Prairie Potholes
- 12 Boreal Hardwood Transition
- 13 Lower Great Lakes/St. Lawrence Plain
- 14 Atlantic Northern Forest
- 15 Sierra Nevada
- 16 Southern Rockies/Colorado Plateau
- 17 Badlands and Prairies
- 18 Shortgrass Prairie
- 19 Central Mixed-grass Prairie
- 20 Edwards Plateau
- 21 Oaks and Prairies
- 22 Eastern Tallgrass Prairie
- 23 Prairie Hardwood Transition
- 24 Central Hardwoods
- 25 West Gulf Coastal Plain/Ouachitas
- 26 Mississippi Alluvial Valley
- 27 Southeastern Coastal Plain
- 28 Appalachian Mountains
- 29 Piedmont

- 30 New England/Mid-Atlantic Coast
- 31 Peninsular Florida
- 32 Coastal California
- 33 Sonoran and Mohave Deserts
- 34 Sierra Madre Occidental
- 35 Chihuahuan Desert
- 36 Tamaulipan Brushlands
- 37 Gulf Coastal Prairie
- 38 Islas Marias
- 39 Sierras de Baja California
- 40 Desierto de Baja California
- 41 Islas del Golfo de California
- 42 Sierra y Planicies de El Cabo
- 43 Planicie Costera, Lomeríos y Cañones de Occidente
- 44 Marismas Nacionales
- 45 Planicie Costera y Lomeríos del Pacífico Sur
- 46 Sur del Altiplano Mexicano
- 47 Eje Neovolcánico Transversal
- 48 Sierra Madre Oriental
- 49 Planicie Costera y Lomeríos Secos del Golfo de México
- 50 Cuenca del Río Balsas
- 51 Valle de Tehuacán-Cuicatlán
- 52 Planicie Costera y Lomeríos Húmedos del Golfo de México
- 53 Sierra Madre del Sur
- 54 Sierra Norte de Puebla-Oaxaca
- 55 Planicie Noroccidental de Yucatán
- 56 Planicie de la Península de Yucatán
- 57 Isla Cozumel

- 58 Altos de Chiapas
- 59 Depresiones Intermontanas
- 60 Sierra Madre de Chiapas
- 61 Planicie Costera del Soconusco
- 62 Archipiélago de Revillagigedo
- 63 Isla Guadalupe
- 64 Arrecife Alacranes
- 65 Los Tuxtlas
- 66 Panatanos de Centla-Laguna de Términos
- 67 Hawaii

PBCRs

- 68 Chukchi & Beaufort Seas
- 69 East Bering Sea
- 70 Gulf of Alaska
- 71 California Current
- 72 Pacific Central-American Coastal
- 73 Gulf of California
- 74 Gulf of Mexico
- 75 Newfoundland-Laborador Shelf
- 76 West Greenland Shelf
- 77 Southeast U.S. Continental Shelf
- 78 Northeast U.S. Continental Shelf
- 79 Scotian Shelf
- 80 Insular Pacific-Hawaiian
- 81 Caribbean Sea
- 82 Pacific
- 83 Atlantic
- 84 Hudson Bay
- 85 Arctic Ocean

Terrestrial BCRs not yet developed for the Caribbean and Central America

Administration (NOAA) and the Intergovernmental Oceanographic Commission of UNESCO (IOC) ², with some practical modifications suggested by regional waterbird managers. The PBCRs shown in Figure 2 include both coastal (up to 200 miles offshore) and open-ocean areas of the Atlantic and Pacific.

Though the Plan does have a defined geographic extent, it is recognized that the conservation needs of waterbirds do not stop at any discrete borders. Thus, when appropriate and acceptable, activities under the Plan should be linked to activities beyond the Plan area. For example, seabird conservation in Canada will be coordinated with conservation and management in Greenland, where appropriate. Where possible, conservation across all Pacific islands will be considered when planning for U.S. holdings in the Pacific. It is hoped that the Plan will

eventually link to conservation initiatives in South America.

Taxonomic Extent of the Plan

The Plan addresses the conservation needs and opportunities for 210 species of birds in 23 families that spend at least part of the year in the Plan area (see Table 1). The complete list of included species is given in Appendix 1, along with 39 species occurring only accidentally or casually in the Plan area.

