

U.S. DEPARTMENT OF THE INTERIOR  
NATIONAL BIOLOGICAL SURVEY

PRODUCT ANNOUNCEMENT  
FEBRUARY 1994

The following publications were authored by Research and Development personnel, U.S. Fish and Wildlife Service, and received by the Publications Management Officer, Office of Information Transfer during the past six months.

Generally, these product announcements are scheduled for distribution bimonthly. Because of budget constraints, this schedule was discontinued in September 1993.

The process for distribution has been inclusion with the *Research Information Bulletin* (RIB) mailing. The RIB mailing is monthly. The product announcement is bimonthly.

For many of you, this will be your first product announcement containing series and nonseries publications. The data for this listing is provided by authors using the *Bibliographic and Cost Data Form*. This form is required for each nonseries manuscript now published by any author of the National Biological Survey.

If you have questions, contact Tom Cortese, the Publications Management Officer at (303) 226-9401 x216.

## CONTENTS

AMPHIBIANS AND REPTILES .....	1
BIOMETRICS AND MODELING .....	1
BIRDS—NONGAME, COLONIAL, WADING, RAPTORS, GAME .....	2
BIRDS—WATERFOWL .....	6
CONTAMINANTS .....	8
DISEASE—FISH .....	11
DISEASE—WILDLIFE .....	15
ENDANGERED AND THREATENED SPECIES .....	16
ENVIRONMENTAL EFFECTS .....	17
FISH—ANADROMOUS .....	18
FISH—COOLWATER .....	18
FISH—CULTURE AND HATCHERIES .....	19
FISH—EXOTIC .....	20
FISH—GENERAL .....	20
FISH—GREAT LAKES .....	21
FISH—MARINE .....	21
FISH—NUTRITION .....	22
FISH—PHYSIOLOGY .....	22
FISH—SALMONIDS .....	22
FISH—WARMWATER .....	23
FISH AND WILDLIFE MANAGEMENT .....	24
FISHERY CHEMICALS .....	24

GENETICS . . . . .	24
HSI MODELS, SPECIES PROFILES, COMMUNITY PROFILES, ESTUARINE PROFILES . . . . .	24
INSTREAM FLOWS, WATER ALLOCATION, WATER RESOURCES . . . . .	24
INVERTEBRATES . . . . .	26
MAMMALS . . . . .	27
MISCELLANEOUS . . . . .	28
PLANNING AND SYSTEMS ANALYSIS . . . . .	30
PLANTS . . . . .	30
WETLANDS—ECOLOGY AND MANAGEMENT . . . . .	31
AVAILABILITY INFORMATION . . . . .	33

## AMPHIBIANS AND REPTILES

- Adams, M. J., and A. G. Wilson, Jr. 1993. *Ascaphus truei*. Herpetological Review 24(2):64. [NERC-Fort Collins]
- Corn, P. S. 1993. *Bufo boreas* (boreal toad). Predation. Herpetological Review 24(2):57. [NERC-Fort Collins]
- Dodd, C. K., Jr. 1993. The effects of toeclipping on sprint performance of the lizard *Cnemidophorus sexlineatus*. Journal of Herpetology 27(2):209-213. [NERC-Gainesville]
- Dodd, C. K., Jr. 1993. Strategies for snake conservation. Pages 363-393 in R. A. Seigel and J. T. Collins, eds. Snakes: ecology and behavior. McGraw-Hill Publishing Company, New York, NY. [NERC-Gainesville]
- Dodd, C. K., Jr., and R. Byles. 1991. The status of loggerhead, *Caretta caretta*; Kemp's ridley, *Lepidochelys kempi*; and green, *Chelonia mydas*, sea turtles in U.S. waters: a reconsideration. Marine Fisheries Review 55(1):30-31. [NERC-Albuquerque]
- Dodd, C. K., Jr., and R. Franz. 1993. The need for status information on common herpetofaunal species. Herpetological Review 24(2):47-50. [NERC-Gainesville]
- Donnelly, M. A., R. W. McDiarmid, and C. W. Myers. 1992. A new lizard of the genus *Arthrosaura* (Teiidae) from southern Venezuela. Proceedings of the Biological Society of Washington 105(4):821-833. [NERC-Washington D.C.]
- Gotte, S. W. 1992. *Podocnemis vogli* Mueller, 1935 llanos side-necked turtle. Pages 537.1 in Catalogue of American amphibians and reptiles [NERC-Washington D.C.]
- Lovich, J. E. 1993. *Macroclymys, M. temminckii*. Pages 562.1-562.4 in Catalogue of American Amphibians and Reptiles. Society for the Study of Amphibians and Reptiles. [NERC-Palm Springs]

- Stuart, J. N., C. W. Painter, and B. C. Stearns. 1993. Life history notes—*Trachemys gaigeae* (Big Bend slider). Herpetological Review 24(1):32-33. [NERC-Fort Collins]

## BIOMETRICS AND MODELING

- Dorazio, R. M. 1993. Prerelease stratification in tag-recovery models with time dependence. Canadian Journal of Fisheries and Aquatic Sciences 50(3):535-541. [NFRL-Leetown]
- Grace, J. B., G. R. Guntenspergen, and J. Keough. 1993. The examination of a competition matrix for transitivity and intransitive loops. OIKOS 68:91-98. [NWRC-Lafayette]
- Ji, W. 1993. Integrating a resource assessment model into ARC/INFO GIS: a spatial decision support system development. Pages 159-166 in 1993 ACSM/ASPRS annual convention and exposition, New Orleans, Louisiana. ACSM/ASPRS. [NWRC-Lafayette]
- Knowlton, M. F., and J. R. Jones. 1993. Testing models of chlorophyll and transparency for Midwest lakes and reservoirs. Lake and Reservoir Management 8(1):13-16. [MOCFWRU]
- Link, W. A. 1993. Simulation testing of unbiasedness of variance estimators. American Statistician 47(2):132-134. [PWRC-Patuxent]
- Link, W. A. 1992. Efficiency and optimal allocation in the staggered design. Communications in Statistics 22(2):485-503. [PWRC-Patuxent]
- Madenjian, C. P., S. R. Carpenter, G. W. Eck, and M. A. Miller. 1993. Accumulation of PCB's by lake trout (*Salvelinus namaycush*): an individual-based model approach. Canadian Journal of Fisheries and Aquatic Sciences 50(1):97-109. [NFGI-Great Lakes]
- Newton, W. E. 1993. Effect size: the forgotten element in hypothesis testing. Proceedings of the North Dakota Academy of Science 47:35. [NPWR-Jamestown]

- Nichols, J. D., and J. E. Hines. 1993. Survival rate estimation in the presence of tag loss using joint analysis of capture-recapture and resighting data. Pages 229-243 in J. D. Lebreton and P. M. North, eds. Marked individuals in the study of bird populations. Birkhauser Verlag, Basel, Switzerland. [PWRC-Patuxent]
- Petersen, J. H., and D. L. DeAngelis. 1993. Functional response and capture timing in an individual-based model: predation by northern squawfish (*Ptychocheilus oregonensis*) on juvenile salmonids in the Columbia River. Canadian Journal of Fisheries and Aquatic Science 49:2551-2565. [NFRS-Seattle]
- Pollock, K. H., W. L. Kendall, and J. D. Nichols. 1993. The "robust" capture-recapture design allows components of recruitment to be estimated. Pages 245-252 in J. D. Lebreton and P. M. North, eds. Marked individuals in the study of bird population. Birkhauser Verlag, Basel, Switzerland. [PWRC-Patuxent]
- Ramsey, E. W., III, and C. A. Johnson. 1992. Multiple temporal and spatial remote sensing data as inputs into a land cover resource Geographic Information System. Pages n.p. in American Society of Photogrammetry and Remote Sensing. [NWRC-Lafayette]
- Shaffer, T. L. 1993. ANOVA as a tool in observational studies: a practitioner's perspective. Proceedings of the North Dakota Academy of Science 47:32. [NPWR-Jamestown]
- Stalnaker, C. B. 1993. Fish habitat evaluation models in environmental assessments. Pages 139-162 in S. G. Hildebrand and J. B. Cannon, eds. Environmental analysis: the NEPA experience. Lewis Publishers, Boca Raton, Florida. [NERC-Fort Collins]
- Stauffer, D. F., A. H. Farmer, and B. S. Cade. 1991. Use of wildlife models for habitat management planning. Pages 609-616 in Proceedings of resource technology '90, Bethesda, Maryland. American Society for Photogrammetry and Remote Sensing, Bethesda, Maryland. [NERC-Fort Collins]
- Thompson III, F. 1993. Simulated responses of a forest-interior bird population to forest management options in central hardwood forests of the United States. Conservation Biology 7(2):325-333. [MOCFWRU]
- Twedt, D. J., and D. S. Gill. 1992. Comparison of algorithms for replacing missing data in discriminant analysis. Communications in Statistics—Theory and Methods 21(6):1567-1578. [NWRC-Lafayette]
- BIRDS—NONGAME, COLONIAL, WADING, RAPTORS, GAME**
- Arthur, S. M., T. F. Paragi, and W. B. Krohn. 1993. Dispersal of juvenile fishers in Maine. Journal of Wildlife Management 57(4):868-874. [AFWR-Anchorage]
- Banks, R. C. 1993. The generic name of the crested argus. Forktail 8(1993):3-6. [NERC-Washington D.C.]
- Barnum, D. A., W. L. Hohman, and D. L. Roster. 1992. Characteristics of snowy plover (*Charadrius alexandrinus*) nest sites on agricultural drainwater evaporation ponds in the San Joaquin Valley, California. Pages 27-31 in D. F. Williams, S. Byrne, and T. A. Rado, eds. Endangered and sensitive species of the San Joaquin Valley California: their biology, management, and conservation. The California Energy Commission, Sacramento, California. [NWRC-Lafayette]
- Boren, J. C., R. L. Lochmiller, D. M. Leslie, Jr., and D. M. Engle. 1993. Long-term effects of woody vegetation on seasonal body condition of northern bobwhites. Journal of Range Management 46(6):520-523. [OKCFWRU]
- Burger, L. W., Jr., M. R. Ryan, E. W. Kurzejeski, and T. V. Dailey. 1993. Conservation Reserve Program fields as bobwhite habitat in northern Missouri (abstract). Pages 146-147 in Mid-continent CRP conference, will there be a lasting conservation legacy? Kansas Department of Wildlife and Parks, Pratt, Kansas. [MOCFWRU]
- Cade, B. S., and R. W. Hoffman. 1993. Differential migration of blue grouse in Colorado. Auk 110(1):70-77. [NERC-Fort Collins]

- Clapp, R. B. 1993. Nestling phoebes entangled in fishing line. *Raven* 64(1):21-22. [Nerc-Washington D.C.]
- Clapp, R. B., P. A. Buckley, and F. G. Buckley. 1993. Conservation of temperate North Pacific terns. Pages 154-163 in K. Vermeer, K. T. Briggs, K. H. Morgan, and D. Siegel-Causey, eds. *The status, ecology, and conservation of marine birds of the North Pacific*. Canadian Wildlife Service, Ottawa, Canada. [NERC-Washington D.C.]
- Clark, W. S., and R. C. Banks. 1992. The taxonomic status of the white-tailed kite. *Wilson Bulletin* 104(4):571-579. [NERC-Washington D.C.]
- Dierenfeld, E. S., C. D. Sheppard, J. Langenberg, C. Mirande, J. Spratt, and F. J. Dein. 1993. Vitamin E in cranes: reference ranges and nutrient interactions. *Journal of Wildlife Diseases* 29(1): 98-102. [NWHR-Madison]
- Earnst, S. L. 1992. The timing of wing molt in tundra swans: energetic and non-energetic constraints. *Condor* 94(4):847-856. [OHCFWRU]
- Eldridge, J. L. 1992. Management of habitat for breeding and migrating shorebirds in the Midwest. U.S. Fish and Wildlife Service, Fish and Wildlife Leaflet 13(2.14). 6 pp. [Publications Unit]
- Eldridge, J. L., and G. L. Krapu. 1993. Use of prairie wetlands by arctic-nesting sandpipers (abstract). Page 9 in N. H. Euliss, Jr., ed. *Wetland symposium. Prairie ecosystems: wetland ecology, management and restoration*. Northern Prairie Wildlife Research Center, Jamestown, North Dakota. [NPWR-Jamestown]
- Ellis, D. H., and S. Brunson. 1993. "Tool" use by the red-tailed hawk (*Buteo jamaicensis*). *Journal of Raptor Research* 27(2):128. [PWRC-Patuxent]
- Ellis, D. H., J. C. Bednarz, D. G. Smith, and S. P. Fleming. 1992. Social foraging classes in raptorial birds. *BioScience* 43(1):14-20. [PWRC-Patuxent]
- Faaborg, J., and W. J. Arendt. 1992. Rainfall correlates of bird population fluctuations in a Puerto Rican dry forest: a 15 year study. *Ornitologia Caribena* 3:10-19. [MOCFWRU]
- Faaborg, J., and W. J. Arendt. 1992. Long-term studies of Guanica Forest birds. *Acta Cientifica* 4(1-3):69-80. [MOCFWRU]
- Faaborg, J., and W. J. Arendt. 1993. Long-term declines of winter resident warblers in a Puerto Rican dry forest: species are in trouble? Pages 57-63 in J. M. Hagan III and D. W. Johnston, eds. *Ecology and conservation of neotropical migrant landbirds*. Smithsonian Institution Press, Washington D.C. [MOCFWRU]
- Fancy, S. G., T. K. Pratt, G. D. Lindsey, C. K. Harada, A. H. Parent, Jr., and J. D Jacobi. 1993. Identifying sex and age of Apapane and Iiwi on Hawaii. *Journal of Field Ornithology* 64(2):262-269. [PWRC-Hawaii]
- Farley, G. H. 1993. Observation of a ruby-crowned kinglet (*Regulus calendula*) roosting in a verdin (*Auriparus flaviceps*) nest in winter. *Southwestern Naturalist* 38(1):72-73. [NERC-Albuquerque]
- Gabrey, S. A., P. A. Vohs, and D. H. Jackson. 1993. Perceived and real crop damage by wild turkeys in northeastern Iowa. *Wildlife Society Bulletin* 21(1):39-45. [IACFWRU]
- Gee, G. F.. 1991. Cryopreservation of crane semen. Pages 453-456 in J. Harris, ed. *Proceedings of the 1987 international crane workshop*, International Crane Foundation Baraboo, Wisconsin. [PWRC-Patuxent]
- Gee, G. F., and G. W. Pendleton. 1992. Effects of extended photoperiod on sandhill crane reproduction. Pages 149-160 in D. A. Wood, ed. *Proceedings of the 1988 North American crane workshop*. Florida Game and Fresh Water Fish Commission, Tallahassee. [PWRC-Patuxent]
- Gould, P. J., D. H. Johnson, and T. S. Shaffer. 1992. Incidental catch of marine birds in high seas driftnets (abstract). *Pacific Seabird Group Bulletin* 19(1):49. [NPWR-Jamestown]

- Higgins, K. F., and M. B. Brashier (editors). 1993. Proceedings: the Missouri River and its tributaries: piping plover and least tern symposium/workshop. South Dakota State University, Brookings. [SDCFWRU]
- Johnson, D. H., and M. D. Schwartz. 1993. The Conservation Reserve Program: habitat for grassland birds. Great Plains Research 3(2):273-295. [NPWR-Jamestown]
- Johnson, D. H., T. L. Shaffer, and P. J. Gould. 1993. Incidental catch of marine birds in the North Pacific high seas driftnet fisheries in 1990. Bulletin of the International Pacific Fisheries Commission 53:473-483. [NPWR-Jamestown]
- Keller, M. E., and C. S. Robbins. 1993. Avian communities in streamside forests of different widths in eastern Maryland and Delaware. Wetlands 13(2):137-144. [PWRC-Patuxent]
- Kelly, J. F., S. M. Pletschet, and D. M. Leslie, Jr. 1993. Habitat associations of red-cockaded woodpecker cavity trees in an old-growth forest of Oklahoma. Journal of Wildlife Management 57(1):122-128. [OKCFWRU]
- Kepler, C. B. 1991. A guide to the birds of Puerto Rico and the Virgin Islands—a book review. British Birds 84(12):586-587. [PWRC-Patuxent]
- Kepler, C. B., A. K. Kepler, and T. R. Simons. 1990. Hawaii's Seabird Islands, No. 3: Moku-ho'onki and Kanaha Rock, Molokai. Elepaio 50(9):75-82. [PWRC-Patuxent]
- Kirsch, E. M. 1993. Habitat selection of least terns on the lower Platte River, Nebraska. Page 108 in K. F. Higgins and M. R. Brashier, eds. Proceedings: the Missouri River and its tributaries: piping plover and least tern symposium/workshop, Brookings, South Dakota. South Dakota State University. [NPWR-Jamestown]
- Kirsch, E. M. 1993. Productivity, causes of mortality, and projected population trends of least terns and piping plovers on the lower Platte River. Pages 137-138 in K. F. Higgins and M. R. Brashier, eds. Proceedings: the Missouri River and its tributaries: piping plover and least tern symposium/workshop, Brookings, South Dakota. South Dakota State University. [NPWR-Jamestown]
- Kirsch, E. M. 1993. Observations of aggression in piping plover adults in Nebraska. Prairie Naturalist 25(1):77-79. [NPWR-Jamestown]
- Kirsch, E. M., and G. R. Lingle. 1993. Habitat use and nesting success of least terns along the Platte River, Nebraska. Pages 73-74 in K. F. Higgins and M. R. Brashier, eds. Proceedings: the Missouri River and its tributaries piping plover and least tern symposium/workshop, Brookings, South Dakota. South Dakota State University. [NPWR-Jamestown]
- Krapu, G. L., and J. Eldridge. 1993. North Dakota wetlands: vital refueling sites for America's migratory birds. North Dakota Outdoors 55(10):9-11. [NPWR-Jamestown]
- Kroel, K. W., and P. J. Zwank. 1992. Renesting of Mexican spotted owl in southern New Mexico. Journal of Raptor Research 26(4):267-268. [NMCFWRU]
- Layzer, J. B., M. E. Gordon, and R. M. Anderson. 1993. Mussels: the forgotten fauna of regulated rivers. A case study of the Caney River. Regulated Rivers 8:63-71. [NERC-Fort Collins]
- Ludwig, J. P., H. J. Auman, H. Kurita, M. E. Ludwig, L. M. Campbell, J. P. Giesy, D. E. Tillitt, P. Jones, N. Yamashita, S. Tanabe, and R. Tatsukawa. 1993. Caspian tern reproduction in the Saginaw Bay ecosystem following a 100-year flood event. Journal of Great Lakes Research 19(1):96-108. [NFCR-Columbia]
- Marks, J. S. 1992. Longevity record for the bristle-thighed curlew: an extension. Journal of Field Ornithology 63(3):309-310. [MTCWRU]
- Marks, J. S., and C. S. Hall. 1992. Tool use by bristle-thighed curlews on albatross eggs. Condor 94:1032-1034. [MTCWRU]

