拘束 Cleveland!

The people in the Cleveland area were again good to Ohio Sea Grant and the Franz Theodore Stone Laboratory at the 48th Annual American and Canadian Travel and Sport Show.

For the 7th year, the Sport Show donated a booth to Ohio Sea Grant so public awareness of Lake Erie could be increased. People were available to answer questions and literature was distributed. The theme of this year’s booth was Artificial Reefs, since permits have been obtained for four reefs to be built in Lorain, Cuyahoga and Ashtabula counties (see past issues of Twine Line for more information).

THANKS TO
Expositions, Inc. (management of show) Dave Fassnacht, President Terry Messersmith, Vice President

Booth workers:
—Bruce Smith —Bill Meszaros
—Gary Jennrich —Linda Meszaros
—Glenn Johnson —Dick Voight
—Bill Mason —Steve Gecewich
—Bill Allen —Ernie Pavlovck
—Bud Kazar —Bob Zetz
—Eileen Kazar —Ted Corbus
—Dan Forrester —Marna Corbus
—Jim Johnson —Maggie Kelch
—Joe Karakul —Mike Gerber

For the third year, the Pepsi-Cola Bottling Co. of Cleveland organized a fund raising booth for Stone Lab. This year’s booth was operated in cooperation with Wendy’s and Sister’s. The prizes for the “Catch A Can” contest were donated by Pepsi, Wendy’s, Sister’s, Lindy Fishing Tackle, Berkly Trilene Line, and Ryobi Fishing Rods and Reels. For a quarter per try, the “can angler” had 90 seconds to hook a can. Prizes were marked on the bottom of the can. (For more information concerning Stone Lab, see article on page 8.)

Wallop-Breaux Fund Update

The Boating Safety and Sport Fishing Restoration Act (PL98-369 Dingell-Johnson expansion) signed into law last year was to make tax money paid for certain products purchased by boaters and anglers and use that money for dedicated improvements in aquatic resources and boating and angling opportunities (see the February 1985 issue of Twine Line).

However, the Office of Management and Budget has recommended and the Secretary of the Interior has agreed that no new Wallop-Breaux monies will be allocated in fiscal year 1986. The taxes will be collected but the monies will not be spent on their intended purposes as directed in PL98-369. The user fees will in effect be impounded or diverted to other uses. Ohio stands to lose an estimated $1,880,000 if the OMB recommendations are enacted. Nationally instead of an anticipated $121 million going to the states to improve boating and angling only $44 million is allocated for these purposes in the Administration’s Fiscal Year 1986 budget.

It will be up to sportsmen, anglers and boaters to inform congress as to their wishes. Congress can reject this proposed diversion of Wallop-Breaux tax monies from their intended purpose.

—Frank Lichtkoppler

Source: Sport Fishing Institute

Biogeography of the Island Region of Western Lake Erie Colloquium

The 9th Biosciences Colloquium of the College of Biological Sciences at The Ohio State University is entitled “Biogeography of the Island Region of Western Lake Erie: A Laboratory for Experiments in Ecology and Evolution,” to be held in Columbus and Put-in-Bay, Ohio, May 28–31.

The primary goals of this academic meeting are: 1) to develop more fully the ecological data bases including present and past biotic distributional patterns for western Lake Erie, 2) to analyze these data bases with special regard to modern concepts of island biogeography, population genetics, and ecology, and 3) to identify areas for special emphasis of future research programs.

Invited lecturers and panel discussions by national and regional authorities including National Academy of Science members will address the broad concepts of island biogeography applicable to the western Lake Erie region, the status of the information base of specific biotic (terrestrial and aquatic) groups, and the factors with affect biotic distributional patterns in the region.

Although this is an academic meeting, the general public is encouraged to attend.

If you would like more information or to contribute a research idea, please contact:
Dr. Charles C. King, Director
Ohio Biological Survey
484 West 12th Avenue
Columbus, Ohio 43210
Phone: 614-422-9645

If you would like to attend all or part of the colloquium, please contact:
Linda Roberts
OSU Office of Continuing Education
2400 Olentangy River Road
Columbus, Ohio 43210
Phone: 614-422-8571
Port Clinton Walleye Festival Combines With Pro-Am Tournament

The Port Clinton Walleye Festival Committee and the Lake Erie Charter Boat Association (LECBA) have announced that the 1985 Walleye Festival will be combined with the 1985 PRO-AM Walleye Tournament to provide four days of entertainment and fun in the Walleye Capital of the World.

The PRO-AM Tournament will be headquartered at Waterworks Park in Port Clinton, the site of the annual Walleye Festival. Both events are entering their sixth year of operation but were held separately in previous years. The festival is slated for May 24–27 with tournament fishing on May 25–26.

The first evening’s events will feature fishing tackle displays, demonstrations, and a casting contest at the Waterworks Park fishing pond. Following that will be the crowning of the Walleye Queen and dancing to a live band.

During tournament hours on Saturday and Sunday, additional family entertainment and amusements will include a carnival, flea market, entertainers, and snacks. Visitors can keep abreast of tournament standings from the computerized scoring system at the tournament headquarters. The award ceremony is slated for 6:00 p.m. on Sunday. Festivities will culminate on Monday with a Memorial Day Parade.

