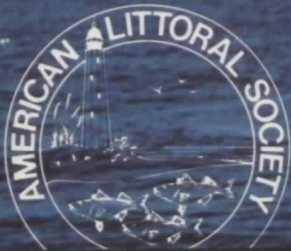


underwater naturalist



30 Years of Fish Tagging

Vol. 23, No. 2

AMERICAN LITTORAL SOCIETY FIELD TRIP SCHEDULES

This listing of trips was selected from the 1996 Field Trip Schedule and is designed to tempt you into the littoral out-of-doors where you can explore with fellow Littoral Society members under the leadership of experienced naturalists. Call the office at (908)291-0055 for trip availability, and then send in your deposit to assure your spot. For a complete listing, consult your Field Trip Schedule. Call or write the office if you would like a copy of the Schedule sent.

April 23-29 TURTLE WATCH/ SNORKEL CULEBRA

This trip is perfectly timed to coincide with the beginning of sea turtle egg-laying season. During the day, snorkel, visit the Culebra National Wildlife Refuge, and sail to the sister islet of Culebrita. At night, work with the Turtle Conservancy as the turtles head for their nesting sites.

COST: \$550 covers lodging, sailing and guides. Travel to and from Culebra is not included.

April 26-28 WETLANDS RESTORATION WESTERN PENNSYLVANIA

A weekend of exploration on an 80-acre freshwater wetland site restored by ex-ALS president Tom Dick, the USF&WS, and many volunteers. Two full days of picnics on the mountain, evening campfires, informal talks with wetland scientists, guided hikes, seining and wading.

COST: \$155 covers lodging, guides and two cookouts.

May 5 MEMBERS' DAY SANDY HOOK, NEW JERSEY

This is our eleventh annual gathering of members on Sandy Hook for morning hikes followed by a picnic of chowder, raw clams, smoked fish, cole slaw and something to drink. We'll end the day with an informal discussion of important littoral topics.

COST: \$10, 2 for \$18, kids under 12 free. Please include a stamped, self-addressed envelope if you need directions.

May 15 RED KNOTS DELAWARE BAY, NEW JERSEY

A mid-week trip to witness one of the coast's biological bonanzas, when shorebirds descend on the beaches of the lower Delaware Bay to feast on freshly laid horseshoe crab eggs. We will meet early in the morning on the site and spend half a day visiting several beaches, as well as the Brigantine National Wildlife Refuge.

COST: \$10 covers guide, clams, and junk food for lunch.

May 30-June 2 MAINE COAST WEEKEND

The Society's eighteenth annual trip to the Craignair Inn on the water south of Rockland. We will hike for wildflowers, birds and plants, visit lighthouses, rocky shores and boulder beaches. A one-day boat trip to Monhegan Island to hike along its winding seacliff trails. Wildlife including eider ducks, seals and ravens.

COST: \$285 covers rooms (bathrooms down the hall) at the Inn, all meals from Friday morning through Sunday breakfast, including a lobster dinner, boat fare to Monhegan.

June 3-6 MONTANA FLY FISHING

Spend three full days during the first week of June on Western Montana's most highly rated trout streams. A fully guided overnight float trip on Rock Creek - the famous Blue Ribbon trout stream. In addition, we'll spend a day casting on the Clark Fork, Bitterroot, or Blackfoot depending on which is fishing the best.

Continued on inside back cover



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American
Littoral Society**

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EDITORIAL STAFF	D.W. Bennett, Editor Paige Bedell, Copy Pam Carlsen, Special Edition Editor	

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To the editor

A Sturgeon Fan

...I was glad to see the short note on sturgeon tagging in the last magazine, delighted to see my favorite fish on display, and happy that the sturgeon were released to grow and, I hope, reproduce. Here is another fish that suffers from fishing pressure and habitat damage. I gather the Russians are bent on taking the last of theirs as long as the price is right. I only hope we don't do the same over here.

William Sorenson
Blue Hill, Maine

Snapping Shrimp

...I liked Daniel Tardona's article on snapping shrimp. All these years mucking around the marsh and I didn't know there was such a thing. That's what your journal does best — turn us on to new things living in the littoral. Let's have more.

