

# Waterbird Conservation Plan for the Mid-Atlantic/New England/Maritimes Region: 2006-2010

## MANEM Waterbird Working Group

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# Waterbird Conservation Plan for the Mid-Atlantic/New England/Maritimes Region: 2006-2010

## I. Introduction

A partnership of organizations and individuals working to facilitate waterbird conservation in the Mid-Atlantic/New England/Maritimes (MANEM) region of the US and Canada has developed a regional waterbird conservation plan to be implemented during 2006-2010. Over 200 partners comprising the MANEM Waterbird Working Group have compiled and interpreted technical information on the region's waterbird populations and habitats, assessed conservation status of these natural resources, developed strategies to ensure the persistence of sustainable waterbird populations in the region, and identified near-term priorities. MANEM partners include wildlife managers, scientists, policy makers, educators and funders.

The presentation of information in the plan has been designed to meet the needs of diverse conservation partners in the region. Technical information on species-specific occurrence, conservation status, threats to sustainability and conservation measures needed to ensure the persistence of waterbirds in the region is found in the species profiles in Appendix 1. Appendix 2 provides technical information on the habitats and locations identified as being critical to waterbird conservation throughout the inland, coastal and marine habitats of the region. A directory of partners participating in the development of the MANEM plan is provided in Appendix 3 along with their areas of expertise and contact information. Appendix 4 contains descriptions of 130 conservation projects conceived by partners as responding to the ongoing and projected needs of waterbird conservation in the region. Conservation projects describe current and proposed research, management, habitat acquisition, and education activities necessary to ensure waterbird sustainability in MANEM.

Information compiled from the appendices is presented in the following section of the plan. Tables summarizing waterbird species occurrence, population size, trend, and regional threats as well as summary tables of habitat occurrence and status are provided. Waterbird population and habitat priorities are also described. The approach MANEM partners adopted to develop population and habitat goals is described and its outcome. Finally, summarized information on projects proposed to meet critical research, management, habitat acquisition, and education needs is provided. The reader will find the Executive Summary and Abstract preceding this section of the plan. These documents provide concise information in a popular format on near-term waterbird conservation priorities for the Mid-Atlantic/New England/Maritimes region of North America.

The MANEM Waterbird Conservation Plan is being implemented within the context and framework of the North American Waterbird Conservation Plan—a project of the Waterbird Conservation for the Americas Initiative ([www.waterbirdconservation.org](http://www.waterbirdconservation.org)). The MANEM Working Group welcomes participation from all those interested in waterbird conservation and management. To learn more about waterbird conservation in the region, visit [www.waterbirdconservation.org/MANEM](http://www.waterbirdconservation.org/MANEM). To contact the steering committee, email Kathy Parsons ([waterbirds@manomet.org](mailto:waterbirds@manomet.org)) or Scott Johnston ([Scott\\_Johnston@fws.gov](mailto:Scott_Johnston@fws.gov)).

## II. Waterbird Resources: Populations and Habitats

### A. Waterbird Populations

Occurrence and Activity. Seventy-four species of waterbirds utilize habitats in MANEM for breeding, migrating/dispersal and wintering activities (Table 1). Accidental and casual species (see NAWCP) have not been included in this treatment of MANEM waterbirds. Avian families include: Gaviidae (loons-2 spp), Podicipedidae (grebes-3 spp), Procellariidae (shearwaters-6 spp), Hydrobatidae (storm-petrels-2 spp), Sulidae (boobies-1 sp), Pelecanidae (pelicans-1 sp), Phalacrocoracidae (cormorants-2 spp), Ardeidae (herons-11 spp), Threskiornithidae (ibises-2 spp), Rallidae (rails-9 spp), Laridae (gulls, terns-24 spp),

Stercorariidae (skuas, jaegers-5 spp), Alcidae (alcids-6 spp). More than two-thirds of these species breed in the region and of these, nearly 74% nest in colonies. Breeding birds are largely present in the region for half the year during spring and summer months. Nonbreeders include migrants and wintering birds, most of which, as adults, nest farther north in North America or Europe but some of which nest in the tropics or southern hemisphere.

**Table 1—Waterbird population occurrence in the Mid-Atlantic/New England/Maritimes region of North America. Information on the activity and timing of 74 waterbird species that regularly occur in MANEM is summarized from the waterbird species profiles (Appendix 1).**

Waterbird Species		BCR 30/PBCR 78 Activity			BCR 14/PBCR 79 Activity		
		general	breeding	nonbreeding	general	breeding	nonbreeding
<i>Gavia stellata</i>	Red-throated Loon	nonbreeding only		migrates+winters (Sep-Feb)	nonbreeding only		migrates+winters (Sep-Feb)
<i>Gavia immer</i>	Common Loon	nonbreeding only		migrates+winters (Sep-Feb)	breeding+nonbreeding	solitary (Mar-Aug)	migrates+winters (Sep-Feb)
<i>Podilymbus podiceps podiceps</i>	Pied-billed Grebe	breeding+nonbreeding	solitary (Mar-Aug)	migrates+winters (Mar-Feb)	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)
<i>Podiceps auritus cornutus</i>	Horned Grebe	nonbreeding only		migrates+winters (Sep-Feb)	nonbreeding only		migrates+winters (Sep-Feb)
<i>Podiceps grisegena holboellii</i>	Red-necked Grebe	nonbreeding only		migrates+winters (Sep-Feb)	nonbreeding only		migrates+winters (Sep-Feb)
<i>Fulmarus glacialis auduboni</i>	Northern Fulmar	nonbreeding only		migrates+winters (Mar-Feb)	nonbreeding only		migrates+winters (Mar-Feb)
<i>Calonectris diomedea borealis</i>	Cory's Shearwater	nonbreeding only		migrates+winters (May-Nov)	nonbreeding only		migrates+winters (May-Nov)
<i>Puffinus gravis</i>	Greater Shearwater	nonbreeding only		migrates+winters (May-Nov)	nonbreeding only		migrates+winters (May-Nov)
<i>Puffinus griseus</i>	Sooty Shearwater	nonbreeding only		migrates+winters (Jun-Nov)	nonbreeding only		migrates+winters (Jun-Nov)
<i>Puffinus puffinus puffinus</i>	Manx Shearwater	nonbreeding only		migrates+winters (Feb-Oct)	nonbreeding only		migrates+winters (Feb-Oct)
<i>Puffinus lherminieri lherminieri</i>	Audubon's Shearwater	nonbreeding only		migrates+winters (Apr-Nov)			
<i>Oceanites oceanicus oceanicus</i>	Wilson's Storm-Petrel	nonbreeding only		migrates+winters (Apr-Sep)	nonbreeding only		migrates+winters (Apr-Sep)
<i>Oceanodroma leucorhoa leucorhoa</i>	Leach's Storm-Petrel	breeding+nonbreeding	colonial (Apr-Oct)	migrates+winters (Apr-Oct)	breeding+nonbreeding	colonial (Apr-Oct)	migrates+winters (Apr-Oct)
<i>Morus bassanus</i>	Northern Gannet	nonbreeding only		migrates+winters (Sep-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)
<i>Pelecanus occidentalis carolinensis</i>	Brown Pelican	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)			
<i>Phalacrocorax auritus auritus</i>	Double-crested Cormorant	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Apr)	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)
<i>Phalacrocorax carbo carbo</i>	Great Cormorant	nonbreeding only		migrates+winters (Sep-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)
<i>Botaurus lentiginosus</i>	American Bittern	breeding+nonbreeding	solitary (Mar-Aug)	migrates+winters (Sep-Feb)	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)
<i>Ixobrychus exilis exilis</i>	Least Bittern	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)
<i>Ardea herodias herodias</i>	Great Blue Heron	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)
<i>Ardea alba egretta</i>	Great Egret	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)	nonbreeding only		migrates (Sep)
<i>Egretta thula thula</i>	Snowy Egret	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)
<i>Egretta caerulea</i>	Little Blue Heron	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)	nonbreeding only		migrates (Feb, Sep)
<i>Egretta tricolor ruficollis</i>	Tricolored Heron	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)			
<i>Bubulcus ibis ibis</i>	Cattle Egret	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)	nonbreeding only		migrates (Sep)
<i>Butorides virescens virescens</i>	Green Heron	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)
<i>Nycticorax nycticorax hoactli</i>	Black-crowned Night Heron	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)
<i>Nyctanassa violacea violacea</i>	Yellow-crowned Night Heron	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)			
<i>Eudocimus albus</i>	White Ibis	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)			
<i>Plegadis falcinellus falcinellus</i>	Glossy Ibis	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)			
<i>Coturnicops noveboracensis noveboracensis</i>	Yellow Rail	nonbreeding only		migrates (Feb, Sep)	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)
<i>Laterallus jamaicensis jamaicensis</i>	Black Rail	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)			
<i>Rallus longirostris crepitans</i>	Clapper Rail	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)			

Waterbird Species		BCR 30/PBCR 78 Activity			BCR 14/PBCR 79 Activity		
<i>Rallus elegans elegans</i>	King Rail	breeding+nonbreeding	solitary (Mar-Aug)	migrates+winters (Mar-Feb)			
<i>Rallus limicola limicola</i>	Virginia Rail	breeding+nonbreeding	solitary (Mar-Aug)	migrates+winters (Mar-Feb)	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)
<i>Porzana carolina</i>	Sora	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)
<i>Porphyrio martinica</i>	Purple Gallinule	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)			
<i>Gallinula chloropus cachinnans</i>	Common Moorhen	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)
<i>Fulica americana americana</i>	American Coot	breeding+nonbreeding	solitary (Mar-Aug)	migrates+winters (Sep-Feb)	breeding+nonbreeding	solitary (Mar-Aug)	migrates (Feb, Sep)
<i>Larus atricilla megalopterus</i>	Laughing Gull	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)
<i>Larus minutus</i>	Little Gull	nonbreeding only		migrates+winters (Nov-Mar)	nonbreeding only		migrates+winters (Nov-Mar)
<i>Larus ridibundus ridibundus</i>	Black-headed Gull	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)
<i>Larus philadelphia</i>	Bonaparte's Gull	nonbreeding only		migrates+winters (Sep-Apr)	nonbreeding only		migrates+winters (Sep-Apr)
<i>Larus delawarensis</i>	Ring-billed Gull	nonbreeding only		migrates+winters (Sep-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)
<i>Larus argentatus smithsoniaunus</i>	Herring Gull	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)
<i>Larus glaucoides kumlieni</i>	Iceland Gull	nonbreeding only		migrates+winters (Nov-May)	nonbreeding only		migrates+winters (Nov-May)
<i>Larus fuscus graellsii</i>	Lesser Black-backed Gull	nonbreeding only		migrates+winters (Sep-Mar)	nonbreeding only		migrates (Aug, Apr)
<i>Larus hyperboreus leucereetes</i>	Glaucous Gull	nonbreeding only		migrates+winters (Dec-Apr)	nonbreeding only		migrates+winters (Dec-Apr)
<i>Larus marinus</i>	Great Black-backed Gull	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)
<i>Xema sabini sabini</i>	Sabine's Gull	nonbreeding only		migrates+winters (Mar-Feb)	nonbreeding only		migrates+winters (Mar-Feb)
<i>Rissa tridactyla tridactyla</i>	Black-legged Kittiwake	nonbreeding only		migrates+winters (Sep-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)
<i>Onychoprion anaethetus recognita</i>	Bridled Tern	nonbreeding only		migrates+winters (Aug-Nov)			
<i>Sternula antillarum antillarum</i>	Least Tern	breeding+nonbreeding	colonial (May-Sep)	migrates (Apr, Oct)			
<i>Gelochelidon nilotica aranea</i>	Gull-billed Tern	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)			
<i>Hydroprogne caspia</i>	Caspian Tern	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Sep, Feb)			
<i>Chlidonias niger surinamensis</i>	Black Tern	nonbreeding only		migrates (Feb, Sep)	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)
<i>Sterna dougallii dougallii</i>	Roseate Tern	breeding+nonbreeding	colonial (May-Aug)	migrates (Apr, Sep)	breeding+nonbreeding	colonial (May-Aug)	migrates (Apr, Sep)
<i>Sterna hirundo hirundo</i>	Common Tern	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)
<i>Sterna paradisaea</i>	Arctic Tern	breeding+nonbreeding	colonial (May-Aug)		breeding+nonbreeding	colonial (May-Aug)	migrates+winters (Sep-Apr)
<i>Sterna forsteri litoricola</i>	Forster's Tern	breeding+nonbreeding	colonial (Apr-Aug)	migrates+winters (Sep-Jul)			
<i>Thalasseus maximus maxima</i>	Royal Tern	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)			
<i>Thalasseus sandvicensis acullavidus</i>	Sandwich Tern	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)			
<i>Rynchops niger niger</i>	Black Skimmer	breeding+nonbreeding	colonial (Mar-Aug)	migrates (Feb, Sep)			
<i>Stercorarius skua</i>	Great Skua	nonbreeding only		migrates+winters (Mar-Feb)	nonbreeding only		migrates+winters (Mar-Feb)
<i>Stercorarius maccormicki</i>	South Polar Skua	nonbreeding only		migrates+winters (Jun-Sep)	nonbreeding only		migrates+winters (Jun-Sep)
<i>Stercorarius pomarinus</i>	Pomarine Jaeger	nonbreeding only		migrates (Mar-Feb)	nonbreeding only		migrates (Mar-Feb)
<i>Stercorarius parasiticus</i>	Parasitic Jaeger	nonbreeding only		migrates+winters (May-Oct)	nonbreeding only		migrates+winters (May-Oct)
<i>Stercorarius longicaudus</i>	Long-tailed Jaeger	nonbreeding only		migrates (Nov-Apr)	nonbreeding only		migrates (Nov-Apr)
<i>Alle alle alle</i>	Dovekie	nonbreeding only		migrates+winters (Dec-May)	nonbreeding only		migrates+winters (Dec-May)
<i>Uria aalge aalge</i>	Common Murre	nonbreeding only		migrates+winters (Sep-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)
<i>Uria lomvia lomvia</i>	Thick-billed Murre	nonbreeding only		migrates+winters (Mar-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Mar-Feb)
<i>Alca torda torda</i>	Razorbill	nonbreeding only		migrates+winters (Sep-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)
<i>Cephus grylle arcticus</i>	Black Guillemot	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)	breeding+nonbreeding	colonial (Mar-Aug)	migrates+winters (Sep-Feb)
<i>Fratercula arctica arctica</i>	Atlantic Puffin				breeding+nonbreeding	colonial (Apr-Aug)	migrates+winters (Sep-Mar)

Population Size and Trend. Estimates of population size at global, continental, BCR and regional scales are provided in Table 2. Global population size estimates are available for 84% of MANEM's waterbirds. The largest potential global population is Dovekie (16,000,000-36,000,000 total birds(t)); the smallest populations are Yellow Rail (10,000-25,000t), Great Skua (10,000-20,000t) and South Polar Skua (10,000-20,000t). Continental population estimates are available for 78% of MANEM's waterbirds. The largest potential continental population is Thick-billed Murre (8,000,000 breeding birds (b)); smallest breeding continental populations are Black-headed Gull (40b), Little Gull (100-200b), Manx Shearwater (360b), and Dovekie (1,000b). Regional (MANEM) population size estimates are available for 50% of MANEM's waterbirds. Largest regional breeding populations are Herring Gull (286,916b) and Leach's Storm-petrel (220,718b); smallest regional breeding populations are White Ibis (6b), Black-headed Gull (14b), and Caspian Tern (24b).

Population trend is estimated for continental and regional waterbird populations (Table 2). Approximately 42% of MANEM's waterbirds are considered to have stable population trends at the continental scale. Thirty-two percent are estimated to have declining continental trends and 24% are increasing. Of those species declining at the continental scale, Audubon's Shearwater, Black Rail and King Rail are experiencing the greatest declines. Population trend is estimated at the regional scale for 57% of MANEM's waterbirds. Of those species for which trend is estimated, 14% are considered to have stable regional population trends, 33% are considered to have declining regional trends and 52% are increasing. Species experiencing the steepest regional population declines are Leach's Storm-petrel, Black-crowned Night-Heron, Arctic Tern, and Royal Tern.