The Port Clinton Walleye Festival offers the whole family a fun-filled way to spend Memorial Day weekend at Lake Erie. For more details, contact the Port Clinton Chamber of Commerce at 111 W. Perry Street, Port Clinton, Ohio 43452, (419) 734-5503, or contact Judy Smith, Festival Chairperson, at (419) 732-2864.

—Fred L. Snyder

Symposium Valued at Quarter Million Dollars

The 1985 Fairport Fishing Symposium was a success this year, according to a survey of 153 randomly selected Symposium participants. Almost 80% of the Symposium survey participants purchased something at the show. Reported expenditures ranged from $1.00 to $184.00. An estimated 15,000 people attended the two-day Symposium and spent an estimated $250,000 for sportfishing-related goods and services.

In addition to over 85 exhibits, there were hourly seminars on Lake Erie sportfisheries, lake ecology, phosphates, artificial reefs, boat safety, and more. Ninety-six percent of the survey participants gained much or some knowledge from the Symposium, eighty-nine percent plan to use and/or share the information with friends.

For almost 40 of 10 participants, it was their first time to see the annual Sportfishing Symposium. Survey participants came from six different counties, with 73% being Lake County residents.

The survey was designed by District Extension Specialist, Sea Grant, Frank Lichtkoppler. It was conducted by Fairport Rod & Reel Association members in order to evaluate the economic and educational value of the Symposium. A total of 150 surveys were returned.

Lichtkoppler also assisted with organizing and planning the almost three dozen educational seminars. In addition, he taught two seminars on Lake Erie Artificial Reefs in Northeast Ohio and worked at the Sea Grant Extension education exhibit with the assistance of Sea Grant Extension Advisory Committee members Ernie Pavlovic, Steve Gecewich and Harold Grapatin. Questions from over 300 Symposium visitors were answered.

The Symposium was sponsored and produced by the Fairport Harbor Rod & Reel Association and its 550 members as a service to the community. Tom Davis was the Symposium Organizing Committee Chairman.

—Frank R. Lichtkoppler

Professional Recognition

Frank Lichtkoppler, District Extension Specialist, Sea Grant, with the Ohio Cooperative Extension Service has recently been recognized as a Certified Fisheries Scientist by the American Fisheries Society.

Lichtkoppler has met the professional requirements for certification as established by the AFS and verified by the Board of Professional Certification of the Society.

The AFS is an international organization of over 7,000 professional, lay, and student members in the field of fisheries and aquatic science. It is the oldest and largest scientific group dedicated to the advancement of fisheries science and conservation of renewable aquatic resources. The AFS strengthens professional standards by certifying fisheries scientists, stressing professional ethics, and providing forums for the exchange of scientific information.

Lichtkoppler has been an active member of the AFS since 1977.

Lake Erie Coastal Erosion Facts

- During the years 1972 through 1976 the cost of shoreline erosion was $95 million. This averages $93,000 per mile per year.

- Eighty-three percent of the homes on the Ohio shoreline of Lake Erie are within 25 feet of the lake.

- ODNR, Division of Geological Survey studies indicate that beaches 35 to 40 feet wide seem to provide adequate protection from erosion during most storm events.

- A minimum cost figure for adequate shoreline protection is estimated to be $400 per linear foot of shoreline.

- Erosion of up to 12 to 22 feet per year in the low clay bluff areas near Maumee Bay have been measured by the ODNR, Division of Geological Survey.

Source: Don Guy, ODNR, Division of Geological Survey

Update

The February 1985 issue of Twine Line included the article “What Is A Saugeye?” William S. Snyder wrote that article during his studies at The Ohio State University while working with the Ohio Sea Grant Program as a graduate research associate. As of September 1984, Snyder has been Instructor of Natural Resources in Fisheries at Hocking Technical Institute in Nelsonville, Ohio.
Seafood Sense

continued on page 4

Editor’s Note: “Seafood Sense” will become a regular feature of Twine Line, and with each issue will provide interesting information concerning seafood from throughout the world.

Okay, What’s An Orange Roughy?

Orange Roughy (Hoplostethus atlanticus). We’ve heard about it, and most of us have probably tasted it, but just what is the story behind this mystery fish that has captured the hearts of seafood lovers nationwide? Ten years ago, its existence was unknown. Today it has become the new seafood rage of the U.S.A.

In 1975, a Japanese research ship discovered great numbers of orange roughy at depths of 3,000 feet off the coast of New Zealand. Samples cooked on board proved excellent, and Japanese and South Korean long-distance fishermen were soon reaping a harvest. Although isolated schools of orange roughy have been found in the deep Atlantic and Pacific, so far the sandy bottom off the New Zealand coast has produced the only exportable concentration. The 200 mile fishing limits of 1978 allowed New Zealand’s fleet, composed of small nearshore vessels, to capitalize on this lucrative deep-water fishery. Foreign fleets were permitted to fish, provided most of the catch was sold to New Zealand companies for export. Therefore, New Zealand needed not to invest in offshore boats, but only in technology and market development.

