

AN ASSESSMENT OF CHANGES IN THE FISH FAUNA OF TWO ILLINOIS RIVERS AND ITS BEARING ON THEIR FUTURE

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ABSTRACT. Based on a comparison of fish collections taken prior to 1901 and between 1956-1966 in the Vermilion and Embarras River drainages of east-central Illinois, evidence is assembled to show one species extirpated and 20 decimated in the two systems. Analysis of factors probably responsible reveals that the principal ones are alteration of the physical habitat, e. g. rate of flow and bottom type; increase in the amount of suspended silt and subsequent loss of aquatic vegetation; and reduction in stream size and that these factors have probably been of greater significance than pollution *per se* in producing long-term changes in populations of stream fishes. Erection of dams and creation of artificial reservoirs have contributed most dramatically to the observed changes in the fish fauna of the two basins. An artificial reservoir contemplated for the Middle Fork will eradicate the only Illinois population of the bluebreast darter, and future reservoirs at other sites on the Embarras and Vermilion rivers could endanger Illinois populations of the harlequin darter, eastern sand darter, dusky darter, and possibly a few other species of small fishes.

The current arousal of public interest in pollution and related phenomena in our streams and local interest in the future of the Wabash River basin prompt publication of data that provide an opportunity for an objective assessment of changes in the fish fauna of two relatively well-studied rivers in east-

central Illinois. The results of this assessment are instructive in that the principal factors producing changes are identified and can thus be given consideration in the future development of the two basins.

Collections of fishes from the Vermilion (of the Wabash drainage) and nearby Embarras rivers have been made over a period of nearly 70 years. These collections supply documentation for several pronounced changes in species composition, most notably the decimation of certain fishes, and permit an appraisal of the several factors that may be responsible for these changes. They further provide an opportunity to scrutinize the role that pollution has played and, as will be shown, they suggest that other factors have been of greater importance than pollution in producing long-term changes in these populations of stream fishes.

Although detailed information is not available on the amount of modification of the watersheds and condition of the streams at the time the early collections were made, we can extrapolate to some degree from the observed changes that have accompanied an increase in human

population, land utilization, and industrialization during recent decades. We can also assume that some alteration of the watersheds had occurred and some pollution was present even 70 years ago but that conditions in the two river systems were vastly different from those of today.

The two rivers are tributaries in Illinois of the middle Wabash River (Fig. 1). Both have headwaters in Champaign County, Illinois, and flow in a generally southeasterly direction, emptying into the Wabash River about 100 straight-line miles apart. They have many physical and faunistic similarities and have been subjected to similar alterations and modifications in approximately the same span of time.

RÉSUMÉ OF CHANGES IN THE STREAMS AND THEIR WATERSHEDS

The watersheds of both rivers are primarily agricultural, the two major crops being corn and soy beans. To increase the acreage of tillable land, most of their basins have long been in drainage districts, the principal purposes of which are to drain marshy areas and to hasten runoff of rain water. Because of the amount of silt carried into the stream and that deposited at the mouths of field tiles, repeated dredging, and straightening, and sometimes recanalizing are necessary.

The principal effect of these activities is that the meandering stream with alternating riffle and pool and a variety of habitats is converted into a relatively straight and uniform canal with fewer habitats. Dredging has been particularly intensive in the headwaters and tribu-

taries of the Vermilion River. Canalization has been most intensive in the lower course of the Embarras River; in fact, a total of more than 10 miles of the lower river now occupies a man-made channel.

With accelerated drainage the water table has been lowered, and the streams have become wider, distinctly shallower, and much more variable in size and amount of flow than they were before the establishment of drainage districts and canals (Larimore & Smith 1963). During periods of drought the rivers become quite low, and many of the once permanent tributaries now dry up.

To increase productivity of the soil, considerable quantities of commercial fertilizers and, in recent years, herbicides and insecticides have been applied to fields in the watersheds. These materials, along with silt, are washed into the streams by rain, sharply reducing the water quality.

Grazing animals erode banks of pasture streams, muddy the water by wading in it, and frequently drop their wastes directly into the streams. Gravel-washing operations contribute substantial amounts of silt.

Chronic pollution from sewage disposal plants is present at several sites in the Vermilion River drainage. Effluents from the Champaign-Urbana plant prohibit the occurrence of fish in the West Branch of the Salt Fork for much of its length. Sewage from the Danville plant pollutes the Vermilion River several miles below the city, and even exposed sand and gravel bars in the area have a heavy coating of sludge.

Severe pollution from plants at Rantoul and the Chanute Air Force Base enters the upper reaches of the East Branch of the Salt Fork, and smaller amounts of pollution are received from other towns within the drainage.

Industrial pollution from manufacturing plants located near Champaign-Urbana and Danville occurs in the headwaters of the West Branch of the Salt Fork and in the lower reaches of the Vermilion River, although its effects are overshadowed by those of effluents from sewage plants in the same areas. Pollution from extensive oil fields in the lower Embarras River basin has been present for many years, but its effects cannot be assessed since collections of fishes prior to the oil boom are not available for study.

Strip-mining operations, usually devastating to aquatic life, have been carried on for many years along the Middle Fork and lower Vermilion River, but there is, surprisingly enough, no evidence that their wastes have affected the fish populations of these two streams.

In recent years accidental discharges of such toxicants as anhydrous ammonia and potassium cyanide have caused fish kills of varying magnitude in the Vermilion and Embarras rivers and some of their tributaries. However, repopulation of the afflicted part of the stream has been remarkably fast in each case known to me, and no permanent damage can be demonstrated.