**Table 2—Waterbird population size and trend in the Mid-Atlantic/New England/Maritimes region of North America. Information on the global, continental, BCR and regional population size and trend of 74 waterbird species that regularly occur in MANEM is summarized from the waterbird species profiles (Appendix 1).**

Waterbird Species		Population Size					Population Trend	
		global	North America	BCR14/ PBCR79	BCR30/ PBCR78	MANEM total	continental trend	MANEM trend
<i>Gavia stellata</i>	Red-throated Loon	490,000-1,500,000t	375,000t	unknown	unknown	unknown*	decline	unknown
<i>Gavia immer</i>	Common Loon	580,000t	575,000t	9,970b	0b	9,970b*	stable	decline
<i>Podilymbus podiceps podiceps</i>	Pied-billed Grebe	>110,000-130,000t	125,000t	unknown	unknown	unknown	decline?	increase
<i>Podiceps auritus cornutus</i>	Horned Grebe	160,000-1,200,000t	>100,000t	unknown	unknown	unknown*	decline	unknown
<i>Podiceps grisegena holboellii</i>	Red-necked Grebe	150,000-370,000t	45,000t	unknown	unknown	unknown*	stable	unknown
<i>Fulmarus glacialis auduboni</i>	Northern Fulmar	8,000,000-32,000,000t	2,100,000b	unknown	unknown	unknown	stable	unknown
<i>Calonectris diomedea borealis</i>	Cory's Shearwater	280,000-420,000t	unknown	unknown	unknown	unknown**	stable	unknown
<i>Puffinus gravis</i>	Greater Shearwater	16,500,000t	unknown	unknown	unknown	unknown*	stable	unknown
<i>Puffinus griseus</i>	Sooty Shearwater	>20,000,000t	2,800,000t	unknown	unknown	unknown	decline	unknown
<i>Puffinus puffinus puffinus</i>	Manx Shearwater	500,000-600,000t	360b	unknown	unknown	unknown**	stable	unknown
<i>Puffinus lherminieri lherminieri</i>	Audubon's Shearwater	60,000t	6,000-10,000b	unknown	unknown	unknown*	large decline	unknown
<i>Oceanites oceanicus oceanicus</i>	Wilson's Storm-Petrel	6,000,000t	unknown	unknown	unknown	unknown*	stable	unknown
<i>Oceanodroma leucorhoa leucorhoa</i>	Leach's Storm-Petrel	8,000,000t	unknown	220,706b	12b	220,718b	increase	large decline
<i>Morus bassanus</i>	Northern Gannet	530,000t	155,456b	107,640b	0b	107,640b**	large increase	increase
<i>Pelecanus occidentalis carolinensis</i>	Brown Pelican	unknown	191,600-193,700b	0b	1,008b	1,008b	stable	increase
<i>Phalacrocorax auritus auritus</i>	Double-crested Cormorant	1,100,000-2,200,000t	>740,000b	143,366b	29,708b	173,074b*	large increase	large increase
<i>Phalacrocorax carbo carbo</i>	Great Cormorant	1,000,000-1,600,000t	12,300b	12,298b	0b	12,298b**	stable	large increase
<i>Botaurus lentiginosus</i>	American Bittern	3,000,000t	3,000,000t	unknown	unknown	unknown	decline	decline
<i>Ixobrychus exilis exilis</i>	Least Bittern	>130,000t	128,000t	unknown	unknown	unknown	decline	unknown
<i>Ardea herodias herodias</i>	Great Blue Heron	unknown	83,000b	11,662b	30,570b	42,232b**	large increase	large increase
<i>Ardea alba egretta</i>	Great Egret	550,000-1,900,000t	>180,000b	4b	9,142b	9,146b	large increase	large increase
<i>Egretta thula thula</i>	Snowy Egret	unknown	>143,555b	372b	15,402b	15,774b	decline	decline
<i>Egretta caerulea</i>	Little Blue Heron	unknown	200,000-300,000b	18b	3,546b	3,564b	decline	large increase
<i>Egretta tricolor ruficollis</i>	Tricolored Heron	unknown	<194,000b	8b	4,208b	4,216b	decline	large increase
<i>Bubulcus ibis ibis</i>	Cattle Egret	3,800,000-6,700,000t	>750,000-1,500,000t	2b	10,328b	10,330b	increase	decline
<i>Butorides virescens virescens</i>	Green Heron	unknown	unknown	unknown	unknown	unknown	increase	unknown
<i>Nycticorax nycticorax hoactli</i>	Black-crowned Night Heron	430,000-3,600,000t	>50,000b	2,468b	10,388b	12,856b*	decline	large decline
<i>Nyctanassa violacea violacea</i>	Yellow-crowned Night Heron	85,000-160,000t	50,000-100,000b	0b	1,620b	1,620b	stable	large increase
<i>Eudocimus albus</i>	White Ibis	150,000t	>100,000b	0b	6b	6b	stable	increase
<i>Plegadis falcinellus falcinellus</i>	Glossy Ibis	1,100,000-3,300,000t	13,000-15,000b	284b	11,006b	11,290b**	large increase	stable
<i>Coturnicops noveboracensis noveboracensis</i>	Yellow Rail	10,000-25,000t	10,000-25,000t	unknown	unknown	unknown	decline	unknown
<i>Laterallus jamaicensis jamaicensis</i>	Black Rail	unknown	35,000-110,000t	0b	unknown	unknown	large decline	decline
<i>Rallus longirostris crepitans</i>	Clapper Rail	unknown	unknown	unknown	unknown	unknown*	stable	unknown
<i>Rallus elegans elegans</i>	King Rail	unknown	unknown	unknown	unknown	unknown	large decline	unknown
<i>Rallus limicola limicola</i>	Virginia Rail	unknown	unknown	unknown	unknown	unknown	stable	unknown
<i>Porzana carolina</i>	Sora	unknown	unknown	unknown	unknown	unknown	decline	decline

Waterbird Species		Population Size					Population Trend	
<i>Porphyrio martinica</i>	Purple Gallinule	100,000-1,000,000t	unknown	0b	unknown	unknown	decline	unknown
<i>Gallinula chloropus cachinnans</i>	Common Moorhen	1,700,000-3,300,000t	unknown	unknown	unknown	unknown	stable	unknown
<i>Fulica americana americana</i>	American Coot	6,000,000t	6,000,000t	unknown	unknown	unknown	increase	unknown
<i>Larus atricilla megalopterus</i>	Laughing Gull	810,000-840,000t	528,000-538,000b	2,704b	202,646b	205,350b*	increase	large increase
<i>Larus minutus</i>	Little Gull	570,000-1,700,000t	100-200b	unknown	unknown	unknown**	decline	increase
<i>Larus ridibundus ridibundus</i>	Black-headed Gull	7,300,000-11,000,000t	40b	12b	2b	14b*	stable	increase
<i>Larus philadelphia</i>	Bonaparte's Gull	260,000-530,000t	260,000-530,000t	unknown	unknown	unknown*	unknown	unknown
<i>Larus delawarensis</i>	Ring-billed Gull	2,600,000t	1,700,000b	40,844b	0b	40,844b	large increase	increase
<i>Larus argentatus smithsoniaunus</i>	Herring Gull	2,600,000-3,000,000t	>286,000b	196,182b	90,734b	286,916b*	stable	decline
<i>Larus glaucoides kumlieni</i>	Iceland Gull	190,000-400,000t	>100,000t	unknown	unknown	unknown	stable	unknown
<i>Larus fuscus graellsii</i>	Lesser Black-backed Gull	680,000-750,000t	unknown	unknown	unknown	unknown**	stable	unknown
<i>Larus hyperboreus leucereetes</i>	Glaucous Gull	200,000-2,000,000t	169,200b	unknown	unknown	unknown	stable	unknown
<i>Larus marinus</i>	Great Black-backed Gull	630,000-720,000t	160,430b	115,546b	37,372b	152,918b**	increase	large increase
<i>Xema sabini sabini</i>	Sabine's Gull	330,000-700,000t	200,000-400,000b	unknown	unknown	unknown	increase	unknown
<i>Rissa tridactyla tridactyla</i>	Black-legged Kittiwake	17,000,000-18,000,000t	3,126,000b	108,700b	0b	108,700b	stable	decline
<i>Onychoprion anaethetus recognita</i>	Bridled Tern	unknown	8,700-14,700b	unknown	unknown	unknown	decline	unknown
<i>Sternula antillarum antillarum</i>	Least Tern	65,000-70,000t	unknown	0b	16,018b	16,018b	decline	stable
<i>Gelochelidon nilotica aranea</i>	Gull-billed Tern	79,000-310,000t	6,000-8,000b	0b	2,418b	2,418b*	decline	decline
<i>Hydroprogne caspia</i>	Caspian Tern	180,000-320,000t	66,000-70,000b	0b	24b	24b	increase	increase
<i>Chlidonias niger surinamensis</i>	Black Tern	45,000-1,300,000t	100,000-500,000b	unknown	0b	unknown	stable	decline
<i>Sterna dougallii dougalli</i>	Roseate Tern	78,000-82,000t	16,000b	530b	6,400b	6,930b*	decline	large increase
<i>Sterna hirundo hirundo</i>	Common Tern	1,100,000-4,500,000t	300,000b	89,406b	83,834b	173,240b**	increase	large increase
<i>Sterna paradisaea</i>	Arctic Tern	1,000,000t	500,000t?	11,020b	12b	11,032b	decline	large decline
<i>Sterna forsteri litoricola</i>	Forster's Tern	120,000t	120,000t	0b	16,690b	16,690b*	decline	stable
<i>Thalasseus maximus maxima</i>	Royal Tern	280,000-310,000t	100,000-150,000b	0b	6,343b	6,343b	stable	large decline
<i>Thalasseus sandvicensis acutlavidus</i>	Sandwich Tern	460,000-500,000t	75,000-100,000b	unknown	62b	unknown	increase	stable
<i>Rynchops niger niger</i>	Black Skimmer	120,000-210,000t	65,000-70,000b	0b	10,058b	10,058b	decline	stable
<i>Stercorarius skua</i>	Great Skua	10,000-20,000t	unknown	unknown	unknown	unknown**	stable	unknown
<i>Stercorarius maccormicki</i>	South Polar Skua	10,000-20,000t	unknown	unknown	unknown	unknown*	stable	unknown
<i>Stercorarius pomarinus</i>	Pomarine Jaeger	50,000-100,000t	20,000-40,000b	unknown	unknown	unknown	stable	unknown
<i>Stercorarius parasiticus</i>	Parasitic Jaeger	500,000-1,000,000t	unknown	unknown	unknown	unknown	stable	unknown
<i>Stercorarius longicaudus</i>	Long-tailed Jaeger	100,000-500,000t	>150,000t	unknown	unknown	unknown	stable	unknown
<i>Alle alle alle</i>	Dovekie	16,000,000-36,000,000t	1,000b	unknown	unknown	unknown	stable	unknown
<i>Uria aalge aalge</i>	Common Murre	18,000,000t	4,250,000t	63,200b	0b	63,200b	stable	stable
<i>Uria lomvia lomvia</i>	Thick-billed Murre	22,000,000t	8,000,000b	1,160b	0b	1,160b	stable	unknown
<i>Alca torda torda</i>	Razorbill	1,500,000t	76,000b	15,375b	0b	15,375b	stable	large increase
<i>Cephus grylle arcticus</i>	Black Guillemot	400,000-700,000t	100,000-200,000b	36,097b	0b	36,097b*	increase	large increase
<i>Fratercula arctica arctica</i>	Atlantic Puffin	5,700,000-6,000,000t	750,000-760,000b	6,898b	0b	6,898b	large increase	increase

**Threats to Populations.** Threats to regional populations of waterbirds were identified from the literature and by regional experts (Appendix 1; Table 3). Threats include wetland habitat conversion, invasive plants in nesting or foraging habitats, lack of colony-sites, marine oil and chemical spills, collisions with stationary objects, sea level rise and other water level manipulations, nesting-site predators, human disturbance, negative fisheries interactions, lack of abundance and other data, avian disease, contaminants, wetland degradation, and hunting. Among the most pervasive threats affecting a large majority of MANEM's waterbirds are nesting-site predators, human disturbance, lack of abundance data, and contaminants.

**Table 3—Threats to waterbird populations in the Mid-Atlantic/New England/Maritimes region of North America. Information on regional threats to the 74 waterbird species that regularly occur in MANEM is summarized from the waterbird species profiles (Appendix 1).**

Waterbird Species		Regional Threats															
		inland wetland loss	invasive plants	shortage of colony-sites	marine oil spills	collisions	sea level/sea temperature rise	nesting-site predators	human disturbance	fisheries interactions	lack of abundance data	lack of information	avian disease	contaminants	coastal marsh degradation	hunting	water level manipulations
<i>Gavia stellata</i>	Red-throated Loon				x	x				x	x			x			
<i>Gavia immer</i>	Common Loon								x	x			x	x			x
<i>Podilymbus podiceps podiceps</i>	Pied-billed Grebe		x								x			x		x	
<i>Podiceps auritus cornutus</i>	Horned Grebe				x						x		x				
<i>Podiceps grisegena holboellii</i>	Red-necked Grebe				x					x	x		x	x		x	
<i>Fulmarus glacialis auduboni</i>	Northern Fulmar				x		x			x	x			x			
<i>Calonectris diomedea borealis</i>	Cory's Shearwater										x	x					
<i>Puffinus gravis</i>	Greater Shearwater				x					x	x						
<i>Puffinus griseus</i>	Sooty Shearwater				x					x	x			x			
<i>Puffinus puffinus puffinus</i>	Manx Shearwater						x			x	x			x?			
<i>Puffinus lherminieri lherminieri</i>	Audubon's Shearwater										x	x					
<i>Oceanites oceanicus oceanicus</i>	Wilson's Storm-Petrel						x?				x	x		x?			
<i>Oceanodroma leucorhoa leucorhoa</i>	Leach's Storm-Petrel				x			x	x					x			
<i>Morus bassanus</i>	Northern Gannet					x	x	x		x				x?			
<i>Pelecanus occidentalis carolinensis</i>	Brown Pelican						x		x					x	x		
<i>Phalacrocorax auritus auritus</i>	Double-crested Cormorant							x	x					x			
<i>Phalacrocorax carbo carbo</i>	Great Cormorant								x								
<i>Botaurus lentiginosus</i>	American Bittern	x	x						x				x	x		x	
<i>Ixobrychus exilis exilis</i>	Least Bittern	x	x			x					x		x	x			
<i>Ardea herodias herodias</i>	Great Blue Heron							x	x					x			
<i>Ardea alba egretta</i>	Great Egret			x				x	x					x	x		
<i>Egretta thula thula</i>	Snowy Egret							x	x					x	x		
<i>Egretta caerulea</i>	Little Blue Heron					x			x					x?	x		
<i>Egretta tricolor ruficollis</i>	Tricolored Heron							x	x						x		
<i>Bubulcus ibis ibis</i>	Cattle Egret							x	x					x			
<i>Butorides virescens virescens</i>	Green Heron							x	x					x			
<i>Nycticorax nycticorax hoactli</i>	Black-crowned Night Heron							x	x					x	x		

Waterbird Species		Regional Threats															
		inland wetland loss	invasive plants	shortage of colony-sites	marine oil spills	collisions	sea level/sea temperature rise	nesting-site predators	human disturbance	fisheries interactions	lack of abundance data	lack of information	avian disease	contaminants	coastal marsh degradation	hunting	water level manipulations
<i>Nyctanassa violacea violacea</i>	Yellow-crowned Night Heron							x	x					x	x		
<i>Eudocimus albus</i>	White Ibis								x						x		
<i>Plegadis falcinellus falcinellus</i>	Glossy Ibis	x							x					x			
<i>Coturnicops noveboracensis noveboracensis</i>	Yellow Rail		x			x			x		x						x
<i>Laterallus jamaicensis jamaicensis</i>	Black Rail	x	x			x		x	x					x	x		x
<i>Rallus longirostris crepitans</i>	Clapper Rail		x			x		x	x		x			x	x	x?	
<i>Rallus elegans elegans</i>	King Rail	x	x			x									x	x?	
<i>Rallus limicola limicola</i>	Virginia Rail	x	x			x			x		x			x	x	x?	
<i>Porzana carolina</i>	Sora	x	x			x			x		x					x?	x
<i>Porphyrio martinica</i>	Purple Gallinule	x	x					x			x					x?	
<i>Gallinula chloropus cachinnans</i>	Common Moorhen	x	x					x			x		x	x		x?	x
<i>Fulica americana americana</i>	American Coot		x								x		x			x	x
<i>Larus atricilla megalopterus</i>	Laughing Gull			x		x	x	x	x					x			
<i>Larus minutus</i>	Little Gull										x	x					
<i>Larus ridibundus ridibundus</i>	Black-headed Gull								x					x			
<i>Larus philadelphia</i>	Bonaparte's Gull				x						x						
<i>Larus delawarensis</i>	Ring-billed Gull								x					x			x
<i>Larus argentatus smithsoniaunus</i>	Herring Gull			x			x	x	x	x				x			
<i>Larus glaucoides kumlieni</i>	Iceland Gull						x?				x			x?			
<i>Larus fuscus graellsii</i>	Lesser Black-backed Gull										x			x?			
<i>Larus hyperboreus leuceteres</i>	Glaucous Gull				x						x			x			
<i>Larus marinus</i>	Great Black-backed Gull					x			x					x			
<i>Xema sabini sabini</i>	Sabine's Gull				x					x	x			x			
<i>Rissa tridactyla tridactyla</i>	Black-legged Kittiwake				x					x							
<i>Onychoprion anaethetus recognita</i>	Bridled Tern										x	x					
<i>Sternula antillarum antillarum</i>	Least Tern		x				x	x	x						x		
<i>Gelochelidon nilotica aranea</i>	Gull-billed Tern							x	x						x		
<i>Hydroprogne caspia</i>	Caspian Tern								x						x		
<i>Chlidonias niger surinamensis</i>	Black Tern	x						x						x			x
<i>Sterna dougallii dougalli</i>	Roseate Tern			x	x	x		x	x								
<i>Sterna hirundo hirundo</i>	Common Tern			x				x	x			x		x?			
<i>Sterna paradisaea</i>	Arctic Tern			x			x	x						x			
<i>Sterna forsteri litoricola</i>	Forster's Tern	x				x	x	x	x						x		
<i>Thalasseus maximus maxima</i>	Royal Tern					x		x	x								
<i>Thalasseus sandvicensis acuflavidus</i>	Sandwich Tern			x	x				x								
<i>Rynchops niger niger</i>	Black Skimmer			x			x	x	x								
<i>Stercorarius skua</i>	Great Skua										x	x		x?			

Waterbird Species		Regional Threats															
		inland wetland loss	invasive plants	shortage of colony-sites	marine oil spills	collisions	sea level/sea temperature rise	nesting-site predators	human disturbance	fisheries interactions	lack of abundance data	lack of information	avian disease	contaminants	coastal marsh degradation	hunting	water level manipulations
<i>Stercorarius macconnicki</i>	South Polar Skua				x						x			x			
<i>Stercorarius pomarinus</i>	Pomarine Jaeger						x?			x?	x			x			
<i>Stercorarius parasiticus</i>	Parasitic Jaeger										x	x		x			
<i>Stercorarius longicaudus</i>	Long-tailed Jaeger										x			x?			
<i>Alle alle alle</i>	Dovekie						x				x						
<i>Uria aalge aalge</i>	Common Murre				x		x	x	x	x				x			
<i>Uria lomvia lomvia</i>	Thick-billed Murre				x		x	x		x				x			
<i>Alca torda torda</i>	Razorbill				x		x	x		x				x			
<i>Cephus grylle arcticus</i>	Black Guillemot							x		x				x			
<i>Fratercula arctica arctica</i>	Atlantic Puffin			x				x	x	x							

## B. Waterbird Habitats

**Occurrence and Status.** The MANEM region consists of Bird Conservation Regions 14 (Atlantic Northern Forest) and 30 (New England/Mid-Atlantic Coast), and Pelagic Bird Conservation Regions 78 (Northeast US Continental Shelf) and 79 (Scotian Shelf). The region provides a wide variety of coastal habitats, including the rocky or muddy intertidal shorelines of Canada's maritime provinces and northern New England; the sandy shores of southern New England; the estuaries and embayments formed behind mid-Atlantic barrier islands, and the islands and shores of the Chesapeake and Delaware Bays. Inland ponds, lakes, and marshes are also important habitats. The northeast US Continental Shelf, Gulf of Maine and Scotian Shelf host a diverse and productive marine ecosystem critical to MANEM's nearshore and pelagic waterbirds.