Diana Selkirk
Savannah, GA

(We had a recent report of weakfish caught in the saltwater creeks behind Ocean City, NJ, with bellies full of 1.5-inch lobsters. While they could have been lobsters, a marine biologist says they could have been snapping shrimp. So far we have been unable to track the weakfish/lobster report back to its source. If the angler who phoned here can call again, we have some friendly questions.)

Greener Ponds

...Our pond turned really green this summer, not just average three-week light green, but all-summer deep green, smelly and vile. Then, bam, the temperature dropped, the fall rains came and the green went away. I have approached the town fathers who say there is nothing they can do short of dredging the pond, or, they suggested helpfully, filling it in.

David Fletcher
Islip, NY

The Bluefish Story

...I am not a fish tagger (maybe I'll sign up), but I do read through the tag return pages to see what bits of wisdom I can turn up. Four of the bluefish in the latest UNDERWATER NATURALIST tell an interesting story. M.

Barrett tagged four bluefish at Staten Island between May 29 and June 5, 1994, fish between 18 and 24 inches, what I would consider school fish. But look where they were recaptured (all within six weeks): one fish went east to Montauk Point, about 100 miles; one just a few miles to Hoffman Island up the bay; one across the bay, through Rockaway Inlet, and into Jamaica Bay; and one southeast to the Tin Can Grounds.

So maybe they weren't "school" fish after all, or, if they were, it is obvious that the school broke up and these fish went their individual ways to get food I suppose because that's what bluefish do. Anyway, it was interesting to think about this "mini-migration."

Vincent Testa
Lincroft, NJ

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A SHORT HISTORY OF THE LITTORAL SOCIETY FISH TAGGING PROGRAM

Graham Macmillan, an executive with Prudential Life Insurance Company, left the dock in Avalon, NJ, aboard his 26-foot sportfisherman, the *Gaybell*, headed south to the Cape May Canal, turned right through the canal out into Delaware Bay to catch sharks, not for food, just to hook up, fight, and then release. Hundreds of miles to the northeast, a marine biologist named John Clark joined the crew of one of Gloucester's last dory schooners to catch, tag, and release cod and haddock on Georges Bank to learn more about what these fishes do. He tried trawled fish there but found them "too beat up to tag." He had better luck fishing with longliners out of Chatham on Cape Cod, where cod and haddock in 60 feet of water could survive tagging without blown swim bladders. This was in the 1950's. Some years later their dual interest in fish led to the American Littoral Society fish tag-and-release program, the world's busiest volunteer effort to learn about fish migrations, growth and mortality rates, and general behavior. It is truly voluntary; over 30 years ALS member anglers have spent around \$150,000 just for the tags, let alone membership dues, fishing tackle, bait, boats, and all the equipment fishermen attach to themselves when on saltwater chasing prey.

Clark's and Macmillan's paths didn't cross until 1961, when the Littoral Society was founded under the umbrella of the new Sandy Hook Marine Laboratory (then U.S. Bureau of Sport Fisheries and Wildlife, now National Marine Fisheries Service). Clark was on the lab staff and later became its assistant director and was ALS president during its formative years; Macmillan was a founding member of the Society and its longtime treasurer. Their idea was to design an all-purpose tag that sport anglers could use on many fish species,

sell them the tags at rockbottom prices, and encourage them to get out and tag. At the same time, he teamed with Jack Casey at the Sandy Hook Lab to help design a special tag for sharks and large pelagics— fish that anglers seldom brought into the boat or onto dry land. This was a dart tag punched into the shoulder of a fish pulled alongside a boat. The Society produced both types of tags until the early 1970's when the dart tag was dropped in favor of Casey's better designed tag and those provided by the NMFS lab in Miami for pelagics— primarily tunas, marlins, and sailfish.

The Society's tag design was simple. A "spaghetti" tag made of plastic six inches long about as big around as a pencil lead, a sharpened, hollow stainless needle for insertion, tag cards matching the numbers on the tag with space for information on fish species, date of tagging, length and weight, and tagger's name. Macmillan bought the tags in bulk from Floy Tag of Seattle, stainless steel in six-foot lengths from northern New Jersey, cards from a local printer, and plastic bag packaging from a stationary store. And the program was up running.

