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ENVIRONMENTAL IMPACT RESEARCH PROGRAM STATUS AND SOURCE 1/1
OF HABITAT MODELS. (U) ARMY ENGINEER WATERWAYS
EXPERIMENT STATION VICKSBURG MS ENVIR.

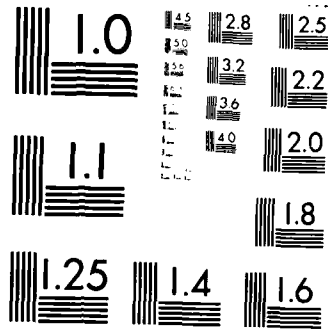
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ENVIRONMENTAL IMPACT
RESEARCH PROGRAM

MONITORING AND EVALUATION

STATUS AND SOURCE OF HABITAT
MODELS AND LITERATURE REVIEWS
December 1984

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report summarizes the status and availability of selected species habitat models and other habitat-related documents developed by the US Fish and Wildlife Service and other agencies. This listing is not comprehensive since many universities and other organizations are now involved with model develop- ment and testing. Animal groups included are birds, mammals, amphibians, rep- tiles, fish, molluscs, and other crustaceans. Information listed includes scientific name, special status of the species (if any), the organization (Continued)		

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responsible for the development of the model or literature review, the stage of development of the document, and whether the document has received outside review or testing.

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Preface

The work reported herein was performed under the Environmental Impact Research Program (EIRP), Work Unit 31729, sponsored by the Office, Chief of Engineers (OCE), US Army. Technical Monitors were Dr. John Bushman and Mr. Earl Eiker, OCE, and Mr. Dave Mathis, Water Resources Support Center.

This report outlines the availability of species habitat models and other habitat-related information. The status and sources of these documents are also noted.

This report was prepared by Dr. Thomas H. Roberts, Ms. L. Jean O'Neil, and Mr. William E. Jabour. Dr. James S. Wakeley computerized the information and assisted with the preparation of final drafts. Reviews were provided by Mr. Chester O. Martin, Team Leader, Wildlife Resources Team, Environmental Laboratory (EL), and Mr. James W. Teaford, EL. The work was performed under the supervision of Dr. Hanley K. Smith, Chief, Wetlands and Terrestrial Habitat Group; Dr. Conrad J. Kirby, Chief, Environmental Resources Division; and Dr. John Harrison, Chief, EL. Dr. Roger T. Saucier was Program Manager, EIRP.

COL Tilford C. Creel, CE, and COL Robert C. Lee, CE, were Commanders and Directors of WES during preparation of this report. Mr. F. R. Brown was Technical Director.

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STATUS AND SOURCE OF HABITAT MODELS AND LITERATURE REVIEWS

December 1984

Introduction

1. Development of species habitat models and literature reviews describing habitat requirements of wildlife and fish species has accelerated during recent years. To provide assistance in locating these materials, Tables 1-6 were compiled to identify species or groups of species for which models or other habitat-related information is available or currently under development.

2. Most of the models are Habitat Suitability Index (HSI) models that were developed for use in the US Fish and Wildlife Service (FWS) Habitat Evaluation Procedures (HEP). The literature reviews are derived from a variety of sources; reviews contained in HSI models are not listed separately. Literature reviews are included in this compilation since they serve as a base for model building.

3. Although many of the models or literature reviews have not been published, material still in draft form may be obtained for perusal or use. Models for species not listed may be available from the US Forest Service within their Wildlife and Fish Habitat Relationships System. To determine the availability of a given document, potential users should contact the appropriate agency and individual listed in Table 7.

Sources of Information

4. Sources of information for development of Tables 2-6 were the US Army Engineer Waterways Experiment Station, the FWS HEP Groups of the Western Energy and Land Use Team and the National Coastal Ecosystems Team, the US Forest Service, and the FWS Western Alaska Ecological Services. Tables 2-6 will be maintained on a microcomputer at the Waterways Experiment Station.

Table 1
Status and Source of Habitat Models and Literature
Reviews, December 1984

The following tabulation is keyed to the entries in Tables 2-6.

* Entries under the column headed "Special Status" are defined as follows:

P - Endangered or threatened, and protected by the Endangered Species Act of 1973

S - National Species of Special Emphasis (FWS), Federal Register, Vol 48, p 237

B - Blue List (Audubon Society), American Birds, 1982, Vol 36, No. 2

Note: If a species has special status in any part of its range in the United States, it is so noted.