Key inland and coastal waterbird habitats are summarized in Table 4. All MANEM states and provinces provide important freshwater habitat to nearly a dozen species of inland breeding waterbirds. MANEM partners have identified 116 priority wetland complexes essential to sustaining populations of inland waterbirds. Protection status of most of these sites is unknown, however in cases where status is known, protection is largely in place for these critical inland wetlands.

MANEM's coastal wading bird habitats sustain 205 active colony-sites hosting nearly 66,000 breeding birds. Protection (conservation ownership) of wading bird colony-sites throughout the region is reasonably secure, especially for priority sites. Seabird nesting-sites throughout the region number 1,654 and host nearly 1.5 million breeding birds. Protection status for seabird colonies is unknown in several states and provinces. Among priority sites where status is known, at least some sites are in protective ownership in each state/province.

**Table 4—Waterbird habitat occurrence and status in the Mid-Atlantic/New England/Maritimes region of North America. Information on the relative importance and status of inland and coastal habitats utilized by waterbirds in the eleven state/four province region of MANEM is summarized from the waterbird habitat profiles (Appendix 2).**

	Inland Waterbirds				Coastal Wading Birds										Seabirds											
	Priority Sites				All Sites						Top Ten Sites				All Sites						Top Ten Sites					
	N Priority Sites	N Species	N Species Occurrences	Protection	N Active Colonies	N breeding birds	% Sites Protected	%Sites Publicly Owned	%Sites Privately Owned	%Sites Unknown Ownership	N breeding birds	% Sites Protected	%Sites Publicly Owned	% Sites Privately Owned	%Sites Unknown Ownership	N Active Colonies	N breeding birds	% Sites Protected	%Sites Publicly Owned	% Sites Privately Owned	%Sites Unknown Ownership	N breeding birds	% Sites Protected	%Sites Publicly Owned	% Sites Privately Owned	%Sites Unknown Ownership
Virginia	4	11	?	?												245	125,672	?	0	0	100	42,758	?	0	0	100
Maryland	9	9	2,234	?	73	30,683	37	33	60	7	20,526	60	50	50	0	68	14,280	35	38	47	15	9,844	80	70	30	0
Delaware	4	11	45	?	10	12,456	10	20	70	10	12,456	10	20	70	10	28	17,078	29	29	71	0	16,482	20	20	80	0
New Jersey	6	8	66	?	63	9,648	?	53	2	45	6,942	?	70	0	30	209	107,637	?	58	1	41	55,548	?	90	10	0
New York-coastal	6	9	54	?	7	4,136	?	0	0	100	4,136	?	0	0	100	32	47,637	?	0	0	100	41,648	?	0	0	100
New York-Adirondacks	8	9	273	?																						
Connecticut	12	9	119	?	7	1,156	50	50	33	17	1,156	50	50	33	17	47	13,241	26	26	36	38	11,632	40	40	30	30
Rhode Island	8	7	50	All sites protected in part	5	1,348	100	60	40	0	1,348	100	60	40	0	26	14,106	?	22	17	61	13,570	18	36	27	37
Massachusetts	14	9	226	Unknown	19	4,503	63	68	32	0	4,268	56	56	44	0	135	116,071	36	44	50	6	68,616	70	80	20	0
Vermont	5	11	58	Most sites protected in part																						
New Hampshire	15	9	224	11 sites substantially protected												6	6,352	50	50	50	0	6,352	50	50	50	0
Maine	10	11	390	7 sites substantially protected	21	2,064	38	24	71	5	1,796	50	20	80	0	286	179,068	64	54	40	6	60,583	92	67	33	0
New Brunswick	6	11	2,682	?												108	162,000	?	0	0	100	117,778	?	0	0	100
Nova Scotia	5	10	974	?												274	276,000	?	0	0	100	254,000	?	0	0	100
Prince Edward Island	4	6	968	?												45	22,000	?	0	0	100	6,850	?	0	0	100
Quebec																145	397,053	?	0	0	100	294,399	?	0	0	100

Threats to Habitats. Threats to regional waterbird habitats and habitat management needs were identified by regional experts (Appendix 2; Table 5). For many states/provinces, threats are not adequately understood. Identified threats and management needs include wetland fragmentation, sea level rise and erosion, island creation, vegetation management, predator management, public education, human disturbance, contaminants, prey base management, conflicting land use, wetland quality degradation, acquisition/easement, and water level control. Optimal habitat management for MANEM's waterbirds will require proactive threats analyses of priority sites in all but a few states and provinces. Where threats are known, human disturbance and conflicting land use are significant throughout the region.

**Table 5—Threats to waterbird habitats in the Mid-Atlantic/New England/Maritimes region of North America. Information on regional threats to the inland, coastal and pelagic habitats utilized by waterbirds in the eleven state/four province region of MANEM is summarized from the waterbird habitat profiles (Appendix 2).**

	threats/actions unknown	wetland fragmentation	erosion/sea level rise	island creation	vegetation management	predator management	public education	human disturbance	contaminants	prey base management	conflicting land use	foraging wetlands quality	acquisition/ easement	water level control
VA inland	x	x									x			
VA wading			x	x	x	x		x				x	x	
VA seabird			x	x		x	x	x						
MD inland	x													
MD wading			x					x						
MD seabird			x		x			x						
DE inland	x													
DE wading			x					x	x	x	x			
DE seabird			x					x	x	x	x			
NJ inland	x													
NJ wading	x													
NJ seabird	x													
NY inland ADR	x													
NY inland LI	x													
NY wading					x			x	x		x	x	x	
NY seabird					x			x	x		x	x	x	
CT inland	x		x		x	x		x	x		x			
CT wading					x	x		x			x			
CT seabird			x		x	x		x			x			
RI inland	x													
RI wading	x													

	threats/actions unknown	wetland fragmentation	erosion/sea level rise	island creation	vegetation management	predator management	public education	human disturbance	contaminants	prey base management	conflicting land use	foraging wetlands quality	acquisition/ easement	water level control
RI seabird	x													
MA inland	x													
MA wading	x				x	x		x						
MA seabird	x					x		x			x			
VT inland		x			x			x	x		x			x
NH inland					x			x			x			x
NH seabird						x		x					x	
ME inland								x			x			x
ME wading						x	x	x	x		x	x		
ME seabird	x					x	x				x	x		
NB inland	x													
NB seabird	x													
NS inland	x													
NS seabird	x													
PE inland	x													
PE seabird	x													
QC inland														
QC seabird	x													
NE US shelf									x		x			
Gulf of Maine									x		x			
Scotian shelf			x						x		x			

### III. Waterbird Conservation

#### A. Infrastructure and Capacity

The Mid-Atlantic/New England/Maritimes region of North America is well-equipped with legal frameworks, agency authority, academic institutions and non-profit organizations to pursue conservation of the region's waterbirds through research, management, and education. International, federal, state/provincial and local statutes and ordinances are in place throughout MANEM to protect birds, wetland habitats, and marine resources. International treaties and conventions protecting waterbirds and their habitats include the Migratory Bird Treaty Act, the Convention on Migratory Species, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the North American Marine Protected Areas network, the Convention on Wetlands of International Importance, and

the International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries. US Federal statutes include the Clean Water Act, Coastal Zone Management Act, Coastal Barriers Resources Act, Coastal Wetlands Planning, Protection and Restoration Act, Emergency Wetlands Resources Act, Endangered Species Act, Estuary Protection Act, Estuaries and Clean Waters Act, Federal Aid in Wildlife Restoration Act, Fish and Wildlife Conservation Act, Migratory Bird Hunting and Conservation Stamp Act, Migratory Bird Conservation Act, Neotropical Migratory Bird Conservation Act, New England Fishery Resources Restoration Act, North American Wetlands Conservation Act, Outer Continental Shelf Lands Act, and Partnership for Wildlife Act. The recently enacted Species at Risk Act provides protection to Canada's rare and endangered wildlife. All US states within MANEM provide protection to waterbirds and habitats through endangered species statutes and wetlands protection laws.

Federal and state agencies within MANEM provide significant protection to waterbirds and habitats through regulatory enforcement and other programs including research, monitoring, management, habitat acquisition and education. The Atlantic Coast Joint Venture and Eastern Habitats Joint Venture are significant federal/state/private partnerships linking government agencies with the private sector for habitat and bird conservation.

Nearly twenty academic institutions within the region are actively engaged in developing science-based information critical to understanding and managing waterbird populations and their habitats. In addition, scientists within government agencies and non-profit organizations are contributing new information to ensure sustainable waterbird populations. National, regional and local NGOs are also significant partners in research, site management, and policy development.

Not only do these numerous organizations exist whose work furthers waterbird conservation in the region, but subregional associations within MANEM have been active for decades working specifically to conserve waterbirds and their habitats. These include the Southern New England/Long Island Working Group (SNELIWG) and the Gulf of Maine Seabird Working Group (GOMSWG). In addition, waterbird conservation work within the maritime provinces of Canada is facilitated by the Atlantic Canada Region of the Canadian Wildlife Service (Environment Canada) and a loose partnership of agencies and NGOs in Virginia, Maryland and Delaware have worked together to conserve waterbirds in the greater Chesapeake Bay area of the mid-Atlantic. These four subregional working groups provide infrastructure for continued and expanded waterbird conservation at local and regional scales.

MANEM Waterbird Working Group. The MANEM Waterbird Working Group is an informal partnership of over 200 organizations working to ensure sustainable populations of waterbirds in BCRs 30 and 14 and PBCRs 78 and 79 (Appendix 4; Table 6). The working group is led by a twelve-person steering committee representing all subregions, taxonomic groups, and activities of waterbird conservation. Since 2002, the working group has been co-chaired by USFWS-Region 5 (Scott Johnston) and Manomet Center for Conservation Sciences (Kathy Parsons). Meetings of the working group have been hosted by existing subregional associations of waterbird scientists and managers. Several workshops and meetings have taken place in each of four subregions of MANEM where partners have characterized the occurrence and status of waterbirds in the region, and the objectives and actions necessary to ensure their persistence.

**Table 6—Waterbird conservation capacity in the Mid-Atlantic/New England/Maritimes region of North America. Information on partner organizations engaged in research, management, acquisition and outreach activities to conserve MANEM’s waterbirds is summarized from the conservation partner directory (Appendix 3).**

	MANEM	Mid-Atlantic/Lower BCR 30	Southern New England/Long Island	US Gulf of Maine	USA outside MANEM	USA	Canadian Maritimes & BCR 14	Canada	Global
<b>Research</b>	Manomet Center for Conservation Sciences, USFWS-Region 5, SEANET	College of William and Mary, New Jersey Audubon Society, Rutgers Univ, Seabird Research Inc, Smithsonian Inst, Univ Virginia,	American Musum Natural History, Connecticut Ornithological Society, RI Dept Environmental Management, Univ Rhode Island, Wildlife Trust	Antioch Univ, Biodiversity Research Inst, Boston Univ, Bowdoin Col, Col of the Atlantic, Harvard Univ, Massachusetts Bird Observer, Loon Preservation Committee, Tufts Univ, Univ Maine, Univ Massachusetts, Univ Vermont, Vermont Inst Natural Science	Auburn Univ, Calif State Univ-Long Beach, Coastal Carolina Community Col, Cornell Lab Ornithology, Cornell Univ, East Strousberg Univ, FL Game and Fish Com, Florida International Univ, H.T. Harvey Assoc, Hawk Mountain Sanctuary, Lake Superior State Univ, Loras Col, Mississippi State Univ, Point Reyes Bird Observatory, Utica Col, Univ Alaska, Univ California-Davis, Univ California-Irvine, Univ Florida, Univ Hawaii-Manoa, Univ Kansas, Univ Minnesota, Univ North Carolina-Chapel Hill, Univ Washington	ABR Inc, National Audubon Society, NOAA, USDA-National Wildlife Research Center, USGS, USFWS, USGS-Alaska Biological Research Center, USGS-Biological Resources Div, USGS-Patuxent Wildlife Research Center	Environment Canada, University of New Brunswick,	Bird Studies Canada, Brock Univ, Dalhousie Univ, Environment Canada, Lakehead Univ, McMaster Univ, Memorial Univ, NSERC, Simon Fraser Univ, World Wildlife Federation Canada,	Nature Conservancy
<b>Acquisition</b>		New Jersey Audubon Society,	Audubon Connecticut, Connecticut Audubon Society	Maine Dept Fisheries & Wildlife, New England Forestry Foundation					Nature Conservancy

	MANEM	Mid-Atlantic/Lower BCR 30	Southern New England/Long Island	US Gulf of Maine	USA outside MANEM	USA	Canadian Maritimes & BCR 14	Canada	Global
<b>Management</b>	Manomet Center for Conservation Sciences, USFWS-Region 5	DE Dept Natural Resources, MD Dept Natural Resources, NJ Dept Environmental Protection, Virginia Audubon, VA Dept Game,	Audubon Connecticut, Connecticut Audubon Society, CT Dept Environmental Protection, NY State Dept Environmental Conservation, RI Dept Environmental Management, USFWS-Ninigret NWR	Audubon Society New Hampshire, Maine Audubon, ME Dept Fisheries & Wildlife, MA Dept Conservation & Recreation, MA Div Fisheries & Wildlife, New England Forestry Foundation, NH Fish & Game Dept, Loon Preservation Committee, USFWS-Gulf of Maine Program, USFWS-Petit Manan NWR, VT Agency Natural Resources	Hawk Mountain Sanctuary, Texas Parks & Wildlife Dept, Wisconsin Dept Natural Resources	Ducks Unlimited, National Audubon Society, Wilderness Society, USDA-NRCS, USDOD, USEPA, USGS, USFWS,	Environment Canada, NB Dept Natural Resources,	Bird Studies Canada, Can Dept Fisheries & Oceans, Environment Canada, World Wildlife Federation Canada,	IUCN-World Conservation Union, Nature Conservancy
<b>Education/Outreach</b>	SEANET	New Jersey Audubon Society, Rutgers Univ, Smithsonian Inst	Audubon Connecticut, Connecticut Audubon Society, Connecticut Ornithological Society	Biodiversity Research Inst, Maine Audubon, MA Dept Conservation & Recreation, MA Div Fisheries & Wildlife, New England Forestry Foundation, NH Fish & Game Dept, Loon Preservation Committee, Vermont Inst Natural Science	Cornell Lab Ornithology, Hawk Mountain Sanctuary, North Carolina State Museum Natural Science, Point Reyes Bird Observatory	Wilderness Society, USDA-NRCS, USEPA		World Wildlife Federation Canada	

Technical capacity of the MANEM Waterbird Working Group is evidenced by the eighty scientists and managers providing expert knowledge to regional species status assessment (Table 7). While knowledge of MANEM's waterbirds is far from complete, the roster of species experts participating in the working group is a significant conservation resource regionally and continentally.

**Table 7—Waterbird population expertise in the Mid-Atlantic/New England/Maritimes region of North America. Information on scientific and management experts on the 74 waterbird species that regularly occur in MANEM is summarized from the waterbird species profiles (Appendix 1) and conservation partner directory (Appendix 3).**

Waterbird Species		Regional Experts providing input	Continental Experts providing input
<i>Gavia stellata</i>	Red-throated Loon		C. Eberl
<i>Gavia immer</i>	Common Loon	D. Evers	D. Evers
<i>Podilymbus podiceps podiceps</i>	Pied-billed Grebe		M. Martin
<i>Podiceps auritus cornutus</i>	Horned Grebe		S. Stedman
<i>Podiceps grisegena holboellii</i>	Red-necked Grebe		G. Nuechterlein
<i>Fulmarus glacialis auduboni</i>	Northern Fulmar	D. Nettleship; S. Hatch	S. Hatch
<i>Calonectris diomedea borealis</i>	Cory's Shearwater		NAWCP Specialist Team
<i>Puffinus gravis</i>	Greater Shearwater	F. Huettmann	F. Huettmann
<i>Puffinus griseus</i>	Sooty Shearwater		F. Huettmann; K. Morgan
<i>Puffinus puffinus puffinus</i>	Manx Shearwater	D. Lee; C. Haney	NAWCP Specialist Team
<i>Puffinus lherminieri lherminieri</i>	Audubon's Shearwater		D. Lee
<i>Oceanites oceanicus oceanicus</i>	Wilson's Storm-Petrel	D. Lee	NAWCP Specialist Team
<i>Oceanodroma leucorhoa leucorhoa</i>	Leach's Storm-Petrel	B. Montevecchi; R. Butler	R. Butler
<i>Morus bassanus</i>	Northern Gannet	B. Montevecchi, J. Chardine	B. Montevecchi
<i>Pelecanus occidentalis carolinensis</i>	Brown Pelican	B. Schreiber	B. Schreiber; M. Shields
<i>Phalacrocorax auritus auritus</i>	Double-crested Cormorant	C. Weseloh; F. Cuthbert; D. Siegel-Causey; K. Parsons	J. Glahn; T. King; D. Siegel-Causey; S. Werner
<i>Phalacrocorax carbo carbo</i>	Great Cormorant	C. Weseloh; D. Cairns	D. Cairns; C. Weseloh; J. Hatch
<i>Botaurus lentiginosus</i>	American Bittern		S. Lor
<i>Ixobrychus exilis exilis</i>	Least Bittern		S. Rush
<i>Ardea herodias herodias</i>	Great Blue Heron	T. Hodgeman; K. Parsons	J. Glahn; T. King
<i>Ardea alba egretta</i>	Great Egret	K. Parsons	D. Allen; J. Glahn
<i>Egretta thula thula</i>	Snowy Egret	K. Parsons; M. Erwin	K. Parsons; M. Erwin; P. Frederick; T. Master
<i>Egretta caerulea</i>	Little Blue Heron	J. Rodgers; K. Parsons	J. Rodgers
<i>Egretta tricolor ruficollis</i>	Tricolored Heron		P. Frederick
<i>Bubulcus ibis ibis</i>	Cattle Egret	K. Parsons	R. Telfair
<i>Butorides virescens virescens</i>	Green Heron		J. Kushlan
<i>Nycticorax nycticorax hoactli</i>	Black-crowned Night Heron	K. Parsons	K. Parsons
<i>Nyctanassa violacea violacea</i>	Yellow-crowned Night Heron	B. Watts	B. Watts
<i>Eudocimus albus</i>	White Ibis		K. Bildstein; P. Frederick; J. Kushlan
<i>Plegadis falcinellus falcinellus</i>	Glossy Ibis	K. Parsons; B. Williams	B. Williams
<i>Coturnicops noveboracensis noveboracensis</i>	Yellow Rail		J. Mattsson
<i>Laterallus jamaicensis jamaicensis</i>	Black Rail		M. Legare; O. Hinojosa-Huerta
<i>Rallus longirostris crepitans</i>	Clapper Rail		O. Hinojosa-Huerta; J. Roberson; E. Palacios-Castro
<i>Rallus elegans elegans</i>	King Rail		J. Roberson
<i>Rallus limicola limicola</i>	Virginia Rail		J. Roberson
<i>Porzana carolina</i>	Sora		J. Roberson
<i>Porphyrio martinica</i>	Purple Gallinule		R. West