- Marks, J. S., and S. M. Leasure. 1992. Breeding biology of Tristram's storm-petrel on Laysan Island. *Wilson Bulletin* 104(4):719-731. [MTCWRU]
- Martin, T. E. 1993. Nest predation and nest sites: new perspectives and old patterns. *BioScience* 43(8):523-532. [MTCWRU]
- McCaffery, B. J., and R. E. Gill, Jr. 1992. Antipredator strategies in breeding bristle-thighed curlews. *American Birds* 46(3):378-383. [AFWR-Anchorage]
- Nichols, J. D., C. Brownie, J. E. Hines, K. H. Pollock, and J. B. Hestbeck. 1993. The estimation of exchange among populations or subpopulations. Pages 265-279 in J. -D. Lebreton and P. M. North, eds. *Study of bird populations*. Birkhauser Verlag, Basel, Switzerland. [PWRC-Patuxent]
- Olsen, G. H. 1992. Practical incubation—a book review. *JAAV* 6(4):241-242. [PWRC-Patuxent]
- Peterjohn, B. G., and J. R. Sauer. 1993. North American breeding bird survey annual summary 1990-1991. *Bird Populations* 1:1-15. [PWRC-Patuxent]
- Pietz, P. J. 1992. Seabird guide goes paperback—a book review. *Prairie Naturalist* 24(1):47-48. [NPWR-Jamestown]
- Powell, A. N., and F. J. Cuthbert. 1993. Augmenting small populations of plovers: an assessment of cross-fostering and captive-rearing. *Conservation Biology* 7(1):160-168. [NWRC-Lafayette]
- Pratt, T. K. 1992. Descriptions of thirty-two new species of birds from the Hawaiian Islands: Part I. non-passeriformes. Part II. passeriformes—a book review. *Auk* 109(4):945-947. [PWRC-Patuxent]
- Renken, R. B., and E. P. Wiggers. 1993. Habitat characteristics related to pileated woodpecker densities in Missouri. *Wilson Bulletin* 105(1):77-83. [MOCFWRU]
- Riley, T. Z., P. A. Vohs, and W. R. Clark. 1992. From feast to famine—northern Iowa pheasant research. *Pheasants Forever* 10(3):44-47. [OIT-Fort Collins]
- Robbins, C. S. 1992. Why didn't we plan ahead? Pages 49-56 in *Proceedings of the North American ornithological atlas conference*. [PWRC-Patuxent]
- Root, B. G., M. R. Ryan, and P. M. Mayer. 1992. Piping plover survival in the Great Plains. *Journal of Field Ornithology* 63(1):10-15. [MOCFWRU]
- Roster, D. L., W. L. Hohman, and D. A. Barnum. 1992. Use of agricultural drainwater impoundments by snowy plovers (*Charadrius alexandrinus nivosus*) in the southern San Joaquin Valley, California. Pages 229-235 in D. F. Williams, S. Byrne, and T. A. Rado, eds. *Endangered and sensitive species of the San Joaquin Valley, California: their biology, management, and conservation*. The California Energy Commission, Sacramento, California. [NWRC-Lafayette]
- Schwalbach, M. J., B. J. Dirks, and K. F. Higgins. 1993. Banding and marking of least terns and piping plovers along the Missouri River in South Dakota, 1986-1989. Pages 192-194 in K. F. Higgins and M. B. Brashier, eds. *Proceedings: the Missouri River and its tributaries: piping plover and least tern symposium/workshop*, Brookings, South Dakota. South Dakota State University. [SDCFWRU]
- Schwalbach, M. J., K. F. Higgins, J. Dinan, B. J. Dirks, and C. D. Kruse. 1993. Effects of water levels on interior least tern and piping plover nesting along the Missouri River in South Dakota. Pages 75-81 in K. F. Higgins and M. B. Brashier, eds. *Proceedings: the Missouri River and its tributaries: piping plover and least tern symposium/workshop*, Brookings, South Dakota. South Dakota State University. [SDCFWRU]
- Schwalbe, P. W., and R. M. Ross. 1993. Great blue heron, *Ardea herodias*. Pages 50-51 in D. W. Brauning, ed. *Atlas of breeding birds in Pennsylvania*. University of Pittsburg Press, Pittsburg, Pennsylvania. [NFRL-Wellsboro]
- Sedgwick, J. A. 1993. Aspects of the reproductive ecology of dusky flycatchers in western Montana. *Wilson Bulletin* 105(1):84-92. [NERC-Fort Collins]

- Sedgwick, J. A. 1993. First record of mew gulls breeding in the Queen Charlotte Islands, British Columbia. *Northwestern Naturalist* 73:61-62. [NERC-Fort Collins]
- Sykes, P. W., Jr., C. I. Bocetti, and L. A. Moore. 1992. Male Kirtland's warbler and incubation patch. *Wilson Bulletin* 105(2):254-356. [PWRC-Athens]
- Tacha, T. C., S. A. Nesbitt, and P. A. Vohs. 1992. Sandhill crane. A. Poole, P. Stettenheim, and F. Gill, eds. *The birds of North America*, Volume 31. The Academy of Natural Sciences, Philadelphia, Pennsylvania. 24 pp. [IACFWRU]
- Urbanek, R. P., and T. A. Bookhout. 1992. Development of an isolation-rearing/gentle release procedure for reintroducing migratory cranes. Pages 120-130 in D. W. Stahlecker, ed. North American crane workshop. North American Crane Working Group, Grand Island, Nebraska. [OHCWRU]
- Wiggers, E. P., M. K. Laubhan, and D. A. Hamilton. 1992. Forest structure associated with ruffed grouse abundance. *Forest Ecology and Management* 49(1992):211-218. [MOCFWRU]
- Wiley, J. W. 1991. Ecology and behaviour of the Zenaida dove. *Ornitologia Neotropical* 2(2):49-75. [PWRC-Patuxent]
- Wiley, J. W. 1991. Status and conservation of parrots and parakeets in the Greater Antilles, Bahama Islands, and Cayman Islands. *Bird Conservation International* 1:187-214. [PWRC-Patuxent]
- ## BIRDS—WATERFOWL
- Afton, A. D. 1993. Post-hatch brood amalgamation in lesser scaup: female behavior and return rates, and duckling survival. *Prairie Naturalist* 25(3):227-235. [LACFWRU]
- Afton, A. D., and S. L. Paulus. 1992. Incubation and brood care. Pages 62-108 in B. D. J. Batt et al, eds. *Ecology and management of breeding waterfowl*. University of Minnesota Press, Minneapolis, Minnesota. [LACFWRU]
- Austin, J. E. 1993. Fatty acid composition of fat depots in wintering Canada geese. *Wilson Bulletin* 105(2):339-347. [NPWR-Jamestown]
- Banko, P. C. 1992. Constraints on productivity of wild nene or Hawaiian geese *Branta sandvicensis*. *Wildfowl* 43:99-106. [PWRC-Patuxent]
- Carlson, J. D., Jr., W. R. Clark, and E. E. Klaas. 1993. A model of the productivity of the northern pintail. U.S. Fish and Wildlife Service, Biological Report 7. 20 pp. [Publications Unit]
- Cowardin, L. M., and R. J. Blohm. 1992. Breeding population inventories and measures of recruitment, chapter 13. Pages 423-445 in B. D. J. Batt, A.D. Afton, M. G. Anderson, C. D. Ankeny, D. H. Johnson, and J. A. Kadlec, eds. *Ecology and management of breeding waterfowl*. University of Minnesota Press, Minneapolis. [NPWR-Jamestown]
- Custer, C. M. 1993. Life history traits and habitat needs of the redhead. U.S. Fish and Wildlife Service, Fish and Wildlife Leaflet 13(1.11). 7 pp. [Publications Unit]
- DerkSEN, D. V., and D. H. Ward. 1993. Life history and habitat needs of the black brant. U.S. Fish and Wildlife Service, Fish and Wildlife Leaflet 13(1.15). 6 pp. [AFWR-Anchorage]
- Fleskes, J. P. 1992. Record of a redhead, *Aythya americana*, laying eggs in a northern harrier, *Circus cyaneus*, nest. *Canadian Field-Naturalist* 106(2):263-264. [NPWR-Jamestown]
- Gloutney, M. L., R. G. Clark, A. D. Afton, and G. J. Huff. 1993. Timing of nest searches for upland nesting waterfowl. *Journal of Wildlife Management* 57(3):597-601. [LACFWRU]
- Haramis, G. M., D. G. Jorde, and C. M. Bunck. 1993. Survival of hatching-year female canvasbacks wintering on Chesapeake Bay. *Journal of Wildlife Management* 57(4):763-771. [PWRC-Patuxent]
- Heitmeyer, M. E., L. H. Fredrickson, and D. D. Humburg. 1993. Further evidences of biases associated with hunter-killed mallards. *Journal of Wildlife Management* 57(4):733-740. [MOCFWRU]

- Hestbeck, J. B. 1991. Overwinter distribution of northern pintail populations in North America. *Journal of Wildlife Management* 57(3):582-589. [PWRC-Patuxent]
- Hestbeck, J. B., J. D. Nichols, and J. E. Hines. 1992. The relationship between annual survival rate and migration distance in mallards: an examination of the time allocation hypothesis for the evolution of migration. *Canadian Journal of Zoology* 70:2021-2027. [PWRC-Patuxent]
- Hestbeck, J. D. 1991. Survival of northern pintails during winter in North America. *Journal of Wildlife Management* 57(3):590-597. [PWRC-Patuxent]
- Hohman, W. L. 1993. Body composition of wintering canvasbacks in Louisiana: dominance and survival implications. *Condor* 95(2):377-387. [NWRC-Lafayette]
- Hohman, W. L., R. D. Pritchert, J. L. Moore, and D. O. Schaeffer. 1993. Survival of female canvasbacks wintering in coastal Louisiana. *Journal of Wildlife Management* 57(4):758-762. [NWRC-Lafayette]
- Houston, R. A., and R. J. Greenwood. 1993. Effects of radio transmitters on nesting captive mallards. *Journal of Wildlife Management* 57(4):703-709. [NPWR-Jamestown]
- Jeske, C. W. 1993. Factors influencing size of the wintering mallard population in the San Luis Valley, Colorado. *Southwestern Naturalist* 38(2):155-156. [NWRC-Lafayette]
- Jeske, C. W., D. W. Gilbert, and D. R. Anderson. 1992. Use of a restraining board and wing bands to immobilize and mark mallards. *Journal of Field Ornithology* 64(1):84-89. [NWRC-Lafayette]
- Johnson, D. H., J. D. Nichols, and M. D. Schwartz. 1992. Population dynamics of breeding waterfowl, chapter 14. Pages 446-485 in B. D. J. Batt, A. D. Afton, M. G. Anderson, C. D. Ankeny, D. H. Johnson, and J. A. Kadlec, eds. *Ecology and management of breeding waterfowl*. University of Minnesota Press, Minneapolis. [NPWR-Jamestown]
- Kantrud, H. A. 1993. Duck nest success on Conservation Reserve Program land in the prairie pothole region. *Journal of Soil and Water Conservation* 48(3):238-242. [NPWR-Jamestown]
- Krapu, G. L., and K. J. Reinecke. 1992. Foraging ecology and nutrition, chapter 1. Pages 1-29 in B. D. J. Batt, A. D. Afton, M. G. Anderson, C. D. Ankeny, D. H. Johnson, and J. A. Kadlec, eds. *Ecology and management of breeding waterfowl*. University of Minnesota Press, Minneapolis. [NPWR-Jamestown]
- Krementz, D. G., and G. W. Pendleton. 1991. Movements and survival of American black duck and mallard broods on Chesapeake Bay. *Proceedings of the Annual Conference of Southeast Fish and Wildlife Agencies* 45:156-166. [PWRC-Patuxent]
- Lokemoen, J. T. 1993. Increasing waterfowl nesting success on islands and peninsulas. U.S. Fish and Wildlife Service, Fish and Wildlife Leaflet 13(2.11). 7 pp. [Publications Unit]
- Lokemoen, J. T., and R. O. Woodward. 1993. An assessment of predator barriers and predator control to enhance duck nest success on peninsulas. *Wildlife Society Bulletin* 21(3):275-282. [NPWR-Jamestown]
- Lokemoen, J. T., and T. L. Shaffer. 1992. Analysis error in brood parasitism paper. *Condor* 94(2):554. [NPWR-Jamestown]
- Michot, T. C., and A. J. Nault. 1993. Diet differences in redheads from nearshore and offshore zones in Louisiana. *Journal of Wildlife Management* 57(2):238-244. [NWRC-Lafayette]
- Mitchell, C. A., and J. Carlson. 1993. Lesser scaup feed on zebra mussels at Cook Nuclear Plant, Michigan. *Journal of Field Ornithology* 64(2):219-222. [NPWR-Jamestown]
- Peters, M. S., and A. D. Afton. 1993. Diets of ring-necked ducks wintering on Catahoula Lake, Louisiana. *Southwestern Naturalist* 38(2):166-168. [LACFWRU]

- Pietz, P. J., G. L. Krapu, R. J. Greenwood, and J. T. Lokemoen. 1993. Effects of harness transmitters on behavior and reproduction of wild mallards. *Journal of Wildlife Management* 57(4):696-703. [NPWR-Jamestown]
- Rave, D. P., and C. L. Cordes. 1992. Time-activity budget of northern pintails using nonhunted rice fields in southwest Louisiana. *Journal of Field Ornithology* 64(2):211-218. [NWRC-Lafayette]
- Ringleman, J. F. 1990. Habitat management for molting waterfowl. U.S. Fish and Wildlife Service, Fish and Wildlife Leaflet 13(4.4). 6 pp. [Publications Unit]
- Ringleman, J. K. 1990. Life history traits and management of the gadwall. U.S. Fish and Wildlife Service, Fish and Wildlife Leaflet 13(1.2). 6 pp. [Publications Unit]
- Sargeant, A. B., and D. G. Raveling. 1992. Mortality during the breeding season, chapter 12. Pages 396-422 in B. D. J. Batt, A. D. Afton, M. G. Anderson, C. D. Ankeny, D. H. Johnson, and J. A. Kadlec, eds. *Ecology and management of breeding waterfowl*. University of Minnesota Press, Minneapolis. [NPWR-Jamestown]
- Sargeant, A. B., and M. A. Sovada. 1993. Predators and prairie ducks. Ducks Unlimited 57(3):12-13. [NPWR-Jamestown]
- Sargeant, A. B., R. J. Greenwood, M. A. Sovada, and T. L. Shaffer. 1993. Distribution and abundance of predators that affect duck production—prairie pothole region. U.S. Fish and Wildlife Service, Resource Publication 194. 96 pp. [Publications Unit]
- Solberg, K. L., and K. F. Higgins. 1993. Over-water nesting by ducks in northeastern South Dakota. *Prairie-Naturalist* 25(1):19-22. [SDCFWRU]
- ## CONTAMINANTS
- Albers, P. H., and M. B. Camardese. 1993. Effects of acidification on metal accumulation by aquatic plants and invertebrates. 1. Constructed wetlands. *Environmental Toxicology and Chemistry* 12:959-967. [PWRC-Patuxent]
- Albers, P. H., and M. B. Camardese. 1993. Effects of acidification on metal accumulation by aquatic plants and invertebrates. 2. Wetlands, ponds, and small lakes. *Environmental Toxicology and Chemistry* 12:969-976. [PWRC-Patuxent]
- Anderson, D. P., and A. K. Siwicki. 1993. Measuring the effects of contaminants on fish by hematological and serological methods. Pages 99-118 in *Modulators of fish immune responses: models for environmental toxicology/biomarkers, immunostimulators*, Breckenridge, Colorado. SOS Publications, Fair Haven, New Jersey. [NFRL-Leetown]
- Ankley, G. T., G. J. Niemi, K. B. Lodge, H. J. Harris, D. L. Beaver, D. E. Tillitt, T. R. Schwartz, J. P. Giesy, P. D. Jones, and C. Hagley. 1993. Uptake of planar polychlorinated biphenyls and 2,3,7,8-substituted polychlorinated dibenzofurans and dibenzo-p-dioxins by birds nesting in the lower Fox River and Green Bay, Wisconsin, USA. *Archives of Environmental Contamination and Toxicology* 24:332-344. [NFCR-Columbia]
- Beyer, W. N., and C. Stafford. 1993. Survey and evaluation of contaminants in earthworms and in soils derived from dredged material at confined disposal facilities in the Great Lakes Region. *Environmental Monitoring and Assessment* 24:151-165. [PWRC-Patuxent]
- Blus, L. J., C. J. Henny, D. J. Hoffman, and R. A. Grove. 1993. Accumulation and effects of lead and cadmium on wood ducks near a mining and smelting complex in Idaho. *Ecotoxicology* 2:139-154. [PWRC-Corvalis]
- Buhl, K. J., S. J. Hamilton, and J. C. Schmulbach. 1993. Chronic toxicity of the bromoxynil formulation Buctril to *Daphnia magna* exposed continuously and intermittently. *Archives of Environmental Contamination and Toxicology* 25(2):152-159. [NFCR-Columbia]
- Buhl, K. J., S. J. Hamilton, and J. C. Schmulbach. 1993. Acute toxicity of the herbicide bromoxynil to *Daphnia magna*. *Environmental Toxicology and Chemistry* 12:1455-1468. [NFCR-Columbia]

