A Bibliography of Fisheries Biology in North and South Dakota

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376. Hahn, D.R. Cage culture of black bullheads, <u>Ictalurus melas</u> (Rafinesque), in North Dakota.

M.S. Thesis, University of North Dakota, also North Dakota Game & Fish Dept., Dingell-Johnson Division, Report No. 1310.

Final report in this study of feasibility of commercial rearing of black
 bullheads in cages in North Dakota. Cage culture was not
 considered profitable here because of low market value and poor
 food conversion. Water temperatures were an important factor.
 Key Words:black bullhead, cage culture

377. Hahn, D.R. The biological and economic aspects of cage rearing rainbow trout, <u>Salmo</u> <u>gairdneri</u> Richardson, in North Dakota.

- Ph. D. Thesis, University of North Dakota, also North Dakota Game & Fish Dept., Dingell-Johnson Division, Report No. 1324.
- Rainbow trout were fed comercial fish food and reared in floating cages in the summers of 1972 and 1973 in Gravel and Hooker Lakes in the Turtle Moutains. Fish were fed at controlled percentage of body weight and controlled densities. Records of temperatures, mortality, growth food conversion, flesh analyses and results of taste tests are presented. Cost analyses and returns on investments were computed. It was indicated that commercial cage rearing of rainbow trout in North Dakota would be uneconomic or marginal at best.

Key Words: rainbow trout, cage culture

378. Hall, C.B. Movement and behavior of walleye, <u>Stizostedion vitreum</u> vitreum (Mitchill), in Jamestown Reservoir, North Dakota, as determined by biotelemetry.

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primary drainages of the river from Three Forks to the mouth of the Musselshell. It occurs frequently in the Yellowstone River for about 90 miles downstream from Yellowstone Park. <u>Key Words</u>:cutthroat trout, Montana

395. Harberg, M.C. Feeding behavior, food consumption, growth, and survival of hybrid grass carp (<u>Hypophthalmichthys nobilis X Ctenopharyngodon idella</u>) in South Dakota.

M.S. Thesis, South Dakota State University.

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pp. 38-63 <u>in</u> Clamby, G.K., H.L. Holloway, Jr., J.B. Owen, and J.J. Peterka. Potential transfer of biota between drainage systems having no natural flow connections. Tri-College Univ. Center for Environ. Studies, Fargo, N.D.

Contains information on <u>Polypodium</u> <u>hydriforme</u>, a parasite of paddlefish and sturgeons, and fish diseases in Garrison Diversion Unit area. <u>Key Words</u>:Garrison Diversion, parasite, paddlefish, sturgeon

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A study of relationship between the ages of fishes and the degree of parasitosis by multiple regression using 800 fish of 9 species from four areas in North Dakota. Key Words: parasite

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482. Holloway, H.L., Jr., and H.R. Buttz 1988 Control of fish eye grubs in North Dakota.

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Might be useful to document changes in nearly a century. Key Words:Missouri River, map

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pp. A-1 to A-83 <u>in</u> Riverine Technical Report, James River in North Dakota, Missouri-Souris Projects Office, Bismarck, ND

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 Key Words: plankton, Hooker Lake, Turtle Mountains

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Proc. N. Dak. Acad. Sci. 26(II):55-59

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Four locations were sampled in the unchannelized and channelized sections of the Missouri River from Fort Randall Dam to a point 32 km below Sioux City, Iowa. Insects made up 94% of the macroinvertebrate drift. Drifting macroinvertebrates increased at night. Areas of high production were identified. Key Words:Missouri River, bank stabilization, invertebrates

770. Novotny, J.F., and D.B. Martin Zooplankton in the discharge of Lewis and Clark Lake, South Dakota, 1964-73.

Proc. S. Dak. Acad. Sci. 59:43-61

Crustacean zooplankton sampled with an automatic plankton sampler. Key Words: zooplankton, Lewis and Clark Reservoir

771. Nursall, J.R., and V. Lewin 1964 The stonecat, <u>Noturus flavus</u>, recently recorded in Alberta. Can. Field Natur. 78:128-129

Three stonecats were caught in the Milk River, June 19-20, 1962, about 18 miles west of Wildhorse, Alberta. Key Words:Milk River, stonecat

772. Ober, R.D.

1976

Food habits of northern pike, <u>Esox</u> <u>lucius</u> <u>Linaeus</u>, black bullheads, <u>Ictalurus</u> <u>melas</u> (Rafinesque), and white bass, <u>Morone</u> <u>chrysops</u>, (Rafinesque), in Lake Ashtabula, North Dakota.