Waterbird Species		Regional Experts providing input	Continental Experts providing input
<i>Gallinula chloropus cachinnans</i>	Common Moorhen		J. Roberson
<i>Fulica americana americana</i>	American Coot		L. Brisbin
<i>Stercorarius skua</i>	Great Skua	D. Boersma	NAWCP Specialist Team
<i>Stercorarius macconnicki</i>	South Polar Skua		K. Morgan
<i>Stercorarius pomarinus+B22</i>	Pomarine Jaeger	D. Lee; H. Wiley; M. Belisle	M. Belisle
<i>Stercorarius parasiticus</i>	Parasitic Jaeger	D. Lee; H. Wiley	K. Morgan
<i>Stercorarius longicaudus</i>	Long-tailed Jaeger	H. Wiley	NAWCP Specialist Team
<i>Larus atricilla megalopterus</i>	Laughing Gull	J. Burger	NAWCP Specialist Team
<i>Larus minutus</i>	Little Gull	C. Weseloh	C. Weseloh
<i>Larus ridibundus ridibundus</i>	Black-headed Gull	B. Montevecchi	B. Montevecchi
<i>Larus philadelphia</i>	Bonaparte's Gull	J. Burger	J. Burger
<i>Larus delawarensis</i>	Ring-billed Gull		J. Ryder
<i>Larus argentatus smithsoniaunus</i>	Herring Gull	J. Chardine	G. Fox; C. Hunter; D. Allen
<i>Larus glaucoides kumlieni</i>	Iceland Gull	T. Gaston	T. Gaston
<i>Larus fuscus graellsii</i>	Lesser Black-backed Gull		NAWCP Specialist Team
<i>Larus hyperboreus leucereetes</i>	Glaucous Gull	R. Pierotti; G. Gilchrist	G. Gilchrist
<i>Larus marinus</i>	Great Black-backed Gull	A. Diamond	T. Good
<i>Xema sabini sabini</i>	Sabine's Gull	R. Day	R. Day
<i>Rissa tridactyla tridactyla</i>	Black-legged Kittiwake	J. Chardine	NAWCP Specialist Team
<i>Sterna nilotica aranea</i>	Gull-billed Tern	W. Golder; M. Erwin; D. Allen	M. Erwin
<i>Sterna caspia</i>	Caspian Tern	F. Cuthbert; J. Quinn	J. Quinn
<i>Sterna maxima maxima</i>	Royal Tern	M. Erwin; R. Boettcher	F. Buckley; P. Buckley; M. Erwin
<i>Sterna sandvicensis acutiflavus</i>	Sandwich Tern	W. Golder	D. Shealer
<i>Sterna dougallii dougalli</i>	Roseate Tern	J. Spendelow	H. Hays; J. Spendelow; I. Nisbet
<i>Sterna hirundo hirundo</i>	Common Tern	H. Hays; D. Duffy; R. Morris	I. Nisbet; D. Duffy; H. Hays; R. Morris
<i>Sterna paradisaea</i>	Arctic Tern	S. Kress; A. Diamond	A. Diamond; J. Hatch
<i>Sterna forsteri litoricola</i>	Forster's Tern		NAWCP Specialist Team
<i>Sterna antillarum antillarum</i>	Least Tern	J. Burger	B. Thompson
<i>Sterna anaethetus recognita</i>	Bridled Tern	D. Lee; C. Haney	NAWCP Specialist Team
<i>Chlidonias niger surinamensis</i>	Black Tern	E. Dunn, T. Hodgeman	E. Dunn
<i>Rynchops niger niger</i>	Black Skimmer	M. Erwin	M. Erwin
<i>Alle alle alle</i>	Dovekie	B. Montevecchi; T. Gaston	B. Montevecchi
<i>Uria aalge aalge</i>	Common Murre	D. Nettleship; T. Gaston; H. Carter; W. Sydeman	H. Carter; T. Gaston; W. Sydeman
<i>Uria lomvia lomvia</i>	Thick-billed Murre	T. Gaston	T. Gaston
<i>Alca torda torda</i>	Razorbill	A. Diamond; G. Chapdelaine; F. Huetman; G. Robertson	G. Chapdelaine; A. Diamond; F. Huetmann; G. Robertson
<i>Cephus grylle arcticus</i>	Black Guillemot	D. Cairns; R. Butler; B. Allen	D. Cairns
<i>Fratercula arctica arctica</i>	Atlantic Puffin	D. Nettleship; S. Kress; M. Rodway	M. Rodway

## **B. Waterbird Population Goals**

There is general consensus that setting explicit wildlife and habitat objectives can result in useful tools in conservation planning because objectives facilitate targeted actions and the evaluation of outcomes. As such, resource objectives can help managers win support for and optimally execute conservation strategies. Within bird conservation, all the large-scale initiatives have committed to setting population and/or habitat goals of some kind. The MANEM Waterbird Working Group also committed to setting regional population and habitat goals. The Working Group believes these goals will accrue planning and support benefits, and will assist with integration of all-bird conservation strategies developed at local scales.

Relationship to NAWCP vision. The goal of the NAWCP 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.” The difficulty in setting resource objectives is to ensure that they contribute rationally to the overarching goal of conservation. Managers are challenged to have accurate information on the current status of each species, and furthermore, to know what abundance and habitat attributes would constitute self-sustaining populations of waterbirds. This information is incomplete to entirely lacking for all waterbirds occurring in MANEM. In general, this standard of knowledge is available only for the most endangered species, and other bird conservation initiatives have adopted a “place-holder” strategy accepting that complete knowledge is not prerequisite and that best-available information may be sufficient to set meaningful objectives that can be re-evaluated as information improves.

“Place-holder” Population Objectives. In the aquatic habitats of BCRs 14 and 30, a largely human-altered region, it is likely that some to most species of waterbirds are under pressure from habitat loss and degradation, and that the adverse influences of human development over the past 30 years represent an accelerating threat to regional persistence. In compliance with the NAWCP vision, MANEM partners considered it appropriate to set restoration goals for waterbirds in the absence of knowledge concerning sustainability. Reasonable population estimates are available from the 1970s-1990s for many species with breeding populations in MANEM (69% of total). Therefore, the MANEM working group adopted a “place-holder” strategy of identifying, as a benchmark and possible target, population levels shown in the 1970s.

*Declining vs. increasing populations.* For species with populations currently estimated to be less than abundance recorded in the 1970s, population objectives were adopted to restore abundance to former levels. For species with populations estimated to be greater than historical abundance, the working group chose to maintain abundance at current levels.

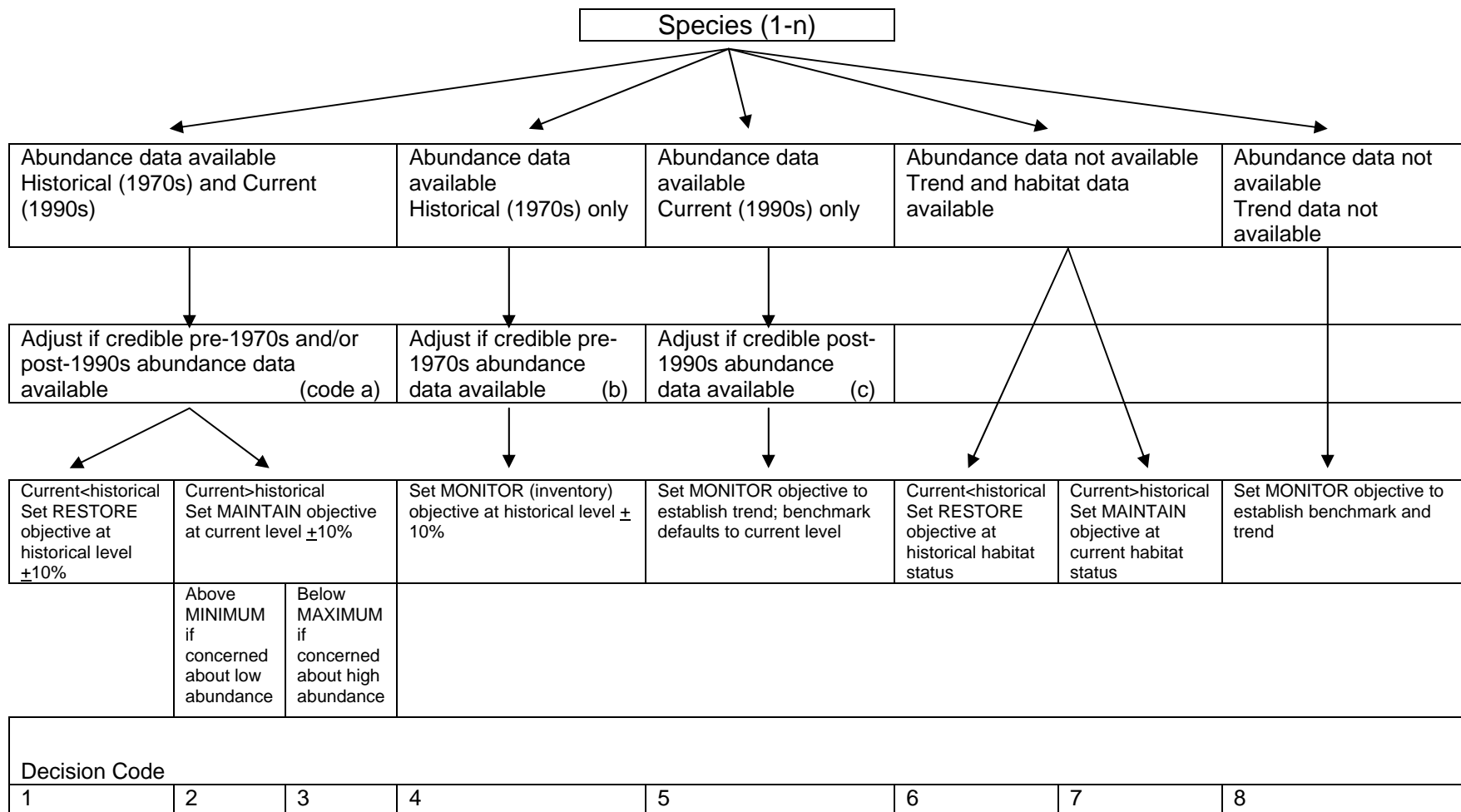
*Abundance data lacking.* Abundance data are almost entirely lacking for birds not breeding (n=23 spp) in the region. Similarly, very little information is available on breeding non-colonial waterbirds (n=13 spp) in the US, although data are available on this group in Canada. The working group chose to substitute a monitoring objective for population size, and thus to prioritize these species as requiring survey information.

*Adjusting benchmarks.* Although the working group considered a somewhat standard approach to be desirable from the standpoint of transparency, the steering committee elected to modify targets initially developed with a common approach under special circumstances. These included species with good historical (pre-1970s) abundance data, or species that have been comprehensively surveyed since the coast-wide surveys of the 1990s.

A decision tree describing the approach the MANEM working group took to identifying population objectives is shown in Figure 1. All species received an “action” objective; species with adequate quantitative abundance data received a numerical target (Table 8). Forty-four percent of MANEM’s waterbird species received the default action of “monitor” due to insufficient abundance data. Nineteen waterbird species (26%) show current population levels below 1970s levels and thus were identified as requiring conservation actions that will “restore” their populations. Thirty percent of species has current population levels equal to or greater

than 1970s levels and received the action “maintain.” Species with the greatest quantified decline since the 1970s and thus with the greatest targeted increase in the region include Leach’s Storm-petrel (46% decline) and Black-crowned Night-Heron (44% decline).

*Figure 1. Setting Population Objectives—process involves 1) evaluation of level of information regarding population size and trend, 2) adoption of “restore” (as opposed to sustainability) goal of NAWCP, and 3) generation of an ACTION objective as well as quantitative population objective (where possible). Action objectives RESTORE and MONITOR imply commitment of new conservation funds/personnel; MAINTAIN implies continuing commitment of current conservation efforts. In setting population objectives, MONITOR is a default action for some species lacking abundance data.*



**Table 8—Waterbird population goals in the Mid-Atlantic/New England/Maritimes region of North America. Information on the regional population size and trend goals for the 74 waterbird species that regularly occur in MANEM is summarized from the waterbird species profiles (Appendix 1).**

Waterbird Species		MANEM current population size*	MANEM target population size	Action	Decision code
<i>Gavia stellata</i>	Red-throated Loon	100,000nb	default current	MONITOR	5
<i>Gavia immer</i>	Common Loon	5900b	15%-US	RESTORE (increase)	1
<i>Podilymbus podiceps podiceps</i>	Pied-billed Grebe	need estimate	need objective	MONITOR	8
<i>Podiceps auritus cornutus</i>	Horned Grebe	100,000-1,000,000nb	default current	MONITOR	5
<i>Podiceps grisegena holboellii</i>	Red-necked Grebe	10,000-100,000nb	default current	MONITOR	5
<i>Fulmarus glacialis auduboni</i>	Northern Fulmar	100,000-1,000,000nb	default current	MONITOR	5
<i>Calonectris diomedea borealis</i>	Cory's Shearwater	10,000-100,000nb	default current	MONITOR	5
<i>Puffinus gravis</i>	Greater Shearwater	1,000,000-10,000,000nb	default current	MONITOR	5
<i>Puffinus griseus</i>	Sooty Shearwater	100,000-1,000,000nb	default current	MONITOR	5
<i>Puffinus puffinus puffinus</i>	Manx Shearwater	1-10b/1,000-10,000nb	default current	MONITOR	5
<i>Puffinus lherminieri lherminieri</i>	Audubon's Shearwater	10,000-100,000nb	default current	MONITOR	5
<i>Oceanites oceanicus oceanicus</i>	Wilson's Storm-Petrel	1,000,000-10,000,000nb	default current	MONITOR	5
<i>Oceanodroma leucorhoa leucorhoa</i>	Leach's Storm-Petrel	220700b	343,600-420,000b	RESTORE (increase)	1
<i>Morus bassanus</i>	Northern Gannet	107600b	96,800-118,400b	MAINTAIN (above min)	2
<i>Pelecanus occidentalis carolinensis</i>	Brown Pelican	1000b	900-1,100b	MAINTAIN (above min)	2
<i>Phalacrocorax auritus auritus</i>	Double-crested Cormorant	170400b	153,400-187,4002b	MAINTAIN (below max)	3
<i>Phalacrocorax carbo carbo</i>	Great Cormorant	12300b	11,100-13,500b	MAINTAIN (above min)	2
<i>Botaurus lentiginosus</i>	American Bittern	need estimate	need objective	RESTORE (increase)	6
<i>Ixobrychus exilis exilis</i>	Least Bittern	need estimate	need objective	MONITOR	8
<i>Ardea herodias herodias</i>	Great Blue Heron	42100b	?b	MAINTAIN (above min)	2
<i>Ardea alba egretta</i>	Great Egret	8600b	7,700-9,500b	MAINTAIN (above min)	2
<i>Egretta thula thula</i>	Snowy Egret	13500b	16,300-19,900b	RESTORE (increase)	1
<i>Egretta caerulea</i>	Little Blue Heron	3200b	2,900-3,500b	MAINTAIN (above min)	2
<i>Egretta tricolor ruficollis</i>	Tricolored Heron	3500b	3,200-3,900b	MAINTAIN (above min)	2
<i>Bubulcus ibis ibis</i>	Cattle Egret	9100b	10,700-13,100b	RESTORE (increase)	1
<i>Butorides virescens virescens</i>	Green Heron	400?b	400?b	MAINTAIN (above min)	2
<i>Nycticorax nycticorax hoactli</i>	Black-crowned Night Heron	12000b	16,000-19,600b	RESTORE (increase)	1
<i>Nyctanassa violacea violacea</i>	Yellow-crowned Night Heron	1500b	1,400-1,700b	MAINTAIN (above min)	2
<i>Eudocimus albus</i>	White Ibis	10b	10b	MAINTAIN (above min)	2
<i>Plegadis falcinellus falcinellus</i>	Glossy Ibis	10200b	9,900-12,100b	RESTORE (increase)	1
<i>Coturnicops noveboracensis noveboracensis</i>	Yellow Rail	need estimate	need objective	MONITOR	8
<i>Laterallus jamaicensis jamaicensis</i>	Black Rail	need estimate	need objective	RESTORE (increase)	6
<i>Rallus longirostris crepitans</i>	Clapper Rail	need estimate	need objective	MONITOR	8
<i>Rallus elegans elegans</i>	King Rail	need estimate	need objective	RESTORE (increase)	6
<i>Rallus limicola limicola</i>	Virginia Rail	need estimate	need objective	MONITOR	8
<i>Porzana carolina</i>	Sora	need estimate	need objective	MONITOR	8