All of the species addressed in the Plan are dependent on aquatic habitats to complete portions of their life cycles, hence the term “waterbirds.” They can be further characterized by other non-technical terms relating to where they typically forage: seabirds (birds primarily feeding in open ocean); coastal waterbirds (primarily

Eurasian Coot (Common) ➤ *Hawaiian Coot* ➤ *American Coot* ➤ *Caribbean Coot* ➤ *Great Skua* ➤

utilizing the interface between land and both salt and fresh water); wading birds (principally feeding by wading in shallow waters), and marshbirds (often secretive, feeding in primarily fresh waters). These terms are not exclusive. Admittedly, there are many other kinds of birds that rely on aquatic habitats, including shorebirds, waterfowl, raptors, and many songbirds; however, these species are the focus of other initiatives such as the Shorebird Plans, the North American Waterfowl Management Plan, and Partners in Flight.

This first version of the Plan provides detailed information on the waterbirds that nest colonially, as they were the original focus of the Waterbird initiative. The waterbird families that contain colonial-nesting species are noted in Table 1 by asterisks; these are generally the seabirds, coastal waterbirds, and wading birds. Subsequent versions of the Plan will address solitary-nesting waterbirds, generally the marshbirds, in greater detail.

Biological Considerations

Conservation action for waterbirds involves many opportunities and challenges because of the fundamental biology that unites these species. The Plan takes into account the following biological characteristics and advocates their consideration in all other planning and implementation activities for waterbirds.

Distribution and Range

- ❖ Many waterbirds have large ranges that cross national and continental borders, or span oceans, and individuals may cover enormous distances in their lifetimes over periods of years or even weeks.
- ❖ Breeding, wintering and migratory distributions change continually due to natural and human-related causes.
- ❖ Some species use recognizable migration flyways.
- ❖ Some populations spend only part of the year within any one area, including the Plan area.
- ❖ Distributions in some areas, such as the Arctic and tropics, are very poorly understood.

Dependence on Aquatic Systems

- ❖ These birds use aquatic habitats, such as ponds, rivers, lakes, wetlands, coastal and offshore pelagic

TABLE 1. Families and Species of Waterbirds Included in Waterbird Conservation for the Americas: The North American Waterbird Conservation Plan

Families	Species
Gaviidae	loons
Podicipedidae*	grebes
Diomedidae*	albatrosses
Procellariidae*	shearwaters, petrels, fulmars
Hydrobatidae*	storm-petrels
Phaethontidae*	tropicbirds
Sulidae*	boobies, gannet
Pelecanidae*	pelicans
Phalacrocoracidae*	cormorants
Anhingidae*	darters, anhinga
Fregatidae*	frigatebirds
Ardeidae*	herons, egrets, bitterns
Threskiornithidae*	ibises, spoonbill
Ciconiidae*	storks
Phoenicopteridae*	flamingo
Accipitridae*	Snail Kite
Rallidae	rails
Heliornithidae	sungrebe
Eurypygidae	sunbittern
Aramidae	limpkin
Gruidae	cranes
Laridae*	gulls, terns, skimmers, skua, jaeger
Alcidae*	auks, murre, puffins, murrelets, guillemots

* Family includes some or all colonial-nesting species, which are addressed in detail in Version 1 of the Plan. Future versions will further address remaining families.

systems for feeding and other activities.

- ❖ Marine seabirds constitute the majority of species in the Plan and rely on prey populations associated with continental shelf and open ocean waters.
- ❖ In habitat patches that are relatively unaltered, waterbirds depend on the maintenance of natural conditions.
- ❖ Most wetland systems in the Plan area have been altered. In these altered habitat patches, birds often depend on human management.

Demography

- ❖ Most waterbirds are long-lived, have low annual reproductive output, high juvenile mortality, but high adult survivorship.
- ❖ Reproductive success in any one year may not be as critical to population sustainability as adult mortality.

- ❖ The population consequences of reproductive failure are postponed in long-lived species with delayed maturity, hence monitoring should incorporate measures of productivity and survival as well as population surveys.
- ❖ Low inter-year variability in populations of long-lived waterbirds, such as many seabirds, enhances the ability to detect population trends.