Dams, intended to insure water supplies for the cities of Danville and Charleston and to provide

much-needed recreational space, have been constructed on the lower North Fork of the Vermilion River and the middle Embarras River.

An 8-foot wooden dam, completed in 1894 on the North Fork near Danville, did not create an impoundment, but a more substantial dam, completed in 1914 by a private utility company, resulted in a several-acre reservoir. Another dam, completed in 1925 by the same company, inundated the old dam and created the present Lake Vermilion. This dam initially flooded 775 acres but because of silting the lake has since shrunk to approximately 617 acres (Dawes & Terstriep 1966b: 134).

A dam, completed in 1947 on the Embarras River near Charleston, impounded 400 acres to form the present Lake Charleston, which still occupies about the same acreage but has become appreciably shallower (Dawes & Terstriep 1966a:35).

Several smaller dams, mostly on tributaries in the Embarras River basin, have resulted in small impoundments that have not had demonstrable effects upon the fishes of the parent rivers.

The more salient features in the streams and watersheds that might have produced changes in the fish fauna of the Vermilion and Embarras River systems are shown in Fig. 1.

METHODS OF APPRAISAL

Between 1882 and 1901 (mostly in the 3-year period 1899-1901), personnel from the Illinois State Laboratory of Natural History, under the direction of Stephen A. Forbes, made 59 collections of fishes at 54 sites within the Vermilion and Embarras River basins (Fig. 2). Between 1956 and 1966 my associates and I have

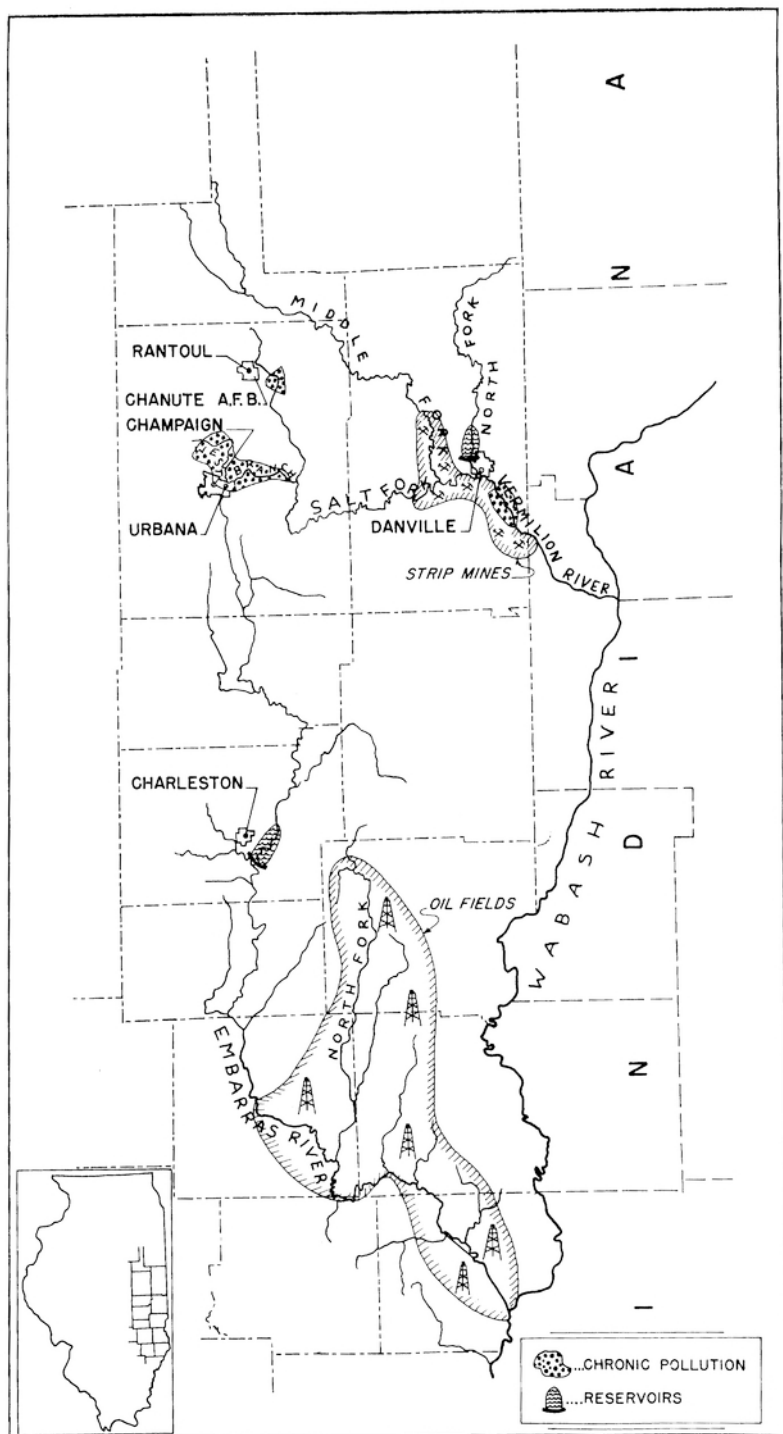


FIGURE 1.—The Vermilion and Embarras River basins, showing the location of cities and streams cited in the text and some areas of major modification of streams and watersheds. The inset map indicates the position of these basins in the state of Illinois.