** Entries under the columns "Literature Review Agency," "Modeling Agency," and "Testing Agency" are defined as follows:

AFG - Alaska Department of Fish and Game

AFW - Alaska offices, US Fish and Wildlife Service

FS - US Forest Service

NCT - National Coastal Ecosystems Team, US Fish and Wildlife Service

NRP - National Reservoir Research Program, US Fish and Wildlife Service

WES - Waterways Experiment Station, US Army Corps of Engineers

WLT - Western Energy and Land Use Team, US Fish and Wildlife Service

† Entries under the columns "Literature Review Status" and "Model Status" are defined as follows:

P - Preliminary

I - Intermediate

C - Complete

CP - Complete and published

†† Entries under the column "External Review" are defined as follows:

(X) - Reviewed by person(s) other than model developers, generally species authorities

(-) - Not reviewed externally

Table 3

List of HSI Models and Literature Reviews for Birds

COMMON NAME	SCIENTIFIC NAME	SPECIAL STATUS	LIT. REV. AGENCY	LIT. REV. STATUS	REV. AGENCY	MODEL STATUS	EXTERNAL REVIEW	TESTING AGENCY
American avocet	<i>Recurvirostra americana</i>	-	-	-	WLT	I	X	-
American black duck	<i>Anas rubripes</i>	S	-	-	NCT	CP	X	NCT
American kestrel	<i>Falco sparverius</i>	-	-	-	WLT	I	X	-
American osprey	<i>Anas americana</i>	-	-	-	AFW	CP	-	-
American woodcock	<i>Scolopax minor</i>	S	-	-	WLT	P	-	-
Baird's sparrow	<i>Ammotramus bairdii</i>	-	-	-	WLT	CP	X	-
Bald eagle	<i>Haliaeetus leucocephalus</i>	P,S	-	-	AFW	CP	-	-
Barn owl	<i>Strix varia</i>	-	-	-	WLT	P	-	-
Belted kingfisher	<i>Ceryle alcyon</i>	-	-	-	WLT	P	X	-
Black brant	<i>Branta bernicla</i>	S	-	-	WLT	CP	X	-
Black-capped chickadee	<i>Parus atricapillus</i>	-	-	-	WLT	CP	X	-
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	-	-	-	WLT	I	X	-
Black-shouldered kite	<i>Elanus caeruleus</i>	-	-	-	NCT	P	X	-
Blue grouse	<i>Dendragapus obscurus</i>	-	-	-	WLT,AFW	CP,C	X,-	-
Blue-winged teal	<i>Anas discors</i>	-	-	-	WLT	I	X	-
Brewer's sparrow	<i>Spizella breweri</i>	-	-	-	WLT	CP	X	-
Broad-winged hawk	<i>Buteo platyterus</i>	-	-	-	WLT	P	-	-
Brown pelican	<i>Pelecanus occidentalis</i>	P,S	-	-	NCT	P	-	-
Bufflehead	<i>Bucephala albeola</i>	-	-	-	AFW	CP	-	-
Canada goose	<i>Branta canadensis</i>	S	AFW	CP	-	-	-	-
Canvasback	<i>Aythya valisineria</i>	-	-	-	WLT	I	X	-
Carolina chickadee	<i>Parus carolinensis</i>	-	-	-	WLT	P	X	-
Clapper rail	<i>Rallus longirostris</i>	P,S	-	-	NCT	CP	X	NCT
Common redpoll	<i>Carduelis flammea</i>	-	-	-	AFW	CP	X	AFW
Common snipe	<i>Gallinago gallinago</i>	-	-	-	AFW	CP	-	-
Cooper's hawk	<i>Accipiter cooperii</i>	-	-	-	WLT	P	-	-
Double-crested cormorant	<i>Phalacrocorax auritus</i>	-	-	-	WLT	P	-	-
Downy woodpecker	<i>Picoides pubescens</i>	-	-	-	WLT	CP	X	-
Eastern bluebird	<i>Sialia sialis</i>	B	-	-	FS	C	-	FS
Eastern meadowlark	<i>Sturnella magna</i>	B	-	-	WLT	CP	X	WES
Ferruginous hawk	<i>Buteo regalis</i>	-	-	-	WLT	CP	X	WLT
Field sparrow	<i>Spizella pusilla</i>	-	-	-	WLT	CP	X	WES
Gadwall	<i>Anas strepera</i>	-	-	-	WLT	I	X	-
Gray partridge	<i>Perdix perdix</i>	-	-	-	WLT	I	X	-
Great blue heron	<i>Ardea herodias</i>	-	WLT	P	-	-	-	-
Great egret	<i>Casmerodius albus</i>	-	-	-	NCT	CP	X	-
Great horned owl	<i>Bubo virginianus</i>	-	-	-	WLT	P	-	-
Greater prairie chicken	<i>Tympanicus cupido</i>	P	-	-	WLT	P	-	-
Greater white-fronted goose (winter)	<i>Anser albifrons</i>	S	-	-	NCT	I	-	-
Green-backed heron	<i>Butorides striatus</i>	-	-	-	WLT	P	-	-