Coloniality-Concentration

- ❖ Concentration at colonies is the defining biological characteristic of many species of waterbirds.
- ❖ Colony site character changes with time, often due to natural causes.
- ❖ Some species are faithful to nesting sites; others change sites frequently.
- ❖ Concentration at feeding, roosting and loafing sites makes specific sites disproportionately important to populations.
- ❖ Many waterbirds concentrate during migration and in over-wintering areas.

Underlying Tenets

Certain assumptions are central to waterbird conservation strategies, processes, and implementation. The following points describe the underlying tenets of the Plan, which should be adopted in all waterbird conservation activities.

Integrated Bird Conservation

Waterbirds occur in habitats used by other birds and by people. Thus, the wisest course for conservation action is within the context of multi-species and multi-use management, which will increase efficiency and effectiveness while reducing costs.

In protecting and managing aquatic habitats, the needs of all birds relying on these habitats should be coordinated, whenever possible. In these multi-species conservation programs, the needs of waterbirds should receive equal consideration to those of other species. Effectively meeting the needs of multiple species groups is the purpose of NABCI. Thus, in Canada, the U.S. and Mexico, this Plan should be considered alongside plans for other groups of aquatic species, thereby facilitating the



Royal Terns

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inclusion of waterbirds in further planning and implementation of “all-bird” conservation. Also, because of limited resources, waterbird conservation in Mexico, Central America, and the Caribbean would be most effective if part of an effort for all aquatic bird species. For these regions, the Plan proposes partnerships of relevant initiatives and the creation of plans that include all aquatic birds.

Multi-use management of aquatic habitats, such as for water supply, flood control, wetland protection, fisheries, and recreation, should incorporate the habitat and population needs of waterbirds as one of its goals.

A Foundation on Science and Experience

Wherever possible, conservation strategies should be based on rigorous scientific and practical knowledge. The knowledge about waterbird biology and the threats facing waterbirds form links between broad conservation goals and the specific conservation programs needed to protect bird species and their habitats.

Knowledge to make informed conservation decisions must be current, as complete as possible, and readily available. Planning for the conservation of species that change nesting locations year to year or change feeding locations on a daily or weekly basis will require understanding populations at many scales. Critical knowledge needed includes population trends and dynamics, key habitats, and important areas.

Fortunately, for many waterbird species and in many areas, basic biological information is sufficiently strong



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Snowy Egret

to support conservation action. In addition, locally gained knowledge is often sufficiently robust to extrapolate to other situations. However, there are many significant gaps in knowledge, and the Plan recommends that research and monitoring on waterbirds be expanded, targeted and disseminated to meet the increased demands of scientifically based conservation.

The management of waterbirds, especially abundant fish-eating colonial waterbirds, involves economic and

social factors as well as biological ones, and these must be considered in conservation planning. Management must seek to achieve population and habitat health and sustainability as defined in ways consistent with scientific knowledge, which may require explicit management of both biological and human factors.

Although available scientific information and practical experience must be used to inform management actions, conservation cannot always wait for complete information. The Plan urges critical conservation action be initiated with due speed based on best available knowledge but in an adaptive manner.

An Adaptive Approach

Effective waterbird conservation requires an innovative, dynamic, iterative process of planning, implementation, evaluation of that implementation, and revision of action plans when necessary. The Plan encourages the incorporation of approaches that permit evaluation of the results of management action in terms of the underlying scientific hypotheses.

Evaluating the effects of conservation action results in the development of an agenda for further research, provides needed data for adaptive management models, further informs subsequent management action, and influences the revision process.

To be adaptive, conservation requires flexibility and openness to redirection or change, such as might be justified by the results of research, monitoring, and experiential learning. Flexibility in the mechanisms used to deliver waterbird conservation is particularly important in multi-national strategies.

¹ *The North American Bird Conservation Initiative: Bringing It All Together*, U.S. NABCI Committee, September 2000

² *An Ecosystem Strategy for the Assessment and Management of International Coastal Ocean Waters*. IUCN, NOAA and IOC. 1998 (see www.edc.uri.edu/lme)