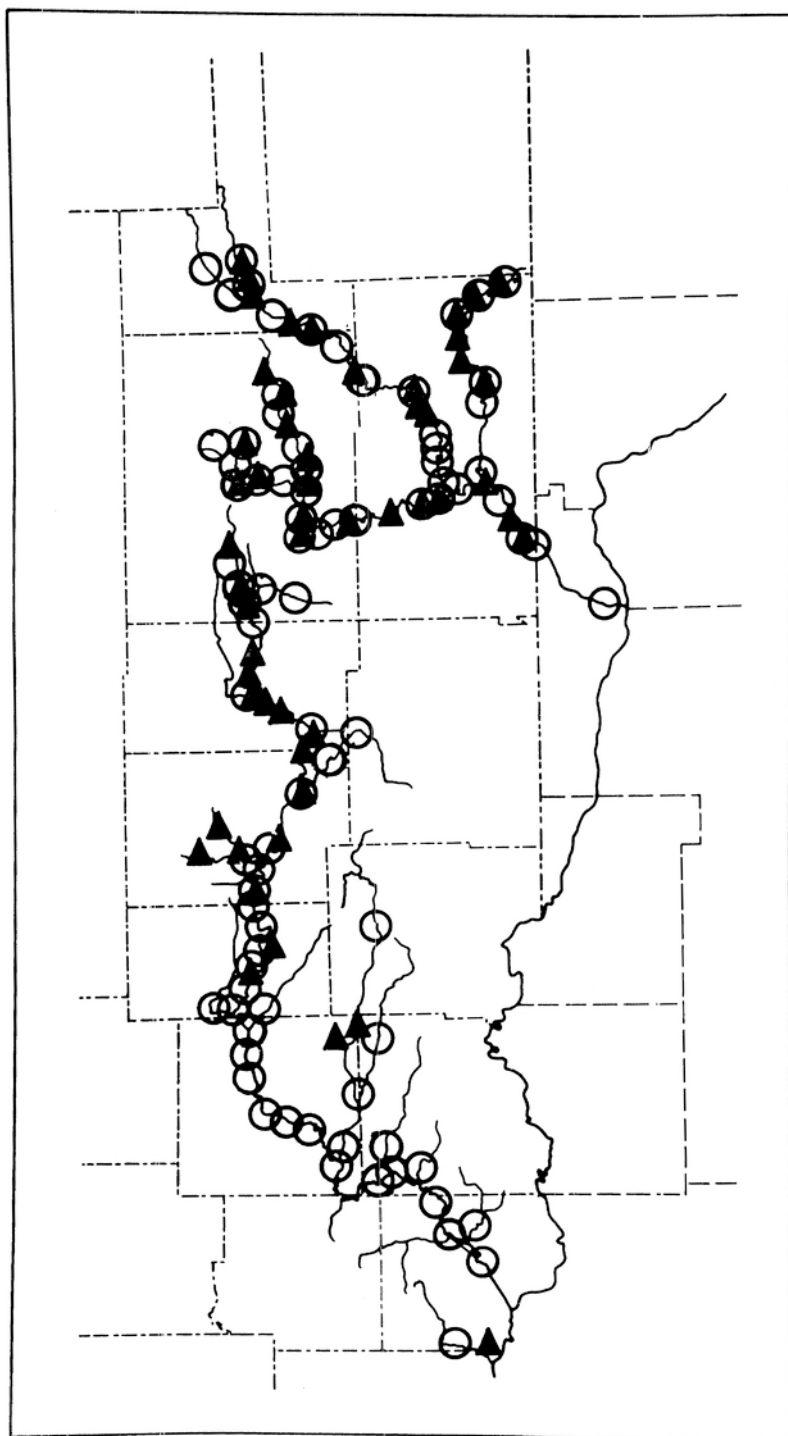


FIGURE 2.—Distribution of collections made between 1882 and 1901 (solid triangles) and those made between 1956 and 1966 (open circles).

made over 100 collections at 86 sites in the two basins (Fig. 2). Although a few collections and published observations are available for the period between 1901 and 1956, most of the data presented herein consist of a comparison of present distributional patterns with those of the pre-1901 investigation (Forbes & Richardson 1920, atlas of maps).

Nearly 100 species of fishes have been reported from the Vermilion and Embarras River basins. Because of the more intensive sampling possible at the present time, the majority of the species of fishes are now known from considerably more sites than they were prior to 1901. However, one species, the blacknose shiner, has evidently been extirpated from the area, and another 20 species show irrefutable evidence of decimation, particularly in the North Fork, West Branch of the Salt Fork, lower Vermilion River, and in the Embarras River above the city of Charleston. These 21 species and the probable reasons for their decimation in the two drainages are the basis of this paper.

By using judiciously our knowledge of the present habits and habitat of each species involved, we can ascertain the factor or factors responsible for the decimation of that species and then proceed to analyze the modifications of stream and watershed that have produced these factors.

EXTIRPATED AND DECIMATED SPECIES

The extirpated blacknose shiner, if the species were correctly identified at that time as it appears to have been, was reported from tributaries of the North Fork, West Branch of the Salt Fork, and the middle Embarras River. The species, probably widespread in the lakes, prairie sloughs, and clear connecting streams, evidently disappeared with the initial drainage of the wet prairie in eastern Illinois.

Another species, the Ohio lamprey, was reported from two localities in the Embarras River by Hubbs & Trautman (1937:87) and does not now occur in the drainage or even in Illinois (Starrett, Harth,

& Smith 1960). However, it has been omitted from the present analysis because the Embarras River records may have been based on misidentified specimens of the allied chestnut lamprey.