Waterbird Species		MANEM current population size*	MANEM target population size	Action	Decision code
<i>Porphyrio martinica</i>	Purple Gallinule	need estimate	need objective	MONITOR	8
<i>Gallinula chloropus cachinnans</i>	Common Moorhen	need estimate	need objective	MONITOR	8
<i>Fulica americana americana</i>	American Coot	10,400nb	default current	MONITOR	5
<i>Larus atricilla megalopterus</i>	Laughing Gull	187200b	168,500-205,900b	MAINTAIN (below max)	3
<i>Larus minutus</i>	Little Gull	100-1,000nb	default current	MONITOR	5
<i>Larus ridibundus ridibundus</i>	Black-headed Gull	20b		MAINTAIN (above min)	2
<i>Larus philadelphia</i>	Bonaparte's Gull	100,000-1,000,000nb	default current	MONITOR	5
<i>Larus delawarensis</i>	Ring-billed Gull	40800b	36,700-44,900b	MAINTAIN (below max)	3
<i>Larus argentatus smithsoniaunus</i>	Herring Gull	278500b	250,700-306,400b	MAINTAIN (below max)	3a
<i>Larus glaucoides kumlieni</i>	Iceland Gull	1,000-10,000nb	default current	MONITOR	5
<i>Larus fuscus graellsii</i>	Lesser Black-backed Gull	100-1,000nb	default current	MONITOR	5
<i>Larus hyperboreus leucereutes</i>	Glaucous Gull	100-1,000nb	default current	MONITOR	5
<i>Larus marinus</i>	Great Black-backed Gull	150700b	135,700-165,800b	MAINTAIN (below max)	3
<i>Xema sabini sabini</i>	Sabine's Gull	1-10nb	default current	MONITOR	5
<i>Rissa tridactyla tridactyla</i>	Black-legged Kittiwake	108700b	?b	MAINTAIN (above min)	2
<i>Onychoprion anaethetus recognita</i>	Bridled Tern	1,000nb	default current	MONITOR	5
<i>Sternula antillarum antillarum</i>	Least Tern	13800b	13,600-16,600b	RESTORE (increase)	1
<i>Gelochelidon nilotica aranea</i>	Gull-billed Tern	800b	900-1,100b	RESTORE (increase)	1a
<i>Hydroprogne caspia</i>	Caspian Tern	20b	20b	MAINTAIN (above min)	2
<i>Chlidonias niger surinamensis</i>	Black Tern	?b	?b	RESTORE (increase)	1
<i>Sterna dougallii dougalli</i>	Roseate Tern	6900b	6,200-7,600b	MAINTAIN (above min)	2
<i>Sterna hirundo hirundo</i>	Common Tern	127500b	?b	RESTORE (increase)	1
<i>Sterna paradisaea</i>	Arctic Tern	19100b	?b	RESTORE (increase)	1
<i>Sterna forsteri litoricola</i>	Forster's Tern	15200b	13,700-16,700b	MAINTAIN (above min)	2
<i>Thalasseus maximus maxima</i>	Royal Tern	8200b	8,200-10,000b	RESTORE (increase)	1
<i>Thalasseus sandvicensis acuflavidus</i>	Sandwich Tern	50b	50b	MAINTAIN (above min)	2
<i>Rynchops niger niger</i>	Black Skimmer	7700b	6,900-8,500b	RESTORE (increase)	1
<i>Stercorarius skua</i>	Great Skua	1,000-10,000nb	default current	MONITOR	5
<i>Stercorarius maccormicki</i>	South Polar Skua	100-1,000nb	default current	MONITOR	5
<i>Stercorarius pomarinus+B22</i>	Pomarine Jaeger	10,000nb	default current	MONITOR	5
<i>Stercorarius parasiticus</i>	Parasitic Jaeger	10,000nb	default current	MONITOR	5
<i>Stercorarius longicaudus</i>	Long-tailed Jaeger	100-1,000nb	default current	MONITOR	5
<i>Alle alle alle</i>	Dovekie	10,000-100,000nb	default current	MONITOR	5
<i>Uria aalge aalge</i>	Common Murre	63200b	56,900-69,500b	RESTORE (increase)	1
<i>Uria lomvia lomvia</i>	Thick-billed Murre	1200b		MONITOR	5
<i>Alca torda torda</i>	Razorbill	15200b	?b	RESTORE (increase)	1
<i>Cephus grylle arcticus</i>	Black Guillemot	25100b	22,600-27,600b	MAINTAIN (above min)	2
<i>Fratercula arctica arctica</i>	Atlantic Puffin	2900b	3,200-3,900b	RESTORE (increase)	1a

### **C. Waterbird Population Priorities**

MANEM's waterbird conservation priorities encompass population objectives, habitat goals, and conservation problem-solving. Species priorities were identified by evaluating status at multiple scales including global (IUCN), continental (NAWCP), subregional (MANEM Focal Species), and state/provincial (endangered statute listings and Species of Greatest Conservation Need lists) (Table 9).

At a global scale, all waterbird species occurring in MANEM are ranked as "Least Concern" by IUCN ([www.redlist.org](http://www.redlist.org)) except Sooty Shearwater and Black Rail which are considered "Near Threatened." Continental ranks were developed according to the prioritization protocol published in the North American Waterbird Conservation Plan ([www.waterbirdconservation.org](http://www.waterbirdconservation.org)). Two species (3%) of MANEM's waterbirds are ranked as Highest Concern at the continental scale (Audubon's Shearwater and Black Rail). Twenty species (27%) are ranked as High Concern and twenty-six species (35%) are ranked as Moderate Concern. All other species (35%) are considered to be of Low or Lowest Conservation Concern.

BCR priorities derived from the continental assessment although species' ranks were adjusted to a higher rank if BCR population importance (BCR proportion of continental population) is 50% or greater. Additionally, a designation of "Peripheral" was adopted if a large majority of the species' range occurs outside the BCR. Northern Gannet, Great Cormorant, Glossy Ibis, Herring Gull, and Great Black-backed Gull are MANEM species whose BCR ranks were elevated to the next higher concern category based on significant regional populations. Little Gull, Lesser Black-backed Gull and Black-headed Gull were considered by MANEM partners to be "Peripheral."

Subregional priorities were determined at workshops held by the four subregional partnerships active in waterbird conservation throughout MANEM (Mid-Atlantic, Southern New England, Gulf of Maine, Maritimes). Forty-three species (58%) of MANEM's waterbirds were selected by one or more subregions as "Focal Species." Focal Species were identified predominantly as species in need of immediate conservation action; however several species were also identified as a result of management needs (specifically--their potential negative impact on other waterbird populations). Management concern species include Black-crowned Night-Heron, Double-crested Cormorant, Great Black-backed Gull, Herring Gull and Laughing Gull. Black-crowned Night-Heron and Herring Gull were selected as Focal Species due to both conservation and management concerns. All four subregions selected Red-throated Loon, Horned Grebe, American Bittern and Common Tern as Focal Species. In addition, three of four subregions selected Greater Shearwater, Least Bittern, Snowy Egret, Black-crowned Night-Heron, Least Tern and Roseate Tern as Focal Species.

State/provincial priorities are expressed through the application of endangered species statutes in the US and Canada's Species at Risk Act. The species with the highest level of listing within the 15 state/province region are Pied-billed Grebe, Least Bittern, Least Tern, Roseate Tern and Common Tern. State priorities were additionally identified through recently completed wildlife conservation plans which included the identification of Species of Greatest Conservation Need. Species identified in the greatest number of state wildlife plans include Pied-billed Grebe, American Bittern, Least Bittern, Black-crowned Night-Heron, Least Tern, Roseate Tern and Common Tern.

**Table 9—Waterbird population conservation priorities in the Mid-Atlantic/New England/Maritimes region of North America. Information on the global, continental, BCR, sub-regional, and state/provincial conservation priorities for the 74 waterbird species that regularly occur in MANEM is summarized from the waterbird species profiles (Appendix 1).**

Waterbird Species		Conservation Status					
		Global	North America	BCR14/PBCR79	BCR30/PBCR78	MANEM	State/Provincial
<i>Gavia stellata</i>	Red-throated Loon	Least Concern	High Concern	High Concern	High Concern	Focal-4	listed-0; SGCN-4
<i>Gavia immer</i>	Common Loon	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern	Focal-2	listed-5; SGCN-7
<i>Podilymbus podiceps podiceps</i>	Pied-billed Grebe	Least Concern	High Concern	High Concern	High Concern		listed-7; SGCN-10
<i>Podiceps auritus cornutus</i>	Horned Grebe	Least Concern	High Concern	High Concern	High Concern	Focal-4	listed-0; SGCN-6
<i>Podiceps grisegena holboellii</i>	Red-necked Grebe	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern	Focal-1	listed-0; SGCN-1
<i>Fulmarus glacialis auduboni</i>	Northern Fulmar	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern		listed-0; SGCN-0
<i>Calonectris diomedea borealis</i>	Cory's Shearwater	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern	Focal-1	listed-0; SGCN-1
<i>Puffinus gravis</i>	Greater Shearwater	Least Concern	High Concern	High Concern	High Concern	Focal-3	listed-0; SGCN-4
<i>Puffinus griseus</i>	Sooty Shearwater	Near Threatened	Moderate Concern	Moderate Concern	Moderate Concern		listed-0; SGCN-0
<i>Puffinus puffinus puffinus</i>	Manx Shearwater	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern		listed-0; SGCN-1
<i>Puffinus lherminieri lherminieri</i>	Audubon's Shearwater	Least Concern	Highest Concern	Highest Concern	Highest Concern	Focal-2	listed-0; SGCN-2
<i>Oceanites oceanicus oceanicus</i>	Wilson's Storm-Petrel	Least Concern	Lowest Concern	Lowest Concern	Lowest Concern		listed-0; SGCN-0
<i>Oceanodroma leucorhoa leucorhoa</i>	Leach's Storm-Petrel	Least Concern	Low Concern	Low Concern	Low Concern	Focal-2	listed-2; SGCN-1
<i>Morus bassanus</i>	Northern Gannet	Least Concern	Lowest Concern	Low Concern	Lowest Concern	Focal-2	listed-0; SGCN-2
<i>Pelecanus occidentalis carolinensis</i>	Brown Pelican	Least Concern	Moderate Concern		Moderate Concern		listed-1; SGCN-2
<i>Phalacrocorax auritus auritus</i>	Double-crested Cormorant	Least Concern	Lowest Concern	Lowest Concern	Lowest Concern	Focal-1	listed-0; SGCN-2
<i>Phalacrocorax carbo carbo</i>	Great Cormorant	Least Concern	Moderate Concern	High Concern	Moderate Concern	Focal-1	listed-1; SGCN-3
<i>Botaurus lentiginosus</i>	American Bittern	Least Concern	High Concern	High Concern	High Concern	Focal-4	listed-6; SGCN-11
<i>Ixobrychus exilis exilis</i>	Least Bittern	Least Concern	High Concern	High Concern	High Concern	Focal-3	listed-10; SGCN-11
<i>Ardea herodias herodias</i>	Great Blue Heron	Least Concern	Lowest Concern	Lowest Concern	Lowest Concern	Focal-1	listed-2; SGCN-8
<i>Ardea alba egretta</i>	Great Egret	Least Concern	Lowest Concern	Lowest Concern	Lowest Concern	Focal-1	listed-3; SGCN-7
<i>Egretta thula thula</i>	Snowy Egret	Least Concern	High Concern	High Concern	High Concern	Focal-3	listed-3; SGCN-8
<i>Egretta caerulea</i>	Little Blue Heron	Least Concern	High Concern	High Concern	High	Focal-1	listed-4; SGCN-8
<i>Egretta tricolor ruficollis</i>	Tricolored Heron	Least Concern	High Concern		High Concern		listed-2; SGCN-6
<i>Bubulcus ibis ibis</i>	Cattle Egret	Least Concern	Lowest Concern	Lowest Concern	Lowest Concern	Focal-1	listed-1; SGCN-5
<i>Butorides virescens virescens</i>	Green Heron	Least Concern	Low Concern	Low Concern	Low Concern		listed-0; SGCN-4
<i>Nycticorax nycticorax hoactli</i>	Black-crowned Night Heron	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern	Focal-3	listed-4; SGCN-10
<i>Nyctanassa violacea violacea</i>	Yellow-crowned Night Heron	Least Concern	Moderate Concern		Moderate Concern	Focal-1	listed-5; SGCN-7
<i>Eudocimus albus</i>	White Ibis	Least Concern	Moderate Concern		Moderate Concern		listed-0; SGCN-0
<i>Plegadis falcinellus falcinellus</i>	Glossy Ibis	Least Concern	Low Concern	Low Concern	Moderate Concern	Focal-2	listed-3; SGCN-8
<i>Coturnicops noveboracensis noveboracensis</i>	Yellow Rail	Least Concern	High Concern	High Concern	High Concern	Focal-1	listed-3; SGCN-4
<i>Laterallus jamaicensis jamaicensis</i>	Black Rail	Near Threatened	Highest Concern		Highest Concern	Focal-2	listed-5; SGCN-6
<i>Rallus longirostris crepitans</i>	Clapper Rail	Least Concern	Moderate Concern		Moderate Concern	Focal-1	listed-1; SGCN-4
<i>Rallus elegans elegans</i>	King Rail	Least Concern	High Concern		High Concern	Focal-1	listed-5; SGCN-8
<i>Rallus limicola limicola</i>	Virginia Rail	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern		listed-0; SGCN-3
<i>Porzana carolina</i>	Sora	Least Concern	High Concern	High Concern	High Concern		listed-2; SGCN-6

Waterbird Species		Conservation Status					
<i>Porphyrio martinica</i>	Purple Gallinule	Least Concern	High Concern		High Concern		listed-0; SGCN-0
<i>Gallinula chloropus cachinnans</i>	Common Moorhen	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern		listed-4; SGCN-6
<i>Fulica americana americana</i>	American Coot	Least Concern	Low Concern	Low Concern	Low Concern		listed-1; SGCN-2
<i>Larus atricilla megalopterus</i>	Laughing Gull	Least Concern	Lowest Concern	Lowest Concern	Lowest Concern	Focal-2	listed-1; SGCN-3
<i>Larus minutus</i>	Little Gull	Least Concern	High Concern	Peripheral	Peripheral		listed-0; SGCN-2
<i>Larus ridibundus ridibundus</i>	Black-headed Gull	Least Concern	Moderate Concern	Peripheral	Peripheral		listed-0; SGCN-0
<i>Larus philadelphia</i>	Bonaparte's Gull	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern		listed-0; SGCN-2
<i>Larus delawarensis</i>	Ring-billed Gull	Least Concern	Lowest Concern	Lowest Concern	Lowest Concern		listed-0; SGCN-0
<i>Larus argentatus smithsoniaunus</i>	Herring Gull	Least Concern	Low Concern	Moderate Concern	Low Concern	Focal-1	listed-0; SGCN-1
<i>Larus glaucoides kumlieni</i>	Iceland Gull	Least Concern	Low Concern	Low Concern	Low Concern		listed-0; SGCN-0
<i>Larus fuscus graellsii</i>	Lesser Black-backed Gull	Least Concern	Moderate Concern	Peripheral	Peripheral		listed-0; SGCN-0
<i>Larus hyperboreus leucereetes</i>	Glaucous Gull	Least Concern	Lowest Concern	Lowest Concern	Lowest Concern		listed-0; SGCN-0
<i>Larus marinus</i>	Great Black-backed Gull	Least Concern	Lowest Concern	Low Concern	Lowest Concern	Focal-1	listed-0; SGCN-2
<i>Xema sabini sabini</i>	Sabine's Gull	Least Concern	Low Concern	Low Concern	Low Concern		listed-0; SGCN-0
<i>Rissa tridactyla tridactyla</i>	Black-legged Kittiwake	Least Concern	Lowest Concern	Lowest Concern	Lowest Concern	Focal-1	listed-0; SGCN-0
<i>Onychoprion anaethetus recognita</i>	Bridled Tern	Least Concern	High Concern		High Concern	Focal-1	listed-0; SGCN-2
<i>Sternula antillarum antillarum</i>	Least Tern	Least Concern	High Concern		High Concern	Focal-3	listed-9; SGCN-10
<i>Gelochelidon nilotica aranea</i>	Gull-billed Tern	Least Concern	High Concern		High Concern	Focal-1	listed-2; SGCN-5
<i>Hydroprogne caspia</i>	Caspian Tern	Least Concern	Low Concern		Low Concern		listed-2; SGCN-2
<i>Chlidonias niger surinamensis</i>	Black Tern	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern	Focal-1	listed-4; SGCN-6
<i>Sterna dougalli dougalli</i>	Roseate Tern	Least Concern	High Concern	High Concern	High Concern	Focal-3	listed-10; SGCN-10
<i>Sterna hirundo hirundo</i>	Common Tern	Least Concern	Low Concern	Low Concern	Low Concern	Focal-4	listed-8; SGCN-11
<i>Sterna paradisaea</i>	Arctic Tern	Least Concern	High Concern	High Concern	High Concern	Focal-2	listed-3; SGCN-4
<i>Sterna forsteri litorcola</i>	Forster's Tern	Least Concern	Moderate Concern		Moderate Concern	Focal-1	listed-2; SGCN-5
<i>Thalasseus maximus maxima</i>	Royal Tern	Least Concern	Moderate Concern		Moderate Concern	Focal-1	listed-1; SGCN-3
<i>Thalasseus sandvicensis acuflavidus</i>	Sandwich Tern	Least Concern	Lowest Concern		Lowest Concern		listed-1; SGCN-1
<i>Rynchops niger niger</i>	Black Skimmer	Least Concern	High Concern		High Concern	Focal-1	listed-4; SGCN-7
<i>Stercorarius skua</i>	Great Skua	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern		listed-0; SGCN-0
<i>Stercorarius maccormicki</i>	South Polar Skua	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern		listed-0; SGCN-0
<i>Stercorarius pomarinus</i>	Pomarine Jaeger	Least Concern	Low Concern	Low Concern	Low Concern		listed-0; SGCN-0
<i>Stercorarius parasiticus</i>	Parasitic Jaeger	Least Concern	Low Concern	Low Concern	Low Concern		listed-0; SGCN-0
<i>Stercorarius longicaudus</i>	Long-tailed Jaeger	Least Concern	Low Concern	Low Concern	Low Concern		listed-0; SGCN-0
<i>Alle alle alle</i>	Dovekie	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern		listed-0; SGCN-0
<i>Uria aalge aalge</i>	Common Murre	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern		listed-0; SGCN-1
<i>Uria lomvia lomvia</i>	Thick-billed Murre	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern		listed-0; SGCN-0
<i>Alca torda torda</i>	Razorbill	Least Concern	Moderate Concern	Moderate Concern	Moderate Concern	Focal-2	listed-1; SGCN-3
<i>Cephus grylle arcticus</i>	Black Guillemot	Least Concern	Lowest Concern	Lowest Concern	Lowest Concern	Focal-2	listed-1; SGCN-1
<i>Fratercula arctica arctica</i>	Atlantic Puffin	Least Concern	Lowest Concern	Lowest Concern		Focal-2	listed-1; SGCN-1

**Regional Species Priorities.** Combining species priorities assessed at global, continental, subregional and local scales, MANEM identified four categories of conservation concern that apply to the region as a whole (Table 10). Species in the Highest Conservation Concern category include: Red-throated Loon, Common Loon, Pied-billed Grebe, Greater Shearwater, Audubon's Shearwater, American Bittern, Least Bittern, Snowy Egret, Little Blue Heron, Tricolored Heron, Black-crowned Night-Heron, Glossy Ibis, Black Rail, King Rail, Least Tern, Gull-billed Tern, Roseate Tern, Common Tern, Arctic Tern and Black Skimmer (also see Section 1).