(Continued)

(Sheet 1 of 3)

Table 2 (Continued)

COMMON NAME	SCIENTIFIC NAME	SPECIAL STATUS	LIT. REV. AGENCY	LIT. REV. STATUS	MODELING AGENCY	MODEL STATUS	EXTERNAL TESTING REVIEW	EXTERNAL TESTING AGENCY
Green-winged teal	<i>Anas crecca</i>	-	-	-	AFW	CP	X	AFW
Gyr falcon	<i>Falco rusticolus</i>	-	AFW	CP	-	-	-	-
Hairy woodpecker	<i>Picoides villosus</i>	B	-	-	WLT	I	X	WES
Indigo bunting	<i>Passerina cyanea</i>	-	-	-	WLT	I	-	WES
Lapland longspur	<i>Calcarius lapponicus</i>	-	-	-	AFW	CP	-	-
Laughing gull	<i>Larus atricilla</i>	-	-	-	NCT	P	-	-
Least tern	<i>Sterna antillarum</i>	P,S,B	-	-	WLT,NCT	I,P	X,-	-
Lesser scaup (winter)	<i>Aythya affinis</i>	-	-	-	NCT	P	-	-
Lewis' woodpecker	<i>Melanerpes lewis</i>	B	-	-	WLT	CP	-	-
Marsh wren	<i>Cistothorus palustris</i>	-	-	-	WLT	P	-	-
Mottled duck	<i>Anas fulvigula</i>	-	-	-	NCT	CP	X	-
Mourning dove	<i>Zenaida macroura</i>	S	-	-	WLT	P	-	WES
Northern bobwhite	<i>Colinus virginianus</i>	-	-	-	WLT	I	X	-
Northern flicker	<i>Colaptes auratus</i>	-	-	-	WLT	P	-	-
Northern goshawk	<i>Accipiter gentilis</i>	-	-	-	AFW	CP	-	-
Northern pintail (winter)	<i>Anas acuta</i>	S	-	-	NCT	P	X	-
Northern waterthrush	<i>Seiurus noveboracensis</i>	-	-	-	WLT	P	-	-
Osprey	<i>Pandion haliaetus</i>	S	WES	P	-	-	-	-
Peregrine falcon	<i>Falco peregrinus</i>	P,S	AFW	CP	-	-	-	-
Pileated woodpecker	<i>Dryocopus pileatus</i>	-	-	-	WLT,FS	CP,C	X,-	FS
Pine warbler	<i>Dendroica pinus</i>	-	-	-	WLT,FS	CP,C	X,-	WES,FS
Prairie falcon	<i>Falco mexicanus</i>	-	-	-	WLT	I	X	WLT
Prairie warbler	<i>Dendroica discolor</i>	-	-	-	FS	C	-	FS
Red-cockaded woodpecker	<i>Picoides borealis</i>	P,S	FS	CP	FS	C	X	FS
Red-tailed hawk	<i>Buteo jamaicensis</i>	-	-	-	WLT	P	X	-
Red-winged blackbird	<i>Agelaius phoeniceus</i>	-	-	-	WLT	P	-	-
Redhead (winter)	<i>Aythya americana</i>	S	-	-	NCT	CP	X	-
Ring-necked pheasant	<i>Phasianus colchicus</i>	-	-	-	WLT	CP	-	-
Ruffed grouse	<i>Ajaja ajaja</i>	-	-	-	NCT	P	X	-
Sage grouse	<i>Bonasa umbellus</i>	-	WES	I	WLT	I	X	WLT
Sandhill crane	<i>Centrocercus urophasianus</i>	-	-	-	WLT	P	-	-
Scissor-tailed flycatcher	<i>Grus canadensis</i>	P,S	-	-	WLT,AFW	P,CP	-,-	-
Sharp-tailed grouse	<i>Tyrannus forficatus</i>	-	-	-	WLT	I	X	-
Snow goose (lesser) (winter)	<i>Tympanuchus phasianellus</i>	-	-	-	WLT	I	X	-
Snowy plover	<i>Chen caerulescens</i>	S	-	-	NCT	I	-	-
Spotted owl	<i>Strix occidentalis</i>	B	WES	I	-	-	-	FS
Spruce grouse	<i>Dendragapus canadensis</i>	S,B	-	-	WLT,FS	P,C	-,-	FS
Trumpeter swan	<i>Cygnus buccinator</i>	S	-	-	AFW	CP	X	AFW
Veery	<i>Catharus fuscescens</i>	-	-	-	AFW	CP	-	-
		-	-	-	WLT	CP	X	-