Independently, but around the same time, the Long Island League of Saltwater Sportsmen launched a program under the direction of Donald Manns of Flushing, NY, to tag striped bass from eastern Long Island down the central New Jersey coast, roughly from Montauk to Barnegat Light, concentrating in western Long Island Sound. They used Petersen discs of 1/2-inch diameter, secured dorsally on the caudal peduncle (where the body ends and the tail starts) with a nickel pin. A total of 6679 striped bass were tagged from Canada to Chesapeake Bay between 1959 and 1963. Clark used data from this project to publish a paper in the October 1968 issue of *Transactions of the American*

Fisheries Society titled "Seasonal Movements of Striped Bass Contingents of Long Island Sound and the New York Bight." The abstract of that article reads as follows:

ABSTRACT

Recaptures of striped bass, *Morone saxatilis*, tagged along the northeast Atlantic coast of the United States from 1959 to 1963 gave evidence of varied patterns of seasonal movement of the species. From analysis of distribution patterns of 498 recaptured fish, it is shown that distinguishable contingents of striped bass seasonally inhabit Long Island Sound and coastal waters of the New York Bight. Three groups that appeared to be of Hudson River origin were the *Hudson Estuary*, *Hudson-Atlantic*, and *Hudson-West Sound Contingents*. The origin of a fourth group, the *Long Island Sound Contingent*, was not evident. Other contingents, of southern or undetermined origin, also appeared in the area from spring to fall. The Hudson River is shown to be a major spawning river and source of recruitment of striped bass populations of Long Island Sound and the New York Bight.

Prodded by Robert Boyle, a fan of striped bass and of the Hudson River, biologists from the Sandy Hook Lab

sailed a research vessel up the Hudson in March of 1968 and trawled mighty catches of wintering striped bass in Haverstraw Bay, up to 130 fish in one 12-minute tow with a 40-foot trawl in 25-40 feet of water, confirming the presence of quantities of striped bass during the period of winter minimum temperatures. Separately, in 1968 Richard H. Schaefer published a study of migrations of Long Island striped bass in the N.Y. Fish and Game Journal 15(1): 1-51. Striped bass in this study were surf-caught and tagged on Long Island. Schaefer's conclusions and Clark's were compatible. With the help of volunteer taggers, the importance of the Hudson as a wintering and spawning locale were established. Maybe more importantly, volunteer (amateur) tagging proved its worth.

Minutes of a May 14, 1964, ALS Council meeting at Sandy Hook indicate that the ALS tagging program was about to start up: "It was decided that the development and purchase of tagging kits for the tagging of fish by anglers should be undertaken by the Society. The cost to be borne by a charge of \$2.50 for a kit of five tags to the individuals purchasing the kits." Macmillan started production of kits later that year and a few fish

Some ALS Fish Numbers 1965-1995

Fish tags sold..... 387,930
 Fish tagged 221,221
 Fish Recaptured 10,760
 Species of fish tagged 134

Major Species Tagged	1988	1989	1990	1991	1992	1993	1994
Striped bass	5,404	7,010	11,105	11,919	14,325	12,923	13,600
Bluefish	802	917	1,120	1,178	1,761	1,003	771
Fluke	1,737	176	1,300	2,118	1,788	3,858	3,002

Notes: Fluke tagging dropped dramatically in 1989 as the entire Mid-Atlantic fluke fishery crashed. Bluefish started to drop in 1993 possibly reflecting the contraction of that fishery.

were tagged in the Fall to test the program. The first recapture — Stanley Maselbas's eight-pound striper, was reported in November (see separate story), and, as they say, the rest is history.

From the beginning several principles were established to make the program accurate and workable: taggers had to be ALS members or members of ALS tagging clubs; this way ALS could keep the tagging program in the hands of really interested anglers and help track tag kits sold. Tag kits would be sold, not given away free so the taggers would have an investment in the program. There would be no financial rewards for tags returned: instead, ALS has provided both the tagger and the recapturing angler the history of "their" fish and cloth fish patches for their jackets.