Nine species no longer occur in parts of the Vermilion and Embarras River basins where they were taken prior to 1901. These species, characteristic of fast riffles or clear flowing water in shallow pools over a sand or gravel substrate, are almost certainly decimated because riffle and hard-bottomed-pool habitats have been destroyed in many areas:

Hog sucker
Stoneroller
Silverjaw minnow
Suckermouth minnow
Brindled madtom
Greenside darter
Fantail darter
Eastern sand darter
Blackside darter

Five other species, characteristic of clear pools with luxuriant vegetation, are less widely distributed than formerly, probably because of the silt-laden water in pools of today and the disappearance of aquatic vegetation:

Spotted sucker
Bigeye chub
Bigeye shiner
Brook silverside
Black crappie

Three species, characteristic of large rivers, evidently retreated downstream and did not return as the middle and upper reaches of the Vermilion and Embarras rivers diminished in size, probably when periods of drought first began to re-

duce seriously the flow of these streams:

Silver chub
Bullhead minnow
Mud darter

At least three species, characteristic of soft-bottomed pools and tolerant of silt and some pollution, show rather clear-cut evidence of decimation in both systems and throughout east-central Illinois. Their decline in an area where their preferred habitat seems to be increasing is not readily explained but nevertheless is real, for two of them (black bullhead, orangespotted sunfish) were cited by Larimore & Smith (1963:332) as decimated in Champaign County during the same period:

Black bullhead
Tadpole madtom
Orangespotted sunfish

Principal causes for decimation.

—If our inferences regarding the reasons for decimation of the first 17 of the 20 species cited are correct, we must assume that the principal factors affecting fishes of the Vermilion and Embarras River systems are (1) alteration of the physical habitat, e.g. rate of flow, bottom type, (2) an increase in amount of suspended silt and subsequent loss of aquatic vegetation, and (3) a reduction in stream size.

While pollution has undoubtedly contributed, its effects are often much less dramatic and even difficult to discern. When severe pollution abates, fishes are quickly recruited from tributary streams and downstream habitats and soon return to their original habitats.

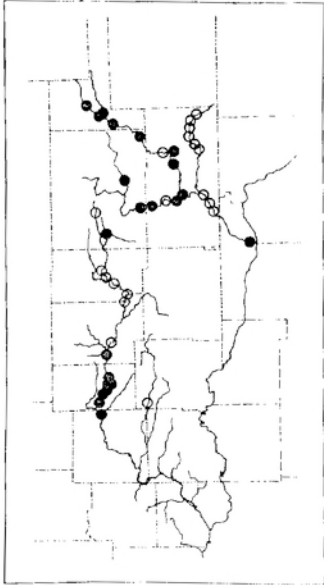
A notable illustration of decima-

tion that can be attributed to chronic pollution is in the West Branch of the Salt Fork, where Forbes & Richardson (1920, atlas of maps) collected at least 16 species that do not presently occur in the stream. Chronic pollution may also have contributed to the apparent decimation of a few species in the Vermilion River below the city of Danville.

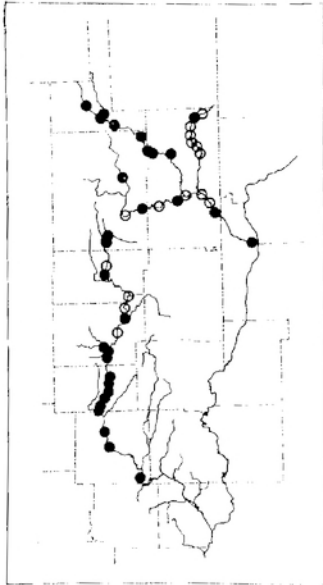
Man-made modifications that have altered the physical habitat in this region, e. g. rate of flow, bottom type, include dams and artificial impoundments on the North Fork and the Embarras River, dredging in the upper reaches of the Vermilion River, canalizing in the lower Embarras River, and deposition of sludge from the Danville sewage plant in the lower Vermilion River.

An artificial impoundment drowns riffles and reduces flow, resulting in siltation which eventually produces a mud bottom, murky water, and a loss of desirable types of aquatic vegetation. While creating a recreational lake of several acres near the dam site, the impoundment alters the stream for many miles upstream from the recreation area. Fishes characteristic of flowing water and firm bottoms are replaced by those characteristic of oxbows and deep, soft-bottomed pools, not only in the reservoir but for many miles above it.

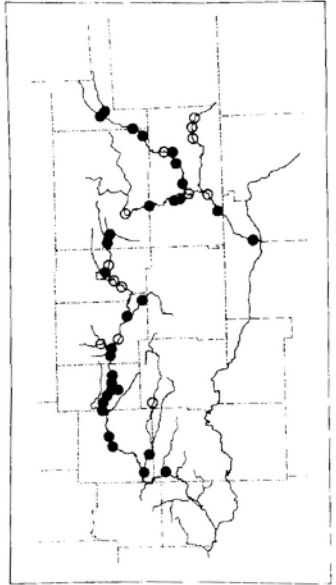
Rather dramatic illustrations of the effects of the impoundment, particularly in the North Fork and Embarras River above Charleston, are provided by the present ranges of the greenside darter (Fig. 3), northern hog sucker (Fig. 4), brindled madtom (Fig. 5), blackside darter