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(Sheet 2 of 3)

Table 2 (Concluded)

COMMON NAME	SCIENTIFIC NAME	SPECIAL STATUS	LIT. REV. AGENCY	LIT. REV. STATUS	MODEL STATUS	EXTERNAL TESTING REVIEW AGENCY
Western bluebird	<i>Sialia mexicana</i>	-	WLT	C	P	-
Western grebe	<i>Aechmophorus occidentalis</i>	B	-	-	CP	X
White ibis	<i>Eudocimus albus</i>	-	-	-	P	-
White-breasted nuthatch	<i>Sitta carolinensis</i>	-	-	-	P	-
Wild turkey	<i>Meleagris gallopavo</i>	-	-	-	P	-
Williamson's sapsucker	<i>Sphyrapicus thyroideus</i>	-	-	-	CP	X
Willow ptarmigan	<i>Lagopus lagopus</i>	-	-	-	CP	-
Wood duck	<i>Aix sponsa</i>	S	-	-	CP	X
Wood thrush	<i>Hylocichla mustelina</i>	-	-	-	P	-
Yellow warbler	<i>Dendroica petechia</i>	B	-	-	CP	X
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	-	-	-	CP	X

COMMON NAME	SCIENTIFIC NAME	SPECIAL STATUS	LIT. REV. AGENCY	LIT. REV. STATUS	REV. AGENCY	MODEL STATUS	EXTERNAL REVIEW	TESTING AGENCY
Arctic fox	Alopex lagopus	-	-	-	AFW	CP	-	-
Beaver	Castor canadensis	-	WES	P	WLT, AFW	CP, CP	X, -	AFW
Black bear	Ursus americanus	-	-	-	AFW	C	-	-
Black-tailed deer	Odocoileus hemionus sitkensis	-	-	-	AFW	CP	-	-
Caribou	Rangifer tarandus	-	-	-	AFW	CP	X	AFW
Cotton rat	Sigmodon hispidus	-	-	-	FS	C	-	-
Dall sheep	Ovis dalli	-	-	-	AFW	CP	-	-
Eastern cottontail	Sylvilagus floridanus	-	WES	I	WLT, FS	CP, C	X, -	-
Eastern woodrat	Neotoma floridana	-	WLT	C	-	-	-	-
Fisher	Martes pennanti	-	-	-	WLT	CP	X	-
Fox squirrel	Sciurus niger	-	-	-	WLT	CP	X	-
Gray squirrel	Sciurus carolinensis	-	WES	I	WLT	CP	X	WES
Gray wolf	Canis lupus	P, S	-	-	AFW	CP	-	-
Grizzly/brown bear	Ursus arctos	P, S	-	-	AFW	CP	-	-
Kit fox	Vulpes macrotis	P	-	-	WLT	P	-	-
Marsh rabbit	Sylvilagus palustris	-	-	-	FS	C	-	-
Meadow vole	Microtus pennsylvanicus	-	WLT	C	-	-	-	-
Mink	Mustela vison	-	-	-	-	-	-	-
Moose	Alces alces	-	-	-	WLT, AFW	CP, CP	X, X	AFW
Mountain goat	Oreamnos americanus	-	-	-	WLT, AFW	P, CP	-, X	AFW
Mule deer	Odocoileus hemionus	-	-	-	AFW	C	-	-
Muskrat	Ondatra zibethicus	-	-	-	WLT	I	X	WLT
Pine marten	Martes americana	-	WES	P	WLT, NCT	CP, C	X, X	NCT
Pronghorn	Antilocapra americana	-	-	-	WLT, FS, AFW	CP, C, CP	X, -	FS
Raccoon	Procyon lotor	-	-	-	WLT	CP	X	WLT
Red squirrel	Tamiasciurus hudsonicus	-	-	-	WLT	P	-	-
River otter	Lutra canadensis	-	-	-	WLT, AFW	I, CP	-	-
Snowshoe hare	Lepus americanus	-	-	-	AFW	CP	-	-
Southern flying squirrel	Glaucomys volans	-	-	-	WLT, AFW	P, CP	-	-
Southern red-backed vole	Clethrionomys gapperi	-	-	-	WLT	P	-	-
White-footed mouse	Peromyscus leucopus	-	-	-	WLT	CP	X	-
White-tailed deer	Odocoileus virginianus	-	WLT	C	-	-	-	-
Yellow-cheeked vole	Microtus xanthognathus	-	-	-	WLT/WES	I	X	WES
		-	-	-	AFW	CP	-	-