- Cleveland, L. 1992. Riesgos de algunos químicos agrícolas en las pesquerías (Hazards of select agricultural chemicals to fisheries). Pages 47-58 in Proceedings of the 3rd international seminar on limnology, Mexico. [NFCR-Columbia]
- Coyle, J. J., D. R. Buckler, C. G. Ingersoll, J. F. Fairchild, and T. W. May. 1993. Effects of dietary selenium on the reproductive success of bluegills (*Lepomis macrochirus*). Environmental Toxicology and Chemistry 12(3):551-565. [NFCR-Columbia]
- Custer, T. W., and C. A. Mitchell. 1993. Trace elements and organochlorines in the shoalgrass community of the lower Laguna Madre, Texas. Environmental Monitoring and Assessment 25:235-246. [PWRC-Patuxent]
- Dunn, W. J., D. L. Stalling, T. R. Schwartz, P. De Vault, S. Wold, P.-A. Bergqvist, K. Wiberg, and C. Rappe. 1993. A chemometric study of polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans in Great Lakes fish. Pages 175-180 in C. Rappe, H. R. Buser, B. Dodet, and I. K. O'Neill, eds. Environmental carcinogens: methods of analysis and exposure measurement, Volume 11, polychlorinated dioxins and dibenzofurans. Oxford University Press, New York, New York. [NFCR-Columbia]
- Eisler, R. 1993. Zinc hazards to fish, wildlife, and invertebrates: a synoptic review. U.S. Fish and Wildlife Service, Biological Report 10. 106 pp. [Publications Unit]
- Emlen, J. M. 1993. Interaction assessment III: predicting population-level impacts of toxicants and pesticides. Pages 128-135 in W. G. Landis, J. S. Hughes, and M. A. Lewis, eds. Environmental toxicology and risk assessment. American Society for Testing and Materials. Standard Technical Publication 179. [NFRS-Seattle]
- Fairchild, J. F., and E. E. Little. 1993. Use of mesocosm studies to examine direct and indirect impacts of water quality on early life stages of fishes. American Fisheries Society Symposium 14:95-103. [NFCR-Columbia]
- Fairchild, J. F., F. J. Dwyer, T. W. La Point, S. A. Burch, and C. G. Ingersoll. 1993. Evaluation of laboratory-generated NOEC for linear alkylbenzene sulfonate in outdoor experimental streams. Environmental Toxicology and Chemistry 12(10):1763-1775. [NFCR-Columbia]
- Fairchild, J., M. Ort, S. Ruessler, A. Carlson, W. Donald, and J. Hatfield. 1993. Bioavailability and toxicity of agricultural chemicals in runoff from MESA sites: ecological impacts on non-target aquatic organisms. Pages 133-136 in Agricultural research to protect water quality. Soil and Water Conservation Society, Ankeny, Iowa. [NFCR-Columbia]
- Hamilton, S. J. 1993. Agricultural pesticide impacts on prairie wetlands. M. Vaughan, and E. Edwards, eds. Iowa State University Extension Service. 16 pp. [NFCR-Columbia]
- Hatcher, C. O., R. E. Ogawa, T. P. Poe, and J. R. P. French, III. 1992. Trace elements in lake sediment, macrobenthos, and fish near a coal ash disposal basin. Journal of Freshwater Ecology 7(3):257-269. [NFGL-Great Lakes]
- Heinz, G. H. 1993. Selenium accumulation and loss in mallard eggs. Environmental Toxicology and Chemistry 12:775-778. [PWRC-Patuxent]
- Heinz, G. H., and M. A. Fitzgerald. 1993. Overwinter survival of mallards fed selenium. Archives of Environmental Contamination and Toxicology 25:90-94. [PWRC-Patuxent]
- Hickey, J. P., A. J. Aldridge IV, D. R. Passino-Reader, and A. M. Frank. 1992. An expert system for prediction of chemical toxicity. Drug Information Journal 26(4):487-495. [NFGL-Great Lakes]
- Hill, E. F. 1993. Avian toxicology and anticholinesterases. Pages 272-294 in B. Ballantyne and T. C. Marrs, eds. Clinical and experimental toxicology of organophosphates and carbamates. Butterworth-Heinemann Ltd., Oxford, England. [PWRC-Patuxent]

- Hoffman, D. J., G. J. Smith, and B. A. Rattner. 1993. Biomarkers of contaminant exposure in common terns and black-crowned night-herons in the Great Lakes. *Environmental Toxicology and Chemistry* 12:1095-1103. [PWRC-Patuxent]
- Huckins, J. N., G. K. Manuweera, J. D. Petty, D. Mackay, and J. A. Lebo. 1993. Lipid-containing semipermeable membrane device for monitoring organic compounds in water. *Environmental Science and Technology* 27(12):2489-2496. [NFCR-Columbia]
- Jagoe, C. H., V. E. Matey, T. A. Haines, and V. T. Komov. 1993. Effect of beryllium on fish in acid water is analogous to aluminum toxicity. *Aquatic Toxicology* 24(1993):241-256. [NFCR-Ohio]
- Jones, P. D., G. T. Ankley, D. A. Best, R. Crawford, N. DeGalan, J. P. Giesy, T. J. Kubiak, J. P. Ludwig, J. L. Newsted, D. E. Tillitt, and D. A. Verbrugge. 1993. Biomagnification of bioassay derived 2,3,7,8-tetrachlorodibenzo-p-dioxin equivalents. *Chemosphere* 26(6):1202-1212. [NFCR-Columbia]
- Jones, P. D., J. P. Giesy, J. L. Newsted, D. A. Verbrugge, D. L. Beaver, G. T. Ankley, D. E. Tillitt, K. B. Lodge, and G. J. Niemi. 1993. 2,3,7,8-tetrachlorodibenzo-p-dioxin equivalents in tissues of birds at Green Bay, Wisconsin, USA. *Archives of Environmental Contamination and Toxicology* 24:345-354. [NFCR-Columbia]
- LaPoint T. W., and J. F. Fairchild. 1993. Use of mesocosm data to predict effects in aquatic ecosystems: limits to interpretation. Pages 241-255 in R. L. Graney, J. H. Kennedy, and J. H. Rodgers, eds. *Aquatic mesocosm studies in ecological risk assessment*. Lewis Publishers, Boca Raton, Florida. [NFCR-Columbia]
- Little, E. E., F. J. Dwyer, J. F. Fairchild, A. J. DeLonay, and J. L. Zajicek. 1993. Survival of bluegill and their behavioral responses during continuous and pulsed exposures to esfenvalerate, a pyrethroid insecticide. *Environmental Toxicology and Chemistry* 12(5):871-878. [NFCR-Columbia]
- Little, E. E., J. F. Fairchild, and A. J. DeLonay. 1993. Behavioral methods for assessing impacts of contaminants on early life stage fishes. *American Fisheries Society Symposium* 14:67-76. [NFCR-Columbia]
- Lowe, T. P., and R. C. Stendell. 1991. Eggshell modifications in captive kestrels resulting from Aroclor 1248 in diet. *Archives of Environmental Contamination and Toxicology* 20:519-522. [Pwrc-Patuxent]
- Lydy, M. J., J. T. Oris, P. C. Baumann, and S. W. Fisher. 1992. Effects of sediment organic carbon content on the elimination rates of neutral lipophilic compounds in the midge (*Chironomus riparius*). *Environmental Toxicology and Chemistry* 11:347-356. [NFCR-Columbia]
- Mac, M. J., and T. R. Schwartz. 1992. Investigations into the effects of PCB congeners on reproduction in lake trout from the Great Lakes. *Chemosphere* 25(1/2):189-192. [NFGL-Great Lakes]
- Madenjian, C. P., S. R. Carpenter, and G. E. Noguchi. 1993. Individual-based model for dieldrin contamination in lake trout. *Archives of Environmental Contamination and Toxicology* 24(1):78-82. [NFGL-Great Lakes]
- Mayer, F. L., D. F. Woodward, and W. J. Adams. 1993. Chronic toxicity of Pydraul 50E to lake trout. *Bulletin of Environmental Contamination and Toxicology* 51:289-295. [NFCR-Jackson]
- McNiff, M. E., P. F. Roscigno, and W. Ji. 1992. A Geographic Information Systems technique for monitoring contaminants for marine and coastal environments. Pages 405-415 in *Proceedings of the first thematic conference on remote sensing for marine and coastal environments: needs and solutions for pollution monitoring, control, and abatement*. Volume I. Environmental Research Institute of Michigan, Ann Arbor, Michigan. [NWRC-Lafayette]

- Miles, A. K., C. E. Grue, G. W. Pendleton, and J. H. Soares, Jr. 1993. Effects of dietary aluminum, calcium, and phosphorus on egg and bone of European starlings. *Archives of Environmental Contamination and Toxicology* 24:206-212. [PWRC-Patuxent]
- Nelson, M. K., P. F. Landrum, G. A. Burton, Jr., S. J. Klaine, E. A. Crecelius, T. D. Byl, D. C. Gossiaux, V. N. Tsymbal, L. Cleveland, C. G. Ingersoll, and G. Sasson-Brickson. 1993. Toxicity of contaminated sediments in dilution series with control sediments. *Chemosphere* 27(9):1789-1812. [NFCR-Columbia]
- Ohlendorf, H. M. 1993. Marine birds and trace elements in the temperate North Pacific. Pages 232-240 in K. Vermeer, K. T. Briggs, K. H. Morgan, and D. Siegel-Causey, eds. The status, ecology, and conservation of marine birds of the North Pacific. Canadian Wildlife Service, Ottawa, Canada. [PWRC-Patuxent]
- Prest, H. F., W. M. Jarman, S. A. Burns, T. Weismuller, M. Martin, and J. N. Huckins. 1993. Passive water sampling via semipermeable membrane devices (SPMDS) in concert with bivalves in the Sacramento/San Joaquin River Delta. *Chemosphere* 25(12):1811-1823. [NFCR-Columbia]
- Rada, R. G., D. E. Powell, and J. G. Wiener. 1993. Whole-lake burdens and spatial distribution of mercury in surficial sediments in Wisconsin seepage lakes. *Canadian Journal of Fisheries and Aquatic Sciences* 50(4):865-873. [NFLX-La Crosse]
- Ross, P. E., G. A. Burton, Jr., E.A. Crecelius, J. C. Filkins, J. P. Giesy, C. G. Ingersoll, P. F. Landrum, M. J. Mac, T. JK. Murphy, J. E. Rathbun, V. E. Smith, et al. 1992. Assessment of sediment contamination at Great Lakes area of concern: the ARCS program toxicity-chemistry work group strategy. *Journal of Aquatic Ecosystem Health* 1:193-200. [NFCR-Columbia]
- Saiki, M. K., M. R. Jennings, and W. G. Brumbaugh. 1993. Boron, molybdenum, and selenium in aquatic food chains from the lower San Joaquin River and its tributaries, California. *Archives of Environmental Contamination and Toxicology* 24:307-319. [NFCR-Columbia]
- Schmitt, C. J., M. L. Wildhaber, J. B. Hunn, T. Nash, M. N. Tieger, and B. L. Steadman. 1993. Biomonitoring of lead-contaminated Missouri streams with an assay for erythrocyte - aminolevulinic acid dehydrase activity in fish blood. *Archives of Environmental Contamination and Toxicology* 25:464-475. [NFCR-Columbia]
- Schwartz, T. R., D. E. Tillitt, K. P. Feltz, and P. H. Peterman. 1993. Determination of mono- and non-O, O'-chlorine substituted polychlorinated biphenyls in Aroclors and environmental samples. *Chemosphere* 26(8):1443-1460. [NFCR-Columbia]
- Sievert, P. R., and L. Sileo. 1993. The effects of ingested plastic on growth and survival of albatross chicks. Pages 212-217 in K. Vermeer, K. T. Briggs, K. H. Morgan, and D. Siegel-Causey, eds. The status, ecology and conservation of marine birds of the North Pacific. Canadian Wildlife Service. [NWHR-Madison]
- Synder-Conn, E. 1993. In situ toxicity testing with locally collected *Daphnia*. U.S. Fish and Wildlife Service, Biological Report 15. 14 pp. [Publications Unit]
- Tillitt, D. E., T. J. Kubiak, G. T. Ankley, and J. P. Giesy. 1993. Dioxin-like toxic potency in Forster's tern eggs from Green Bay, Lake Michigan, North America. *Chemosphere* 26(11):2079-2084. [NFCR-Columbia]
- Wiedmeyer, R. H., and T. W. May. 1993. Storage characteristics of three selenium species in water. *Archives of Environmental Contamination and Toxicology* 25:67-71. [NFCR-Columbia]
- Winger, P. V., P. J. Lasier, and H. Geitner. 1993. Toxicity of sediments and pore water from Brunswick Estuary, Georgia. *Archives of Environmental Contamination and Toxicology* 25:371-376. [NFCR-Columbia]
- DISEASE—FISH**
- Alados, C. L., and J. M. Emlen. 1993. Developmental instability as an indicator of environmental stress in the Pacific hake (*Merluccius productus*). *Fishery Bulletin* 91:587-593. [NFRS-Seattle]

- Anderson, D. P. 1993. Novel techniques for fish disease diagnosis (abstract). Page 29 in Second symposium on diseases on Asian aquaculture: aquatic animal health and the environment, Phuket, Thailand. American Fisheries Society, Bethesda, Maryland. [NFRL-Leetown]
- Anderson, D. P. 1993. Techniques in fish immunology: fish immunology technical communications 2—a book review. FHS/AFS Newsletter 21(1):11-12. [NFRL-Leetown]
- Anderson, D. P. 1993. Passive hemolytic plaque assay for detecting antibody-producing cells in fish. Pages 1113-1116 in A. K. Siwicki, D. P. Anderson, and J. Waluga, eds. Fish disease diagnosis and prevention methods. Wydawnictwo Instytutu Rybactwa Strodladowego, Olsztyn, Poland. [NFRL-Leetown]
- Anderson, D. P. 1993. Specific immune response in fish. Pages 17-20 in A. K. Siwicki, D. P. Anderson, and J. Waluga, eds. fish disease diagnosis and prevention methods. Wydawnictwo Instytutu Rybactwa Strodladowego, Olsztyn, Poland. [NFRL-Leetown]
- Anderson, D. P., and A. K. Siwicki. 1993. Duration of protection against *Aeromonas salmonicida* in eastern brook trout after immunostimulation with glucan or chitosan by injection or immersion (abstract). Page 80 in The Nordic Symposium on fish immunology, Lysenkil, Sweden. The Nordic Council of Ministers, Uppsala. [NFRL-Leetown]
- Anderson, D. P., and A. K. Siwicki. 1993. Hematological and serological assays to determine fish health (abstract). Pages n.p. in Modulators of fish immune responses: models for environmental toxicology/biomarkers, immunostimulators, Breckenridge, Colorado. SOS Publications, Fair Haven, New Jersey. [NFRL-Leetown]
- Anderson, D. P., and A. K. Siwicki. 1993. Stimulation of nonspecific defense mechanisms and the specific immune response in fish. Pages 53-56 in A. K. Siwicki, D. P. Anderson, and J. Waluga, eds. Fish disease diagnosis and prevention methods. Wydawnictwo Instytutu Rybactwa Strodladowego, Olsztyn, Poland. [NFRL-Leetown]
- Anderson, D. P., and A. K. Siwicki. 1993. Basic hematology and serology for fish health programs. Page 35 in Second symposium on diseases in Asian aquaculture: aquatic health and the environment, Phuket, Thailand. American Fisheries Society, Bethesda, Maryland. [NFRL-Leetown]
- Anderson, D. P., and G. Jeney. 1993. Immunostimulation and protection from disease in rainbow trout by glucans given by injection or bath (abstract). Page 199 in From discovery to commercialization. Abstracts of contributions presented at the international conference World Aquaculture '93, Torremolinos, Spain. [NFRL-Leetown]
- Anderson, D. P., A. K. Siwicki, and G. L. Rumsey. 1993. Injection or immersion delivery of new immunostimulants to trout demonstrate enhancement of nonspecific defense mechanisms and protective immunity (abstract). Page 107 in Second symposium on diseases in Asian aquaculture: aquatic health and the environment, Phuket, Thailand. American Fisheries Society, Bethesda, Maryland. [NFRL-Leetown]
- Anderson, D. P., A. K. Siwicki, E. Glabski, and K. Kazun. 1993. Latex bead agglutination test for the rapid and sensitive identification of bacterial infections in fish. Pages 143-146 in A. K. Siwicki, D. P. Anderson, and J. Waluga, eds. Fish disease diagnosis and prevention methods. Wydawnictwo Instytutu Rybactwa Strodladowego, Olsztyn, Poland. [NFRL-Leetown]
- Blazer, V. S. 1992. Nutrition and disease resistance in fish. Annual Review of Fish Diseases 1992:. [GACFWRU]
- Bodensteiner, L. R., R. J. Sheehan, W. M. Lewis, P. S. Wills, and R. L. Herman. 1993. Effects of repetitive formalin treatments on channel catfish juveniles. Journal of Aquatic Animal Health 5:59-63. [NFRL-Leetown]
- Bullock, G., R. herman, J. Heinen, A. Noble, A. Weber, and J. Hankins. 1993. Observations on repeated bacterial gill disease outbreaks and amoeba gill infestations in rainbow trout (*Oncorhynchus mykiss*) in a recycle culture system. FHS/AFS Newesletter 21(4):4-5. [NFRL-Leetown]