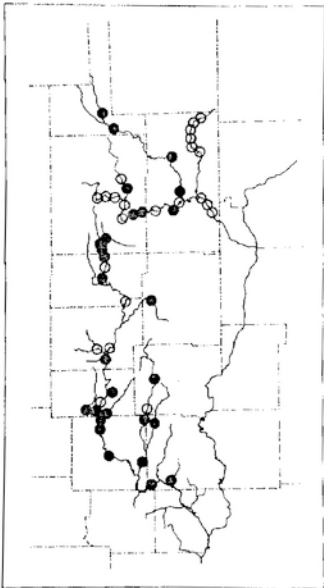
GREENSIDE DARTER



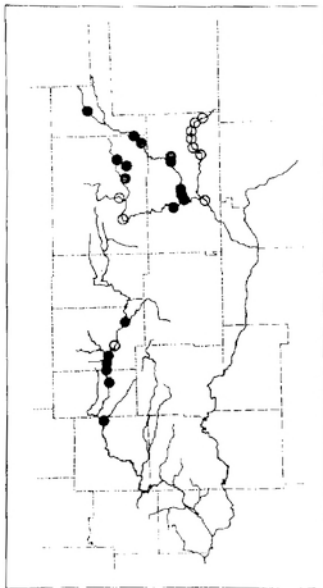
NORTHERN HOG SUCKER



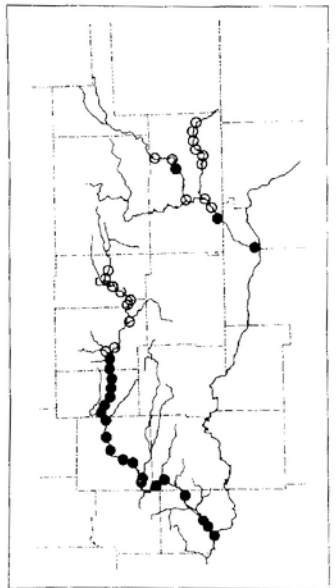
BRINDLED MADTOM



BLACKSIDE DARTER



FANTAIL DARTER



BULLHEAD MINNOW

FIGURES 3-8.—Former distribution (open circles) and present distribution (solid symbols) of six species of fishes decimated in the Vermilion and Embarras River basins as a result of dams on the lower North Fork and Middle Embarras River.

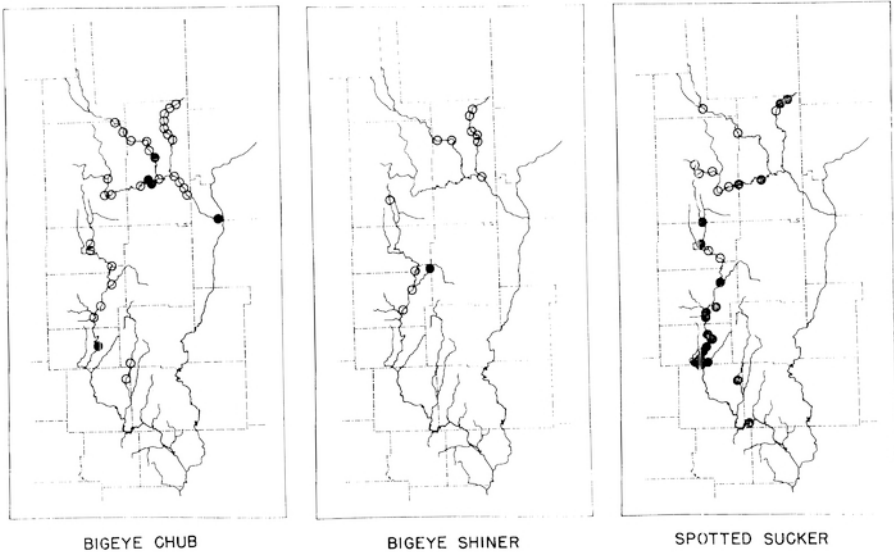
(Fig. 6), and fantail darter (Fig. 7). Loss of fast riffles and silt deposition in pools that once had firm bottoms resulted in their disappearance from areas where they were generally distributed prior to the erection of dams.

Dams and impoundments further serve as insurmountable barriers to upstream dispersal of large-river and channel species, which quickly disappear above the dams and, unlike small-stream species, cannot be recruited from lesser tributaries. An example is the bullhead minnow (Fig. 8), which formerly was generally distributed in the North Fork and Embarras River and known from a few localities on the Middle Fork. The species is presently unable to reoccupy the North Fork and Embarras River, even when these streams are temporarily large rivers, because of the dams. In the

Embarras River, the bullhead minnow occurs in abundance virtually up to the Lake Charleston dam.

Although precise measurements of water turbidity and observations on the amount of aquatic vegetation present are not available for comparison, there is no doubt that the quantity of silt has increased in the streams and that both submerged and marginal aquatic vegetation have decreased in the Vermilion and Embarras River systems. Fishes that once occupied clear, firm-bottomed and well-vegetated pools are now sporadic in occurrence in the two watersheds and throughout Illinois. Noteworthy examples are the bigeye chub (Fig. 9), bigeye shiner (Fig. 10), and spotted sucker (Fig. 11).

Dredging changes the stream from one consisting of alternating riffles with hard bottoms and pools



FIGURES 9-11.—Former distribution (open circles) and present distribution (solid symbols) of three species of fishes decimated in the Vermilion and Embarras River basins as a result of silt-laden water and loss of vegetation in formerly clear, hard-bottomed pools.

with hard or soft bottoms to a relatively straight, diked ditch with rather uniform flow, depth, and bottom type, usually mud or sand depending upon the prevailing soil texture in the area. Vegetation and brush are removed, and all existing habitats temporarily destroyed. With a loss in the number of available habitats, the number of species in the stream is reduced. When the stream reverts to something of its original condition, another dredging is undertaken.