M.S. Thesis, University of North Dakota. Also North Dakota Game and Fish Dept., Dingell-Johnson Division Report No. 1327.

Fish were taken in gill nets lifted every three hours during a 24 hour period each week during the summer of 1972. Hours of feeding activity and stomach contents were identified and analyzed by volume, frequency of occurrence and percentage each sampling period.. All fish found in northern pike stomachs were yellow perch plus a few cladocera and insects. Bullheads took a wide variety of food, including mollusca, insects and cladocera. White bass took fish and cladocera in about equal volumes with some insects. More northern pike, bullhead and white bass were caught in the upper end of the reservoir with an equal amount of effort. <u>Key Words</u>:food habits, Lake Ashtabula, black bullhead, northern pike, white bass

773. O'Bryan, G.K., and F.C. June 1987 Zooplankton biomass exchange in Lake Sharpe, South Dakota, 1974-1975.

pp. 21-29 in Limnological and Fishery Studies on Lake Sharpe, a main-stem

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Key Words: yellow perch, Ashtabula Reservoir

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Bionomics of the rainbow smelt (Osmerus mordax) in Lake Oahe, South Dakota.

Job Completion Report, Contract No. 8212, Univ. S. Dak., Vermillion. Key Words:rainbow smelt, Oahe

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Rulo is near the Nebraska-Kansas border. Sections of this stretch of river have been modified for navigation by a number of types of structures. Fish habitats and the abundance and composition of fish populations in each habitat are determined and compared with populations in unchannelized or unmodified sections of this stretch of river. This paper would provide excellent information for study if bank stabilization or similar structures are proposed for the Missouri River in North Dakota. Key Words:Missouri River, bank stabilization

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Montana. Key Words: creel survey, Fort Peck Reservoir 1051. U.S. Fish and Wildlife Service 1953 Distribution and status of important fish and wildlife, Missouri River Basin. U.S. Fish & Wildl. Serv., Office of Missouri River Basin Studies, Billings, Mont. 296 pp. Probable historical value. Key Words: distribution, Missouri Basin 1052. U.S. Fish and Wildlife Service 1959 Snake Creek Reservoir, North Dakota. U.S. Fish and Wildlife Service, Office of Missouri River Basin Studies, Billings, Mont. Snake Creek Reservoir was original name for Lake Audubon, North Dakota. This is an early environmental impact type study. Key Words: Snake Creek, environmental impact, Lake Audubon 1053. U.S. Fish and Wildlife Service 1973 Estimated instream water requirements for western Dakota tributaries. Northern Plains Resources Program, U.S. Fish and Wildlife Service. Key Words:stream flow 1976 1054. U.S. Fish and Wildlife Service An evaluation of the impacts caused by the Garrison Diversion Unit on national wildlife refuges in North Dakota. U.S. Fish and Wildlife Service, Bismarck, N.Dak. 113 pp. Key Words: environmental impact, Garrison Diversion, wildlife refuge 1055. U.S. Fish and Wildlife Service 1976 Predictions of the effects of energy development on the aquatic resources of two upper Missouri reservoir ecosystems. U.S. Fish & Wildlife Service, North Central Reservoir Investigations, Yankton, SD. Study of fish, fish spawning, habitat, benthos, plankton and water quality that might be affected in Lake Sakakawea and Fort Peck Reservoir by energy development in the watershed. Key Words: Sakakawea, Fort Peck Reservoir, environmental impact, energy development 1056. U.S. Fish and Wildlife Service 1986