The orange roughy feeds mainly on shrimp, and grows to an average weight of three pounds. The fat of the roughy is unique. While most fish fat is in the form of triglycerides, which are metabolized by the human body, the fat of the orange roughy is a waxy, liquid-like substance (ester) which passes right through the human body.

“Fresh” orange roughy, though available in small quantities, is extremely rare. Most are caught, gutted and frozen up to two months before reaching port. Once in port, they are thawed, skinned, filleted and re-frozen. The roughy stands up well to thawing and refreezing, though, and many say that one cannot tell the difference between once- and twice-frozen roughy.

Price? During 1981, orange roughy fillets sold for $1 per pound. Today, it is difficult to find fillets for under $2.95 per pound. The price is not expected to go much higher, however; New Zealand is already concerned that spiraling prices will meet significant consumer resistance.

Orange roughy’s flaky, pearly white, mild tasting flesh is easily prepared in all recipes, with baking, broiling and poaching best, with a 3¼ ounce serving yielding 16 grams of protein, 8 grams of fat, and 166 calories.

—Dave Kelch

Preparation of “Heart Healthy” Seafood

One rule for cooking fish is 10 minutes cooking time per 1 inch of thickness (measure thickest part of fish with a ruler). Double this cooking time for frozen fish. The 10 minute rule applies to all cooking methods except microwaving.

Fish is cooked when the flesh becomes opaque and flakes easily with a fork. Remember, fish cooks quickly and overcooking tends to toughen and dry out the flesh. Poaching, steaming, baking, broiling, sautéing and microwaving are excellent low-fat cooking methods. Select any of the following methods to keep the calorie and fat content of your seafood dishes low.

STEAMING:
Mollusks, such as mussels and clams, and other seafoods are excellent when steamed. Place seafood on a steaming rack set 2 inches above boiling liquid in a deep pot. Season as desired. Cover tightly, reduce heat and steam until done.

BAKING:
Place seafood in a baking dish. Add sauce or topping to keep fish moist, cover, and bake at 400 degrees until done. Sauce suggestion for one pound of fish: combine 1 tablespoon melted polyunsaturated margarine, 1 tablespoon lemon juice, 1/4 teaspoon onion powder and 1/2 teaspoon dried basil.

POACHING:
Poaching is an easy method of preparing fish for the beginning cook. Use enough skim milk, water, wine, or other liquid to barely cover a single layer of fish in a saucepan or frying pan. This liquid may be seasoned with chopped carrots, celery, onions, and peppercorns. Bring liquid to a boil, cover, and simmer about 10 minutes. Add fish and simmer until done.

SAUTEING:
Heat a small amount of polyunsaturated margarine or oil with liquid, such as white wine, in a frying pan. Add chopped mushrooms, green onions, lemon juice and seafood, and saute over medium high heat until done.

MICROWAVING:
Place seafood in a non-metal dish and cover with plastic wrap. Cook approximately three minutes per pound or follow manufacturer’s directions.

—Dave Kelch

Phosphorus in Lake Erie

Lake Erie is a fertile lake — too fertile for its own good! Phosphorus is a nutrient that stimulates plant growth in water and causes problems in Lake Erie. As a result of excessive phosphorus pollution, Lake Erie has been subject to sudden huge increases of microscopic aquatic plants called algae. These population increases are called "blooms." Excessive algae blooms can cause several problems. Overproduction of algae may lead to increased turbidity, aesthetic nuisances, filter and water intake clogging, and taste and odor problems in water supplies.

An overabundance of algae is also the cause of oxygen depletion problems in central Lake Erie. The algae dies and sinks to the bottom of the lake where it is decomposed by bacteria which consume oxygen as they decompose the dead algae.

During the summer, additional oxygen cannot reach the bottom waters of Lake Erie. As a result, by summer's end all of the oxygen present in the bottom water in the spring has been used by the bacteria to decompose the algae.

In the 1960s and 70s, as much as 90% of the bottom water in the central basin of Lake Erie lost all its oxygen in the summer, killing bottom-dwelling aquatic organisms normally eaten by fish and causing bottom-dwelling fish species like yellow perch to move in search of more oxygen and food. Fish unable to tolerate the warm upper waters of Lake Erie (such as lake trout), were lost to the central basin of Lake Erie due to the oxygen depletion.

Most experts agree that reducing the amount of available phosphorus entering Lake Erie would reduce algae populations, and the oxygen depletion problem would slowly be eliminated. The major argument occurs over how to reduce phosphate pollution. On the Great Lakes, the major phosphorus pollution control methods have been improved sewage treatment, conservation farming to reduce soil erosion that carries phosphorus fertilizer into rivers and lakes, and detergent phosphorus bans.

The Ohio State University Center for Lake Erie Area Research reports that phosphorus loading to Lake Erie has declined from an estimated 18,800 metric tons in 1971 to an estimated 13,500 metric tons in 1980. It is thought that the lake can recover if the target goal of 11,000 metric tons per year can be reached.