Canalization has much the same effects, except that habitat disturbance is more severe. Small ditches tend to be moderately fast flowing; large ones, sluggish and soon littered with logs and other debris. Its effects upon the extensively rechanneled lower Embarras River cannot be assessed since no early collections of fishes are available for study.

Sludge deposition in the Vermilion River below the Danville sewage treatment plant obliterates the sand and gravel in riffles and pools. The number of species present is reduced as less tolerant fishes are eliminated and spawning sites are destroyed by the layer of sludge. Because of the enrichment of the water, the number of individual fish is high, but many of them have eroded fins and other pollution-induced anomalies.

Reduction in stream size results from accelerated drainage of the watershed and the average lowering of the water table. Large, once stable streams become small, less stable streams, which are more profoundly affected by drought. When tributaries become dry, small-stream fishes perish or retreat to the par-

ent river; when the tributaries again have water in them, fishes from nearby habitats quickly repopulate tributaries. However, when the large stream diminishes and large-river species die or move downstream, the short period of time between low-water stages and the great distance fishes must reascend prevent their reoccupying their original haunts. As previously illustrated by the range of the bullhead minnow (Fig. 8), a dam or other obstruction blocks upstream dispersal, even when the river has temporarily regained its large size.

Species possibly benefiting from the changing environments.—It is axiomatic that typically lacustrine fishes may also inhabit streams, but a substantially smaller percentage of typically stream-inhabiting fishes occur in lakes. With the extirpation of the blacknose shiner, none of the native fishes of the Vermilion and Embarras River systems is truly a large-lake species. The construction of large reservoirs thus creates large-lake niches that can be occupied either by introduced lake species or native species actually characteristic of oxbows, backwater areas, or quiet pools of streams.

While the conditions responsible for the decimation of most of the 20 species previously cited can be enumerated, it is reasonable to assume that these same conditions should have benefited, to some extent, species characteristic of oxbows and quiet, murky, soft-bottomed pools. Among these are the following species, most of which are now common in one or both systems:

Gizzard shad

Creek chubsucker
Carp
Golden shiner
Redfin shiner
Fathead minnow
Creek chub
Black bullhead
Yellow bullhead
Tadpole madtom
Pirate perch
Blackstripe topminnow
Mosquitofish
Warmouth
Green sunfish
Orangespotted sunfish
Bluegill
Largemouth bass
White crappie
Bluntnose darter
Slough darter

Although the assumption is reasonable, no data are presently available to indicate that any of these species are more abundant or more generally distributed than formerly, and three of them (black bullhead, tadpole madtom, and orangespotted sunfish) have, in fact, been cited on a preceding page as species decimated in the two basins.

ENDANGERED POPULATIONS OF FISHES

At this writing (March 1967), the Corps of Army Engineers has scheduled, and the Congress has authorized, the construction of a dam on the Embarras River at the Coles-Cumberland County line to create the proposed Lincoln Reservoir, an impoundment to have a seasonal pool covering 6,760 acres and to extend almost 30 straight-line miles above the dam. The reservoir, one of several projects planned for the

Wabash River valley, is allegedly designed as a flood-control lake and recreation site; it would also provide a water supply for the city of Charleston, a community that has had water shortages on several occasions in recent years.

The Illinois Division of Waterways has recommended, but the State Legislature has not yet authorized, the construction of a dam on the Middle Fork near Kickapoo State Park. This proposed reservoir, designed to assure a water supply for the city of Danville and to provide additional recreational space, would inundate an unknown number of acres and extend about 12 miles above the dam.

The Illinois Department of Conservation has scheduled, and has received some appropriations from the State Legislature, the construction of dams on tributaries of the Salt Fork and Embarras River to create a small conservation lake in Champaign County and another in Douglas County.

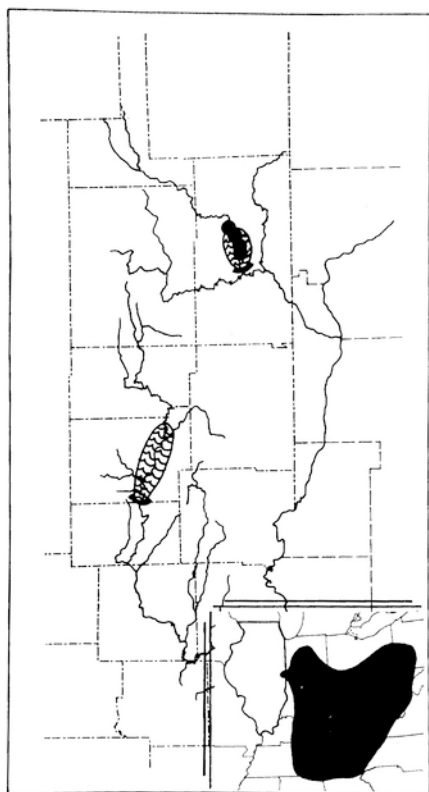
The Illinois State Water Survey, although not recommending any specific dams, has conducted an independent survey of potential surface water reservoirs based on feasibility. This agency noted that a good dam site was available on the Embarras River near that of the proposed Lincoln Reservoir dam but described the project as, "probably not feasible geologically until further investigation proves that leakage can be controlled" (Dawes & Terstriep, 1966a:34). The Water Survey identified almost 50 other sites, mostly on tributaries of the Embarras River, as being feasible for construction of small reservoirs

but did not include the Middle Fork site or those selected by the Department of Conservation (Dawes & Terstriep 1966a; 1966b).