**Table 10—Regional waterbird population conservation priorities in the Mid-Atlantic/New England/Maritimes region of North America. Regional conservation priorities are identified for the 74 waterbird species that regularly occur in MANEM through analysis of multi-scale priorities.**

Highest	High	Moderate	Low
Red-throated Loon Common Loon Pied-billed Grebe Horned Grebe Greater Shearwater Audubon's Shearwater American Bittern Least Bittern Snowy Egret Little Blue Heron Tricolored Heron Black-crowned Night-Heron Glossy Ibis Black Rail King Rail Least Tern Gull-billed Tern Roseate Tern Common Tern Arctic Tern Black Skimmer	Red-necked Grebe Cory's Shearwater Great Cormorant Great Blue Heron Yellow-crowned Night-Heron Yellow Rail Clapper Rail Sora Common Moorhen Laughing Gull Herring Gull Bridled Tern Black Tern Forster's Tern Royal Tern Razorbill	Sooty Shearwater Manx Shearwater Leach's Storm-petrel Northern Gannet Brown Pelican Great Egret Cattle Egret Green Heron Virginia Rail Purple Gallinule Little Gull Bonaparte's Gull Great Skua South Polar Skua Common Murre Black Guillemot Atlantic Puffin	Northern Fulmar Wilson's Storm-petrel Double-crested Cormorant White Ibis American Coot Black-headed Gull Ring-billed Gull Iceland Gull Lesser Black-backed Gull Glaucous Gull Great Black-backed Gull Sabine's Gull Black-legged Kittiwake Caspian Tern Sandwich Tern Pomarine Jaeger Parasitic Jaeger Long-tailed Jaeger Dovekie Thick-billed Murre

#### **D. Waterbird Habitat Priorities**

**“Place-holder” Habitat Objectives.** Habitat objectives derived directly from population objectives. In cases where restoration of populations is recommended, the steering committee allocated increases to the subregional partnerships. This was done either by assigning percent increases or by looking specifically at where loss has occurred over the past thirty years and evaluating the likelihood of restoring local populations. Identifying colony-site locations or other significant habitats likely to support increased populations will allow local managers to develop site-specific management strategies to counter negative factors and promote habitat capacity. In species where increases are not recommended, a similar evaluation of what might be required to maintain populations took place. Setting habitat objectives thus became a process begun by the steering committee but finalized by the local partnerships. Inland, coastal and pelagic habitats critical to sustaining waterbird populations in MANEM were identified throughout the region (Table 11; Appendices 1 and 2).

**Table 11— Waterbird habitat conservation priorities in the Mid-Atlantic/New England/Maritimes region of North America. Information on the state/provincial habitat conservation priorities for the 74 waterbird species that regularly occur in MANEM is summarized from the waterbird species and habitat profiles (Appendices 1 and 2).**

Waterbird Species		Regional Habitat Priorities																		
		VA	MD	DE	NJ	NY-LI	NY-Adr	CT	RI	MA	VT	NH	ME	NB	NS	PE	QC	NE US shelf	GOM	Scotian shelf
<i>Gavia stellata</i>	Red-throated Loon																	x	x	x
<i>Gavia immer</i>	Common Loon						x				x	x	x					x	x	x
<i>Podilymbus podiceps podiceps</i>	Pied-billed Grebe	x	x	x	x	x	x	x		x	x	x	x	x	x	x				
<i>Podiceps auritus cornutus</i>	Horned Grebe																	x	x	x
<i>Podiceps grisegena holboellii</i>	Red-necked Grebe																	x	x	x
<i>Fulmarus glacialis auduboni</i>	Northern Fulmar																	x	x	x
<i>Calonectris diomedea borealis</i>	Cory's Shearwater																	x	x	x
<i>Puffinus gravis</i>	Greater Shearwater																	x	x	x
<i>Puffinus griseus</i>	Sooty Shearwater																	x	x	x
<i>Puffinus puffinus puffinus</i>	Manx Shearwater																	x	x	x
<i>Puffinus lherminieri lherminieri</i>	Audubon's Shearwater																	x	x	
<i>Oceanites oceanicus oceanicus</i>	Wilson's Storm-Petrel																	x	x	x
<i>Oceanodroma leucorhoa leucorhoa</i>	Leach's Storm-Petrel												x	x	x			x	x	x
<i>Morus bassanus</i>	Northern Gannet																x	x	x	x
<i>Pelecanus occidentalis carolinensis</i>	Brown Pelican																			
<i>Phalacrocorax auritus auritus</i>	Double-crested Cormorant	x	x			x		x	x	x		x	x	x	x	x	x	x	x	x
<i>Phalacrocorax carbo carbo</i>	Great Cormorant														x	x	x	x	x	x
<i>Botaurus lentiginosus</i>	American Bittern		x		x		x	x	x	x	x	x	x	x	x	x				
<i>Ixobrychus exilis exilis</i>	Least Bittern		x	x	x	x		x	x	x	x	x	x	x						
<i>Ardea herodias herodias</i>	Great Blue Heron	x	x				x						x	x	x	x				
<i>Ardea alba egretta</i>	Great Egret	x	x	x	x															
<i>Egretta thula thula</i>	Snowy Egret	x	x	x	x	x		x	x	x			x							
<i>Egretta caerulea</i>	Little Blue Heron	x	x	x	x															
<i>Egretta tricolor ruficollis</i>	Tricolored Heron	x	x		x															
<i>Bubulcus ibis ibis</i>	Cattle Egret	x	x	x	x															
<i>Butorides virescens virescens</i>	Green Heron			x		x	x		x	x	x	x	x							
<i>Nycticorax nycticorax hoactli</i>	Black-crowned Night Heron	x	x	x	x	x		x	x	x				x	x					
<i>Nyctanassa violacea violacea</i>	Yellow-crowned Night Heron	x	x	x	x															
<i>Eudocimus albus</i>	White Ibis	x																		
<i>Plegadis falcinellus falcinellus</i>	Glossy Ibis	x	x	x	x															
<i>Coturnicops noveboracensis noveboracensis</i>	Yellow Rail																			
<i>Laterallus jamaicensis jamaicensis</i>	Black Rail	x	x		x	x														
<i>Rallus longirostris crepitans</i>	Clapper Rail		x	x		x		x	x	x										

Waterbird Species		Regional Habitat Priorities																	
<i>Rallus elegans elegans</i>	King Rail	x	x	x		x		x	x										
<i>Rallus limicola limicola</i>	Virginia Rail	x	x	x		x	x	x	x	x	x	x	x	x	x				
<i>Porzana carolina</i>	Sora	x	x			x		x	x	x	x	x	x	x	x	x			
<i>Porphyrio martinica</i>	Purple Gallinule																		
<i>Gallinula chloropus cachinnans</i>	Common Moorhen	x	x	x		x		x			x	x	x	x	x				
<i>Fulica americana americana</i>	American Coot									x				x	x				
<i>Larus atricilla megalopterus</i>	Laughing Gull	x		x	x	x				x									
<i>Larus minutus</i>	Little Gull																x	x	
<i>Larus ridibundus ridibundus</i>	Black-headed Gull																x	x	x
<i>Larus philadelphia</i>	Bonaparte's Gull																x	x	
<i>Larus delawarensis</i>	Ring-billed Gull												x		x	x	x	x	
<i>Larus argentatus smithsoniaunus</i>	Herring Gull	x	x		x	x		x	x			x	x	x	x	x	x	x	x
<i>Larus glaucoides kumlieni</i>	Iceland Gull																	x	x
<i>Larus fuscus graellsii</i>	Lesser Black-backed Gull																x		
<i>Larus hyperboreus leucereetes</i>	Glaucous Gull																x	x	
<i>Larus marinus</i>	Great Black-backed Gull	x			x			x	x			x	x	x	x	x	x	x	x
<i>Xema sabini sabini</i>	Sabine's Gull																	x	x
<i>Rissa tridactyla tridactyla</i>	Black-legged Kittiwake																x	x	x
<i>Onychoprion anaethetus recognita</i>	Bridled Tern																x		
<i>Sternula antillarum antillarum</i>	Least Tern	x	x	x	x	x		x		x							x		
<i>Gelochelidon nilotica aranea</i>	Gull-billed Tern	x	x		x														
<i>Hydroprogne caspia</i>	Caspian Tern	x			x												x		
<i>Chlidonias niger surinamensis</i>	Black Tern									x		x	x	x					
<i>Sterna dougallii dougallii</i>	Roseate Tern					x		x		x			x	x			x	x	x
<i>Sterna hirundo hirundo</i>	Common Tern	x	x		x	x		x	x	x		x	x	x	x	x	x	x	x
<i>Sterna paradisaea</i>	Arctic Tern											x	x	x	x			x	x
<i>Sterna forsteri litoricola</i>	Forster's Tern	x	x		x														
<i>Thalasseus maximus maxima</i>	Royal Tern	x	x																
<i>Thalasseus sandvicensis acuflavidus</i>	Sandwich Tern	x																	
<i>Rynchops niger niger</i>	Black Skimmer	x	x		x														
<i>Stercorarius skua</i>	Great Skua																	x	x
<i>Stercorarius maccormicki</i>	South Polar Skua																x	x	x
<i>Stercorarius pomarinus</i>	Pomarine Jaeger																	x	x
<i>Stercorarius parasiticus</i>	Parasitic Jaeger																	x	x
<i>Stercorarius longicaudus</i>	Long-tailed Jaeger																x	x	x
<i>Alle alle alle</i>	Dovekie																	x	x
<i>Uria aalge aalge</i>	Common Murre												x			x		x	x
<i>Uria lomvia lomvia</i>	Thick-billed Murre																	x	x
<i>Alca torda torda</i>	Razorbill												x	x		x	x	x	x
<i>Cephus grylle arcticus</i>	Black Guillemot												x	x	x		x		x
<i>Fratercula arctica arctica</i>	Atlantic Puffin												x	x	x		x		x

## E. Recommended Conservation Actions

Recommended conservation actions were identified by MANEM partners for all species and habitats within the region (Appendices 1 and 2). Conservation actions include scientific research, inventory and monitoring, habitat management, wildlife management, habitat acquisition, education and policy development.

**MANEM Focal Species.** Partners identified immediate conservation needs of focal species within the four subregions of MANEM (Table 12). Critical conservation actions needed in the Mid-Atlantic and Gulf of Maine subregions include inventory and monitoring, nesting-site predator management, and productivity assessment. The southern New England subregion of MANEM identified monitoring, managing predators and disturbance at nesting-sites, and the establishment of additional nesting-sites as important conservation activities. MANEM partners in the Maritimes identified monitoring, managing predators and disturbance at nesting-sites, and several research questions as immediate conservation needs.

**Table 12—Sub-regional waterbird population conservation and management priorities in the Mid-Atlantic/New England/Maritimes region of North America. Sub-regional conservation and management priorities (focal species) are identified for the 74 waterbird species that regularly occur in the Mid-Atlantic, southern New England, Gulf of Maine and Maritimes sub-regions of MANEM.**

### MID-ATLANTIC SUBREGION

common name	%MANEM	subregional trend	state SGCN	state listing	MANEM trend	continental status	Priority Actions
Red-throated Loon	20	?	DE, MD		?	High	Monitor
Horned Grebe	25	?	NJ, DE, MD, VA		?	High	Inventory; monitor
Audubon's Shearwater	40	?	NJ, DE		?	Highest	Monitor
Northern Gannet	50	?	NJ, MD		Stable	Lowest	Monitor
Double-crested Cormorant	1	↑	DE		Stable	Lowest	Monitor impacts on other waterbirds
American Bittern	20	?	NJ, DE, MD, VA	NJ, MD	↓	High	Inventory; monitor
Least Bittern	35	?	NJ, DE, MD, VA	NJ, MD	?	High	Inventory; monitor
Great Egret	90	↑	NJ, DE, MD	VA	↑	Lowest	Monitor
Snowy Egret	81	↓	NJ, DE, MD	NJ	↓	High	Assess productivity
Little Blue Heron	99	↑	NJ, DE, MD, VA	NJ, VA	↑	High	Monitor
Tricolored Heron	99	↑	NJ, DE, MD, VA	NJ, VA	↑	High	Monitor
Cattle Egret	99	↓	NJ, DE		↓	Lowest	Assess productivity; assess contaminants impacts
Black-crowned Night-Heron	30	↓	NJ, DE, MD, VA	NJ, DE	↓	Moderate	Assess productivity
Yellow-crowned Night-Heron	98	↑	NJ, DE, MD, VA	NJ, DE, SC	↑	Moderate	Monitor; manage negative interactions at suburban nesting sites
Glossy Ibis	87	Stable	NJ, DE, MD, VA	VA	Stable	Low	Monitor
Black Rail	65	?	NJ, DE, MD, VA	NJ, DE, MD	↓	Highest	Inventory; monitor

common name	%MANEM	subregional trend	state SGCN	state listing	MANEM trend	continental status	Priority Actions
King Rail	80	?	NJ, DE, MD, VA	NJ	↓	High	Inventory; monitor
Laughing Gull	92	↑	MD		↑	Lowest	Monitor impacts on other waterbirds
Herring Gull	13	↑			↓	Low	Monitor impacts on other waterbirds
Great Black-backed Gull	2	↑	DE		↑	Lowest	Monitor impacts on other waterbirds
<b>Bridled Tern</b>	60	?	NJ, DE		?	High	Inventory; monitor
Least Tern	33	↓	NJ, DE, MD, VA	NJ, DE, MD, VA	↓	High	Assess productivity; manage nesting site predators
Gull-billed Tern	100	↓	NJ, DE, MD, VA	MD, VA	↓	High	Assess productivity; manage nesting site predators
Common Tern	6	↓	NJ, DE, MD, VA	NJ, DE	↑	Low	Assess productivity; manage nesting site predators
Forster's Tern	100	↑	NJ, DE, MD, VA	DE, VA	↑	Moderate	Manage nesting site predators
Royal Tern	100	↓	NJ, MD, VA	MD	↓	Moderate	Assess productivity; manage nesting site predators
Black Skimmer	90	Stable	NJ, DE, MD, VA	NJ, DE, MD	Stable	High	Assess productivity; manage nesting site predators

#### SOUTHERN NEW ENGLAND-LONG ISLAND SUBREGION

common name	%MANEM	subregional trend	state SGCN	state listing	MANEM trend	continental status	Priority Actions
<b>Red-throated Loon</b>	20	?	NY, CT		?	High	Monitor
<b>Horned Grebe</b>	25	?	NY, CT		?	High	Inventory; monitor
<b>Cory's Shearwater</b>	30	?	NY		?	Moderate	Monitor
<b>Greater Shearwater</b>	15	?	NY		?	High	Monitor
Double-crested Cormorant	10	↑	RI		Stable	Lowest	Monitor impacts on other waterbirds
American Bittern	10	?	NY, CT, RI, MA, VT	NY, CT, RI	↓	High	Inventory; monitor
Least Bittern	30	?	NY, CT, RI, MA, VT	NY, CT, RI, MA	?	High	Inventory; monitor
Snowy Egret	11	↓	NY, CT, RI, MA	CT, RI	↓	High	Manage disturbance at nesting sites
Black-crowned Night-Heron	37	↓	NY, CT, RI, MA, VT	RI	↓	Moderate	Manage disturbance at nesting sites; manage impacts on other waterbirds
Glossy Ibis	10	↓	NY, CT, RI	CT, RI	Stable	Low	Manage disturbance at nesting sites
Black Rail	35	?	NY, CT	NY, CT	↓	Highest	Inventory; monitor
Clapper Rail	40	?	CT, RI	RI	?	Moderate	Inventory; monitor
Laughing Gull	7	↑	NY, MA		↑	Lowest	Monitor impacts on other waterbirds

common name	%MANEM	subregional trend	state SGCN	state listing	MANEM trend	continental status	Priority Actions
Herring Gull	13	↓	RI		↓	Low	Monitor impacts on other waterbirds
Great Black-backed Gull	17	↑	RI		↑	Lowest	Monitor impacts on other waterbirds
Least Tern	59	Stable	NY, CT, RI, MA	NY, CT, RI, MA	↓	High	Manage disturbance at nesting sites; manage nesting site predators
Roseate Tern	92	↑	NY, CT, RI, MA	NY, CT, MA	Below target	High	Manage nesting site predators; establish additional nesting sites
Common Tern	34	↑	NY, CT, RI, MA, VT	NY, CT, MA, VT	↑	Low	Manage nesting site predators; establish additional nesting sites
<b>Razorbill</b>	25	?	NY		?	Moderate	Monitor

#### GULF OF MAINE SUBREGION

common name	%MANEM	subregional trend	state SGCN	state listing	MANEM trend	continental status	Priority Actions
<b>Red-throated Loon</b>	20	?			?	High	Monitor
Common Loon	44	Stable	MA, NH, ME	MA, NH, ME	↓	Moderate	Monitor
<b>Horned Grebe</b>	25	?			?	High	Inventory; monitor
<b>Greater Shearwater</b>	25	?	NH, ME		?	High	Inventory; monitor
<b>Audubon's Shearwater</b>	20	?			?	Highest	Monitor
Leach's Storm-petrel	9	Stable?	MA	MA, ME	↓?	Low	Monitor; assess productivity
American Bittern	50	↓?	MA, NH, ME	MA	↓	High	Inventory; monitor
Least Bittern	20	↓?	MA, NH, ME	MA, NH, ME	?	High	Inventory; monitor
Great Blue Heron	3	↓	NH, ME		↑	Lowest	Monitor; assess productivity
Snowy Egret	8	↑	MA, ME		↓	High	Assess productivity
Black Tern	?	?	ME	ME	↓	Moderate	Inventory; monitor
Herring Gull	26	↓			↓	Low	Monitor impacts on other waterbirds
Great Black-backed Gull	28	Stable			↑	Lowest	Monitor impacts on other waterbirds
Least Tern	8	↑	MA, NH, ME	MA, NH, ME	↓	High	Manage nesting site predators and disturbance
Roseate Tern	5	Stable	MA, NH, ME	MA, NH, ME	Below target	High	Manage nesting site predators
Common Tern	16	↑	MA, NH, ME	MA, NH, ME	↑	Lowest	Manage nesting site predators

common name	%MANEM	subregional trend	state SGCN	state listing	MANEM trend	continental status	Priority Actions
Arctic Tern	50	↓			↓	High	Manage nesting site predators
Black Guillemot	64	Stable	NH	NH	Stable	Lowest	Restore/manage nesting sites
Atlantic Puffin	17	↓?	ME	ME	↓?	Lowest	Restore/manage nesting sites