- Cipriano, R. C., and L. A. Ford. 1993. Comparison of dilution counts with standard culture methods for the detection of *Aeromonas salmonicida* from clinical specimens. Biomedical Letters 48:145-150. [NFRL-Leetown]
- Cooper, R. K., C. E. Starliper, E. B. Shotts, Jr., and P. W. Taylor. 1993. Comparison of plasmids isolated from Romet-30-resistant *Edwardsiella ictaluri* and Tribrissen-resistant *Escherichia coli*. Journal of Aquatic Health 5:9-15. [NFRL-Leetown]
- Gordon, M. E., and J. B. Layzer. 1993. Glochidial host of *Alasmidonta atropurpurea* (Bivalvia: Unionoidea, Unionidae). Transactions of the American Fisheries Society 112(2):145-150. [TNCFRU]
- Heinen, J., J. Hankins, A. Noble, G. Bullock, R. Herman, and A. Weber. 1993. Evidence for development of resistance to bacterial gill disease (abstract). From discovery to commercialization. Abstracts of contributions presented at the international conference World Aquaculture '93, Torremolinos, Spain. [NFRL-Leetown]
- Jeney, G., and D. P. Anderson. 1993. Enhance immune response and protection in rainbow trout to *Aeromonas salmonicida* bacterin following prior immersion in immunostimulants. Fish & Shellfish Immunology 3:51-58. [NFRL-Leetown]
- Jeney, G., and D. P. Anderson. 1993. Kinetics of non-specific defense mechanisms after bath or injection exposure of rainbow trout to a bacterin or glucan (abstract). Page 97 in The Nordic Symposium on fish immunology, Lysekil, Sweden. The Nordic Council of Ministers, Uppsala. [NFRL-Leetown]
- Jeney, G., and D. P. Anderson. 1993. Glucan injection and bath exposure given alone or in combination with a bacterin enhance the non-specific defence mechanisms in rainbow trout (*Oncorhynchus mykiss*). Aquaculture 116:315-329. [NFRL-Leetown]
- Jeney, G., D. P. Anderson, and Z. Jeney. 1993. Kinetics of non-specific defence mechanisms after bath exposure of hybrid sturgeon (*Acipenser ruthenus* x *Acipenser baeri*) to a bacterin or glucan (Abstract). Page 109 in Sixth international conference diseases of fish and shellfish, Brest, France. Centre National d'Etudes et d'Alimentaire. [NFRL-Leetown]
- Jenkins, J. A., and D. D. Ourth. 1993. Opsonic effect of the alternative complement pathway on channel catfish peripheral blood phagocytes. Veterinary Immunology and Immunopathology 39:447-459. [NFRL-Marion]
- Krise, W. F., and R. A. Smith. 1993. Eye abnormalities of lake trout exposed to gas supersaturation. Progressive Fish-Culturist 55:177-179. [NFRL-Wellsboro]
- McAllister, P. E., W. B. Schill, W. J. Owens, and D. L. Hodge. 1993. Determining the prevalence of infectious pancreatic necrosis virus in asymptomatic brook trout *Salvelinus fontinalis*: a study of clinical samples and processing methods. Diseases of Aquatic Organisms 15:157-162. [NFRL-Leetown]
- Morrison, J. R., S. R. Fox, and W. A. Rogers. 1993. Control of an infestation of a fish leech (*Myzobdella lugubris*) on catfishes in tanks and earthen ponds. Journal of Aquatic Animal Health 5(2):110-114. [NFRG-Marion]
- O'Shea, T. J., B. L. Homer, E. C. Greiner, and A. W. Layton. 1992. *Nasitrema* sp. associated encephalitis in a striped dolphin (*Stenella coeruleoalba*) stranded in the Gulf of Mexico. Journal of Wildlife Diseases 27(4):706-709. [NERC-Fort Collins]
- Rumsey, G. L., A. K. Siwicki, D. P. Anderson, and P. R. Bowser. 1993. Soybean antigenicity in salmonids: effects on growth protein utilization and nonspecific immunity (abstract). Page 86 in The Nordic Symposium on fish immunology, Lysekil, Sweden. The Nordic Council of Ministers, Uppsala. [NFRL-Leetown]

- Siwicki, A. K., and D. P. Anderson. 1993. Development of in vitro tests to screen potential immunostimulants: dosage effects of a glucan and chitosan on splenic cells from rainbow trout (abstract). Page 85 in The Nordic Symposium on fish immunology, Lysekil, Sweden. The Nordic Council of Ministers, Uppsala. [NFRL-Leetown]
- Siwicki, A. K., and D. P. Anderson. 1993. Techniques for determining modulations in nonspecific immunity on fish exposed to immunostimulants (abstract). Page 85 in From discovery to commercialization. Abstracts of contributions presented at the international conference World Aquaculture '93, Torremolinos, Spain. [NFRL-Leetown]
- Siwicki, A. K., and D. P. Anderson. 1993. Nonspecific defence mechanisms assay in fish. II. Potential killing activity of neutrophils and macrocytes, lysozyme activity in serum and organs and total immunoglobulin (Ig) level in serum. Pages 105-111 in A. K. Siwicki, D. P. Anderson, and J. Waluga, eds. Fish disease diagnosis and prevention methods. Wydawnictwo Instytutu Rybactwa Strodladowego, Olsztyn, Poland. [NFRL-Leetown]
- Siwicki, A. K., D. P. Anderson, and G. L. Rumsey. 1993. Dietary intake of immunostimulants raises nonspecific immunity and protection against *Aeromonas salmonicida* challenges in rainbow trout (abstract). Page 81 in The Nordic symposium on fish immunology, Lysekil, Sweden. The Nordic Council of Ministers, Uppsala. [NFRL-Leetown]
- Siwicki, A. K., D. P. Anderson, and G. L. Rumsey. 1993. Nonspecific defense mechanisms and disease resistance are enhanced in rainbow trout fed immunostimulants (abstract). Page 55 in Modulators of fish immune responses: models for environmental toxicology/biomarkers, immunostimulators, Breckenridge, Colorado. SOS Publications, Fair Haven, New Jersey. [NFRL-Leetown]
- Siwicki, A. K., D. P. Anderson, and G. L. Rumsey. 1993. Immunostimulants raise nonspecific defense mechanisms and protection in rainbow trout when incorporated into diets (abstract). Page 110 in Sixth international conference "diseases of fish and shellfish, Brest, France. Centre National d'Etudes at Alimentaires. [NFRL-Leetown]
- Siwicki, A. K., D. P. Anderson, and J. Antychowicz. 1993. Nonspecific defence mechanisms assay in fish I. Phagocytic index, adherence and phagocytic ability of neutrophils (NBT Test) and myeloperoxidase activity test. Pages 95-104 in A. K. Siwicki, D. P. Anderson, and J. Waluga, eds. Fish disease diagnosis and prevention methods. Wydawnictwo Instytutu Rybactwa Strodladowego, Olsztyn, Poland. [NFRL-Leetown]
- Siwicki, A. K., D. P. Anderson, M. Dunier, and M. Studnicka. 1993. Influence of the immunostimulants on the nonspecific defence mechanisms and antibody secreting cells in carp (abstract). Pages 132 in Sixth international conference on diseases of fish and shellfish, Brest, France. Centre National d'Etudes at Alimentaire. [NFRL-Leetown]
- Siwicki, A., D. P. Anderson, and O. W. Dixon. 1992. In vitro effect of levamisole on the neutrophil activity in rainbow trout (*Oncorhynchus mykiss*). Archivum Immunologiae et Therapiae Experimentalis 40:253-256. [NFRL-Leetown]
- Siwicki, A. K., and D. P. Anderson. 1993. The immune system of fish. Pages 7-10 in A. K. Siwicki, D. P. Anderson, and J. Waluga, eds. Fish disease diagnosis and prevention methods. Wydawnictwo Instytutu Rybactwa Strodladowego, Olsztyn, Poland. [NFRL-Leetown]
- Smith, S. A., P. E. McAllister, T. C. Hrubec, and H. P. Veit. 1993. Survey of endemic diseases of cultured rainbow trout in Virginia (abstract). Page 62 in Aquaculture Canada '93: final programme and abstracts, Charlottetown, Prince Edward Island. Aquaculture Association of Canada. [NFRL-Leetown]

- Starliper, C. E., R. K. Cooper, E. B. Shotts, Jr., and P. W. Tayler. 1993. Plasmid mediated Romet resistance of *Edwardsiella ictaluri*. Journal of Aquatic Animal Health 5:1-8. [NFRL-Leetown]
- Teska, J. D. 1993. In vitro growth enhancement of *Renibacterium salmoninarum*: the aetiology of bacterial kidney disease. Biomedical Letters 48:27-33. [NFRL-Leetown]
- Torroba, M., D. P. Anderson, O. W. Dixon, F. Casares, A. Varas, L. Alonso, M. Gomez del Moral, and A. G. Zapata. 1993. In vitro antigen trapping by gill cells of the rainbow trout: an immunohistochemical study. Histology and Histopathology 8:363-367. [NFRL-Leetown]
- Wise, D., T. E. Schwedler, and D. L. Otis. 1993. Effects of stress on susceptibility of naive channel catfish in immersion challenge with *Edwardsiella ictaluri*. Journal of Aquatic Animal Health 5:92-97. [SCCFWRU]
- Batts, W. N., C. K. Arakawa, J. Bernard, and J. R. Winton. 1993. Isolates of viral hemorrhagic septicemia virus from North America and Europe can be detected and distinguished by DNA probes. Diseases of Aquatic Organisms 17:67-71. [NFRS-Seattle]
- DISEASE—WILDLIFE**
- Bogaczyk, B. A., W. B. Krohn, and H. C. Gibbs. 1993. Factors affecting *Parelaphostrongylus tenuis* in white-tailed deer (*Odocoileus virginianus*) from Maine. Journal of Wildlife Diseases 29(2):266-272. [MECFWRU]
- Boren, J. C., R. L. Lochmiller, J. F. Boggs, and D. M. Leslie, Jr. 1993. Gastrointestinal helminths of eastern woodrat populations in central Oklahoma. Southwestern Naturalist 38(2):146-149. [OKCFWRU]
- Boren, J. C., R. L. Lochmiller, J. F. Boggs, S. T. McMurry, D. M. Leslie, Jr., D. M. Engle, and H. E. Jordan. 1993. Responses of intestinal nematodes in white-footed mouse (*Peromyscus leucopus*) populations to rangeland modification. Proceedings of the Oklahoma Academy of Science 73:39-44. [OKCFWRU]
- Carpenter, J. W., D. M. Watts, G. G. Clark, T. W. Scott, D. Docherty, B. B. Pagac, J. M. Dorothy, and J. G. Olson. 1992. Prevention of eastern equine encephalitis virus in captive cranes. Pages 211-217 in D. A. Wood, ed. Proceedings of the 1988 North American crane workshop. Florida Game and Fresh Water Commission, Tallahassee. [PWRC-Patuxent]
- Emlen, J. M., D. C. Freeman, and J. H. Graham. 1993. Nonlinear growth dynamics and the origin of fluctuating asymmetry. Genetica 89:77-96. [NFRS-Seattle]
- Friend, M. 1992. Control of avian influenza: philosophy and perspectives on behalf of migratory birds. Pages 393-399 in Proceedings of the third international symposium on avian influenza, University of Wisconsin, Madison. [NWHR-Madison]
- Holzman, S., M. J. Conroy, and W. R. Davidson. 1992. Diseases, parasites and survival of coyotes in south-central Georgia. Journal of Wildlife Diseases 28(4):572-580. [GACFWRU]
- Mech, L. D., and S. M. Goyal. 1993. Canine parvovirus effect on wolf population change and pup survival. Journal of Wildlife Diseases 28(2):330-333. [PWRC-Patuxent]
- Olsen, G. H. 1992. Introduced avian disease and its effects on the Hawaiian ecosystem. Pages 279-282 in 1992 Proceedings of the Association of Avian Veterinarians. [PWRC-Patuxent]
- Olsen, G. H. 1992. Introduced avian disease and their effects on Hawaii ecosystem. Pages 279-282 in 1992 Proceedings of the Association of Avian Veterinarians. [PWRC-Patuxent]
- Oshima, K. H., K. H. Higman, C. K. Arakawa, P. De Kinkelin, P. E. V. Jorgensen, T. R. Meyers, and J. R. Winton. 1993. Genetic comparison of viral hemorrhagic septicemia virus isolates from North America and Europe. Diseases of Aquatic Organisms 17:73-80. [NFRS-Seattle]

- Pagac, B. B. M. J. Turell, and G. H. Olsen. 1992. Eastern equine encephalomyelitis virus and *Culiseta melanura* activity at the Patuxent Wildlife Research Center, 1985-90. Journal of the American Mosquito Association 8(3):328-330. [PWRC-Patuxent]
- Samuel, M. D. 1992. Influence of disease on a population model of mid-continent mallards. Transactions of the North American Wildlife and Natural Resources Conference 57:486-498. [NWHR-Madison]
- Sandler, R. J., T. E. Rocke, M. D. Samuel, and T. M. Yuill. 1993. Seasonal prevalence of *Clostridium botulinum* type C in sediments of a northern California wetland. Journal of Wildlife Diseases 29(4):533-539. [NWHR-Madison]
- Brock, M. K., and B. N. White. 1992. Application of DNA fingerprinting to the recovery program of the endangered Puerto Rican parrot. Pages 11121-11125 in J. Morgan, ed. Proceedings of the National Academy of Sciences, USA. National Academy of Sciences, Washington, D.C. [PWRC-Patuxent]
- ENDANGERED AND THREATENED SPECIES**
- Dessauer, H. C., G. F. Gee, and J. S. Rogers. 1992. Allozyme evidence for crane systematics and polymorphisms within populations of sandhill, Sarus, Siberian, and whooping cranes. Molecular Phylogenetics 1(4):279-288. [PWRC-Patuxent]
- Faanes, C. A., D. H. Johnson, and G. R. Lingle. 1992. Characteristic of whooping crane roost sites in the Platte River. Proceedings of the Sixth North American Crane Workshop 6:90-94. [NPWR-Jamestown]
- Gee, G. F., H. C. Dessauer, J. Longmire, W. E. Briles, and R. C. Simon. 1992. The study of relatedness and genetic diversity in cranes. Pages 225-230 in D. A. Wood, ed. Proceedings of the 1988 North American crane workshop. Florida Game and Fresh Water Fish Commission, Tallahassee. [PWRC-Patuxent]
- Goodpasture, C., G. Seluja, and G. F. Gee. 1992. Karyotype and identification of sex in two endangered crane species. Pages 219-224 in D. A. Wood, ed. Proceedings of the 1988 North American crane workshop. Florida Game and Fresh Water Fish Commission, Tallahassee. [PWRC-Patuxent]
- LaRoe, E. T. 1993. Implementation of an ecosystem approach to endangered species conservation. Endangered Species Update 10(3/4):3-6. [CRUC-Washington D.C.]
- Lieberman, A., J. V. Rodriguez, J. M. Paez, and J. Wiley. 1993. The reintroduction of the Andean condor into Colombia, South America: 1989-1991. ORYX 27(2):83-90. [PWRC-Patuxent]
- Luttrell, G., R. Larson, W. Stark, N. Ashbaugh, A. Achelle, and A. Zale. 1992. Status and distribution of the Neosho madtom (*Noturus placidus*) in Oklahoma. Proceedings of the Oklahoma Academy of Science 72:5-6. [OKCFWRU]
- Meyers, J. M., F. J. Vilella, and W. C. Barrow, Jr. 1993. Positive effects of Hurricane Hugo: record years for Puerto Rican parrots nesting in the wild. Endangered Species Bulletin 18(1):1, 10. [PWRC-Palmer]
- Opler, P. A. 1993. New additions to endangered species list. News of the Lepidopterists' Society 1993(2):52. [OIT-Fort Collins]
- Opler, P. A. 1993. The U.S. Endangered Species Act: conservation and research. Aquatic Conservation: Marine and Freshwater Ecosystems 3:289-291. [OIT-Fort Collins]
- Springer, P. F., and M. A. Gregg. 1993. Wintering ecology of the Aleutian Canada geese (*Branta canadensis leucopareia*) in the San Joaquin Valley, California. Pages 263-269 in D. F. Williams, S. Byrne, and T. A. Rado, eds. Endangered and sensitive species of the San Joaquin Valley Clifornia: their biology, management and conservation. California Energy Commission, Sacramento, California. [NPWR-Jamestown]

Wiley, J. W. 1993. Natural range expansion and local extirpation of an exotic Psittacine—an unsuccessful colonization attempt. *Ornitologia Neotropical* 4:43-54. [PWRC-Patuxent]

## ENVIRONMENTAL EFFECTS

Baker, B. W., D. L. Hawksworth, and J. G. Graham. 1993. Wildlife habitat response to riparian restoration on the Douglas Creek watershed. Pages 62-80 in Proceedings of the Colorado Riparian Association, Steamboat Springs, Colorado. [NERC-Fort Collins]

Bowen, B. S., and A. D. Kruse. 1993. Effects of grazing on nesting by upland sandpipers in southcentral North Dakota. *Journal of Wildlife Management* 57(2):291-301. [NPWR-Jamestown]

Cubbedge, A. W., and C. H. Nilon. 1993. Adjacent land use effects on the flood plain forest bird community of Minnesota Valley National Wildlife Refuge. *Natural Areas Journal* 13(3):220. [MOCFWRU]

DeLonay, A. J., E. E. Little, D. F. Woodward, W. G. Brumbaugh, A. M. Farag, and C. F. Rabeni. 1993. Sensitivity of early life-stage golden trout to low pH and elevated aluminum. *Environmental Toxicology and Chemistry* 12(7):1223-1232. [MOCFWRU]

Fisher, W. L., and A. V. Zale. 1991. Effect of water level fluctuations on abundance of young-of-the-year largemouth bass in a hydropower reservoir. *Proceedings of the Annual Conference of the Southeast Association of Fish and Wildlife Agencies* (45):422-431. [OKCFWRU]

Griffith, M. B., S. A. Perry, and W. B. Perry. 1993. Growth and secondary production of *Paracapnia angulata* Hanson (Plecoptera: Capniidae) in Appalachian streams affected by acid precipitation. *Canadian Journal of Zoology* 71:735-743. [WVCFWRU]