In 1965, the price of a tag kit was decreased to \$1 as Macmillan geared up an assembly line in his garage to cut tags, sharpen needles, and pack kits, establishing another principle: tag kits would be priced to reflect true costs to the Society, no more, no less. During 1965, members tagged 85 fish, 53 of them striped bass. A year later, stories in *Sports Illustrated*, *The New York Daily News*, and *The New York Times* spurred tag sales, and in 1967 enough tag returns were reported for a regular tabular page to be carried in each issue of this journal; the first list was made up of 21 striped bass, four winter flounder, one cod, and one smallmouth bass. ALS slowed and then stopped the tagging of freshwater fish in the Spring of 1987, partly because migration of fish in lakes was not very exciting and partly because many states have strict regulations about messing around tagging freshwater fish, especially trout.

Macmillan turned the tagging program over to Society headquarters staff in 1976 as the numbers started to swamp

him; soon more than 1000 members were tagging up to 20,000 tagged fish per year, and later computers arrived making the program at the same time more complicated and useful. Mary Ann Griesbach kept records and correspondence going on as one of her many functions during



Pam Carlsen, left, directs the Society's tagging program from tag kit assembly to recording and publishing data, assisted by Vicki Wojewodzki.

the mid-1980's; then Pam Carlsen took over the whole thing in 1986, and with part-time help from Vicki Wojewodzki, handles the volume of quirks and numbers that demands attention to details, to the special needs of volunteer anglers, and to requests from fish scientists who want to use ALS data.

And use it they do, mostly to study striped bass — mortalities, growth rates, and migrations. Data on blue fish and blackfish (tautog) have also been frequently called upon. ALS data is pumped into the National Marine Fisheries master computer file once a year. □

The First Fish

Stanley Maselbas, who lives in New Britain, Connecticut, catches striped bass the old fashioned way; he wades out into the surf and casts for them. He was surf fishing at Great Point on Nantucket Island off the Massachusetts coast on October 9, 1964, when he hooked and landed an eight-pound striper, to which he attached American Littoral Society fish tag number 242. He eased the fish back into the water little the worse for its experience.

Thirty days later, Myron Carman, a resident of Baldwin, NY, recaptured number 242 at "Fire Island bar," a fishing hotspot 170 miles southeast of Maselbas's release point. That bass, legal and presumably later cooked, was the first fish ALS-tagged, released, recaptured, and reported.

Because about half of ALS fish tags distributed are used within the first two years of purchase, we can gather that close to 100 fish, mostly striped bass, had been tagged before Maselbas scored. No current ALS staff were working here when word arrived about this first recapture, but it must have reinforced the Society's belief that a volunteer tagging program would produce results.

As of this writing, ALS has tag card 390,340 for sale; that's 390,098 past Maselbas's historic catch. All tags are important because they give fish biologists a little more knowledge about what fish do. But, maybe 242 is a little more important because it helped prove that the tag works, anglers will use it, and other anglers will report it. If nothing else, it gave 242 another 30 days and 170 miles of freedom. □



Stanley Maselbas, pictured on the beach at Great Point, Nantucket Island, in the early 1960s. Stanley was an early ALS tagger enthusiast; his Connecticut license plate is TAGEM. He still fishes the New England surf.

TAGGERS TELL THEIR FISH STORIES

Home Again

Block Island, June 11, 1991:

...When they had cleaned four of the fish, the charter decided that they had enough fish to take home and asked us to release the remaining two. This we did only after placing an ALS tag in each one.

My dock is about one mile from the breakwater and then it is another seven miles to where we had caught these fish. The amazing thing about this entire situation is that one of these tagged fish was recaptured back at Block Island on August 14, 1991. I guess these fish really know where they are even though they did not swim to get there. (Maybe they have G.P.S. aboard?).

Capt. Andy Dangelo
Tagger since 1985
W. Kingston, RI

Weakfishing in Delaware Bay

Schools of weakfish can be caught in Delaware Bay from late June to the middle of October, depending on the water temperature of the Bay. When a strong cold front comes through dropping water temperatures to the low 60's, the majority of fish will leave the Bay to begin their migration south.

On a good day, two people can catch up to 150 of these fish, although anyone who has fished for weakfish will attest to their unpredictable nature, and their habit of getting lockjaw for no apparent reason. The best time to anchor up for these fish is two hours before or after the tide change. Once the tide starts running hard, as the Delaware Bay tides do, the fish usually stop biting.