## MARITIMES SUBREGION

common name	%MANEM	subregional trend	COSEWIC	MANEM trend	continental status	Priority Actions
<b>Red-throated Loon</b>	40	?		?	High	Monitor
Common Loon	56	↓		Stable	Moderate	Manage nesting habitat including disturbance and water level dynamics; evaluate disease impacts
<b>Horned Grebe</b>	25	?		?	High	Monitor
Red-necked Grebe	45	?		?	Moderate	Monitor (develop protocols)
<b>Greater Shearwater</b>	50	?		?	High	Monitor (develop protocols); evaluate significance of bycatch mortality
Leach's Storm-petrel	91	↓		↓	Low	Monitor; evaluate factors affecting productivity
Northern Gannet	100	↑		↑	Lowest	Monitor; establish new breeding sites; evaluate adult survival
Great Cormorant	97	Stable		Stable	Moderate	Monitor; evaluate factors affecting productivity
American Bittern	20	↓		↓	High	Monitor (develop protocols)
Black-crowned Night-Heron	17	?		↓	Moderate	Protect integrity of nesting and foraging habitats; monitor impacts on other waterbirds
Yellow Rail	60	?	SC-QC, NB	?	High	Monitor (develop protocols)
Herring Gull	48	↓		↓	Low	Monitor; evaluate contaminant impacts
Black-legged Kittiwake	100	↓		↓	Lowest	Monitor (continue and expand current efforts); evaluate productivity
Roseate Tern	3	Stable	E-QC, NB, NS	Below target	High	Manage nesting sites including predators; establish new nesting sites; evaluate factors affecting food availability
Common Tern	44	↓		↑	Low	Manage nesting sites including predators; evaluate factors affecting productivity including food availability
Arctic Tern	50	↓		↓	High	Manage nesting sites including predators; evaluate factors affecting food availability
Razorbill	97	↑		↑	Moderate	Monitor wintering and breeding populations; establish new nesting sites; evaluate factors affecting productivity
Black Guillemot	36	?		↑	Lowest	Evaluate factors affecting productivity
Atlantic Puffin	83	↑		↑	Lowest	<i>none identified</i>

**Conservation Projects.** Conservationists throughout the region are engaged in significant conservation activities that benefit MANEM's waterbirds (Appendix 3 and 4). In addition, MANEM partners developed new project ideas to meet the identified conservation needs of regional waterbird populations and habitats (Appendix 3).

Initiating new or continuing existing conservation projects has been proposed for all MANEM's waterbirds (Table 13). Management and research are the conservation activities proposed by partners in the greatest number of projects. In addition, monitoring, education and acquisition projects have been proposed for most of the region's waterbirds. Proposed activities for focal and non-focal species within MANEM's subregions are shown in Table 14. In many cases, subregions have the opportunity to coordinate similar activities across the region sharing knowledge, field protocols, and other tools. Although more than 100 conservation projects have been proposed by partners in the region, projects have not been proposed to meet all the identified needs of MANEM's priority species (Table 15). Gaps in proposed management, research, and monitoring activities will be addressed through networking and capacity-building.

**Table 13—Waterbird conservation projects in the Mid-Atlantic/New England/Maritimes region of North America. Information on the research, monitoring, management, acquisition, and education projects proposed by MANEM partners to benefit the 74 waterbird species that regularly occur in the region is summarized from the conservation projects (Appendix 4).**

Waterbird Species		Research	Monitoring	Management	Acquisition	Education/Outreach
Red-throated Loon	<i>Gavia stellata</i>	28,29,39,61	39,61,92	27,28		
Common Loon	<i>Gavia immer</i>	24,28,29,39,63,77	39,71,92	27,28,77		63
Pied-billed Grebe	<i>Podilymbus podiceps podiceps</i>	24,35	59	22,34,85	22,85	
Horned Grebe	<i>Podiceps auritus cornutus</i>	28,29,39,78	39,78,92	28,78,85	85	
Red-necked Grebe	<i>Podiceps grisegena holboellii</i>	28,29,39	39,92	28		
Northern Fulmar	<i>Fulmarus glacialis auduboni</i>	20,28,29	20	20,28		
Cory's Shearwater	<i>Calonectris diomedea borealis</i>	6,20,28,29	20	20,27,28		
Greater Shearwater	<i>Puffinus gravis</i>	6,20,28,29, 39	20,39	20,27,28		43
Sooty Shearwater	<i>Puffinus griseus</i>	6,20,28,29	20	20,27,28		43
Manx Shearwater	<i>Puffinus puffinus puffinus</i>	6,20,28,29	20	20,27,28		43
Audubon's Shearwater	<i>Puffinus lherminieri lherminieri</i>	6,20,28,29	20	20,27,28		43
Wilson's Storm-Petrel	<i>Oceanites oceanicus oceanicus</i>	6,20,28,29	20	20,28		43
Leach's Storm-Petrel	<i>Oceanodroma leucorhoa leucorhoa</i>	5,6,14,15,16,19,28,29,39,62,75	19,39,62	1,3,5,19,28,74,75,85	3,14,85	1,7,43,76
Northern Gannet	<i>Morus bassanus</i>	6,28,29,39	39,66	27,28,84,85	85	
Brown Pelican	<i>Pelecanus occidentalis carolinensis</i>	45		27		
Double-crested Cormorant	<i>Phalacrocorax auritus auritus</i>	28,29,36,39,45,62	39,62,68	11,12,28		11,12
Great Cormorant	<i>Phalacrocorax carbo carbo</i>	15,28,29,39	39,88	28,84,85	85	
American Bittern	<i>Botaurus lentiginosus</i>	24,35	59	22,34	22	
Least Bittern	<i>Ixobrychus exilis exilis</i>	24,35	59	22,34	22	
Great Blue Heron	<i>Ardea herodias herodias</i>	21,24,45	21,70	11,22,46	22	11,76
Great Egret	<i>Ardea alba egretta</i>	31,38,41,42,45,75	42	11,31,32,34,46,75	32,40	11
Snowy Egret	<i>Egretta thula thula</i>	31,38,41,42,45,75	42	11,31,32,34,75	32,40	11,76
Little Blue Heron	<i>Egretta caerulea</i>	31,38,41,45		11,31,32,34	32,40	11
Tricolored Heron	<i>Egretta tricolor ruficollis</i>	41,45			40	
Cattle Egret	<i>Bubulcus ibis ibis</i>	31,14,41,42,45	42	11,31,32,34	32,40	11

Waterbird Species		Research	Monitoring	Management	Acquisition	Education/Outreach
Green Heron	<i>Butorides virescens virescens</i>	24,38,45		11,22,32,34	22,33	11
Black-crowned Night Heron	<i>Nycticorax nycticorax hoactli</i>	31,38,41,42,45	42	11,31,32,34,84	32,40,83	11,76
Yellow-crowned Night Heron	<i>Nyctanassa violacea violacea</i>	38,41,42,45	42	32,34,46	32,40	
White Ibis	<i>Eudocimus albus</i>	45				
Glossy Ibis	<i>Plegadis falcinellus falcinellus</i>	31,41,42,45,75	42	31,32,34,75	32,40	
Yellow Rail	<i>Coturnicops noveboracensis noveboracensis</i>		72	84		
Black Rail	<i>Laterallus jamaicensis jamaicensis</i>	58	59	58		
Clapper Rail	<i>Rallus longirostris crepitans</i>	35,58	59	34,58		
King Rail	<i>Rallus elegans elegans</i>	35,58	59	34,58		
Virginia Rail	<i>Rallus limicola limicola</i>	24,35,58	59	22,34,58	22,83	
Sora	<i>Porzana carolina</i>	24,35		22,34	22,83	
Purple Gallinule	<i>Porphyrio martinica</i>		59			
Common Moorhen	<i>Gallinula chloropus cachinnans</i>	24,35	59			
American Coot	<i>Fulica americana americana</i>	24	59			
Laughing Gull	<i>Larus atricilla megalopterus</i>	45		3,12	3,40	12
Little Gull	<i>Larus minutus</i>	20	20	20		
Black-headed Gull	<i>Larus ridibundus ridibundus</i>	28,29,39	39	28		
Bonaparte's Gull	<i>Larus philadelphia</i>	20,28,29,39	20,39	20,28		
Ring-billed Gull	<i>Larus delawarensis</i>		67			
Herring Gull	<i>Larus argentatus smithsoniaunus</i>	14,18,28,29,36,39,45	39	3,11,12,18,28	3,14,40	11,12
Iceland Gull	<i>Larus glaucoideus kumlieni</i>	20,28,29,39	20,39	20,28		
Lesser Black-backed Gull	<i>Larus fuscus graellsii</i>	20	20	20		
Glaucous Gull	<i>Larus hyperboreus leucereutes</i>	20,28,29,39	20,39	20,28		
Great Black-backed Gull	<i>Larus marinus</i>	14,18,28,29,36,39,45	39	3,11,12,18,28	3,14,40	11,12
Sabine's Gull	<i>Xema sabini sabini</i>	20,28,29	20	20,28		
Black-legged Kittiwake	<i>Rissa tridactyla tridactyla</i>	28,29,39	39	28,84,85	83,85	43
Bridled Tern	<i>Onychoprion anaethetus recognita</i>	20,28,29	20	20,28		
Least Tern	<i>Sternula antillarum antillarum</i>	9,33,36,42, 45	10,12,44	10,12,32,34,44	32,40	10,12,44
Gull-billed Tern	<i>Gelochelidon nilotica aranea</i>	45		10,12	40	10,12
Caspian Tern	<i>Hydroprogne caspia</i>	45				
Black Tern	<i>Chlidonias niger surinamensis</i>	23		23		
Roseate Tern	<i>Sterna dougallii dougalli</i>	16,28,29,33,36,42,73,75,78	42,78	1,3,8,12,28,34,73,75,78	3,40	1,7,12,76
Common Tern	<i>Sterna hirundo hirundo</i>	9,15,33,36, 42,45,62,73	9,42,62	1,3,8,9,10,12, 34,73,84,85	3,85	1,7,10,12
Arctic Tern	<i>Sterna paradisaea</i>	14,15,16,73		1,3,8,73	3,14	1,7
Forster's Tern	<i>Sterna forsteri litoricola</i>	28,29,45		12,28	40	12
Royal Tern	<i>Thalasseus maximus maxima</i>	9,45	9	9,10		10
Sandwich Tern	<i>Thalasseus sandvicensis acuffavidus</i>	45				
Black Skimmer	<i>Rynchops niger niger</i>	9,45	9	9,10		10
Great Skua	<i>Stercorarius skua</i>	20,28,29	20	20,28		
South Polar Skua	<i>Stercorarius maccormicki</i>	20,28,29	20	20,28		43
Pomarine Jaeger	<i>Stercorarius pomarinus+B22</i>	6,20,28,29	20	20,28		

Waterbird Species		Research	Monitoring	Management	Acquisition	Education/Outreach
Parasitic Jaeger	<i>Stercorarius parasiticus</i>	6,20,28,29	20	20,28		
Long-tailed Jaeger	<i>Stercorarius longicaudus</i>	6,20,28,29	20	20,28		43
Dovekie	<i>Alle alle alle</i>	6,20	20	20		
Common Murre	<i>Uria aalge aalge</i>	6,28,29		2,28		
Thick-billed Murre	<i>Uria lomvia lomvia</i>	6,28,29		28		
Razorbill	<i>Alca torda torda</i>	4,6,15,16,28,29,39,75	39	1,2,3,28,74,75,84,85	3,83,85	1,76
Black Guillemot	<i>Cephus grylle arcticus</i>	6,14,17,28, 29		1,2,3,28,84,85	3,14,83,85	1,7
Atlantic Puffin	<i>Fratercula arctica arctica</i>	6,16,62,75	62	1,2,3,74,75	3	1,76

**Table 14—Sub-regional waterbird conservation projects in the Mid-Atlantic/New England/Maritimes region of North America. Information on the conservation projects proposed by partners within the Mid-Atlantic, southern New England, Gulf of Maine and Maritimes sub-regions of MANEM to benefit the 74 waterbird species that regularly occur in the region is summarized from the conservation projects (Appendix 4).**

English Name		Maritimes			Gulf of Maine			S. New England-Long Island			Mid-Atlantic		
	Projects	Focal	Actions	Projects	Focal	Actions	Projects	Focal	Actions	Projects	Focal	Actions	Projects
Red-throated Loon	39,27,28,29,60,92	x	Monitor; reduce bycatch	92	x	monitor		x	monitor	39	x	monitor	27,28,29,61
Common Loon	24,39,27,28,29,63,71,77,92	x	Monitor; reduce contaminants (mercury, lead) in loon habitat	71,77,92	x	monitor	24,63			39			27,28,29
Pied-billed Grebe	22,24,34,35,59,85			85			22,24			34,35			59
Horned Grebe	39,28,29,78,85,92	x	Monitor; acquisition and management of nesting habitats	78,85,92	x	inventory; monitor		x	inventory; monitor	39	x	inventory; monitor	28,29
Red-necked Grebe	39,28,29,92	x	monitor migrating & wintering birds; reduce oil spills, contaminants and bycatch	92						39			28,29
Northern Fulmar	20,28,29						20						28,29
Cory's Shearwater	6,20,27,28,29						6,20	x	monitor				27,28,29
Greater Shearwater	39,43,27,28,29	x	monitor; reduce oil spills, acc. bycatch and disturbance		x	inventory; monitor	6,20	x	monitor	39,43			27,28,29
Sooty Shearwater	6,20,43,27,28,29						6,20			43			27,28,29
Manx Shearwater	6,20,43,27,28,29						6,20			43			27,28,29
Audubon's Shearwater	6,20,43,27,28,29				x	monitor	6,20			43	x	monitor	27,28,29
Wilson's Storm-Petrel	6,20,43,28,29						6,20			43			28,29

English Name		Maritimes			Gulf of Maine			S. New England-Long Island			Mid-Atlantic		
	Projects	Focal	Actions	Projects	Focal	Actions	Projects	Focal	Actions	Projects	Focal	Actions	Projects
Leach's Storm-Petrel	1,3,5,6,7,14,15,16,19,39,43,28,29,62,74,75,76,85	x	Reduce fox predation; protect nesting habitats	74,85	x	monitor; assess productivity	1,3,5,6,7,14,15,16,19,62,75,76			39,43			28,29
Northern Gannet	6,39,27,28,29,66,84,85	x	monitor; reduce oil spills, contamination, acc. bycatch and disturbance	66,84,85			6			39	x	monitor	27,28,29
Brown Pelican	27,45												27,45
Double-crested Cormorant	1,12,36,39,28,29,45,62,68			68			62	x	monitor impacts on other waterbirds	11,12,36,39	x	monitor impacts on other waterbirds	28,29,45
Great Cormorant	15,39,28,29,84,85,88	x	Monitor; reduce disturbance from gulls, eagles and humans; protect priority nesting islands	84,85,88			15			39			28,29
American Bittern	22,24,34,35, 59	x	Monitor		x	inventory; monitor	22,24	x	inventory; monitor	34,35	x	inventory; monitor	59
Least Bittern	22,24,34,35,59				x	inventory; monitor	22,24	x	inventory; monitor	34,35	x	inventory; monitor	59
Great Blue Heron	21,22,24,11,45,46,70,76			70	x	monitor; assess productivity	21,22,24,76			11			45,46
Great Egret	11,31,32,34,38,40,41,42,45,46,75						75			11,31,32,34,38,40,41,42	x	monitor	45,46
Snowy Egret	11,31,32,34,38,45,75,76				x	assess productivity	75,76	x	manage disturbance at nesting sites	11,31,32,34,38	x	assess productivity	45
Little Blue Heron	11,31,32,34,38,40,41,45									11,31,32,34,38,40,41	x	monitor	45
Tricolored Heron	40,41,45									40,41	x	monitor	45
Cattle Egret	11,31,32,34,38,40,41,42,45									11,31,32,34,38,40,41,42	x	assess productivity; assess contaminants impacts	45
Green Heron	22,24,11,32,34,38,45						22,24			11,32,34,38			45
Black-crowned Night Heron	11,31,32,34,38,40,41,42,45,76,83,84	x	protect breeding habitats; evaluate predation on tern colonies; reduce human encroachment	83,84			76	x	manage disturbance at nesting sites; manage impacts on other waterbirds	11,31,32,34,38,40,41,42	x	assess productivity	45

English Name		Maritimes			Gulf of Maine			S. New England-Long Island			Mid-Atlantic		
	Projects	Focal	Actions	Projects	Focal	Actions	Projects	Focal	Actions	Projects	Focal	Actions	Projects
Yellow-crowned Night Heron	32,34,38,40,41,42,45,46									32,34,38,40, 41,42	x	monitor; manage negative interactions at suburban nesting sites	45,46
White Ibis	45												45
Glossy Ibis	31,32,34,40,41,45,75						75	x	manage disturbance at nesting sites	31,32,34,40,41,42	x	monitor	45
Yellow Rail	72,84	x	Monitor; protect nesting habitats	72,84									
Black Rail	58,59							x	inventory; monitor		x	inventory; monitor	58,59
Clapper Rail	34,35,58,59							x	inventory; monitor	34,35			58,59
King Rail	34,35,58,59									34,35	x	inventory; monitor	58,59
Virginia Rail	22,24,34,35,58,59,83			83			22,24			34,35			58,59
Sora	22,24,34,35,83			83			22,24			34,35			
Purple Gallinule	59												59
Common Moorhen	24,35,59						24			35			59
American Coot	24,59						24						59
Laughing Gull	3,12,40,45						3	x	monitor impacts on other waterbirds	12,40	x	monitor impacts on other waterbirds	45
Little Gull	20						20						
Black-headed Gull	39,28,29									39			28,29
Bonaparte's Gull	20,29,28,29						20			39			28,29
Ring-billed Gull	67			67									
Herring Gull	3,14,18,11,12,36,39,40,28,29,45	x	Reduce disturbance on Common Terns		x	monitor impacts on other waterbirds	3,14,18	x	monitor impacts on other waterbirds	11,12,36,39,40	x	monitor impacts on other waterbirds	28,29,45
Iceland Gull	20,39,28,29						20			39			28,29