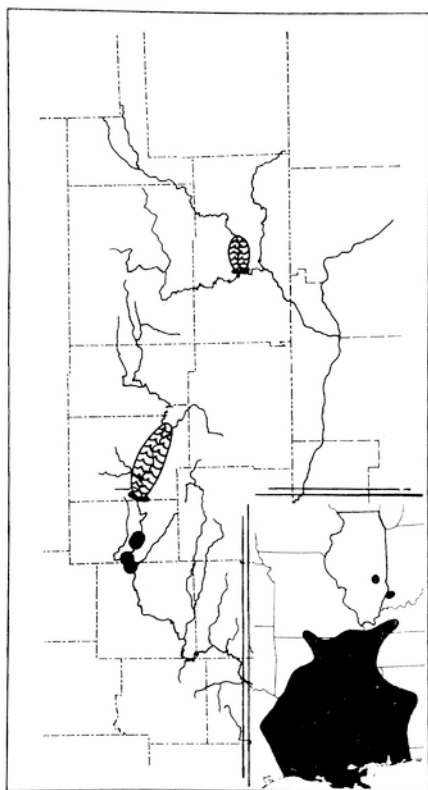
Aside from further, rather extensive decimation of some stream fishes through destruction of their habitats, the Lincoln Reservoir would probably not greatly affect any Illinois species of fish, and there is no evidence that construction of small reservoirs on tributaries of the Vermilion and Embarras rivers would have any appreciable effect

upon the general distribution of Illinois fishes. However, the Middle Fork Reservoir, should it become a reality, would surely eliminate in Illinois one species of darter, and future reservoirs at other sites on the Vermilion and Embarras rivers could jeopardize Illinois populations of some of the following fishes.

Bluebreast darter. — This species occurs in an approximately 12-mile stretch of the Middle Fork (Smith 1965:10), the entire length of which would be affected by a dam at Kick-



BLUEBREAST DARTER



HARLEQUIN DARTER

FIGURES 12-13. — Illinois distribution of the bluebreast and harlequin darters. Shading depicts areas that would be affected by contemplated reservoirs. Inset maps indicate total ranges of the species.

apoo State Park (Fig. 12). The bluebreast darter inhabits extremely fast riffles containing boulders as well as gravel and rubble, and it spawns near boulders or large rocks at the heads of these riffles. Although occurring in adjacent Indiana, the species has not been found in Illinois anywhere except in the lower Middle Fork.

Harlequin darter.—Although not currently threatened by a proposed reservoir, this species has a similarly restricted range in Illinois (Fig. 13). It is known to occur in roughly a 10-mile stretch of the middle Embarras River (Smith 1965:10), where it is found sparingly in deep, sand-bottomed riffles containing submerged logs or stumps. If the dam for the proposed Lincoln Reservoir were 15 miles farther downstream or if a dam should be erected in that vicinity in the future, the species would almost certainly be eliminated from Illinois. Unlike the bluebreast darter, this species has been recorded from only one locality in Indiana (Jordan 1890) and never collected in that state again. The Illinois population is thus the only northern one extant for this little-known darter.

Eastern sand darter.—This eastern species reaches its westernmost limit of range in the Wabash-Ohio River basin of eastern Illinois. It is virtually restricted to the Embarras River and Middle Fork, for 12 of the 13 known Illinois records are from these two rivers (Fig. 14). Intolerant of silt and habitat disturbance, the species inhabits clear riffles and shallow pools over bottoms of clean sand.

Dusky darter.—This wide-rang-

ing species is similar in its Illinois distribution to the eastern sand darter, inasmuch as 23 of the 26 known Illinois records are from the Vermilion and Embarras river basins (Fig. 15). It inhabits clear, fast gravelly riffles and disappears when rate of flow and bottom type are altered in the stream.

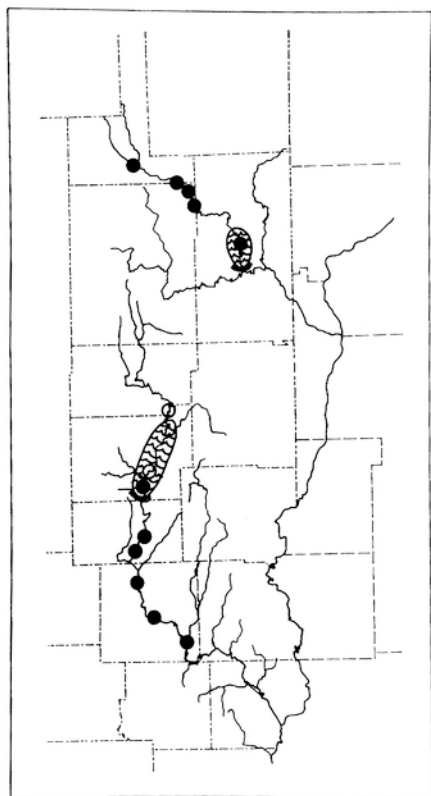
A few species of shiners and madtoms and the spotted bass, although not restricted to the Vermilion and Embarras river systems, also reach their greatest abundance, and are best known in Illinois, in these two basins.

The number of endangered species in Illinois waters is quite small and, if contemplated reservoirs materialize, only one of them is destined for extirpation. However, evidence presented in an earlier section of this paper clearly indicates that extensive decimation of populations of fishes characteristic of riffles and clear, hard-bottomed pools would be inevitable in both the Middle Fork and Embarras River and that other changes in the fish fauna of the two systems are likely to follow construction of new dams.