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1971 1089. Wahtola, C.H., Jr. The population dynamics of channel catfish, Ictalurus punctatus (Rafinesque), in the Little Missouri Arm of Lake Sakakawea, before and during commercial exploitation, 1968-1971. Ph.D. Thesis, Univ. of N. Dakota. Also North Dakota Game and Fish Dept., Dingell-Johnson Division, Report No. 1314 Catfish were studied to determine population size, structure, growth and other characteristics before and during commercial exploitation. In 1968, 671 catfish were aged and in 1969 to 1971, 2460 catfish were tagged and released for population estimates and study of movements. A population from 25,000 to 40,000 was postulated, but insuffcient tag returns rendered these figures unreliable. These catfish were thought to reproduce in the Little Missouri River, and missing year classes and other evidence suggest that the population may be unable to support a sustained profitable commercial fishery. Key Words: Sakakawea, channel catfish, population dynamics, commercial fishery 1090. Wahtola, C.J., Jr. 1971 Winged ants as fish food. The Prairie Naturalist 3(2):57-58. Almost all of 202 fish of 10 species captured August 22, 1968, were found to be gorged on winged ants. This had been observed in 1966 and 1967 at about the same time and was in consequence of nuptual flights of the ants. Key Words: goldeye, food, ants 1091. Wahtola, C.H., Jr. 1972 Population estimates of channel catfish in the Little Missouri Arm, Lake Sakakawea, 1969-1971. Proc. N. Dak. Acad. Sci. 26(I):22 (abstract) A population of 25,000 to 40,000 catfish were estimated using the Schnabel and Schumacher-Eschmeyer methods. Key Words: Sakakawea, population estimate 1092. Wahtola, C.H., Jr., B.L. Evenhuis and J.B. Owen 1970 The age and growth of the yellow perch, Perca flavescens (Mitchill), in the Little Missouri Arm of Lake Sakakawea, North Dakota, 1968. Proc. N. Dak. Acad. Sci. 24(I):33 (abstracts) and 24(II):39-44 (paper). also North Dakota Game and Fish Dept., Dingell-Johnson Division, Reports No. 1313 and 1314A. Perch had poor condition factors and none were found over four years of age.

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The short life span and small size was attributed to an inadequate supply of small fish and insects for food. Perch were forced to feed largely on cladocera in competition with goldeye, which were also somewhat stunted.

Key Words: Sakakawea, yellow perch, age and growth

1093. Wahtola, C.H., Jr., D.E. Miller and J.B. Owen 1972 The age and rate of growth of walleye, <u>Stizostedion vitreum</u>, and sauger, S. Canadense, in Lake Sakakawea, North Dakota, 1968-1969.

Proc. N. Dak. Acad. Sci. 25(I):29 (abstract) and 25(II):72-83 (paper).

Walleye had good linear growth, which was attributed to an abundance of small yellow perch and goldeye in the reservoir. <u>Key Words</u>: Sakakawea, age and growth, walleye, sauger

1094. Wahtola, C.H., Jr., and J.B. Owen1970A decalcification technique for sectioning pectoral spines.Prog. Fish. Cult. 32(4):226.

Method of sectioning catfish or bullhead spines in a hand microtome after softening in hydrochloric acid. Key Words: decalcification, black bullhead, channel catfish, age and growth

1095. Wahtola, C.H., Jr., and J.B. Owen 1973 The vertical distribution of channel catfish, (<u>Ictalurus punctatus</u>), in the Little Missouri Arm of Lake Sakakawea, North Dakota, 1968.

Proc. N. Dak. Acad. Sci. 27(I):37. (abstract).

Depth preference of catfish at four stations along the length of the Little Missouri Arm as sampled by vertical gill nets. Key Words: Sakakawea, channel catfish

1096. Walburg, C.H. 1964
Fish population studies, Lewis and Clark Lake, Missouri River, 1956 to 1962.
U.S. Fish & Wildl. Serv. Spec. Sci. Report on Fisheries, No. 482, 27 pp.
Relative abundance and life history observations on 34 species of fish between 1956 and 1962 in Gavins Point Reservoir.
<u>Key Words</u>: life history, Lewis and Clark Reservoir, Gavins Point Reservoir
1097. Walburg, C.H. 1969
Fish sampling and estimation of relative abundance in Lewis and Clark Lake.
U.S. Bureau of Sport Fisheries and Wildlife Tech. Paper, No. 18. 15 pp.
Catches by gill nets, frame nets, trap nets, otter trawls, and 220 volt electroshocker were compared to determine the fish population of