Irving, J. S., and M. B. Bain. 1993. Assessing cumulative impact on fish and wildlife in the Salmon River Basin, Idaho. Pages 357-372 in S. G. Hildebrand and J. B. Cannon, eds. *Environmental Analysis*. Lewis Publishers, Boca Raton, Florida. [NYCFWRU]

Johnson, B. T. 1993. Activated mutatox assay for detection of genotoxic substances. *Environmental Toxicology and Water Quality* 8(1):103-113. [NFCR-Columbia]

Johnson, D. H. 1993. Global climate change research in the northern plains: introduction to the symposium. *Proceedings of the North Dakota Academy of Science* 47:3. [NPWR-Jamestown]

Krise, W. F., and L. A. Redell. 1992. Effects of density and loading on lake trout response to stress and reproduction (Abstract). *Proceedings of the annual conference of the Northeastern Association of Fish and Wildlife Agencies*, Atlantic City, New Jersey. New Jersey Division of Fish, Game, and Wildlife. [NFRL-Wellsboro]

Larson, D. L. 1993. Effect of climate on water availability in prairie wetlands of North and South Dakota. *Proceedings of the North Dakota Academy of Science* 47:9. [NPWR-Jamestown]

Leitner, L. A., C. P. Dunn, G. R. Guntenspergen, F. Stearns, and D. M. Sharpe. 1991. Effects of site, landscape features, and fire regime on vegetation patterns in presettlement southern Wisconsin. *Landscape Ecology* 5(4):203-217. [NWRC-Lafayette]

Lohman, K., J. R. Jones, and B. D. Perkins. 1992. Effects of nutrient enrichment and flood frequency on periphyton biomass in northern Ozark streams. *Canadian Journal of Fisheries and Aquatic Sciences* 49(6):1198-1205. [MOCFWRU]

Mushet, D. M., N. H. Euliss, Jr., and S. W. Harris. 1992. Effects of irrigation on seed production and vegetative characteristics of four moist-soil plants on impounded wetlands in California. *Wetlands* 12(3):204-207. [NPWR-Jamestown]

Neckles, H. A., R. L. Wetzel, and R. J. Orth. 1993. Relative effects of nutrient enrichment and grazing on epiphytmacrophyte (*Zostera marina* L.) dynamics. *Oecologia* 93:285-295. [NWRC-Lafayette]

Price, J. T. 1993. Calculating the climate envelope for North American grassland birds. *Proceedings of the North Dakota Academy of Science* 47:16. [NPWR-Jamestown]

- Rabeni, C. F., and R. B. Jacobson. 1993. Geomorphic and hydraulic influences on the abundance and distribution of stream centrarchids in Ozark USA streams. *Polskie Archiwum Hydrobiologii* 40(1):83-95. [MOCFWRU]
- Schofield, C. L., D. Josephson, C. Keleher, and S. P. Gloss. 1993. Thermal stratification of dilute lakes—evaluation of regulatory processes and biological effects before and after base addition: effects on brook trout habitat and growth. U.S. Fish and Wildlife Service, Biological Report 9. 36 pp. [Publications Unit]
- Scoppettone, G. G., M. E. Buettner, and P. H. Rissler. 1993. Effect of four fluctuating temperature regimes on cui-ui, *Chasmistes cujus*, survival from egg fertilization to swim-up, and size of larvae produced. *Environmental Biology of Fishes* 38:373-378. [NFRS-Reno]
- Segelquist, C. A., M. L. Scott, and G. T. Auble. 1993. Establishment of *Populus deltoides* under simulated alluvial groundwater declines. *American Midland Naturalist* 130:274-285. [NERC-Fort Collins]
- Soderberg, R. W., and J. W. Meade. 1993. Effects of sodium and calcium on acute toxicity of un-ionized ammonia to Atlantic salmon and lake trout. *Journal of Applied Aquaculture* 1(4):83-92. [NFRL-Wellsboro]
- Thompson III, F. 1992. Managing Midwest forest ecosystems and wildlife in the 21st Century. Pages 20-31 in T. J. Peterle, ed. 2020 vision: meeting the fish and wildlife conservation challenges in the 21st Century. The Wildlife Society (North Central Chapter), Des Moines, Iowa. [MOCFWRU]
- Travnichek, V. H., A. V. Zale, and W. L. Fisher. 1993. Entrainment of ichthyoplankton by a warmwater hydroelectric facility. *Transactions of the American Fisheries Society* 122(5):709-716. [OKCFWRU]
- Vohs, P. A., I. J. Moore, and J. S. Ramsey. 1993. A critical review of the effects of turbidity on aquatic organisms in large rivers. Environmental Management Technical Center, Onalaska, Wisconsin. 139 pp. [OIT-Fort Collins]
- Weller, R., W. B. Perry, F. Jernejcic, S. Perry. 1991. Improvements in fish populations on the Monongahela River, West Virginia, after reduction of acid mine drainage. *Proceedings of the Annual Conference of the Southeast Association of Fish and Wildlife Agencies* 45:407-414. [WVCFWRU]

## FISH—ANADROMOUS

Hayward, R. S., and J. F. Hiebert. 1993. Low-effort regression estimation of average daily food weight in fishes: application to larval gizzard shad. *Transactions of the American Fisheries Society* 122:834-844. [MOCFWRU]

Johnson, J. H. 1993. Estimating losses to predation of recently released American shad larvae in the Susquehanna River basin (abstract). Page 48-49 in 123rd annual meeting of the American Fisheries Society, Portland, Oregon. American Fisheries Society. [NFRL-Wellsboro]

Johnson, J. H., and D. S. Dropkin. 1993. Predation on recently released larval American shad in the Susquehanna River basin. *North American Journal of Fisheries Management* 12:504-508. [NFRG-Wellsboro]

Ross, R. M., T. W. H. Backman, and R. M. Bennett. 1993. Evaluation of habitat suitability index models for spawning adults, eggs, and larvae of American shad (abstract). Page 48 in 123rd annual meeting of the American Fisheries Society, Portland, Oregon. [NFRL-Wellsboro]

## FISH—COOLWATER

Armour, C. L. 1993. Evaluating temperature regimes for protection of walleye. U.S. Fish and Wildlife Service, Resource Publication 195. 22 pp. [Publications Unit]

Johnson, J. H., and D. S. Dropkin. 1994. Oiscivory by the central stoneroller, *Campostoma anomalum*. *Journal of the Pennsylvania Academy of Science* 66(2):90-91. [NFRI-Wellsboro]

Todd, T. N., and R. C. Haas. 1993. Genetic and tagging evidence for movement of walleyes between Lake Erie and Lake St. Clair. *Journal of Great Lakes Research* 19(2):445-452. [NFGI-Great Lakes]

#### FISH—CULTURE AND HATCHERIES

Bullock, G., J. Hankins, J. Heinen, C. Starliper, and J. Teska. 1993. Qualitative and quantitative bacteriological studies on a fluidized sand biofilter used in a semiclosed trout culture system. U.S. Fish and Wildlife Service, Biological Report 17. 15 pp. [Publications Unit]

Collins, C. B. 1993. Can a catfish producer reduce production and still remain profitable? *Aquaculture Magazine* 19(1):73-74. [NFRG-Stuttgart]

Collins, C. B. 1993. Preparing pond fish for harvest. *Aquaculture Magazine* 19(4):76-79. [NFRG-Stuttgart]

Collins, C. B., and B. R. Griffin. 1993. Control of pest fish in channel catfish culture ponds. *Aquaculture Magazine* 19(5):75-77. [NFRG-Stuttgart]

Collins, C. B., and B. R. Griffin. 1993. Essential fall and winter fish farming activities. *Aquaculture Magazine* 19(6):77-80. [NFRG-Stuttgart]

Hughes, S. G. 1993. Recent advances in Atlantic salmon diets. Pages 175-188 in *Proceedings of the 1992 Atlantic salmon workshop*, Rockland, Maine. [NFRL-Cortland]

Hughes, S. G., C. A. Lemm, and R. L. Herman. 1993. Development of a practical diet for juvenile striped bass. *Transactions of the American Fisheries Society* 121(6):802-809. [NFRL-Cortland]

Johnsen, P. B., and H. K. Dupree. 1992. Feed has little influence on flavor quality of farm-raised catfish. *Aquaculture Magazine* 18(4):71-74. [NFRG-Stuttgart]

Kerby, J. H. 1993. The striped bass and its hybrids. Pages 251-306 in R. R. Stickney, ed. *Culture of non-salmonid freshwater fishes* (2nd edition). CRC Press, Boca Raton, Florida. [NFRL-Leetown]

Krise, W. F., M. N. DiLauro, B. J. Watten, and R. M. Ross. 1993. Comparison of rearing efficiency of rainbow trout in rectangular, circular, and cross-flow rearing tanks (abstract). Page 83-84 in 123rd annual meeting of the American Fisheries Society, Portland, Oregon. [NFRL-Wellsboro]

Ludwig, G. M. 1992. Effects of trichlorofon, fenthion, and diflubenzuron on the zooplankton community and on production of reciprocal-cross hybrid striped bass fry in culture ponds. *Aquaculture* 110(3/4):301-319. [NFRG-Stuttgart]

Parker, N. C. 1992. An aeration tower for aquaculture. *Progressive Fish-Culturist* 54(4):274-277. [NFRG-Marion]

Ross, R. M., B. J. Watten, W. F. Krise, and M. N. DiLauro. 1993. Influence of tank design and culture conditions on the behavior of rainbow trout (abstract). Page 83 in 123rd annual meeting of the American Fisheries Society, Portland, Oregon. [NFRL-Wellsboro]

Rumsey, G. L. 1993. Fish meal and alternate sources of protein in fish feeds—update 1993. *Fisheries* 18(7):14-19. [NFRL-Cortland]

Rumsey, G. L., S. G. Hughes, and R. A. Winfree. 1993. Chemical and nutritional evaluation of soya protein preparations as primary nitrogen sources for rainbow trout (*Oncorhynchus mykiss*). *Animal Feed Science and Technology* 40(1993):135-151. [NFRL-Cortland]

Sample, W. D. 1993. Grading as a means of estimating catfish fingerling numbers. *Aquaculture Magazine* 19(3):81-84. [NFRG-Stuttgart]

Soderberg, R. N., B. J. Watten, R. M. Ross, W. F. Krise, and M. N. DiLauro. 1993. Oxygen consumption and ammonia production of rainbow trout in three different types of rearing units (abstract). Page 84 in 123rd annual meeting of the American Fisheries Society, Portland, Oregon. [NFRL-Wellsboro]

- Soderberg, R. W., J. W. Meade, and L. A. Redell. 1993. Growth, survival, and food conversions of Atlantic salmon reared at four different densities with common water quality. *Progressive Fish-Culturist* 55:29-31. [NFRL-Cortland]
- Stone, N., and G. M. Ludwig. 1993. Hatching rates of golden shiner eggs in tanks. *Progressive Fish-Culturist* 55(1):55-56. [NFRG-Stuttgart]
- Stone, N., and G. M. Ludwig. 1993. Estimating numbers of golden shiner eggs on spawning mats. *Progressive Fish-Culturist* 55(1):53-54. [NFRG-Stuttgart]
- Watten, B. J., and W. J. Ridge. 1993. Evaluation of a multi-stage fluidized bed biological filter for accelerated nitrification and reduced energy demand (abstract). Pages 151-152 in 123rd annual meeting of the American Fisheries Society, Portland, Oregon. [NFRL-Wellsboro]
- Wedemeyer, G. A. 1992. Transporting and handling smolts. *World Aquaculture* 23(4):47-50. [NFRS-Seattle]
- FISH—EXOTIC**
- Bain, M. B. 1993. Assessing impacts of introduced aquatic species: grass carp in large systems. *Environmental Management* 17(2):211-224. [NYCFWRU]
- Li, H. W., and P. B. Moyle. 1993. Management of introduced fishes. Pages 287-307 in C. C. Kohler and W. A. Hubert, eds. *Inland fisheries management in North America*. American Fisheries Society, Bethesda, Maryland. [ORCFRU]
- FISH—GENERAL**
- Bennett, R. M., and R. M. Ross. 1993. Habitat use by newly hatched sea lampreys in the upper Delaware River—abstract. Page 1 in *Sustaining fish predator-prey balances in large lake ecosystems: cultivation versus rehabilitation*. 1993 annual meeting of the New York Chapter of the American Fisheries Society. [NFRL-Wellsboro]
- Dewey, M. R. 1993. Effectiveness of a drop net, pop net, and an electrofishing frame for collecting quantitative samples of juvenile fishes in vegetation. *North American Journal of Fisheries Management* 12(4):808-813. [NFLX-La Crosse]
- Dewey, M. R., and C. A. Jennings. 1992. Habitat use by larval fishes in backwater lake of the upper Mississippi River. *Journal of Freshwater Ecology* 7(4):363-372. [NFLX-La Crosse]
- Dropkin, D. S., and J. H. Johnson. 1993. Cover use by a headwater-stream fish community in northcentral Pennsylvania—abstract. Pages 9 in *Sustaining fish predator-prey balances in large lake ecosystems: cultivation versus rehabilitation*. 1993 annual meeting of the New York Chapter of the American Fisheries Society. [NFRL-Wellsboro]
- Freeman, M. C., and G. D. Grossman. 1993. Effects of habitat availability on dispersion of a stream cyprinid. *Environmental Biology of Fishes* 37(2):121-130. [NERC-Auburn]
- Johnson, J. H., and D. S. Dropkin. 1993. Diel variation in diet composition of a riverine fish community. *Hydrobiologia* 271:149-158. [NFRL-Wellsboro]
- Kinsolving, A. D., and M. B. Bain. 1993. Fish assemblage recovery along a riverine disturbance gradient. *Ecological Applications* 30(3):531-544. [ALCFWRU]
- Lamb, B. L., and B. A. K. Coughlan. 1993. Legal considerations in inland fisheries management. Pages 77-101 in C. C. Kohler and W. A. Hubert, eds. *Inland fisheries management in North America*. American Fisheries Society, Bethesda, Maryland. [NERC-Fort Collins]
- Lookabaugh, P. S., and P. L. Angermeier. 1992. Diet patterns of American eel, *Anguilla rostrata*, in the James River Drainage, Virginia. *Journal of Freshwater Ecology* 7(4):425-431. [VACFWRU]
- Pearsons, T. N., and H. W. Li. 1992. Influence of habitat complexity on resistance to flooding and resilience of stream fish assemblages. *Transactions of the American Fisheries Society* 121:427-436. [ORCFRU]

- Ross, R. M., and R. M. Bennett. 1993. Morphometric differentiation of American shad and white sucker eggs from riverine samples. *Journal of Freshwater Ecology* 8(2):121-125. [NFRRL-Wellsboro]
- Schreck, C. B. 1993. Glucocorticoids: metabolism, growth, and development. Pages 367-392 in M. P. Schreibman, C. G. Scanes, and P. K. T. Pang, eds. *The endocrinology of growth, development, and metabolism in vertebrates*. Academic Press, Inc., San Diego, California. [ORCFRU]
- Scoppettone, G. G. 1993. Interactions between native and nonnative fishes of the upper Muddy River, Nevada. *Transactions of the American Fisheries Society* 122:599-608. [NFRS-Seattle]
- Van Den Avyle, M. J. 1993. Dynamics of exploited fish populations. Pages 105-135 in *Inland fisheries and management in North America*. American Fisheries Society, Bethesda, Maryland. [GACFWRU]
- FISH—GREAT LAKES**
- Argyle, R. L. 1992. Acoustics as a tool for the assessment of Great Lakes forage fishes. *Fisheries Research* 14:179-196. [NFGL-Great Lakes]
- Edsall, T. A., C. L. Brown, G. W. Kennedy, and J. R. P. French, III. 1992. Surficial substrates and bathymetry of five historical lake trout spawning reefs in near-shore waters of the Great Lakes. Great Lakes Fishery Commission, Ann Arbor, Michigan. 53 pp. [NFGL-Great Lakes]
- French, J. R. P., III, and M. T. Bur. 1992. Predation of the zebra mussel (*Dreissena polymorpha*) by freshwater drum in western Lake Erie. Pages 453-464 in T. F. Nalepa and D. W. Schloesser, eds. *Zebra mussels: biology, impacts, and control*. Lewis Publishers, Boca Raton, Florida. [NFGL-Great Lakes]
- Hartman, K. J., B. Vondracek, D. L. Parrish, and K. M. Muth. 1992. Diets of emerald and spottail shiners and potential interactions with other western Lake Erie planktivorous fishes. *Journal of Great Lakes Research* 18(1):43-53. [NFGL-Great Lakes]
- Kincaid, H. L. 1994. Effects of nuclear cataracts on yearling trout stocked in Lake Ontario (abstract). Pages 129 in *International Association for Great Lakes Research: program and abstracts of the 36th conference*, De Pere, Wisconsin. International Association for Great Lakes Research. [NFRRL-Wellsboro]
- Mills, E. L., R. O'Gorman, J. DeGisi, R. F. Heberger, and R. A. House. 1992. Food of the alewife (*Alosa pseudoharengus*) in Lake Ontario before and after the establishment of *Bythotrephes cederstroemi*. *Canadian Journal of Fisheries and Aquatic Sciences* 49:2009-2019. [NFGL-Great Lakes]
- Potter, R. L., and G. W. Fleischer. 1992. Reappearance of spoonhead sculpins (*Cottus ricei*) in Lake Michigan. *Journal of Great Lakes Research* 18(4):755-758. [NFGL-Great Lakes]
- FISH—MARINE**
- DiLauro, M. N., and W. F. Krise. 1993. External morphology of Atlantic sturgeon and lake sturgeon sperm cells (abstract). Pages 62 in *49th annual conference of the Northeastern Association of Fish and Wildlife Agencies*, Atlantic City, New Jersey. New Jersey Division of Fish, Game, and Wildlife. [NFRRL-Wellsboro]
- Haight, W. R., J. D. Parrish, and T. A. Hayes. 1993. Feeding ecology of deepwater lutjanid snappers at Penguin Bank, Hawaii. *Transactions of the American Fisheries Society* 122(3):328-347. [HICFRU]
- Moring, J. R. 1993. Rock gunnels in intertidal waters of Maine. *Maine Naturalist* 1(1):17-26. [MECFWRU]
- Parrish, J. D. 1993. The ecology of fishes on coral reefs—a book review. *Transactions of the American Fisheries Society* 122(3):511. [HICFRU]
- Secor, D. H., E. D. Houde, A. Henderson-Arzapalo, and P. M. Picoli. 1993. Tracking the migrations of estuarine and coastal fishes using otolith microchemistry (C.M. 1993/M:41). International Council for the Exploration of Sea, Copenhagen, Denmark. 16 pp. [NFRRL-Leetown]