Table 4

List of HSI Models and Literature Reviews for Reptiles and Amphibians

COMMON NAME	SCIENTIFIC NAME	SPECIAL STATUS	LIT. REV. AGENCY	LIT. REV. STATUS	MODELING AGENCY	MODEL STATUS	EXTERNAL REVIEW	TESTING AGENCY
American alligator	<i>Alligator mississippiensis</i>	S	-	-	NCT	P	-	-
Bullfrog	<i>Rana catesbeiana</i>	-	-	-	WLT	P	-	-
Diamondback terrapin	<i>Malaclemys terrapin</i>	-	-	-	NCT	P	-	-
Eastern box turtle	<i>Terrapene carolina</i>	-	-	-	WLT	P	-	-
Red-spotted newt	<i>Notophthalmus viridescens</i>	-	-	-	WLT	I	X	WLT
Snapping turtle	<i>Chelydra serpentina</i>	-	-	-	WLT	P	-	-
Wood frog	<i>Rana sylvatica</i>	-	-	-	WLT	P	-	-
Yellow-bellied racer	<i>Coluber constrictor</i>	-	-	-	WLT	P	-	-

Table 5

List of HSI Models and Literature Reviews for Fishes

COMMON NAME	SCIENTIFIC NAME	SPECIAL STATUS	LIT. REV. AGENCY	LIT. REV. STATUS	REV. AGENCY	MODEL STATUS	EXTERNAL REVIEW	TESTING AGENCY
Alewife	<i>Alosa pseudoharengus</i>	-	NCT/WES	CP	NCT	CP	X	-
All catfish		-	-	-	NRP	C	-	-
All fish		-	-	-	NRP	C	-	-
All minnows		-	-	-	NRP	C	-	-
All sunfish		-	-	-	NRP	C	-	-
All trout		-	-	-	NRP	C	-	-
American eel	<i>Anguilla rostrata</i>	-	NCT/WES	CP	-	-	-	-
American shad	<i>Alosa sapidissima</i>	-	NCT/WES	I	NCT	I	X	-
Angler harvest		-	-	-	WLT	CP	-	-
Arctic grayling	<i>Thymallus arcticus</i>	-	AFG	CP	WLT	P	X	-
Atlantic croaker	<i>Micropogon undulatus</i>	-	NCT/WES	CP	NCT	CP	X	-
Atlantic herring	<i>Clupea harengus</i>	-	NCT/WES	C	-	-	-	-
Atlantic menhaden	<i>Brevoortia tyrannus</i>	-	NCT/WES	CP	-	-	-	-
Atlantic salmon	<i>Salmo salar</i>	S	NCT/WES	CP	WLT	C	X	WLT
Atlantic silversides	<i>Menidia menidia</i>	-	NCT/WES	CP	-	-	-	-
Atlantic sturgeon	<i>Acipenser oxyrinchus</i>	-	NCT/WES	CP	-	-	-	-
Bay anchovy	<i>Anchoa mitchilli</i>	-	NCT/WES	CP	-	-	-	-
Bigmouth buffalo	<i>Ictiobus cyprinellus</i>	-	-	-	WLT	CP	X	-
Black bullhead	<i>Ictalurus melas</i>	-	-	-	WLT	CP	X	WLT
Black crappie	<i>Pomoxis nigromaculatus</i>	-	-	-	WLT, WLT, NRP	CP, CP, C	X, -, -	WLT
Black drum	<i>Pogonias cromis</i>	-	NCT/WES	I	-	-	-	-
Blacknose dace	<i>Rhinichthys atratulus</i>	-	-	-	WLT	CP	X	WLT
Blueback herring	<i>Alosa aestivalis</i>	-	NCT/WES	CP	NCT	CP	X	-
Bluefish	<i>Pomatomus saltatrix</i>	-	NCT/WES	C	-	-	-	-
Bluegill	<i>Lepomis macrochirus</i>	-	-	-	WLT, NRP	CP, C	X, -	WLT, WES
Broad whitefish	<i>Coregonus nasus</i>	-	AFG	CP	-	-	-	-
Brook trout	<i>Salvelinus fontinalis</i>	-	-	-	WLT, NRP	CP, C	X, -	WLT
Brown trout	<i>Salmo trutta</i>	-	-	-	WLT	CP	X	-
California grunion	<i>Leuresthes tenuis</i>	-	NCT/WES	C	-	-	-	-
California halibut	<i>Paralichthys californicus</i>	-	NCT/WES	I	-	-	-	-
Carp	<i>Cyprinus carpio</i>	-	-	-	WLT, WLT, NRP	CP, CP, C	X, -, -	WLT
Catostomids		-	-	-	NRP	C	-	-
Channel catfish	<i>Ictalurus punctatus</i>	-	-	-	WLT	CP	X	WLT