Since 1972, the USA and Canada have spent or committed more than $7.66 billion to construct and upgrade municipal wastewater treatment plants in the Great Lakes. A part of this investment is the cost of installing, maintaining, and operating the phosphorus removal operations. Funds for improved sewage treatment have become harder to obtain in recent years.

"Phosphorus reductions directly attributable to detergent phosphate controls are important," states the Great Lakes Water Quality Board in its 1983 report to the International Joint Commission (IJC), the Canada-USA supervising body responsible for implementation of the 1972 and 1978 Great Lakes Water Quality Agreements. The states of New York, Michigan, Minnesota, Wisconsin, and Indiana have detergent phosphate limits. The Province of Ontario has a detergent phosphate limit of 2.2 mg/l. The cities of Chicago, Akron, and some smaller communities also have detergent phosphate limits. The Great Lakes Water Quality Board recommends that detergent phosphate controls be adopted in Ohio as a component of the state's phosphorus management strategy.

For more information on the biological background for phosphorus control in Lake Erie, request Ohio Sea Grant Fact Sheet #15, "Lake Erie: Phosphorus and Eutrophication."

—Frank Lichtkoppler

## NUTRITIONAL BREAKDOWN COMPARISON CHART

<table>
<thead>
<tr>
<th></th>
<th>Size Serving</th>
<th>Total fat (grams)</th>
<th>Cholesterol (milligrams)</th>
<th>Calories</th>
</tr>
</thead>
<tbody>
<tr>
<td>White-fleshed fish*</td>
<td>3 oz.</td>
<td>0.5</td>
<td>43</td>
<td>115</td>
</tr>
<tr>
<td>(low fat fish)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium to higher fat fish**</td>
<td>3 oz.</td>
<td>5.4</td>
<td>40</td>
<td>138</td>
</tr>
<tr>
<td>Shellfish:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crab</td>
<td>¼ cup</td>
<td>2.0</td>
<td>62</td>
<td>85</td>
</tr>
<tr>
<td>Clams</td>
<td>6 large</td>
<td>1.0</td>
<td>36</td>
<td>65</td>
</tr>
<tr>
<td>Lobster</td>
<td>¼ cup</td>
<td>1.0</td>
<td>62</td>
<td>68</td>
</tr>
<tr>
<td>Oysters</td>
<td>3 oz.</td>
<td>1.5</td>
<td>45</td>
<td>53</td>
</tr>
<tr>
<td>(6 oysters)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scallops</td>
<td>3 oz.</td>
<td>1.3</td>
<td>40</td>
<td>90</td>
</tr>
<tr>
<td>Shrimp</td>
<td>¼ cup</td>
<td>1.0</td>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>(11 large)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canned Fish:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sardines (canned in oil, drained solids)</td>
<td>3½ oz. (1 can)</td>
<td>9.0</td>
<td>129</td>
<td>175</td>
</tr>
<tr>
<td>Salmon pink (canned drained solids)</td>
<td>3 oz.</td>
<td>5.0</td>
<td>32</td>
<td>120</td>
</tr>
<tr>
<td>Tuna (packed in oil, drained solids)</td>
<td>3 oz.</td>
<td>7.0</td>
<td>55</td>
<td>167</td>
</tr>
<tr>
<td>Lean Beef</td>
<td>3 oz.</td>
<td>7.7</td>
<td>77</td>
<td>177</td>
</tr>
<tr>
<td>Poultry (fresh, without skin, light meat)</td>
<td>3 oz.</td>
<td>4.2</td>
<td>74</td>
<td>155</td>
</tr>
<tr>
<td>Eggs (chicken whole)</td>
<td>1 med.</td>
<td>5.6</td>
<td>274</td>
<td>79</td>
</tr>
<tr>
<td>Liver, beef</td>
<td>3 oz.</td>
<td>9.0</td>
<td>372</td>
<td>195</td>
</tr>
</tbody>
</table>


* White-fleshed fish includes many varieties such as cod, pollock, snapper (rock fish), halibut, haddock, grouper, shark, flounder and perch.

** Medium to higher fat fish includes many varieties such as salmon, fresh albacore and bluefin tuna, mackerel, sablefish and rainbow trout.

—Dave Kelch
The History of Shipping on Lake Erie

The first vessel that might truly be called a ship and that sailed above Niagara Falls was the Griffon, built by LaSalle just above the falls in 1679. She was about 60 feet long. On the 7th of August she sailed off into Lake Erie, then a largely unknown expanse. Before long she was sailing along the shore in a fog, when LaSalle heard breakers ahead. The others on board said it was merely the sound of the wind, but he quickly ordered the course changed—and sailed out of Long Point Bay and fear of the point. Thus he kept the Griffon from being the first of the many ships wrecked on Long Point.

The little vessel went on up the lakes to Green Bay, on Lake Michigan. There she was loaded with furs, started her return trip on September 18th—and was never seen again.

Both the French and the British built small sailing vessels on the Great Lakes, and the Americans followed suit. At least seven small sailing vessels were launched at Cleveland between 1808 and 1822, and similar vessels were built at other towns. Several of the smaller vessels in Commodore Perry’s squadron were converted merchantmen.