West, R. L., M. W. Smith, W. E. Barber, J. B. Reynolds, and H. Hop. 1992. Autumn migration and overwintering of Arctic grayling in coastal streams of the Arctic National Wildlife Refuge, Alaska. *Transactions of the American Fisheries Society* 121:709-715. [AKCFWRU]

#### FISH—NUTRITION

Ketola, H. G. 1992. Fish nutrition. Pages 142-150 in D. O. Schaeffer, K. K. Kleinow, and L. Krulisch, eds. *Proceedings from "the care and use of amphibians, reptiles, and fish in research,"* New Orleans, Louisiana. Scientists Center for Animal Welfare. [NFRL-Cortland]

#### FISH—PHYSIOLOGY

Carlson, R. E., D. P. Anderson, and J. E. Bodammer. 1993. *In vivo* cortisol administration suppresses the *in vitro* primary immune response of winter flounder lymphocytes. *Fish & Shellfish Immunology* 3:299-312. [NFRL-Leetown]

Maule, A. G., C. B. Schreck, and C. Sharpe. 1993. Seasonal changes in cortisol sensitivity and glucocorticoid receptor affinity and number in leukocytes of coho salmon. *Fish Physiology and Biochemistry* 10(6):497-506. [NFRS-Seattle]

#### FISH—SALMONIDS

Fitzpatrick, M. S., C. B. Pereira, and C. B. Schreck. 1993. *In vitro* steroid secretion during early development on mono-sex rainbow trout: sex differences, onset of pituitary control, and effects of dietary steroid treatment. *General and Comparative Endocrinology* 91:199-215. [ORCFRU]

Foster, N. R., D. V. O'Connor, and C. B. Schreck. 1993. Gamete ripening and hormonal correlates in three strains of lake trout. *Transactions of the American Fisheries Society* 122(2):252-267. [NFGL-Great Lakes]

Gadomski, D. M., and J. A. Hall-griswold. 1993. Predation by northern squawfish on live and juvenile chinook salmon. *Transactions of the American Fisheries Society* 121:680-685. [NFRS-Seattle]

Johnson, J. H., and D. S. Dropkin. 1993. Seasonal habitat use by brook trout in a second-order stream (abstract). Page 80 in 123rd annual meeting of the American Fisheries Society, Portland, Oregon. American Fisheries Society. [NFRL-Wellsboro]

Kincaid, H. L., and G. T. Calkins. 1993. Retention of visible implant tags in lake trout and Atlantic salmon. *Progressive Fish-Culturist* 54:163-170. [NFRL-Wellsboro]

Krise, W. F., B. J. Watten, M. N. DiLauro, and M. B. Timmons. 1993. Effects of suspended organic solids on the growth and blood chemistry of rainbow trout (abstract). Page 103 in 123rd annual meeting of the American Fisheries Society, Portland, Oregon. American Fisheries Society. [NFRL-Wellsboro]

Krise, W. F., L. A. Redell, and M. N. DiLauro. 1993. Effects of high density and loading sexually mature lake trout (abstract). Page 187 in 123rd annual meeting of the American Fisheries Society, Portland, Oregon. American Fisheries Society. [NFRL-Wellsboro]

Maule, A. G., C. B. Schreck, and C. Sharpe. 1993. Seasonal changes in cortisol sensitivity and glucocorticoid receptor affinity and number in leukocytes of coho salmon. *Fish Physiology and Biochemistry* 10(6):497-506. [ORCFRU]

Moring, J. R. 1993. Records of long-range downstream movements of stocked rainbow trout (*Oncorhynchus mykiss*). *Fisheries Research* 16(2):195-199. [MECFWRU]

Moring, J. R. 1993. Effect of angling effort on catch rate of wild salmonids in streams stocked with catchable-size trout. *North American Journal of Fisheries Management* 13(2):234-237. [MECFWRU]

Pascho, R. J., D. G. Elliott, and S. Achord. 1993. Monitoring of the in-river migration of smolts from two groups of spring chinook salmon, *Oncorhynchus tshawytscha* (Walbaum), with

- different profiles of *Renibacterium salmonarum* infection. Aquaculture and Fisheries Management 24:163-169. [NFRS-Seattle]
- Roberts, B. C., and R. G. White. 1993. Effects of angler wading on survival of trout eggs and pre-emergent fry. North American Journal of Fisheries Management 12:450-459. [MTCFRU]
- Rottiers, D. V. 1993. Relationship between the amount of bone, major cations, and body size in Atlantic salmon, *Salmo salar*. Copeia 1993(2):440-446. [NFRL-Wellsboro]
- Rottiers, D. V. 1993. Elemental composition of a migratory and a land-locked strain of Atlantic salmon (*Salmo salar*). Comparative Biochemistry and Physiology 104(1):93-100. [NFRL-Wellsboro]
- Rottiers, D. V., and L. A. Redell. 1993. Volitional migration of Atlantic salmon from seasonal holding ponds. North American Journal of Fisheries Management 13(91500):238-252. [NFRL-Wellsboro]
- Savino, J. F., M. G. Henry, and H. L. Kincaid. 1993. Factors affecting feeding behavior and survival of juvenile lake trout in the Great Lakes. Transactions of the American Fisheries Society 122(3):366-377. [NFGL-Great Lakes]
- FISH—WARMWATER**
- Armour, C. L. 1993. Evaluating temperature regimes for protection of smallmouth bass. U.S. Fish and Wildlife Service, Resource Publication 191. 26 pp. [Publications Unit]
- Carpenter, J., and O. E. Maughan. 1993. Macrohabitat of Sonora chub (*Gila ditaenia*) in Sycamore Creek, Santa Cruz County, Arizona. Journal of Freshwater Ecology 8(4):265-278. [NERC-Fort Collins]
- Chipps, S. R., W. B. Perry, and S. A. Perry. 1993. Status and distribution of *Phenacobius terestrius*, *Etheostoma osturni*, *Rhinichthys bowersi* in the Monongalia National Forest, West Virginia. Virginia Journal of Science 44(1):47-58. [WVCFRU]
- Coble, D. W. 1992. Predicting population density of largemouth bass from electrofishing catch per effort. North American Journal of Fisheries Management 12(3):650-652. [WICFRU]
- Hartley, R. A., and J. R. Moring. 1993. Observations of black bass (Centrarchidae) confined during angling tournaments: a cautionary note concerning dissolved oxygen. Aquaculture and Fisheries Management 24:575-579. [MECFWRU]
- Jennings, C. A., and D. M. Wilson. 1993. Spawning activity of paddlefish (*Polyodon spathula*) in the lower Black River, Wisconsin. Journal of Freshwater Ecology 8(3):261-262. [NFLX-La Crosse]
- Pardue, G. B. 1993. Life history and ecology of the mud sunfish (*Acantharchus pomotis*). Copeia 1993(2):533-540. [NFRL-Wellsboro]
- Rabeni, C. F. 1992. Trophic linkage between stream centrarchids and their crayfish prey. Canadian Journal of Fisheries and Aquatic Sciences 40:1714-1721. [MOCFWRU]
- Tave, D., J. E. Johnson, D. Bowman, M. Pardew, M. D. Gibson, J. Barnett, D. H. Fiegel, and B. F. Beavers. 1993. Meristics and morphometrics of golden shiner, *Notemigonus crysoleucas*, rudd, *Scardinius erythrophthalmus*, and their reciprocal F1 hybrids. Journal of Applied Aquaculture 2(2):51-61. [ARCFRU]
- Twedt, D. J., W. C. Guest, and B. W. Farquhar. 1991. Selective dipnetting of largemouth bass during electrofishing. North American Journal of Fisheries Management 12:609-611. [NWRC-Lafayette]
- Weathers, K. C., and M. B. Bain. 1993. Smallmouth bass in the shoals reach of the Tennessee River: population characteristics and sport fishery. North American Journal of Fisheries Management 12(4):528-537. [NYCFRU]

## FISH AND WILDLIFE MANAGEMENT

- Douglas, A. J., and R. L. Johnson. 1993. Harvesting and replenishment policies for renewable natural resources. *Journal of Environmental Management* 1993(38):27-42. [NERC-Fort Collins]
- Kantrud, H. A., R. R. Koford, D. H. Johnson, and M. D. Schwartz. 1993. The Conservation Reserve Program: good for birds of many feathers. *North Dakota Outdoors* 56(2):14-17. [NPWR-Jamestown]
- Nilon, C. H. 1992. Urban wildlife management in 2020. Pages 55-66 in T. J. Peterle, ed. 2020 vision: meeting the fish and wildlife conservation challenges of the 21st Century. The Wildlife Society (North Central Chapter), Des Moines, Iowa. [MOCFWRU]

## FISHERY CHEMICALS

- Bills, T. D., L. L. Marking, and G. E. Howe. 1993. Sensitivity of juvenile striped bass to chemicals used in aquaculture. U.S. Fish and Wildlife Service, Resource Publication 192. 11 pp. [Publications Unit]
- Fredericks, K. T., W. H. Gingerich, and D. C. Fater. 1993. Comparative cardiovascular effects of four fishery anesthetics in spinally transected rainbow trout, *Oncorhynchus mykiss*. *Comparative Biochemistry and Physiology* 104(3):477-483. [NFLX-La Crosse]
- Jeney, G., and D. P. Anderson. 1993. An *in vitro* technique for surveying immunostimulants in fish. *Aquaculture* 112:283-287. [NFRL-Leetown]
- Lemm, C. A. 1993. Evaluation of five anesthetics on striped bass. U.S. Fish and Wildlife Service, Resource Publication 196. 10 pp. [Publications Unit]
- Ross, R. M., T. W. H. Backman, and R. M. Bennett. 1993. Evaluation of the anesthetic metomidate for the handling and transport of juvenile American shad. *Progressive Fish-Culturist* 55(4):236-243. [NFRL-Wellsboro]

## GENETICS

- Kincaid, H. L., C. C. Krueger, and B. May. 1993. Preservation of genetic variation in the Green Lake strain lake trout derived from remnant domestic and feral populations. *North American Journal of Fisheries Management* 13:318-325. [NFRL-Wellsboro]

- Oakey, D. D., L. G. Talent, and O. E. Maughan. 1993. Genetic structure of a founding white crappie population (Teleostei: *Pomoxis annularis*) in an Oklahoma stream. *Southwestern Naturalist* 38(3):246-251. [OKCFWRU]

## HSI MODELS, SPECIES PROFILES, COMMUNITY PROFILES, ESTUARINE PROFILES

- Fitzgerald, E. C., and C. H. Nilon. 1993. Testing the accuracy of an HSI model in an urban county. *Transactions of the North American Wildlife and Natural Resources Conference* 58:117-123. [MOCFWRU]

- Schroeder, R. L., and S. L. Haire. 1993. Guidelines for the development of community-level habitat evaluation models. U.S. Fish and Wildlife Service, Biological Report 8. 8 pp. [Publications Unit]

- Seng, P. T., and E. P. Wiggers. 1993. Comparison of the HSI model and WHAG evaluation procedures for tree squirrels. *Proceedings of the Annual Conference of the Southeastern Association of Fisheries and Wildlife Agencies* 45:140-147. [MOCFWRU]

- Thomas, J. A., and K. D. Bovee. 1993. Application and testing of a procedure to evaluate transferability of habitat suitability criteria. *Regulated Rivers* 8:285-294. [NERC-Fort Collins]

## INSTREAM FLOWS, WATER ALLOCATION, WATER RESOURCES

- Angermeier, P. L., R. J. Neves, and J. W. Kauffman. 1993. Protocol to rank value of biotic resources in Virginia streams. *Rivers* 4(1):20-29. [VACFWRU]

- Bingham, J. L., and G. A. Gould. 1992. Opportunities to protect instream flows and wetland uses of water in Nevada. U.S. Fish and Wildlife Service, Resource Publication 189. 33 pp. [Publications Unit]
- Douglas, A. J., and R. L. Johnson. 1993. Instream flow assessment and economic valuation: a survey of nonmarket benefits research. International Journal of Environmental Studies 43:89-104. [NERC-Fort Collins]
- Edsall, T. A., and J. E. Gannon. 1993. A profile of the St. Mary's River. Michigan Sea Grant Communications, Ann Arbor, Michigan. 20 pp. [NFGI-Great Lakes]
- Freeman, M. C., and J. H. Crane. 1993. Evaluating impacts of stream flow alteration on warmwater fishes. Pages 303-305 in K. J. Hatcher, ed. Proceedings of the 1993 Georgia water resources conference, Athens, Georgia. Institute of Natural Resources, University of Georgia. [NERC-Auburn]
- Harpman, D. A., E. W. Sparling, and T. J. Waddle. 1993. A methodology for quantifying and valuing the impacts of flow changes on a fishery. Water Resources Research 29(3):575-582. [NERC-Fort Collins]
- Jones, J. R., and M. F. Knowlton. 1993. Limnology of Missouri reservoirs: an analysis of regional patterns. Lake and Reservoir Management 8(1):17-30. [MOCFWRU]
- Lamb, B. L. 1992. Water resources management: in search of an environmental ethic—a book review. Environmental Professional 14:371-373. [NERC-Fort Collins]
- Lamb, B. L. 1993. The public trust doctrine: a tool to protect instream flows. River Voices (Summer 1993): 10, 11, 18. [NERC-Fort Collins]
- Lamb, B. L. 1993. Quantifying instream flows: matching policy and technology. Pages 7-1 to 7-22 in L. J. MacDonnell and T. A. Rice, eds. Instream flow protection in the West. Revised edition. Natural Resources Law Center, Boulder, Colorado. [NERC-Fort Collins]
- LaPerriere, J. D. 1993. Improved methods and access cast doubts on historical records of an Alaskan lake group. Verhandlungen Internationale Vereinigung Limnologie 25:293-296. [AKCFWRU]
- Raben, C. F. 1993. Warmwater streams. Pages 427-443 in Inland fisheries management in North America. American Fisheries Society, Bethesda, Maryland. [MOCFWRU]
- Raben, C. F. 1992. Habitat evaluation in a watershed context. Pages 57-67 in R. H. Stroud, ed. American Fisheries Society Symposium 13, fisheries management and watershed development. American Fisheries Society, Bethesda, Maryland. [MOCFWRU]
- Raben, C. F., and R. B. Jacobson. 1993. The importance of fluvial hydraulics to fish-habitat restoration to low-gradient Alluvial streams. Freshwater Biology 29:211-220. [MOCFWRU]
- Scott, M. L., M. A. Wondzell, and G. T. Auble. 1993. Hydrograph characteristics relevant to the establishment and growth of western riparian vegetation. Pages 237-246 in H. J. Morel-Seytoux, ed. Proceedings of the thirteenth annual American Geophysical Union hydrology days, Atherton, California. Hydrology Day Publications. [NERC-Fort Collins]
- Taylor, J. T. 1993. An instream flow recreation handbook—a book review. Rivers 4(2):156-159. [NERC-Fort Collins]
- Waddle, T. 1993. Managing reservoir storage for instream flow. Pages 79-82 in K. Hon, ed. Water management in the '90's" A time for innovation. Proceedings of the 20th anniversary conference, Tacoma-Olympia, Washington. American Society of Civil Engineers, New York, New York. [NERC-Fort Collins]
- Williamson, S. C., J. M. Bartholow, and C. B. Stalnaker. 1993. Conceptual model for quantifying pre-smolt production from flow-dependent physical habitat and water temperature. Regulated Rivers: Research [Management 8:15-28. [NERC-Fort Collins]

## INVERTEBRATES

Davis, C. A., and P. A. Vohs. 1993. Availability of earthworms and scarab beetles to sandhill cranes in native grasslands along the Platte River. *Prairie Naturalist* 25(3):199-212. [IACFWU]

Griffith, M. B., and S. A. Perry. 1993. The distribution of macroinvertebrates in the hyporheic zone of two small Appalachian headwater streams. *Archiv fur Hydrobiologie* 126(3):373-384.

[WVCFWRU]

Griffith, M. B., and S. A. Perry. 1993. Colonization and processing of leaf litter by macroinvertebrate shredders in streams on contrasting pH. *Freshwater Biology* 30:93-103.