Chinook salmon	<i>Oncorhynchus tshawytscha</i>	S	NCT/WES	CP	-	-	-	-
Chum salmon	<i>Oncorhynchus keta</i>	-	AFG, NCT	CP, P	-	-	-	-
Clupeids		-	-	-	WLT, NCT, AFG	P, P, P	-	-
Coho salmon	<i>Oncorhynchus kisutch</i>	S	NCT/WES	I	NRP	C	X, -	WLT
Common shiner	<i>Notropis cornutus</i>	-	-	-	WLT, NRP	CP, C	X	WLT
Creek chub	<i>Semotilus atromaculatus</i>	-	-	-	WLT	CP	X	-
Cutthroat trout	<i>Salmo clarki</i>	S	-	-	WLT, NRP	CP, C	X, -	WLT

(Continued)

Table 5 (Continued)

COMMON NAME	SCIENTIFIC NAME	SPECIAL STATUS	LIT. REV. AGENCY	LIT. REV. STATUS	MODELING AGENCY	MODEL STATUS	EXTERNAL REVIEW	TESTING AGENCY
Cutthroat trout (sea run)	Salmo clarki	-	NCT/WES	P	NCT	P	-	-
Dolly varden	Salvelinus malma	-	AFG	CP	-	-	-	-
Fallfish	Semotilus corporalis	-	-	-	WLT	CP	X	WLT
Florida pompano	Trachinotus carolinus	-	NCT/WES	I	-	-	-	-
Freshwater drum	Aplodinotus grunniens	-	-	-	NRP	C	-	-
Gafftopsail catfish	Bagre marinus	-	NCT/WES	CP	-	-	-	-
Gizzard shad	Dorosoma cepedianum	-	-	-	WLT	P	-	-
Gray snapper	Lutjanus griseus	-	NCT/WES	I	-	CP	X	WLT
Green sunfish	Lepomis cyanellus	-	-	-	WLT	-	-	-
Groupers	Epinephelus spp.	-	NCT/WES	P	-	-	-	-
Gulf flounder	Paralichthys albigutta	-	-	-	NCT	I	-	-
Gulf menhaden	Brevoortia patronus	-	NCT/WES	CP	NCT	CP	X	-
Inland silversides	Menidia beryllina	-	-	-	NCT	P	-	-
King mackerel	Scomberomorus cavalla	-	NCT/WES	I	-	C	-	-
Kokanee	Oncorhynchus nerka kennerlyi	-	-	-	NRP	C	-	-
Lake trout	Salvelinus namaycush	S	WLT	C	NRP, WLT	C, CP	-	-
Lane snapper	Lutjanus synagris	-	NCT/WES	I	-	-	-	-
Largemouth bass	Micropterus salmoides	-	-	-	WLT, NRP	CP, C	X, -	WLT, WES
Longnose dace	Rhinichthys cataractae	-	-	-	WLT	CP	X	-
Longnose sucker	Catostomus catostomus	-	-	-	WLT	CP	X	-
Lost river sucker	Catostomus luxatus	-	FS	C	FS	C	-	-
Modoc sucker	Catostomus microps	-	FS	C	FS	C	-	-
Mojave chub	Gila mohavensis	P	FS	C	FS	C	-	-
Muskellunge	Esox masquinongy	-	-	-	NRP	C	-	-
Mutton snapper	Lutjanus analis	-	NCT/WES	I	-	-	-	-
Northern anchovy	Engraulis mordax	-	NCT/WES	I	-	-	-	-
Northern hogsucker	Hypentelium nigricans	-	-	-	WLT	P	-	-
Northern pike	Esox lucius	-	-	-	WLT, NRP	CP, C	X, -	WLT
Pacific amprey	Entosphenus tridentatus	-	FS	I	FS	I	-	-
Paddlefish	Polyodon spathula	-	-	-	WLT	CP	X	-
Pinkfish	Lagodon rhomboides	-	-	-	-	-	-	-
Pink salmon	Oncorhynchus gorbuscha	-	NCT/WES	C	-	-	-	-
Rainbow smelt	Osmerus mordax	-	AFG, NCT	CP, P	AFG	P	-	-
Rainbow trout	Salmo gairdneri	-	NCT/WES	I	-	-	-	-
Red drum	Sciaenops ocellata	-	-	-	WLT, WLT	CP, P	X, -	WLT
Red-ear sunfish	Lepomis microlophus	-	NCT/WES	C	NCT	CP	X	-
Rock bass	Ambloplites rupestris	-	-	-	WLT	CP	X	-
Rough sculpin	Cottus asperimus	-	WLT	C	WLT	P	-	-
Round whitefish	Cottus asperimus	-	FS	C	FS	C	-	-
Sea catfish	Prosopium cylindraceum	-	AFG	CP	-	-	-	-
	Arius felis	-	NCT/WES	CP	-	-	-	-