When you locate these fish, anchoring usually gets better results than drifting. For this reason, few fishermen use this method of fishing for weakfish. Anchoring is hard work and sometimes you must move several times before you get into fish. These fish also spook easily, so try

to find an area with little boat traffic to anchor in. An added bonus to this type of fishing is the fluke, kingfish, seabass, and porgies that you will also catch while jigging for weakies.

So to you taggers who are looking for a change of pace from tagging fluke, try anchoring up for weakfish. Once you get your first doubleheader, I'm sure you'll be hooked, too. Be prepared to order more tags though, because if you get into a school of weakies, your supply of tags will disappear fast.

Al D'Amato
Tagger since 1981
Cape May, NJ

3,000 Striped Bass

While fishing the North End rip at Block Island on July 12, 1995, I tagged my 3,000th career ALS striped bass. It was the 350th ALS tagged striper of this season and a significant milestone in my career as a tagger.

Capt. Al Anderson
Tagger since 1970
Narragansett, RI

Tag #07732

About three years ago, I was fishing with three other friends in two small boats off the northern tip of Cape Cod. The morning was good to all of us - probably catching over 50 bass between the group.

I was the only one tagging fish that day. At one point I was kneeling down tagging a bass when I heard one of my friends yelling from the other boat. I looked up and saw him holding a striper about 28 inches long. He yelled over to me saying that he thought he had caught one of my bass. I could see the yellow tag in the distance and asked him to read off the number to me. He yelled back that the number was 07732. I quickly looked through my tags for that day and could

find nothing. I then realized that he had read off the zip code for ALS. I looked up just in time to see the fish go overboard again. We could only laugh at the mistake.

Sam Wisnewski
Tagger since 1987
Levittown, PA

Coincidence?

A couple of months ago, while fishing the beach on Nantucket, my fishing partner hooked a fish that he proceeded to land. It was a striped bass that had a Berkley Striper Club tag attached to it. We removed the tag and placed an ALS tag into the fish.

Only later did I learn that the fish had been tagged a month earlier at Island Beach State Park by my son's boss.

Senator C. Louis Bassano
Tagger since 1990
Union, NJ

A Matter of Priorities

Cape Cod Bay, September 30, 1993:

After catching, tagging, and releasing nine or ten bluefish, I switched to my "striped bass only" lures. I suspected that there were bass beneath this school of bluefish. However, even the slowest retrieve of my lure drew immediate responses from the more aggressive bluefish.

I landed my tenth bluefish of the day with 3/0 treble hooks intended for striped bass only. I attempted to unhook this fish and insert an ALS tag, in that order. I generally fish alone and have this procedure down pat so that the fish is out of the water for less than one minute. When I couldn't remove the treble hooks, I instead proceeded to tag this fish. I must have let down my guard that day because as soon as the tag was secure, the bluefish threw the remaining treble hooks into and right through my right index finger. I was hooked as well as the fish!

Because these treble hooks had barbs, I

could not back the hook out of my finger. I remember thinking, "Get the fish back in the water. Save the tagging process. Damn my finger." I managed to unhook the fish and release this 32 inch beefy bluefish. It took me quite some time to cut free the lure from the 3/0 treble hook.

Several hours later in a hospital emergency room, the hook was surgically removed. I suffered more embarrassment than pain. My priorities must have sounded strange to the attending physician: release the tagged fish as soon as possible, then worry about health and safety. Sounds so normal to me.

P.S. I've switched to all barbless hooks now. No exceptions. None.

William Brett
Tagger since 1992
Westwood, MA

Do Bats Really Get Tangled in People's Hair?

One hot, humid summer evening I was plug casting near the beach on the Barnegat Inlet north jetty at Island Beach State Park in New Jersey. Since there was no wind that day, the mosquitos began swarming at dusk. Then bats began flying very close to where I was fishing. This was one of the very rare evenings that I saw bats flying over the ocean. Usually it is very windy and therefore no mosquitos or bats are there.

After dark, I cast my plug and began retrieving it. Suddenly, something landed on my hatless head. I thought to myself, "Do bats really get tangled in people's hair?", "Does this bat have rabies?", "Is there a full moon tonight?", "What should I do?". When I reeled in my line and moved my head, a large dragonfly flew away. I felt very relieved.

If you fish on a jetty in the evening, wear a hat and don't stand motionless for long periods of time.