[WVCFWRU]

Kirk, E. J., and S. A. Perry. 1993. Differences in macroinvertebrate taxa richness and density between samplers located along the shoreline and inside the navigation channel of the Kanawha River, West Virginia. *Journal of Freshwater Ecology* 8(1):77-79. [WVCFWRU]

Kobuszewski, D. M., and S. A. Perry. 1993. Aquatic insect community structure in an acidic and a circumneutral stream in the Appalachian Mountains of West Virginia. *Journal of Freshwater Ecology* 8(1):37-45. [WVCFWRU]

Layzer, J. B., M. E. Gordon, and R. M. Anderson. 1993. Mussels, the forgotten fauna of regulated rivers: a case study of the Caney Fork River. *Regulated Rivers: Research & Management* 8(12):63-71. [TNCFRU]

Nichols, S. J. 1992. Maintenance of the zebra mussel (*Dreissena polymorpha*) under laboratory conditions. Pages 733-747 in T. F. Nalepa and D. W. Schloesser, eds. *Zebra mussels: biology, impacts, and control*. Lewis Publishers, Boca Raton, Florida. [NFGL-Great Lakes]

Nichols, S. J. 1992. Spawning of zebra mussels (*Dreissena polymorpha*) and rearing of veligers under laboratory conditions. Pages 315-329 in T. F. Nalepa and D. W. Schloesser, eds. *Zebra mussels: biology, impacts, and control*. Lewis Publishers, Boca Raton, Florida. [NFGL-Great Lakes]

Opler, P. A. 1993. Conservation of butterfly diversity in North America (abstract). Pages n.p. in *Ecology and conservation of butterflies*. Keele University, Staffordshire, United Kingdom. [OIT-Fort Collins]

Opler, P. A. 1994. First guide to butterflies and moths (R. T. Peterson First Guide Series). Houghton Mifflin Company, Boston, Massachusetts. [Order from Publisher]

Opler, P. A. 1991. Invertebrates—a book review. *Wildlife Review* 222:272. [OIT-Fort Collins]

Opler, P. A. 1993. Butterflies east and west—a book to color. Roberts Rinehart, Niwot, Colorado. 96 pp. [Order from Publisher]

Peigler, R. S., and P. A. Opler. 1993. Moths of western North America 1. Distribution of Saturniidae of western North America. Contributions of the C. P. Gillette Insect Biodiversity Museum. Department of Entomology, Colorado State University, Fort Collins, Colorado 80523. 24 pp. [Order from Publisher]

Ram, J. L., and S. J. Nichols. 1992. Chemical regulation of spawning in the zebra mussel (*Dreissena polymorpha*). Pages 307-314 in T. F. Nalepa and D. W. Schloesser, eds. *Zebra mussels: biology, impacts, and control*. Lewis Publishers, Boca Raton, Florida. [NFGL-Great Lakes]

Stanford, R. E., and P. A. Opler. 1993. Atlas of western USA butterflies including adjacent parts of Canada and Mexico. Ray E. Stanford and Paul A. Opler, Denver, Colorado. 285 pp. [Contact OIT for Ordering Information]

Swengel, A. B., and P. A. Opler (editors). 1993. Fourth of July butterfly counts—1992. Xerces Society, Portland, Oregon. 80 pp. [OIT-Fort Collins]

Woody, C. A., and L. Holland-Bartels. 1993. Reproductive characteristics of a population of the washboard mussel *Megalonaia nervosa* (Rafinesque 1820) in the upper Mississippi River. *Journal of Freshwater Ecology* 8(1):57-66. [NFLX-La Crosse]

## MAMMALS

- Allen, S. H., and A. B. Sargeant. 1993. Dispersal patterns of red foxes relative to population density. *Journal of Wildlife Management* 57(3):526-533. [NPWR-Jamestown]
- Bailey, E. P. 1993. Introduction of foxes to Alaskan islands—history, effects of avifauna, and eradication. U.S. Fish and Wildlife Service, Resource Publication 193. 53 pp. [Publications Unit]
- Clark, B. S., D. M. Leslie, Jr., and T. S. Carter. 1993. Foraging activity of adult female Ozark big-eared bats (*Plecotus townsendii ingens*) in summer. *Journal of Mammalogy* 74(2):422-427. [OKCFWRU]
- DelGiudice, G. D., J. Stone, L. D. Mech, and U. S. Seal. 1992. Nutritional indices of wild mammals: a new direction for wildlife and habitat management systems. Pages 541-546 in B. Bobek, K. Perzanowski, and W. L. Regelin, eds. Global trends in wildlife management. 18th International Union for Game Birds Congress, Jagiellonian University, Krakow, Poland. [PWRC-Patuxent]
- DelGiudice, G. D., J. Stone, L. D. Mech, and U. S. Seal. 1992. Sampling considerations involved with monitoring the nutritional status of gray wolves *Canis lupus* via biochemical analysis of snow-urine. Pages 35-38 in B. Bobek, K. Perzanowski, and W. L. Regelin, eds. Global trends in wildlife management. 18th International Union for Game Birds Congress, Jagiellonian University, Krakow, Poland. [PWRC-Patuxent]
- Estes, J. A., G. B. Rathbun, and G. R. VanBlaricom. 1993. Paradigms for managing carnivores: the case of the sea otter. *Symposia of the Zoological Society of London* 65:307-320. [NERC-Santa Cruz]
- Fritzell, E. K. 1992. Population phenomena and rehabilitated mammals. Pages 145-157 in D. R. Ludwig, ed. *Wildlife rehabilitation*, volume 9. Wildlife Rehabilitators Association, Schaumburg, Illinois. [MOCFWRU]
- Hansen, M. C., G. W. Garner, and S. G. Fancy. 1992. Comparison of 3 methods for evaluating activity of Dall's sheep. *Journal of Wildlife Management* 56(4):661-668. [ORCWRU]
- Jameson, R. J., and A. M. Johnson. 1993. Reproductive characteristics of female sea otters. *Marine Mammal Science* 9(2):156-167. [NERC-San Simeon]
- Klein, D. R., G. D. Yakushkin, and E. B. Pospelova. 1993. Comparative habitat selection by muskoxen introduced to northeastern Alaska and the Taimyr Peninsula, Russia. *Rangifer* 13(1):21-25. [AKCFWRU]
- Knick, S. T., E. C. Hellgren, and U. S. Seal. 1993. Hematological, biochemical, and endocrine characteristics of bobcats during a prey decline in southeastern Idaho. *Canadian Journal of Zoology* 71(7):1448-1453. [MTCWRU]
- Krohn, W. B., and K. D. Elowe. 1993. Understanding a harvested fisher population—do the pieces fit? *Maine Fish and Wildlife Magazine* 35(3):6-11. [MECFWRU]
- Loggers, C. O. 1992. Population characteristics of dorcas gazelles in Morocco. *African Journal of Ecology* 30:301-308. [MTCWRU]
- McCarthy, T. J., A. L. Gardner, and C. O. Handley, Jr. 1992. *Tonatia carrikeri*. *Mammalian Species* 407:1-4. [NERC-Washington D.C.]
- McMurry, S. T., R. L. Lochmiller, J. F. Boggs, D. M. Leslie, Jr., and D. Engle. 1993. Woodrat population dynamics following modification of resource availability. *American Midland Naturalist* 129(2):248-256. [OKCFWRU]
- McMurry, S., R. L. Lochmiller, J. F. Boggs, D. M. Leslie Jr., and D. M. Engle. 1993. Opportunistic foraging of eastern woodrats (*Neotoma floridana*) in manipulated habitats. *American Midland Naturalist* 130:325-337. [OKCFWRU]
- Mech, L. D. 1993. Details of a confrontation between two wild wolves. *Canadian Journal of Zoology* 71:1900-1903. [PWRC-Patuxent]

- Mech, L. D. 1993. Wolf recovery in the Lake Superior Region: a howling success for the Endangered Species Act. Pages 6-7 in E. A. Knight, ed. International Wolf. International Wolf, Brooklyn, New York. [PWRC-Patuxent]
- Mech, L. D., T. J. Meier, and U. S. Seal. 1993. Wolf nipple measurements as indices of age and breeding status. American Midland Naturalist 129(2):266-271. [PWRC-patuxent]
- Nelson, M. E. 1993. Natal dispersal and gene flow in white-tailed deer in northeastern Minnesota. Journal of Mammalogy 74(2):316-322. [PWRC-Patuxent]
- O'Shea, T. J., B. B. Ackerman, and H. F. Percival (editors). 1992. Interim report of the technical workshop on manatee population biology. Florida Cooperative Fish and Wildlife Research Unit, Gainesville, Florida. 83 pp. Manatee Population Research Report 10. [NERC-Fort Collins]
- Rathbun, G. B. 1993. Manatees and dugongs—a book review. Marine Mammal Science 9(1):114-115. [NERC-San Simeon]
- Reichel, J. D. 1991. Relationships among coyote food habits, prey populations, and habitat use. Northwest Science 65(3):133-137. [MTCWRU]
- Shaw, J. H., W. McAbee, T. S. Carter, and D. M. Leslie, Jr. 1993. Assessment of black-tailed prairie dog colonies for reintroduction of black-footed ferrets in western Oklahoma. Proceedings of the Oklahoma Academy of Science 73:47-52. [OKCFWRU]
- Soper, R. B., R. L. Lochmiller, D. M. Leslie, Jr., and D. M. Engle. 1993. Condition and diet quality of white-tailed deer in response to vegetation management in central Oklahoma. Proceedings of the Oklahoma Academy of Science 73:53-61. [OKCFWRU]
- Stuart, J. N., and N. J. Scott, Jr. 1992. Range extension of the northern pygmy mouse, *Baiomys taylori*, in New Mexico. Texas Journal of Science 44(4):487-489. [NERC-Albuquerque]
- Tobin, M. E., and M. E. Richmond. 1993. Vole management in fruit orchards. U.S. Fish and Wildlife Service, Biological Report 5. 18 pp. [NYCFWRU]
- Tumlison, R. 1993. Geographic variation in the lappet-eared bat, *Idionycteris phyllotis*, with descriptions of subspecies. Journal of Mammalogy 74(2):412-421. [OKCFWRU]
- VanBlaricom, G. R., and R. A. Hardy. 1992. Sea otter. Pages 216-219 in W. S. Leet, C. M. Dewees, and C. W. Haugen, eds. California's living marine resources and their utilization, second edition. California Department of Fish and Game, Sacramento, California. [NERC-San Simeon]
- Wiggers, E. P., and S. F. Beckerman. 1993. Use of thermal infrared sensing to survey white-tailed deer populations. Wildlife Society Bulletin 21(3):263-268. [MOCFWRU]
- Zwank, P. J., J. A. Zeno, and J. A. Jenks. 1992. Birth characteristics and body growth of white-tailed deer fawns. Louisiana Academy of Science 55:15-20. [NMCFWRU]

## MISCELLANEOUS

- Allen, J. A. 1993. From backwater to mainstream? Journal of Forestry 91(11):68. [NWRC-Lafayette]
- Andrews, A., J. Beier, P. Cronenwett, C. Hanson, P. Kellar, N. Liston, P. McCarthy, and T. Sexson. 1992. Arctic information and data: a guide to selected resources. Arctic Research Consortium of the United States, Fairbanks, Alaska. 50 pp. [ARCUS-Fairbanks]
- Berry, C. R., K. F. Higgins, and G. Krull. 1993. Valuation of hay and bait fish harvested from privately-owned South Dakota wetlands. Proceedings of the South Dakota Academy of Science 71:37-44. [SDCFWRU]

- Carr, R. S., and D. C. Chapman. 1992. Comparison of solid-phase and pore-water approaches for assessing the quality of marine and estuarine sediments. *Chemistry and Ecology* 7:19-30. [NFCR-Corpus Christi]
- Coughlan, B. A. K., N. Burkardt, and D. Fulton. 1993. Assessing the "need to negotiate" in FERC licensing consultations: a study of two hydropower projects. *Environmental Impact Assessment Review* 13(6):331-351. [NERC-Fort Collins]
- Douglas, A. J., and R. L. Johnson. 1992. Congestion and recreation site demand: a model of demand-induced quality effects. *Journal of Environmental Management* 36:201-213. [NERC-Fort Collins]
- Dunn, C. P., D. M. Sharpe, G. R. Guntenspergen, F. Stearns, and Z. Yang. 1991. Methods for analyzing temporal changes in landscape pattern. Pages 173-198 in M. G. Turner and R. H. Garner, eds. Quantitative methods in landscape ecology. *Ecological studies, Volume 82*. Springer-Verlag, Inc, New York, New York. [NWRC-Lafayette]
- Dunn, C. P., F. Stearns, G. R. Guntenspergen, and D. M. Sharpe. 1993. Ecological benefits of the Conservation Reserve Program. *Conservation Biology* 7(1):132-139. [NWRC-Lafayette]
- Foote, A. L., V. Burkett, and S. J. Williams. 1993. Natural resource problem solving: an interdisciplinary approach in coastal Louisiana. Pages 258-266 in O. T. Magoon, W. S. Wilson, H. Converse, and L. T. Tobin, eds. *Coastal zone '93: proceedings of the 8th symposium on coastal and ocean management*, New Orleans, Louisiana. American Society of Civil Engineers, New York, New York. [NWRC-Lafayette]
- French, J. R. P., III. 1993. How well can fishes prey on zebra mussels in eastern North America? *Fisheries* 18(6):13-19. [NFGL-Great Lakes]
- Fritzell, E. K., and I. R. Adelman. 1992. Fisheries and wildlife education in the 21st Century. Pages 78-92 in T. J. Peterle, ed. 2020 vision: meeting of the fish and wildlife conservation challenges of the 21st Century. The Wildlife Society (North Central Chapter), Des Moines, Iowa. [MOCFWRU]
- Gee, G. F., C. A. Morrell, J. C. Franson, and O. H. Pattee. 1993. Cryopreservation of American kestrel semen with dimethylsulfoxide. *Journal of Raptor Research* 27(1):21-25. [PWRC-Patuxent]
- Grace, J. B. 1993. The effects of habitat productivity on competition intensity. *Trends in Ecology and Evolution* 8(7):229-230. [NWRC-Lafayette]
- Johnson, D. H. 1993. Chance, chaos, and more—a book review. *Prairie Naturalist* 25(4):359-360. [NPWR-Jamestown]
- Kolz, A. L. 1993. In-water electrical measurements for evaluating electrofishing systems. U.S. Fish and Wildlife Service, Biological Report 11. 24 pp. [Publications Unit]
- Kurzejeski, E. W., L. W. Burger, Jr., M. J. Monson, and R. Lenkner. 1992. Wildlife conservation attitudes and land use intentions of Conservation Reserve Program participants in Missouri. *Wildlife Society Bulletin* 20(3):253-259. [MOCFWRU]
- Luttschwager, K. A., and K. F. Higgins. 1992. Nongame bird, game bird, and deer use of Conservation Reserve Program fields in eastern South Dakota. *Proceedings of the South Dakota Academy of Science* 71:31-36. [SDCFWRU]
- Mason, W. T., Jr. 1993. Tally rack: an inexpensive counting device. *Journal of Freshwater Ecology* 8(2):189-191. [NFRG-Gainesville]
- Meadows, J., D. Tillitt, J. Huckins, and D. Schroeder. 1993. Large-scale dialysis of sample lipids using a semipermeable membrane device. *Chemosphere* 26(11):1993-2006. [NFCR-Columbia]

- Meyers, J. M., and K. L. Pardieck. 1992. Evaluation of three elevated mist-net systems for sampling birds. *Journal of Field Ornithology* 64(2):270-277. [PWRC-Palmer]
- Nichols, J. D. 1993. Techniques for wildlife investigations—a book review. *Journal of Mammalogy* 74(1):244-247. [PWRC-Patuxent]
- Niemela, S. L., J. B. Layzer, and J. A. Gore. 1993. An improved radiotelemetry method for determining use of microhabitats. *Rivers* 4(1):30-35. [TNCFRU]
- Opler, P. A. 1993. What to do about species names: a bibliographic guide. *CBE Views* 16(4):79-80. [OIT-Fort Collins]
- Parsley, M. J. 1993. Use of a raster-structured GIS in fisheries research activities on the Columbia River. Pages 74-81 in The third national U.S. Fish and Wildlife Service Geographic Information Systems workshop. [NFRS-Seattle]
- Petty, J. D., J. N. Huckins, and J. L. Zajicek. 1993. Application of semipermeable membrane devices (spmd's) as passive air samplers. *Chemosphere* 27(9):1609-1624. [NFCR-Columbia]
- Pimentel, D., J. Allen, A. Beers, L. Guinand, A. Hawkins, R. Linder, P. McLaughlin, B. Meer, D. Musonda, D. Perdue, S. Poisson, R. Salazar, S. Siebert, and K. Stoner. 1993. Soil erosion and agricultural productivity. Pages 277-292 in D. Pimentel, ed. *World soil erosion and conservation*. Cambridge University Press, Cambridge, Massachusetts. [NWRC-Lafayette]
- Roelle, J. E., and K. M. Manci. 1993. Postproject analyses of fish and wildlife mitigation. Pages 574-591 in S. E. Hildebrand and J. B. Cannon, eds. *The scientific challenges of NEPA: future directions based on 20 years of experience*. Lewis Publishers, Boca Raton, Florida. [NERC-Fort Collins]
- Schmidt-Dallmier, M. J., and G. J. Atchison, M. T. Steingraeber, and B. C. Knights. 1992. A sediment suspension system for bioassays with small aquatic organisms. *Hydrobiologia* 245:157-161. [NFLX-La Crosse]
- Shafrroth, P. B., M. L. Scott, J. Friedman, and R. D. Laven. 1993. Reproduction of an exotic riparian tree willow, *Salix fragilis* (L.) in Colorado. Pages 718-723 in M. C. Landin, ed. *Wetlands: proceedings of the 13th annual conference of the Society of Wetland Scientists*, New Orleans, Louisiana. Society for Wetland Scientists, Utica, Mississippi. [NERC-Fort Collins]
- Taylor, J. 1993. Interdisciplinary interaction: crossing boundaries. Pages 181-187 in S. D. Wright, T. Dietz, R. Borden, G. Young, and G. Guagnano, eds. *Human ecology: crossing boundaries*. The Society for Human Ecology, Fort Collins, Colorado. [NERC-Fort Collins]
- Taylor, J. G., and N. Burkhardt. 1993. Introduction: the greater Yellowstone ecosystem—biosphere reserves and economics. *Society and Natural Resources* 6:105-108. [NERC-Fort Collins]
- Wangaard, D. B., J. P. McDonell, C. V. Burger, and R. L. Wilmot. 1991. Apparatus for precise regulation and chilling of water temperatures in laboratory studies. *Progressive Fish-Culturist* 53(4):251-255. [NFCR-Anchorage]
- ## PLANNING AND SYSTEM ANALYSIS
- Williamson, S. C. 1993. Cumulative impacts assessment and management planning: lessons learned to date. Pages 391-407 in S. G. Hildebrand and J. B. Cannon, eds. *Environmental analysis: the NEPA experience*. Lewis Publishers, Boca Raton, Florida. [NERC-Fort Collins]
- ## PLANTS
- Kantrud, H. A. 1992. History of cattails on the prairies: wildlife impacts. Pages 9-12 in G. M. Linz, ed. *Proceedings of the cattail management symposium*, Fargo, North Dakota. U.S. Department of Agriculture. [NPWR-Jamestown]
- Laubhan, M. 1992. A technique for estimating seed production of common moist-soil plants. U.S. Fish and Wildlife Service, Fish and Wildlife Leaflet 13(4.5). 8 pp. [Publications Unit]