(Continued)

(Sheet 2 of 3)

Table 5 (Concluded)

COMMON NAME	SCIENTIFIC NAME	SPECIAL STATUS	LIT. REV. AGENCY	LIT. REV. STATUS	MODELING AGENCY	MODEL STATUS	EXTERNAL TESTING REVIEW	EXTERNAL TESTING AGENCY
Sheepshead	<i>Archosargus probatocephalus</i>	-	NCT/WES	C	-	-	-	-
Slough darter	<i>Etheostoma gracile</i>	-	-	-	WLT	CP	X	-
Smallmouth bass	<i>Micropterus dolomieu</i>	-	-	-	WLT, NRP	CP, C	X, -	-
Smallmouth buffalo	<i>Ictiobus bubalus</i>	-	-	-	WLT	CP	X	-
Snook	<i>Centropomus undecimalis</i>	-	NCT, WES	CP	-	-	-	-
Southern flounder	<i>Paralichthys lethostigma</i>	-	NCT, WES	C	NCT	I	-	-
Southern kingfish	<i>Menticirrhus americanus</i>	-	-	-	NCT	CP	X	-
Spanish mackerel	<i>Scomberomorus maculatus</i>	-	NCT, WES	I	-	-	-	-
Sportfish	-	-	-	-	NRP	C	-	-
Spot	<i>Leiostomus xanthurus</i>	-	NCT, WES	P	NCT	CP	X	-
Spotted bass	<i>Micropterus punctulatus</i>	-	-	-	WLT, NRP	CP, C	X, -	WLT
Spotted sea trout	<i>Cynoscion nebulosus</i>	-	NCT, WES	C	NCT	CP	X	-
Steelhead	<i>Salmo gairdneri</i>	S	NCT, WES	I	-	-	-	-
Striped anchovy	<i>Anchoa hepsetus</i>	-	NCT, WES	CP	-	-	-	-
Striped bass (coastal)	<i>Morone saxatilis</i>	S	NCT, WES	CP	NCT	CP	X	-
Striped bass (inland)	<i>Morone saxatilis</i>	S	NCT, WES	CP	WLT	CP	-	-
Striped killifish	<i>Fundulus majalis</i>	-	-	-	-	-	-	-
Striped mullet	<i>Mugil cephalus</i>	-	NCT, WES	P	-	-	-	-
Summer flounder	<i>Paralichthys dentatus</i>	-	NCT, WES	C	-	-	-	-
Three-spined stickleback	<i>Gasterosteus aculeatus</i>	-	NCT, WES	CP	-	-	-	-
Walleye	<i>Stizostedion vitreum</i>	-	AFG	CP	AFG	P	X	-
Warmouth sunfish	<i>Lepomis gulosus</i>	-	-	-	WLT, NRP(3)	CP, C, C, P	X, -, -, -	-
White bass	<i>Morone chrysops</i>	-	-	-	WLT	CP	X	WLT
White crappie	<i>Pomoxis annularis</i>	-	WLT	C	WLT, NRP	C, P	X, -	-
White mullet	<i>Mugil curema</i>	-	-	-	WLT, NRP	CP, C	X, -	WLT, WES
White perch	<i>Morone americana</i>	-	NCT, WES	C	-	-	-	-
White sucker	<i>Catostomus commersoni</i>	-	NCT, WES	CP	WLT, WLT	CP, P	-	-
Winter flounder	<i>Pseudopleuronectes americanus</i>	-	NCT, WES	I	-	-	-	-
Yellow perch	<i>Perca flavescens</i>	-	-	-	WLT, WLT, NRP	CP, P, C	-	-
Yellow-tailed snapper	<i>Ocyurus chrysurus</i>	-	NCT, WES	I	-	-	-	-