George Horvath
Tagger since 1987
Trenton, NJ



These two striped bass fell prey to diamond jigging in New York City's East River by U Thant Island in July of 1993. That's the busy New York skyline in the background. Both fish were tagged by angler Pete Orenzo, Hudson River Fishermen's Assn., NJ Chapter, and released by Pete's wife Sue (left), and friend Maria Friscia.

Tagging Isn't Always Easy

While fishing on the Venice, Florida pier one evening, I caught a small black tip shark - about 2 1/2 feet long. A young fellow offered to hold it while I tagged it. As I bent over to tag it, the shark got away from him and leaped up and bit me on the inside of my right leg above my knee. I had to bend his nose to get him to release his hold on my leg. He left behind teeth marks on my pants and leg.

Jesse Wright
Tagger since 1969
Venice, FL

One Hundred Returns

I have accomplished my goal of tagging 1,000 bass. I've had over 100 returns, some of which I treasure: a return from Nova Scotia and an official four time return (unofficially five times). I had thought of easing off on tagging, but the ALS program is so great that I could not release a bass without your tag.

Fred Stunkel
Tagger since 1975
Stamford, CT

Tags You Can't See

At 4:30 a.m. on the morning of August 1, 1993, I was tossing a Redgill sandeel teaser into the darkness shortly after an almost full moon descended below the hill behind the Lilco smokestacks. I was

fishing the T-Bar, just west of Crabmeadow Beach in Northport, NY on the Long Island Sound. After several casts, a fat 20 inch striped bass of roughly five pounds picked up the teaser. The fish gave a great account of itself on the surface and was fun to play on my lightest freshwater rod and Penn 430SS reel. Little did I know when I tagged that fish with ALS tag #313519 how much we would learn from its recapture on November 10, 1993 by the New York State Department of Environmental Conservation (NYSDEC).

Since 1987, the NYSDEC has utilized the services of a haul seine crew to conduct a fall ocean striped bass survey in the Town of Easthampton. Although outlawed for the commercial fishing of striped bass for many years, the haul seine is effectively utilized for this study. In April 1994, ALS received a letter from Victor Vecchio of the NYSDEC, noting that several ALS-tagged striped bass were encountered in the November 1993 survey and among them was my fish with tag #313519.

This particular fish had been raised in the Pepco hatchery in Benedict, Maryland, and was released during the fall of 1990 into the Patuxent River as a Phase II fingerling, which is among the largest hatchery fish (about 6 to 9 in-

ches). Each of these fish is marked with a binary coded wire tag cut from 0.25mm diameter stainless steel wire about 1.5mm long. It is nearly impossible to see with the naked eye. A mechanical device is used to automatically cut, code and implant the magnetized bit of wire into the cheek muscle of the hatchery striped bass being prepared for release. All fish from a given batch to be released are given the same code. The code identifies the year and river of release, as well as the hatchery of origin.

On that beach in Easthampton, the DEC team used a tag detector to scan each fish captured in the haul seine for the presence of wire tags. The detectors work on the principal of magnetism and cost about \$3,000 each. When the magnetic field of the detector is interrupted by the magnetic field of the tag, the detector beeps indicating that the fish being scanned bears a wire tag.

Unfortunately, all suspected hatchery fish are sacrificed to recover the wire tag. Of all the ALS-tagged fish captured from the haul seine nets in the fall of 1993, only my fish was sacrificed, but that fish provided information that was very helpful to the U.S. Fish and Wildlife Service's efforts to replenish striped bass stocks. All other ALS-tagged recoveries in the hauls were recorded and then released with their tags intact.

I was unaware of the striped bass

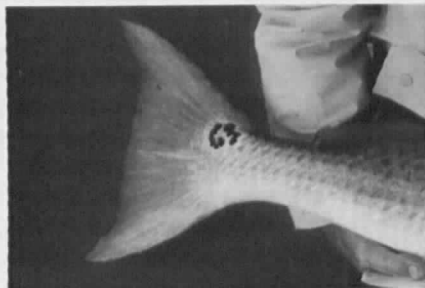
stocking program coordinated by the U.S. Fish and Wildlife Service. Hungry for more information, I learned that 12.3 million striped bass have been stocked into Atlantic Coast estuaries. Stocking began in 1983 in the Hudson River and in 1985 in the Chesapeake Bay. Other Atlantic Coast river systems have recently been stocked including the Delaware Bay. However, only since 1990 has the NYSDEC looked for adult hatchery fish in their field investigations. The exciting part of this research is that the DEC is seeing these stocked fish recruit to the commercial and recreational fisheries as well as spawning populations. My striped bass, ALS tag #313519, was a great example of how the recreational fishery has benefitted from the stocking program.