- Neckles, H. A. 1992. The role of epiphytes. Pages 70-78 in A. W. Hart, ed. Proceedings and conclusions for the submerged aquatic vegetation initiative, Indialantic, Florida. Indian River Lagoon National Estuary Program. [NWRC-Lafayette]
- Quammen, M. L., and C. P. Onuf. 1993. Laguna Madre: seagrass changes continue decades after salinity reduction. *Estuaries* 16(2):302-310. [NWRC-Lafayette]
- Rizzo, W. M., G. L. Lackey, and R. R. Christian. 1992. Significance of euphotic, subtidal sediments to oxygen and nutrient cycling in a temperate estuary. *Marine Ecology Progress Series* 86:51-61. [NWRC-Lafayette]
- Soper, R. B., R. L. Lochmiller, D. M. Leslie, Jr., and D. M. Engle. 1993. Nutritional quality of browse after brush management on cross timbers. *Journal of Range Management* 46(5):399-410. [OKCFWRU]
- WETLANDS—ECOLOGY AND MANAGEMENT**
- Allen, J. A. 1992. Cypress-tupelo swamp restoration in southern Louisiana. *Restoration and Management Notes* 10(2):188-189. [NWRC-Lafayette]
- Auble, G. T., and E. A. Bokman. 1993. Normal years in wetland delineation. Pages 730-734 in M. C. Landin, ed. *Proceedings of the 13th annual conference of the Society of Wetland Scientists*, New Orleans, Louisiana. Society of Wetland Scientists (Central Chapter), Utica, Mississippi. [NERC-Fort Collins]
- Cowardin, L. M., and H. T. Sklebar. 1993. Monitoring wetland change with aerial video (abstract). Page 5 in N. H. Euliss, Jr., ed. *Wetland symposium. Prairie ecosystems: wetland ecology, management and restoration*. Northern Prairie Wildlife Research Center, Jamestown, North Dakota. [NPWR-Jamestown]
- Eldridge, J. 1990. *Ecology of northern prairie wetlands*. U.S. Fish and Wildlife Service, Fish and Wildlife Leaflet 13(3.5). 7 pp. [Publications Unit]
- Euliss, N. H., Jr., D. M. Mushet, and D. H. Johnson. 1993. Use of macroinvertebrates to identify and delineate temporary and seasonal wetlands in the prairie pothole region (abstract). Pages 10-11 in N. H. Euliss, Jr., ed. *Wetland symposium. Prairie ecosystems: wetland ecology, management and restoration*. Northern Prairie Wildlife Research Center, Jamestown, North Dakota. [NPWR-Jamestown]
- Graziano, A. V., and D. H. Cross. 1993. *The North American Waterfowl Management Plan: a new approach to wetland conservation*. U.S. Fish and Wildlife Service, Fish and Wildlife Leaflet 13(2.2). 7 pp. [Publications Unit]
- Guntenspergen, G. R., A. L. Foote, and E. C. Pendleton. 1993. Experiment to determine value of impoundments and hydrologic manipulation in restoration of Louisiana coastal wetlands. *Restoration and Management Notes* 11(1):64-65. [NWRC-Lafayette]
- Ischinger, L. S. 1993. Functions and values of western riparian ecosystems. Pages 711-714 in M. C. Landin, eds. *Wetlands: proceedings of the 13th annual conference of the Society of Wetland Scientists*, New Orleans, Louisiana. Society of Wetland Scientists (south central), Utica, Mississippi. [NERC-Fort Collins]
- Jennings, C. A., P. A. Vohs, and M. R. Dewey. 1992. Classification of a wetland area along the upper Mississippi River with aerial photography. *Wetlands* 12(3):163-170. [NFLX-La Crosse]
- Johnson, L. A., K. A. Reynolds, and A. L. Foote. 1993. Production and decomposition of *Spartina patens* in a degrading coastal marsh. Pages 349-359 in O. T. Magoon, W. S. Wilson, H. Converse, and L. T. Tobin, eds. *Coastal zone '93: proceedings of the 8th symposium on coastal and ocean management*, New Orleans, Louisiana. American Society of Civil Engineers, New York, New York. [NWRC-Lafayette]

- LaBaugh, J. W., and G. W. Swanson. 1993. Spatial and temporal variability in chemical characteristics and water-column biota in the Cottonwood Lake area wetlands, North Dakota (abstract). Pages 25–26 in N. H. Euliss, Jr., ed. Wetland symposium. Prairie ecosystems: wetland ecology, management and restoration. Northern Prairie Wildlife Research Center, Jamestown, North Dakota. [NPWR-Jamestown]
- Larson, D. L. 1993. Effect of climate on water availability in northern prairie wetlands (abstract). Page 27 in N. H. Euliss, Jr., ed. Wetland symposium. Prairie ecosystems: wetland ecology, management and restoration. Northern Prairie Wildlife Research Center, Jamestown, North Dakota. [NPWR-Jamestown]
- Laubhan, M. K., and L. H. Fredrickson. 1993. Integrated wetland management: Concepts and opportunities. Transactions of the North American Wildlife and Natural Resources Conference 58:323–334. [MOCFWRU]
- Magee, P. A. 1993. Detrital accumulation and processing in wetlands. U.S. Fish and Wildlife Service, Fish and Wildlife Leaflet 13(3.14). 7 pp. [Publications Unit]
- Poiani, K. A., and W. C. Johnson. 1993. A spatial simulation model of hydrology and vegetation dynamics in semi-permanent prairie wetlands. Ecological Applications 3(2):279–293. [NERC–Fort Collins]
- Shedlock, R. J., D. A. Wilcox, T. A. Thompson, and D. A. Cohen. 1993. Interactions between ground water and wetlands, southern shore of Lake Michigan, USA. Journal of Hydrology 141:127–155. [NFGL–Great Lakes]
- Sojda, R. S., and K. L. Solberg. 1993. Management and control of cattails. U.S. Fish and Wildlife Service, Fish and Wildlife Leaflet 13(4.13). 8 pp. [Publications Unit]
- Strong, L. L., and L. M. Cowardin. 1993. Rapid assessment of the presence of water in the prairie pothole wetlands using airborne video, a global positioning system (GPS), and an optical disk recorder (abstract). Pages 44–45 in N. H. Euliss, Jr., ed. Wetland symposium. Prairie ecosystems: wetland ecology, management and restoration. Northern Prairie Wildlife Research Center, Jamestown, North Dakota. [NPWR-Jamestown]
- Swanson, G. A. 1992. Cycles of cattails at individual wetlands: environmental influences. Pages 13–19 in G. M. Linz, ed. Proceedings of the cattail management symposium, Fargo, North Dakota. U.S. Department of Agriculture. [NPWR-Jamestown]
- Swanson, G. A., N. H. Euliss, Jr., and B. A. Hanson. 1993. Dynamics of a prairie wetland complex (abstract). Page 47 in N. H. Euliss, Jr., ed. Wetland symposium. Prairie ecosystems: wetland ecology, management and restoration. Northern Prairie Wildlife Research Center, Jamestown, North Dakota. [NPWR-Jamestown]
- Wilcox, D. A., and J. E. Meeker. 1992. Implications for faunal habitat related to altered macrophyte structure in regulated lakes in northern Minnesota. Wetlands 12(3):192–203. [NFGL–Great Lakes]

## AVAILABILITY INFORMATION

AFWR-Anchorage

U.S. National Biological Survey  
Alaska Fish and Wildlife Research Center  
1011 East Tudor Road  
Anchorage, AK 99503

ALCFWRU

U.S. National Biological Survey  
Alabama Cooperative Fish and Wildlife Research Unit  
331 Funchess Hall  
Auburn University  
Auburn, AL 36849

ARCFWRU

U.S. National Biological Survey  
Arkansas Cooperative Fish and Wildlife Research Unit  
Zoology Department SE 632  
University of Arkansas—Fayetteville  
Fayetteville, AR 72701

ARCUS-Fairbanks

U.S. National Biological Survey  
Arctic Research Consortium of the United States (ARCUS)  
P.O. Box 80684  
Fairbanks, AK 99708

CRUC-Washington D.C.

U.S. National Biological Survey  
Cooperative Fish and Wildlife Research Units Center  
1849 C. Street, N.W.  
Mail Stop 725—ARLSQ  
Washington, DC 20240

GACFWRU

U.S. National Biological Survey  
Georgia Cooperative Fish and Wildlife Research Unit  
School of Forest Resources  
University of Georgia  
Athens, GA 30602

HICFRU

U.S. National Biological Survey  
Hawaii Cooperative Fishery Research Unit  
2538 The Mall  
University of Hawaii  
Honolulu, HI 96822

IACFWRU	U.S. National Biological Survey Iowa Cooperative Fish and Wildlife Research Unit Science Hall II Iowa State University Ames, IA 50011
LACFWRU	U.S. National Biological Survey Louisiana Cooperative Fish and Wildlife Research Unit School of Forestry, Wildlife, and Fisheries Louisiana State University Baton Rouge, LA 70803
MECFWRU	U.S. National Biological Survey Maine Cooperative Fish and Wildlife Research Unit University of Maine Room 240 5755 Nutting Hall Orono, ME 04469-5755
MOCFWRU	U.S. National Biological Survey Missouri Cooperative Fish and Wildlife Research Unit 112 Stephens Hall University of Missouri Columbia, MO 65211
MTCFRU	U.S. National Biological Survey Montana Cooperative Fishery Research Unit Biology Department Montana State University Bozeman, MT 59717
MTCWRU	U.S. National Biological Survey Montana Cooperative Wildlife Research Unit Natural Science 205 University of Montana Missoula, MT 59812
NERC-Albuquerque	U.S. National Biological Survey Museum of Southwestern Biology University of New Mexico Albuquerque, NM 87131

NERC-Auburn	U.S. National Biological Survey Southeastern Stream Ecology Project 108 Swingle Hall Auburn University Auburn, AL 36849-4201
NERC-Fort Collins	U.S. National Biological Survey National Ecology Research Center 4512 McMurry Ave. Fort Collins, CO 80525-3400
NERC-Gainesville	U.S. National Biological Survey National Ecology Research Center—Gainesville 412 N.E. 16th Avenue, Room 250 Gainesville, FL 32601
NERC-Palm Springs	U.S. National Biological Survey National Ecology Research Center—Palm Springs 63-500 Garnet Avenue P.O. Box 2000 North Palm Springs, CA 92258-2000
NERC-San Simeon	U.S. National Biological Survey National Ecology Research Center—San Simeon P.O. Box 70 San Simeon, CA 93452-0700
NERC-Santa Cruz	U.S. National Biological Survey National Ecology Research Center—Santa Cruz Applied Science Building University of California Santa Cruz, CA 95064
NERC-Washington D.C.	U.S. National Biological Survey National Museum of Natural History 10th and Constitution Avenue, N.W. Washington, DC 20560
NFCR-Anchorage	U.S. National Biological Survey U.S. Fish and Wildlife Service Alaska Field Station 1011 East Tudor Road Anchorage, AK 99503

NFCR-Columbia	U.S. National Biological Survey National Fisheries Contaminant Research Center Route 2, 4200 New Haven Road Columbia, MO 65201
NFCR-Corpus Christi	U.S. National Biological Survey Nat'l Fisheries Contaminant Research Center—Corpus Christi 6300 Ocean Drive, Campus Box 315 Corpus Christi State University Corpus Christi, TX 78412
NFCR-Jackson	U.S. National Biological Survey National Fisheries Contaminant Research Center—Jackson P.O. Box 1089 Jackson, WY 83001
NFGL-Great Lakes	U.S. National Biological Survey National Fisheries Research Center—Great Lakes 1451 Green Road Ann Arbor, MI 48105
NFRG-Gainesville	U.S. National Biological Survey National Fisheries Research Center—Gainesville 7920 N.W. 71st Street Gainesville, FL 32606
NFRG-Marion	U.S. National Biological Survey National Fisheries Research Center—Marion Southeastern Fish Cultural Laboratory Route 3, Box 86 Marion, AL 36756
NFRG-Stuttgart	U.S. National Biological Survey National Fisheries Research Center—Stuttgart Fish Farming Experimental Station P.O. Box 860 Stuttgart, AR 72160-0860
NFRL-Cortland	U.S. National Biological Survey Tunison Laboratory of Fish Nutrition 3075 Gracie Road Cortland, NY 13045-9357

NFRL-Leetown	U.S. National Biological Survey National Fisheries Research Center—Leetown Box 700 Kearneysville, WV 25430
NFRL-Wellsboro	U.S. National Biological Survey National Fishery Research Laboratory RD#4, Box 63 Wellsboro, PA 16901
NFRS-Reno	U.S. National Biological Survey National Fisheries Research Center—Reno Reno Suboffice 4600 Kietzke Lane, Building C Reno, NV 89502
NFRS-Seattle	U.S. National Biological Survey National Fisheries Research Center—Seattle Building 204, Naval Station Puget Sound Seattle, WA 98115-5007
NMCFWRU	U.S. National Biological Survey New Mexico Cooperative Fish and Wildlife Research Unit Department of Fisheries and Wildlife Sciences P.O. Box 30003, Dept. 4901 New Mexico State University Las Cruces, NM 88003
NPWR-Jamestown	U.S. National Biological Survey Northern Prairie Wildlife Research Center—Jamestown Route 1, Box 96C Jamestown, ND 58401-9736
NWHR-Madison	U.S. National Biological Survey National Wildlife Health Research Center 6006 Schroeder Road Madison, WI 53711-6223
NWRC-Lafayette	U.S. National Biological Survey National Wetlands Research Center—Lafayette 700 Cajundome Blvd. Lafayette, LA 70506

NYCFWRU	U.S. National Biological Survey New York Cooperative Fish and Wildlife Research Unit Fernow Hall Cornell University Ithaca, NY 14853-0188
OHCFWRU	U.S. National Biological Survey Ohio Cooperative Fish and Wildlife Research Unit 1735 Neil Avenue Ohio State University Columbus, OH 43210
OIT-Fort Collins	U.S. National Biological Survey Office of Information Transfer 1201 Oak Ridge Drive, Suite 200 Fort Collins, CO 80525-5589
OKCFWRU	U.S. National Biological Survey Oklahoma Cooperative Fish and Wildlife Research Unit Room 404, Life Sciences West Building Oklahoma State University Stillwater, OK 74078
ORCFRU	U.S. National Biological Survey Oregon Cooperative Fishery Research Unit 104 Nash Hall Oregon State University Corvallis, OR 97331-3803
ORCWRU	U.S. National Biological Survey Oregon Cooperative Wildlife Research Unit 104 Nash Hall Oregon State University Corvallis, OR 97331-3803
Publications Unit	U.S. Fish and Wildlife Service Publications Unit 1849 C Street, N.W. Mail Stop 130—Webb Building Washington, DC 20240

PWRC-Athens	U.S. National Biological Survey Patuxent Wildlife Research Center—Athens Southeast Research Group School of Forest Resources University of Georgia Athens, GA 30602
PWRC-Hawaii	U.S. National Biological Survey Patuxent Wildlife Research Center—Hawaii Hawaii Research Group P.O. Box 44 Hawaii National Park, HI 96718
PWRC-Palmer	U.S. National Biological Survey Patuxent Wildlife Research Center—Palmer Puerto Rico Research Group Rd. 191, KM 4.5 P.O. Box N Palmer, PR 00721
PWRC-Patuxent	U.S. National Biological Survey Patuxent Wildlife Research Center Laurel, MD 20708
SCCFWRU	U.S. National Biological Survey South Carolina Cooperative Fish and Wildlife Research Unit Department of Aquaculture, Fisheries and Wildlife GO 8 Lehotsky Hall Clemson University Clemson, SC 29634-0362
SDCFWRU	U.S. National Biological Survey South Dakota Cooperative Fish and Wildlife Research Unit Department of Wildlife and Fishery Sciences South Dakota State University Brockings, SD 57007-1696
TNCFRU	U.S. National Biological Survey Tennessee Cooperative Fishery Research Unit Box 5114, Biology Department Tennessee Technological University Cookeville, TN 38505

VACFWRU U.S. National Biological Survey  
Virginia Cooperative Fish and Wildlife Research Unit  
106 Cheatham Hall  
Virginia Polytechnic Institute and State University  
Blacksburg, VA 24061

WICFRU U.S. National Biological Survey  
Wisconsin Cooperative Fishery Research Unit  
College of Natural Resources  
University of Wisconsin  
Stevens Point, WI 54481

WVCFWRU U.S. National Biological Survey  
West Virginia Cooperative Fish and Wildlife Research Unit  
Division of Forestry  
College of Agriculture and Forestry  
P.O. Box 6125, West Virginia University  
Morgantown, WV 26506-6125

## **NOTICE**

You may be receiving *Research Information Bulletins* (RIBs) for the first time. This is because the National Biological Survey (NBS) is expanding the distribution of RIBs throughout the Department of the Interior.

*Research Information Bulletins* are informal reports that often reflect preliminary research or survey findings or completed projects by NBS personnel. A RIB may describe a technique or tool, provide interim results of research or a survey in progress, or comprise an executive summary or synthesis of a completed project. They are usually distributed monthly. We will periodically include a comprehensive list of series and nonseries publications authored by NBS scientists.

Because RIBs are usually informal, preliminary reports, it is NBS policy that they may not be cited or abstracted.

Please assist us in sending a notice to offices in your agency, other than the Fish and Wildlife Service, that might wish to receive RIBs.

Interested parties can send their request to:

National Biological Survey  
Publications Management Officer  
1201 Oak Ridge Drive, Suite 200  
Fort Collins, CO 80525-5589

If you do not wish to continue receiving *Research Information Bulletins*, please call Tom Cortese at 303-226-9401, ext. 216.