Table 6

List of Best Models and Literature Reviews for Molluscs and Crustaceans

COMMON NAME	SCIENTIFIC NAME	SPECIAL STATUS	LIT. AGENCY	REV. STATUS	LIT. AGENCY	REV. STATUS	MODEL STATUS	EXTERNAL REVIEW	TESTING AGENCY
Abalone	<i>Haliotis</i> spp.	-	NCT/WES	C	-	-	-	-	-
American lobster	<i>Homarus americanus</i>	-	NCT/WES	C	-	-	-	-	-
American oyster	<i>Crassostrea virginica</i>	-	NCT/WES	CP	NCT	-	CP	X	NCT
Amphipods	Amphipoda	-	NCT/WES	I	-	-	-	-	-
Bay scallop	<i>Aequipecten irradians</i>	-	NCT/WES	CP	-	-	-	-	-
Blue crab	<i>Callinectes sapidus</i>	-	NCT/WES	CP	-	-	-	-	-
Blue mussel	<i>Mytilus edulis</i>	-	NCT/WES	P	NCT	-	P	-	-
Brown shrimp	<i>Penaeus aztecus</i>	-	NCT/WES	CP	NCT	-	CP	X	-
Common rangia	<i>Rangia cuneata</i>	-	NCT/WES	C	-	-	-	-	-
Dungeness crab	<i>Cancer magister</i>	-	NCT/WES	I	NCT	-	P	-	-
Grass shrimp	<i>Palaemonetes</i> spp.	-	NCT/WES	I	-	-	-	-	-
Hard clam	<i>Mercenaria mercenaria</i>	-	NCT/WES	CP	NCT	-	CP	X	-
Littleneck clam	<i>Protothaca staminea</i>	-	NCT/WES	I	NCT	-	CP	X	-
Pink shrimp	<i>Penaeus duorarum</i>	-	NCT/WES	CP	NCT	-	CP	-	-
Red swamp crayfish	<i>Procambarus clarkii</i>	-	WLT	C	-	-	-	-	-
Sea scallop	<i>Placopecten magellanicus</i>	-	NCT/WES	I	-	-	-	-	-
Soft shell clam	<i>Mya arenaria</i>	-	NCT/WES	I	-	-	-	-	-
Spiny lobster	<i>Panulirus argus</i>	-	NCT/WES	I	-	-	-	-	-
Stone crab	<i>Menippe mercenaria</i>	-	NCT/WES	CP	-	-	-	-	-
Surf clam	<i>Spisula solidissima</i>	-	NCT/WES	CP	-	-	-	-	-
White shrimp	<i>Penaeus setiferus</i>	-	NCT/WES	C	NCT	-	CP	X	-

Table 7

Contacts for Information Concerning Habitat Models and
Literature Reviews

WES

US Army Corps of Engineers
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PO Box 631
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L. Jean O'Neil (Model testing)
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US Forest Service
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Hal Salwasser
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NCT

US Fish and Wildlife Service
National Coastal Ecosystems Team
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Jon Nickles
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AFG

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US Fish and Wildlife Service
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Mel Schamberger
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NRP

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