Lewis and Clark Lake (Gavins Point Reservoir). Trawls were the most efficient for measuring young-of-the-year, and trap and gill nets were the most efficient for sampling older fish. Key Words:sampling equipment, population estimate, Lewis and Clark Reservoir 1971 1098. Walburg, C.H. Loss of young fish in reservoir discharge and year-class survival, Lewis and Clark Lake, Missouri River. in G.E. Hall (ed.), Reservoir Fisheries and Limnology, Amer. Fish. Soc., Spec. Publ. No. 8. Losses of young-of-the-year fish of 16 species estimated per 24 hour period. Losses attributed to summer flushing rates. Key Words: Lewis and Clark Reservoir, young-of-the-year, reservoir discharge 1099. Walburg, C.H. 1972 Some factors associated with fluctuations in year-class strength of sauger, Lewis and Clark Lake, South Dakota. Trans. Amer. Fish. Soc. 101(2):311-316. Year class strength was associated with water level changes, water temperatures and water exchange rates. Key Words:population dynamics, sauger, Lewis and Clark Reservoir 1100. Walburg, C.H. 1975 Food of young-of-the-year channel catfish in Lewis and Clark Lake, a Missouri River Reservoir. Amer. Midl. Nat. 93(1):218-221. Zooplankton and aquatic insects were the only food in the stomachs of age-0 channel catfish. Diptera larvae and pupae became more important as the fish grew. Key Words:Lewis and Clark Reservoir, young-of-the-year, channel catfish, food 1976 1101. Walburg, C.H. Changes in the fish population of Lewis and Clark Lake, 1956-74, and their relation to water management and the environment. Research Report No. 79, U.S. Fish & Wildl. Serv. Sampling of the fish population between 1956 and 1974 indicate that fish abundance has decreased 66%, and the number of species decreased 20% since impoundment in 1956. The declines are caused by short exchange time and water level management. Suggested management measures are discussed. Key Words: Lewis and Clark Reservoir, population dynamics

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1102. Walburg, C.H. Lake Francis Case, a Missouri River Reservoir: changes in the fish population in 1954-75, and suggestions for management.

U.S. Fish & Wildl. Serv. Tech. Paper No. 95. 12 pp.

Water level fluctuations are largely the cause of changes in abundance and composition of fish species. Walburg recommends a 3-year cycle in pool level management with a low level for two consecutive years to encourage growth of shoreline vegetation, followed by a high level the third year, through July. Key Words:Lake Francis Case, water elevation, management

1103. Walburg, C.H. Rise in Lewis and Clark Lake pool elevation and impact on the fish population

Contract Report to Omaha District, U.S. Army Corps of Engineers. <u>Key Words</u>:Lewis and Clark Reservoir, water elevation, environmental impact

1104. Walburg, C.H., G.H. Kaiser and P.L. Hudson 1971 Lewis and Clark Lake tailwater biota and some relations of the tailwater and reservoir fish populations.

pp. 449-467 <u>in</u> G.E. Hall (ed.), Reservoir Fisheries and Limnology. Amer. Fish. Soc., Spec. Publ. No. 8.

Benthos, drift, plankton and fish studied in 1968 and 1969 to determine seasonal occurrence and origin. Key Words: tailrace, benthos, plankton, Lewis and Clark Reservoir

1105. Walburg, C.H., and W.R. Nelson 1966 Carp, river carpsucker, smallmouth buffalo, and bigmouth buffalo in Lewis and Clark Lake, Missouri River.

U.S. Fish & Wildl. Serv. Research Report No. 69. 30 pp.

life history

Studies of age composition, growth length-weight, reproduction, year class strength and food habits of these species in Lewis and Clark Lake from 1962 to 1964. <u>Key Words</u>: carp, river carpsucker, bigmouth buffalo, smallmouth buffalo,

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