English Name		Maritimes			Gulf of Maine			S. New England-Long Island			Mid-Atlantic		
	Projects	Focal	Actions	Projects	Focal	Actions	Projects	Focal	Actions	Projects	Focal	Actions	Projects
Lesser Black-backed Gull	20						20						
Glaucous Gull	20,39,28,29						20			39			28,29
Great Black-backed Gull	3,14,18,11,12,36,39,40,28,29,45				x	monitor impacts on other waterbirds	3,14,18	x	monitor impacts on other waterbirds	11,12,36,39,40	x	monitor impacts on other waterbirds	28,29,45
Sabine's Gull	20,28,29						20						28,29
Black-legged Kittiwake	39,43,28,29,83,84,85	x	Acquisition and protection of nesting habitats	83,84,85						39,43			28,29
Bridled Tern	20,28,29						20				x	inventory; monitor	28,29
Least Tern	12,32,33,34,36,40,42,9,10,44,45				x	manage nesting site predators, disturbance		x	manage disturbance at nesting sites; manage nesting site predators	12,32,33,34,36,40,42	x	assess productivity; manage nesting site predators	9,10,44,45
Gull-billed Tern	12,40,10,45									12,40	x	assess productivity; manage nesting site predators	10,45
Caspian Tern	45												45
Black Tern	23				x	inventory; monitor	23						
Roseate Tern	1,3,7,8,16,12,33,34,36,40,42,28,29,73,75,76,78	x	Monitor; restore historical nesting sites	73,78	x	manage nesting site predators	1,3,7,8,16,75,76	x	manage nesting site predators; establish additional nesting sites	12,33,34,36,40,42			28,29
Common Tern	1,3,7,8,15,12,33,34,36,40,42,9,10,45,62,73,84,85	x	Monitor; Manage disturbance at priority nesting sites including gull and human disturbance; restore historical sites	73,84,85	x	manage nesting site predators	1,3,7,8,15,62	x	manage nesting site predators; establish additional nesting sites	12,33,34,36,40,42	x	assess productivity; manage nesting site predators	9,10,45
Arctic Tern	1,3,7,8,14,15,16,73	x	monitor & protect priority habitats and restore historical sites; decrease disturbance from gulls and humans	73	x	manage nesting site predators	1,3,7,8,14,15,16						
Forster's Tern	12,40,28,29									12,40	x	manage nesting site predators	28,29,45
Royal Tern	9,10,45										x	assess productivity; manage nesting site predators	9,10,45

English Name		Maritimes			Gulf of Maine			S. New England-Long Island			Mid-Atlantic		
	Projects	Focal	Actions	Projects	Focal	Actions	Projects	Focal	Actions	Projects	Focal	Actions	Projects
Sandwich Tern	45												45
											x	assess productivit y; manage nesting site predators	
Black Skimmer	9,10,45												9,10,45
Great Skua	20,28,29						20						28,29
South Polar Skua	20,43,28,29						20			43			28,29
Pomarine Jaeger	6,20,28,29						6,20						28,29
Parasitic Jaeger	6,20,28,29						6,20						28,29
Long-tailed Jaeger	6,20,43,28,29						6,20			43			28,29
Dovekie	6,20						6,20						
Common Murre	2,6,28,29						2,6						28,29
Thick-billed Murre	6,28,29						6						28,29
Razorbill	1,2,3,4,6,15,16,36,28,29,74,75,76,83,84,85	x	Research; monitor & protect priority habitats; decrease bycatch, oil spills, fox predation, and disturbance from gulls; implement an outreach plan	74,83,84,85			1,2,3,4,6,15,16,75,76	x	monitor	39			28,29
Black Guillemot	1,2,3,6,7,14,17,28,29,83,84,85	x	monitor & protect priority nesting islands; decrease bycatch, contaminants and human disturbance; evaluate predator removal	83,84,85	x	restore/mana ge nesting sites	1,2,3,6,7,14,17						28,29,
Atlantic Puffin	1,2,3,6,16,62,74,75,76	x	Reduce fox predation; reduce bycatch and direct fishing competition from fisheries	74	x	restore/mana ge nesting sites	1,2,3,6,16,62,75,76						

**Table 15—Analysis of sub-regional waterbird conservation projects in the Mid-Atlantic/New England/Maritimes region of North America. Shaded cells indicate areas where action is not met in subregion(s). Information on the adequacy with which the conservation projects proposed by partners within the Mid-Atlantic, southern New England, Gulf of Maine and Maritimes sub-regions of MANEM meet proposed objectives is summarized from the conservation projects (Appendix 4).**

MID-ATLANTIC SUBREGION

Focal Species	Proposed Actions	Project Activity and Project Number						Do Projects Address the Proposed Actions?
		All	Research	Management	Edu/outrch	Acquisition	Monitoring	
Red-throated Loon	monitor	27,28,29,61	28,29,61	27,28			29,61	29 monitors pelagics in BCR 30
Horned Grebe	inventory; monitor	28,29	28,29	28			29	29 monitors pelagics in BCR 30
Audubon's Shearwater	monitor	27,28,29	28,29	27,28			29	29 monitors pelagics in BCR 30
Northern Gannet	monitor	27,28,29	28,29	27,28			29	29 monitors pelagics in BCR 30
Double-crested Cormorant	monitor impacts on other waterbirds	28,29,45	28,29,45	28			29,45	45 surveys colonial waterbirds in VA; <b>impacts on other waterbirds not looked at in MidAtl</b>
American Bittern	inventory; monitor	59					59	59 monitors marshbirds
Least Bittern	inventory; monitor	59					59	59 monitors marshbirds
Great Egret	monitor	45,46	45	46			45	45 surveys colonial waterbirds in VA
Snowy Egret	assess productivity	45	45				45	45 surveys colonial waterbirds in VA
Little Blue Heron	monitor	45	45				45	45 surveys colonial waterbirds in VA
Tricolored Heron	monitor	45	45				45	45 surveys colonial waterbirds in VA
Cattle Egret	assess productivity; assess contaminants impacts	45	45					45 surveys colonial waterbirds in VA; <b>contaminant impacts not assessed</b>
Black-crowned Night Heron	assess productivity	45	45				45	45 surveys colonial waterbirds in VA
Yellow-crowned Night Heron	monitor; manage negative interactions at suburban nesting sites	45,46	45	46			45	45 surveys colonial waterbirds in VA; 46 manages negative interactions at suburban nesting sites
Glossy Ibis	monitor	45	45				45	45 surveys colonial waterbirds in VA
Black Rail	inventory; monitor	58,59	58	58			59	59 monitors marshbirds
King Rail	inventory; monitor	58,59	58	58			59	59 monitors marshbirds
Laughing Gull	monitor impacts on other waterbirds	45	45				45	45 surveys colonial waterbirds in VA; <b>impacts on other waterbirds not monitored</b>
Herring Gull	monitor impacts on other waterbirds	28,29,45	28,29,45	28			45	45 surveys colonial waterbirds in VA; <b>impacts on other waterbirds not monitored</b>
Great Black-backed Gull	monitor impacts on other waterbirds	28,29,45	28,29,45	28			29,45	45 surveys colonial waterbirds in VA; <b>impacts on other waterbirds not looked at</b>
Bridled Tern	inventory; monitor	28,29	28,29	28			29	29 monitors pelagics in BCR 30
Least Tern	assess productivity; manage nesting site predators	9,10,44,45	9,45	10,44	10,44		9,44, 45	9 monitors birds, manages predators and assesses productivity
Gull-billed Tern	assess productivity; manage nesting site predators	10,45	45	10	10		45	45 surveys colonial waterbirds in VA; <b>nesting site predators not managed</b>
Common Tern	assess productivity; manage nesting site predators	9,10,45	9,45	9,10	10		9,45	9 monitors birds, manages predators and assesses productivity, 45 surveys colonial waterbirds in VA
Forster's Tern	manage nesting site predators	28,29,45	28,29,45	28			29,45	45 surveys colonial waterbirds in VA, <b>predator removal not managed</b>

Focal Species	Proposed Actions	Project Activity and Project Number						Do Projects Address the Proposed Actions?
		All	Research	Management	Edu/outrch	Acquisition	Monitoring	
Royal Tern	assess productivity; manage nesting site predators	9,10,45	9,45	9,10	10		9,45	9 monitors birds and manages predators, 45 surveys colonial waterbirds in VA
Black Skimmer	assess productivity; manage nesting site predators	9,10,45	9,45	9,10	10		9, 45	9 monitors birds, manages predators and assesses productivity; 45 surveys colonials in VA

## SOUTHERN NEW ENGLAND-LONG ISLAND SUBREGION

Focal Species	Proposed Actions	Project Activity and Project Number						Do Projects Address the Proposed Actions?
		All	Research	Management	Edu/outrch	Acquisition	Monitoring	
Red-throated Loon	monitor	39, 61	39				39, 61	39 monitors LIS winter waterbird usage; 29 monitors pelagics in BCR 30
Horned Grebe	inventory; monitor	29, 39	39, 29				39, 29	39 monitors LIS winter waterbird usage; 29 monitors pelagics in BCR 30
Cory's Shearwater	monitor	29	29				29	29 monitors pelagics in BCR 30
Greater Shearwater	monitor	29, 39,43	29,39		43		29,39	39 monitors LIS winter waterbird usage; 29 monitors pelagics in BCR 30
Double-crested Cormorant	monitor impacts on other waterbirds	11,12,36,39	36,39	11,12	11,12		39	31 researches DCCC competition with wadingbirds in CT islands
American Bittern	inventory; monitor	34,35	35	34				<b>No SNE monitoring projects;</b> 35 inventories marshbirds in CT - mostly research based
Least Bittern	inventory; monitor	34,35	35	34				<b>No SNE monitoring projects;</b> 35 inventories marshbirds in CT - mostly research based
Snowy Egret	manage disturbance at nesting sites	11,31,32,34,38	31,38	11, 31,32,34	11			31 Researches Disturbance in CT islands; <b>nothing specific about managing disturbance</b>
Black-crowned Night Heron	manage disturbance at nesting sites; manage impacts on other waterbirds	11,31,32,34,38,40,41,42	31,38,41,42	11,31,32,34	11	32,40	42	Management in RI, CT; <b>No projects looking at impacts on other waterbirds</b>
Glossy Ibis	manage disturbance at nesting sites	31,32,34,40,41,42	31,41,42	31,32,34		32,40	42	31 researches disturbances in CT islands; <b>no projects manage disturbance</b>
Black Rail	inventory; monitor							<b>No SNE Monitoring Projects</b>
Clapper Rail	inventory; monitor	34,35	35	34				35 Inventories marshbirds in CT - mostly research based
Laughing Gull	monitor impacts on other waterbirds	12,40		12	12	40		12 looks at disturbance; <b>nothing specific about impacts on other waterbirds</b>
Herring Gull	monitor impacts on other waterbirds	11,12,36,39,40	36,39	11,12	11,12	40	39	36 researches predation on LETE - possibly by HERG; 12 looks at disturbance; <b>nothing specific about impacts on other waterbirds</b>
Great Black-backed Gull	monitor impacts on other waterbirds	11,12,36,39,40	36,39	11,12	11,12	40	39	36 researches predation on LETE - possibly by GBBG; <b>12 looks at disturbance; nothing specific</b>
Least Tern	manage disturbance at nesting sites; manage nesting site predators	12,32,33,34,36,40,42	33,36,42	12,32,34	12	32,40	12	<b>12 is management of Disturbance at nesting sites - predator management not specifically mentioned</b>

Focal Species	Proposed Actions	Project Activity and Project Number						Do Projects Address the Proposed Actions?
		All	Research	Management	Edu/outrch	Acquisition	Monitoring	
Roseate Tern	manage nesting site predators; establish additional nesting sites	12,33,34,36, 40,42	33,36,42	12,34	12	40	42	12 is mangt of disturbance at nesting sites; 40 is acquisition in the NY/NJ estuary
Common Tern	manage nesting site predators; establish additional nesting sites	12,33,34,36, 40,42	33,36,42	12,34	12		42	<b>12 is management of Disturbance at nesting sites - predator management not specifically mentioned</b>
Razorbill	monitor	29, 39	39				29, 39	39 monitors LIS winter waterbird usage; 29 monitors pelagics in BCR 30; 61monitors RTLO

## GULF OF MAINE SUBREGION

Focal Species	Proposed Actions	Project Activity and Project Number						Do Projects Address the Proposed Actions?
		All	Research	Management	Edu/outrch	Acquisition	Monitoring	
Red-throated Loon	monitor	61					61	61 is a BRI effort to monitor RTLO in MANEM Region
Common Loon	monitor	24,63	24,63		63			24 is marshbird research in Maine - <b>Does this project monitor as well?</b>
Horned Grebe	inventory; monitor							<b>No projects in BCR 14;</b> Forsell's projects (28 & 29) cover BCR 30 offshore
Greater Shearwater	inventory; monitor	6,20	6,20	20			20	20 monitors pelagics
Audubon's Shearwater	monitor	6,20	6,20	20			20	20 monitors pelagics
Leach's Storm-Petrel	monitor; assess productivity	1,3,5,6,7, 14,15,16, 19,62,75,76	5,14,15,16,19,62,75	1,3,5,19,75	1,7,76	3,14	19	19 covers Great Duck I., ME; <b>nothing more large scale, nothing to access productivity</b>
American Bittern	inventory; monitor	22,24	24	22		22		24 is marshbird research in Maine - <b>Does this project monitor as well?</b>
Least Bittern	inventory; monitor	22,24	24	22		22		24 is marshbird research in Maine - <b>Does this project monitor as well?</b>
Great Blue Heron	monitor; assess productivity	21,22,24,76	21,24	22,	76	22	21	21 covers Maine (at least)
Snowy Egret	assess productivity	75,76	75	75	76			<b>Prodductivity not monitored in GOM</b>
Herring Gull	monitor impacts on other waterbirds	3,14,18	14,18	3,18		3,14		18 is gull population ecology on Great Duck I - <b>no project targeting impact on other waterbirds</b>
Great Black-backed Gull	monitor impacts on other waterbirds	3,14,18	14,18	3,18		3,14		18 is gull population ecology on Great Duck I - <b>no project targeting impact on other waterbirds</b>
Least Tern	manage nesting site predators, disturbance							<b>no management of LETE in GOM; species nests in MA</b>
Black Tern	inventory; monitor	23	23	23				23 looks at BLTE populations
Roseate Tern	manage nesting site predators	1,3,7,8,16, 75,76	16,75	1,3,8,75	1,7,76	3		8 manages predators in ME
Common Tern	manage nesting site predators	1,3,7,8,15, 62	15,62	1,3,8	1,7		62	8 manages predators in ME
Arctic Tern	manage nesting site predators	1,3,7,8,14, 15,16	14,15,16	1,3,8	1,7	3,14		8 manages predators in ME

Focal Species	Proposed Actions	Project Activity and Project Number						Do Projects Address the Proposed Actions?
		All	Research	Management	Edu/outrch	Acquisition	Monitoring	
Black Guillemot	restore/manage nesting sites	1,2,3,6,7,14,17	6,14,17	1,2,3	1,7	3,14		2 is alcid restoration
Atlantic Puffin	restore/manage nesting sites	1,2,3,6,16,62,75,76	6,16,62,75	1,2,3,75	1,76	3	62	several mangt projects

## MARITIMES SUBREGION

Focal Species	Proposed Actions	Project Actions and Numbers						Do Projects Address the Proposed Actions?
		All	Research	Management	Edu/outrch	Acquisition	Monitoring	
Red-throated Loon	Monitor; reduce bycatch	92					92	
Common Loon	Monitor; reduce contaminants (mercury, lead) in loon habitat	71,77,92	77	77			71,92	
Horned Grebe	Monitor; acquisition and management of nesting habitats	78,85,92	78	78,85		85	78,92	
Red-necked Grebe	monitor migrating & wintering birds; reduce oil spills, contaminants and bycatch	92					92	
Greater Shearwater	monitor; reduce oil spills, acc. bycatch and disturbance							
Leach's Storm-Petrel	Reduce fox predation; protect nesting habitats	74,85		74,85		85		
Northern Gannet	monitor; reduce oil spills, contamination, acc. bycatch and disturbance	66,84,85		84,85		85	66	
Great Cormorant	Monitor; reduce disturbance from gulls, eagles and humans; protect priority nesting islands	84,85,88		84,85		85	88	
American Bittern	Monitor							
Black-crowned Night Heron	protect breeding habitats; evaluate predation on tern colonies; reduce human encroachment	83,84		84		83		
Yellow Rail	Monitor; protect nesting habitats	72,84		84			72	
Herring Gull	Reduce disturbance on Common Terns							
Black-legged Kittiwake	Acquisition and protection of nesting habitats	83,84,85		84,85		83,85		
Roseate Tern	Monitor; restore historical nesting sites	73,78	73,78	73,78			78	
Common Tern	Monitor; Manage disturbance at priority nesting sites including gull and human disturbance; restore historical sites	73,84,85	73	73,84,85		85		
Arctic Tern	monitor & protect priority habitats and restore historical sites; decrease disturbance from gulls and humans	73	73	73				
Razorbill	Research; monitor & protect priority habitats; decrease bycatch, oil spills, fox predation, and disturbance from gulls; implement an outreach plan	74,83,84,85		74,84,85		83,85		
Black Guillemot	monitor & protect priority nesting islands; decrease bycatch, contaminants and human disturbance; evaluate predator removal	83,84,85		84,85		83,85		
Atlantic Puffin	Reduce fox predation; reduce bycatch and direct fishing competition from fisheries	74		74				

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