The most important early event in Lake Erie shipping was the construction of the steamer above Niagara Falls, the 135-foot long Walk-in-the-Water, launched at Black Rock, near Buffalo, in 1818. She was towed up to the lake against the current of the Niagara River by the same so-called “horneed breeze” that towed sailing vessels over the same reach—16 yoke of oxen plodding along the river bank.

The Walk-in-the-Water went into service between Buffalo and Detroit, with stops at ports between. Other steamers soon followed. By 1822, a two-story hotel, the Steamboat Hotel, was built near the steamer landing in Sandusky. By 1836, the collective citizens of Sandusky owned four steamboats, nine schooners, and six sloops.

The Walk-in-the-Water herself was wrecked near Buffalo, driving ashore in a gale on the last day of October, 1821. All aboard were saved, and the engines were later taken out of the wreck and put in another steamer.

As the westward flow of immigrants grew, Buffalo became a major port. The Erie Canal, completed in 1825, brought manufactured goods and immigrants to Buffalo from the East. Lake steamers then carried the immigrants westward. By the 1840s there were some steamboat lines that carried only immigrants and almost all steamers carried some immigrants.

One of the steamers on the Buffalo-Detroit run was the 176-foot-long sidewheeler Erie. She left Buffalo in the afternoon of August 9, 1841. A wooden vessel, she had been freshly varnished. There were between 200 and 250 passengers on board, about 120 of which were German-speaking Swiss immigrants. Among the passengers were half a dozen painters, going to Erie, Pennsylvania, to paint a steamer. They carried large bottles of turpentine and varnish, which were placed on deck immediately above the boilers. One of the Erie’s firemen, going on deck, was shocked to find them there and moved them away. Later someone moved them back.

About nine in the evening the Erie was off Silver Creek. A strong wind was blowing and some sea was running. There was a slight explosion and then the whole ship was enveloped in flames. Chaos followed. One of the survivors described the scene:

The air was filled with shrieks of agony and despair. I shall never forget the wail of terror that went up from the poor German immigrants, who were huddled together on the forward deck. But if the scene forward was terrible, that aft was appalling, for there the flames were raging in their greatest fury. Some madly rushed into the fire; others, with a yell like a demon, maddened with the flames, which were all around them, sprang headlong into the waves.

Another steamer, the DelWitt Clinton, sighted the fire from about twenty miles away and steamed toward it. By the time she had reached the burning hulk the upper works had burned away and the hull was swathed in subdued flames, but the engine was still upright in the hull. The Clinton was able to pick up 27 people who were clinging to floating objects. Other vessels arrived later and picked up a few more. One steamer tried to tow the wreck toward shore, but it sank a few miles out.

Fourteen years later a salvage operation recovered a fortune, mainly the foreign coins carried by the immigrants. One report says the amount recovered was $200,000, a large amount in the mid-1800s.

Passenger ships continued in service on the lakes, and especially on Lake Erie. As people grew more safety-conscious there were fewer disasters. There was passenger service on Lake Erie through World War II, but passenger ships have now disappeared except for a few small ships, ferryboats, that hardly merit the name. For practical purposes, the end of passenger service on Lake Erie came in 1951 when the last remaining passenger line, the Detroit and Cleveland Navigation Company, suspended operations.

Although passenger ships conjure up more interest and nostalgia than the cargo carriers, carriers have had much more influence, particularly on Lake Erie. Because of them, the southern shore of the lake is the base for most American shipping on the Great Lakes.

This shore has developed into a heavily populated industrial area because it is the logical place where coal, brought by rail from Appalachia, can meet iron ore, brought by ship from Lake Superior. The iron ore could not come until the canal was opened at Sault Ste. Marie in 1855. The little barge Columbia passed through the canal and brought the first cargo of Lake Superior iron ore to the furnaces at Cleveland.

For many years the primary carriers of bulk freight were sailing vessels. This is underlined by events at Cleveland in the autumn of 1863, when there were three wrecks there within two weeks. All three sailing vessels bringing iron ore to the furnaces.

The three-master schooner Sophia Minch was wrecked on the evening of October 31st. After a hard struggle, the lifesavers got everyone off her. Another three-master, John B. Merrill, was wrecked the next evening. Again after working most of the night, the lifesavers took off her crew. During the following week the lifesavers helped pump out and raise both vessels. Then on November 11th the schooner-barge John T. Johnson, of Sandusky, carrying ore from Lake Superior, arrived during a northwest gale, attempted to enter Cleveland harbor, and missed the entrance.

The Johnson anchored off the north pier. Captain Goodwin of the lifesaver’s forerunner of today’s coast guard, saw that she was in trouble and ordered his surfboat out. As the lifesavers rowed out of harbor, one tug captain hailed Goodwin and told him that if he put a line around the stricken vessel, the tug would pull her in.

The surfboat moved out into the heavy seas—so heavy that from the lifesavers’ viewpoint the waves completely blanketed the light that should have shone through the darkness from the end of the pier. Keeping the bow of the surfboat to the storm, the oarsmen backed down toward the schooner.

They reached the Johnson and got on board. They found that “the sea was breaking over her fore and aft, and that she was covered with a glare of ice, the spray from the huge waves freezing wherever it struck.” Whatever was done must be done quickly, as there was danger of the schooner parting her cable at any moment and driving ashore.