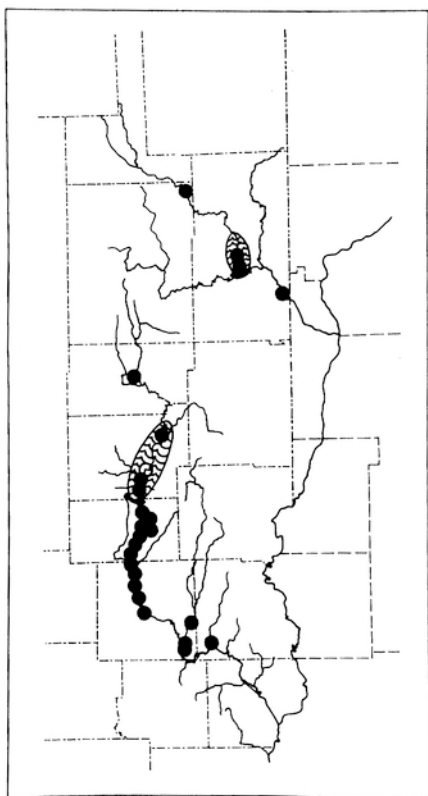
Pollution, including siltation, and other modifications of the streams and watersheds, will continue to intensify ecological hazards for fishes with restricted distribution, but currently alteration of the physical habitats through construction of artificial reservoirs on main streams, the one activity that could be circumvented, is clearly the greatest threat to them.

ACKNOWLEDGMENTS

I have profited from discussions of material covered in this paper with Survey



EASTERN SAND DARTER



DUSKY DARTER

FIGURES 14-15. — The distribution in the Vermilion and Embarras River basins of the eastern sand and dusky darters. Shading depicts areas that would be affected by contemplated reservoirs.

colleagues Drs. George W. Bennett, R. Weldon Larimore, and William C. Childers; Chief Fishery Biologist A. C. Lopinot, Illinois Department of Conservation Division of Fisheries; and Dr. Leonard Durham, Eastern Illinois University. Mr. Julius H. Dawes of the Illinois State Water Survey furnished information on both Lake Charleston and Lake Vermilion, and Dr. Edward C. Raney, Cornell University, supplied distributional data on the range of the harlequin darter from a thesis by his former student Chu-fa Tsai.

The maps accompanying this article were drafted by Richard M. Sheets, Survey Technical Illustrator, and prints were made available to me by Wilmer D. Zehr, Survey Photographer. Drs. H. H.

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- ### APPENDIX
- #### SCIENTIFIC NAMES OF SPECIES OF FISHES CITED IN TEXT
- Ohio lamprey, *Ichthyomyzon bdellium* (Jordan)
- Chestnut lamprey, *Ichthyomyzon castaneus* Girard
- Gizzard shad, *Dorosoma cepedianum* (Lesueur)
- Stoneroller, *Campostoma anomalum* (Rafinesque)
- Carp, *Cyprinus carpio* Linnaeus
- Silverjaw minnow, *Ericymba buccata* Cope
- Bigeye chub, *Hybopsis amblops* (Rafinesque)
- Silver chub, *Hybopsis storeriana* (Kirtland)
- Golden shiner, *Notemigonus crysoleucas* (Mitchill)
- Bigeye shiner, *Notropis boops* Gilbert
- Blacknose shiner, *Notropis heterolepis* Eigenmann & Eigenmann
- Redfin shiner, *Notropis umbratilis* (Girard)
- Suckermouth minnow, *Phenacobius mirabilis* (Girard)
- Fathead minnow, *Pimephales promelas* Rafinesque
- Bullhead minnow, *Pimephales vigilax* (Baird & Girard)
- Creek chub, *Semotilus atromaculatus* (Mitchill)
- Creek chubsucker, *Erimyzon oblongus* (Mitchill)
- Northern hog sucker, *Hypentelium nigricans* (Lesueur)
- Spotted sucker, *Minytrema melanops* (Rafinesque)
- Black bullhead, *Ictalurus melas* (Rafinesque)
- Yellow bullhead, *Ictalurus natalis* (Lesueur)
- Tadpole madtom, *Noturus gyrinus* (Mitchill)
- Brindled madtom, *Noturus miurus* Jordan
- Blackstripe topminnow, *Fundulus notatus* (Rafinesque)
- Mosquitofish, *Gambusia affinis* (Baird & Girard)
- Brook silverside, *Labidesthes sicculus* (Cope)
- Pirate perch, *Aphredoderus sayanus* (Gilliams)
- Warmouth, *Chaenobryttus gulosus* (Cuvier)
- Green sunfish, *Lepomis cyanellus* Rafinesque
- Orangespotted sunfish, *Lepomis humilis* (Girard)
- Bluegill, *Lepomis macrochirus* Rafinesque
- Spotted bass, *Micropterus punctulatus* (Rafinesque)
- Largemouth bass, *Micropterus salmoides* (Lacépède)
- White crappie, *Pomoxis annularis* Rafinesque
- Black crappie, *Pomoxis nigromaculatus* (Lesueur)
- Eastern sand darter, *Ammocrypta pellucida* (Baird)
- Mud darter, *Etheostoma asprigene* (Forbes)
- Greenside darter, *Etheostoma blennioides* Rafinesque
- Bluebreast darter, *Etheostoma camurum* (Cope)
- Bluntnose darter, *Etheostoma chlorosomum* (Hay)
- Fantail darter, *Etheostoma flabellare* Rafinesque
- Slough darter, *Etheostoma gracile* (Girard)
- Harlequin darter, *Etheostoma histrio* Jordan & Gilbert
- Blackside darter, *Percina maculata* (Girard)
- Dusky darter, *Percina sciera* (Swain)