Goodwin hailed the customs inspector and the lightkeeper, who were on shore opposite the wreck, and told them to send out a tug. But the tugboat captain had changed his mind, and none of the other tugs would go out either.

Goodwin decided that it was too dangerous to attempt to take ashore by surfboat the six men and one woman on the vessel. Instead he would go ashore and get them off in the breeches buoy. Leaving one of his men aboard, Goodwin and the rest of his crew climbed back into the surfboat. The waves almost swamped it and he realized that
they could never get back to the harbor entrance; instead he would have to take the boat directly in to shore and try to beach it. He aimed for a suitable cove, which was one of several along the beach. The oarsmen headed for it. About 150 yards out a particularly big wave capsized the boat, throwing all of the men into the water. Several of them were struck by the boat and badly bruised.

An excited crowd had gathered on one of the piers. Seeing to help the men, they began to throw timbers and planks into the water for them to grasp. The lifesavers, though, needed no help in keeping afloat because of the cork jackets they were wearing. But if a wave-driven timber struck one of them, it would probably kill him. Struggling in the water, dodging the planks and timbers, some of them reached shore clutching the capsized boat while the others grasped ropes thrown from the pier and were pulled out. As one account put it, "They were in a pitiable condition and for some time could not speak, being barely conscious when rescued." They were taken to the Liberty custom house and given dry clothing.

Then they heard that the Johnson was drifting ashore. Rousing themselves, they stumbled off to their station and with the help of volunteers brought out the cart carrying their beach apparatus. Pulling the cart, the lifesavers and volunteers went along the beach to a point such a powerful wind would not drive the vessel, arriving near midnight. Those aboard had climbed into the ice-encrusted rigging. The lifesavers fired a line into the vessel's rigging. At five minutes past midnight the woman cook was landed and by 12:25 everyone was ashore.

As this has demonstrated, through the mid-1800s, bulk cargoes were usually carried in sailing vessels. The steamers of the time, with their complicated upper works, were of little use in carrying bulk cargoes such as ore. But in the later 1800s, bulk freight vessels began to evolve.

Credit is usually given to Cleveland shipbuilder Eli Peck for building the first bulk freight steamers. In 1869 and 1870 he built two wooden ships of revolutionary design. In effect he constructed the long hull of a sailing vessel, then gave it a steamer bow and stern. He put a pilot house on a small cabin all the way forward in the bow and he put the engine room and boilers on the extreme stern. The long uncluttered deck between enabled it to be loaded and unloaded like a sailing vessel, but it had the power and maneuverability of a steamer. These ships, the R.J. Hackett and the Forest City, had the mast and rigging of sailing vessels, but in general they were lake freighters much like those that would dominate lake commerce for a century to come.

It was also in Cleveland that the first iron lake freighter, the Onoko, was launched by Globe Iron Works in 1882. In 1886 Globe launched the first steel freighter, the Spokane. Soon other shipyards were building out steel vessels.

One of these other yards, the Cleveland Shipbuilding Company, launched four new bulk steel carriers in 1890. One of them, owned by Captain Peter G. Minch, an experienced lake sailor, was called the Western Reserve. The ship was a big one for her day, measuring 318 feet overall. For two years she carried varied cargoes of record size. Then she was involved in a disaster.

Disasters are rather like punctuation marks in the history of shipping. Each November 10th, we mark the anniversary of the loss of the Edmund Fitzgerald, an event that is still so clearly remembered that newspapers put up display advertisements in large type mentioning the anniversary. The Western Reserve, in its day, made an even greater impression.

Late in August of 1892 the Western Reserve, commanded by Captain Albert Myers, set off empty from Lake Erie, up the lakes, to load ore at the Lake Superior port of Two Harbors. She carried only enough water ballast to keep her propeller under water for the 98-mile trip were Captain Minch and his family—his wife and two children, his sister-in-law, and her daughter. After the noon meal on August 30, the ship passed through the canal at Sault Ste. Marie and entered Lake Superior. Storm warnings were flying, but Captain Minch felt that his powerful vessel could weather any summer storm. By 9:00 p.m. she was butting into a heavy sea.

At about that time there was a violent shock, followed by the noise of a spar breaking and falling on deck. Captain Myers immediately began to wake the crew members who were asleep, telling them that the ship was sinking. Harry Stewart, an off-duty wheelman, was asleep in his bunk. He later recalled that he pulled on some clothing and began to run aft, toward the lifeboats, along the port side of the ship. He saw a break in the deck forward of the mainmast; the break looked about four feet wide. He felt it and ran along it toward the stern. He picked two men out of the water. One of them said he had not been able to get into either boat and the other said that he had been in the port boat and that it had capsized.

They watched the ship plunge under, making a loud noise as she went. Soon the wind came up from another direction, the north-northwest, and all they could do was run before it. By morning the boat had been driven about thirty miles. They were approaching a beach but while still a mile off the shore, the surf picked up the boat lifting it nearly on end. Some of the people stood up in panic and the boat capsized, throwing everyone into the water.

Harry Stewart saw Mrs. Minch trying the swim and support one child, but soon only Stewart and Carl Myers, the captain's son, were left. Stewart fought to keep the engine room from filling with water, and Myers started toward shore, but Myers in time gave up and sank. As Stewart approached the shore he was thrown up on it by the waves—and then pulled backward into the water as the waves ran back again. Finally he shrugged off the life jacket, dove under the surf, and rode in with the wave. Then he dug his hands into the sand and held on. When the wave retreated he stumbled ashore. After some time he recovered enough to make his way to the Deer Park lifesaving station, about ten miles away. He was the only survivor. Thirty-one people were lost.

Shippers and shipowners were shocked. One of the newest and best ships on the lakes had been sunk by an August storm, taking with it a well-known Cleveland shipowner and his family. Stewart's statement was the only thing to go on, and it was analyzed and re-analyzed. The builders of the vessel immediately published a dramatic and varied cargo list that formed the basis of a complete set of specifications in the Maritime Review, the shipping industry's news magazine of the day. Other engineers and designers studied them and announced that the design was excellent.

Eventually they decided that there were two causes of the disaster. One was that the ship should not have been run, particularly without ballast, into heavy seas. "Already orders have gone out from the owners of some of the competing lines of steel boats," said the Maritime Review, "to stop the practice, which had been carried to extremes, of forcing big, highly powered vessels into weather of all kinds on the upper lakes, with no cargo and little water ballast for their protection." Second, the steel used in her construction—and that in other contemporary freighters—was too brittle, and too apt to break when it was subject to stress. Thereafter builders used more tempered steel that was flexible enough to give slightly and then spring back when subjected to weight.

While Cleveland developed as a steel and shipbuilding port, Buffalo, meanwhile, developed as a major grain port. Grain would be carried there over the lakes, then shipped eastward by canal and later by railroad. By the end of the Civil War there were 27 shore elevators and two floating elevators in Buffalo Harbor. The grain traffic continued up to fairly recent time; in the 1940s there were 21 modern elevators there, with a total capacity of nearly 45 million bushels. Ten years later, in 1959, the St. Lawrence Seaway opened. Ships there could carry grain directly to ports on the lower St. Lawrence or to overseas ports, and Buf-

falo's share quickly diminished. By 1982 there were four elevators in Buffalo, with a total capacity of a little over 17 million bushels.

This is a striking example of the way shipping adapts itself to economic conditions. We are now in the middle of another such adjustment concerning steel. Forecasters have suggested that even after we recover from the current slump, steel and autos will never again be the main economic engines of our prosperity. Certainly we'll have steel and auto manufacture, but they may never again be like they were in the boom days of the recent past.

In recent years there have also been changes in the design and size of lake freighters. Nearly all, freighter built in the past ten years has been quite different from the traditional freighters of the preceding hundred years. The new ones have all of their deck structures, including their wheelhouses, built at the end of the vessels.

Many of the new ones are thousand-footers because the larger the ship, the smaller the cost of carrying each ton of cargo. A typical 1,000-toter can carry 76,000 tons of cargo—almost three times what a 600-toter can carry and over six times what an older 600-toter can carry.

Almost all the new ships are self-loaders replacing dockside unloading equipment that is growing old and that is unable to reach into the holds of the bigger new ships. Most of the new vessels have rounded bows that look like half a barrel which offer less resistance as they move through the water than do the traditional sharp bows.

The American ore fleet, very largely based on Lake Erie, is apt in the future to look quite different than it has in the recent past with most of its shipping in larger. Although we will see bigger lake freighters, we will probably see considerably fewer of them.

Editors Note: James P. Barry has written eleven books, six of them on various aspects of the Great Lakes. He is the director of the Ohioana Library Association, a non-profit organization that promotes reading, music and the other arts in Ohio. The association publishes the Ohioana Quarterly, gives awards in the arts and humanities, and maintains the Ohioana Library of books by Ohioans abo.

Ohio. Barry presented this paper at The Ohio State University's "Limbunch" seminar series. We are very pleased that Mr. Barry has given us his permission to publish this as an article in Twine Line.
Fremont Fishes for Spring River Anglers

Lake Erie walleye are still being caught in the Sandusky and Maumee Rivers and white bass are gearing up for their annual spawning run. Likewise, the city of Fremont has geared up to welcome Sandusky River anglers like never before.

Fishing for walleye and white bass in downtown Fremont is a tradition that many angling families have followed for generations. Although fishing pressure is usually heavy during the peaks of the runs, fishermen have complained for years that parking, sanitation facilities, and accommodations in Fremont are all too scarce. Likewise, many residents have complained that anglers leave too much litter, take too many parking spaces, and over crowd existing facilities. A newly formed group of concerned businesspersons, city officials, and citizens is now working to change things for the better.

Calling themselves Successful Promotion of River Tourism and Fishing (SPORT Fishing), the group hopes to solve logistical problems stemming from the massive influx of anglers during 1985 and to increase the levels of fishing and economic impact in future years. Dave Fahrbach, SPORT Fishing’s president, has outlined three goals to be achieved this year.

“We want to improve the removal of trash and litter, bring in more portable restrooms, and make fishermen aware of additional parking areas,” said Fahrbach. Some excellent examples of community cooperation are helping these goals to be achieved.

The riverbank will be much cleaner thanks to Les McCaslin, Sandusky County’s Family Adult Services Supervisor. McCaslin is assigning five county workfare workers to collect litter and maintain trash barrels on a full-time basis.

A group of 20 workfare workers will perform an initial sweep of the river in early April to remove winter’s accumulation of debris.

Trash barrels will be easy to find thanks to the Sandusky County Young Farmers who are donating 35 steel barrels. The Fremont chapter of the Izaak Walton League is providing three large dumpsters to serve as centralized trash collection points.

Fremont city officials have agreed to rent four additional portable restrooms for the fishing season; another portable restroom will be sponsored by Fremont businessman Bob Bliss. These will bring the total number of bankside restrooms to nine; only four were available in previous years.

A weekly county newspaper, The Bridge, is now including maps of the river showing access sites, emergency facilities and fishing tackle outlets in each issue. Also included are advertisements to help visiting anglers locate food, lodging, and services. Newspaper boxes dispensing free copies of The Bridge will be located at several river access points.

Fremont’s youth are also helping in the development project. Students at city schools are now making posters welcoming anglers to Fremont and asking their help in keeping the city clean and attractive.

Fahrbach says that as current logistical problems are overcome, SPORT Fishing hopes to increase the number of anglers visiting Fremont in the future. Among his priorities is a toll-free "800" telephone number to dispense fishing information, and more facilities for fishermen. "We really need an attractive, well-constructed boat ramp," Fahrbach said. "We could put many more people on the river." Only one earthen ramp is currently available in Fremont.

The anglers who come to Fremont are, for the most part, dedicated fishermen who are willing to travel to find good fishing. A recent Ohio Sea Grant survey of Sandusky River anglers showed the average fishing party to be made up of at least three persons who come to Fremont four times during the spring and stay over two days on each trip. The average one-way driving distance is 105 miles and almost a tenth of the anglers are from out of state. The typical river fisherman is a fully-employed, 42 year old male who earns over $21,000 per year.

The development of fishing as a form of tourism is a wise use of a renewable resource which can bring high economic returns to a community with relatively low levels of investment. The members of SPORT Fishing and city and county officials are to be commended for their forward-looking efforts to develop a branch of tourism which will play an ever-increasing role in northern Ohio’s economic future.

—Fred L. Snyder
## 1984 Lake Erie Sportfishing Catch Statistics

Sportsmen on Lake Erie had a good year in 1984 as indicated in the following table.

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<thead>
<tr>
<th></th>
<th>Catch</th>
<th>Effort</th>
<th>Catch/Effort</th>
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<tbody>
<tr>
<td><strong>WALLEYE</strong></td>
<td></td>
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<tr>
<td>Central Basin</td>
<td>951,000</td>
<td>2.0 million angler hours</td>
<td>.3 to .45 fish/hour</td>
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<tr>
<td>(Huron to Conneaut)</td>
<td></td>
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<td></td>
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<tr>
<td>Western Basin</td>
<td>3,100,000</td>
<td>5.1 million angler hours</td>
<td>.6 fish/hour</td>
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<tr>
<td>(Toledo to Huron)</td>
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<tr>
<td><strong>YELLOW PERCH</strong></td>
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<tr>
<td>Central Basin</td>
<td>2.8 million</td>
<td>1.0 million angler hours</td>
<td>2 to 3.6 fish/hour¹</td>
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<tr>
<td>(Huron to Conneaut)</td>
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<tr>
<td>Western Basin</td>
<td>6.2 million</td>
<td>1.1 million angler hours</td>
<td>6.2 fish/hour²</td>
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<td>(Toledo to Huron)</td>
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</tbody>
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¹ Central Basin fish averaged 8.5" in length.
² Western Basin fish averaged 7.5" in length.

Source: Carl Baker ODNR, Division of Wildlife.

## Spend the Summer on an Island

Franz Theodore Stone Laboratory, operated by the College of Biological Sciences at The Ohio State University, will offer two summer terms of field studies from June 24 to July 26 (first term) and July 29 to August 30 (second term). Stone Lab, located on Gibraltar Island at Put-in-Bay, Ohio, is the oldest freshwater field biology station in the United States, having been in operation since 1895.

Courses are designed to meet the needs of advanced undergraduate and graduate biological science majors, professional aquatic biologists, and biology and general science teachers. These courses provide a blend of classroom, laboratory, and field experience unique to a field station.

Courses include Physiology and Ecology of Aquatic Microorganisms, Microcomputers for Biological Sciences Applications, Fish Ecology, Field Zoology, Field Botany, Ichthyology, Advanced Ornithology, Community Ecology and Ecosystems, Field Entomology, Invertebrate Zoology, Limnology, Aquatic Plants, Plankton and Herpetology.

For more information, contact JoAnn Damon, College of Biological Sciences, The Ohio State University, 484 W. 12th Ave., Columbus, Ohio 43210, (614) 422–8949.