Art Schweithelm
Tagger since 1990
Northport, NY

Tag Return

As far as unusual stories regarding fish tags, the most unusual happening was when an ALS tag was recovered by a Massachusetts marine biologist in the stomach of a giant bluefin tuna. The tag came from a bluefish that had become tuna food.

Steve Penta
Tagger since 1989
Boston, MA



Red drum or channel bass tagged and released on the North Carolina Beach June of 1995 by Howard Blazer. The tail spots of this fish formed the number "63" (see above) which was the year Blazer started fishing the Virginia/North Carolina surf.

The Fish That Needed No Tag

On a recent surf fishing trip in Virginia, my friends and I caught 26 Black Drum and 8 Channel Bass. We only had time to tag four.

The most interesting part of the trip was on June 2nd when I caught a Channel Bass with spots on its tail that form the numbers "63". The first year I was taken to the barrier islands of Virginia to fish was 1963.

Needless to say, I did not tag this fish. He is already marked.

Howard Blazer
Tagger since 1991
Northfield, NJ

The Fish Without a Tag

One day while tagging, I recall catching a large striper and being careful not to tire the fish or to injure it in any way. I placed the fish gently on the deck while covering it with a wet towel, then measured and recorded the information on my tag card. I returned the fish to the water only to find that I had forgotten the most important step - I'd failed to put the tag in the fish!

Joe Della Porta
Tagger since 1989
Swampscott, MA

The Tag Without a Fish

My daughter was fishing with her father and when she reeled in her line there was an ALS tag on her hook. No fish. Perhaps someone caught the fish and threw the tag back in the water. It seems the tag was on the bottom of the bay when she hooked it.

Florence Galgano
John Dotsey
Tagger since 1973
Oceanside, NY

The Comeback of the Striper

My father and I have been tagging since the late 1960's. Then, our fishing was primarily among the hassocks and bridges of Jamaica Bay, NY for striped bass. The early 60's were very rewarding



Joe Della Porta about to release a striper he caught near the warm water discharge of a Boston Harbor electric generating station.

for us as we learned the habits and habitat of the strong tide-running fish. Most of these were smaller than 22 inches. Correspondingly, we pursued these fish with light tackle to provide maximum sport fishing. I believe that we started tagging as a result of catching a tagged fish. We sent the tag away to Sandy Hook and discovered this bass was tagged at Coney Island and had been swimming for over one year prior to recapture. This surprise catch catalyzed our interest to do tagging ourselves. Since most of our fish were small, we were interested in how they fared as older adults. We also felt that we were contributing to a biological study.

During those years, we could recall catching many bass with stunted noses (maybe one out of thirty). We tagged these as well to see their survival rate. It took about two to three years and over 100 tagged fish to get our first tag return. This fish was recaptured near the Statue of Liberty about one year after our tagging.

In the early 70's, the fishing was still strong in the Bay. Once in a while a larger size fish of 15 pounds or more would be caught. With light eight and ten pound test lines, this proved to be a great challenge to land a large fish. Many times, we would never see any sign of the

larger bass except for a parted and frayed monofilament line. When we were fortunate to land a larger bass, we took extra time to swim the fish upon release to ensure resuscitation. It was our understanding that the larger bass had higher recapture rates, but had to be handled more carefully.

In the mid and late 70's, the striped bass population was in decline. This was reflected in our catches as well. The need to study population movement and breeding grounds became more evident for these regal fish. So, we continued with the tagging program hoping to make our contribution. Even in the lean years, there were fish in Jamaica Bay. However, catching one that was 16 inches or more became a rarer event. Often times a school of fish would arrive that averaged out at 10 to 12 inches. These were disappointingly small catches, but they offered hope for the future.

The situation became more serious in the early 80's. The striped bass were extremely difficult to find and catch. Bluefish and weakfish had made a tremendous comeback and many fishermen shifted their focus to these gamefish.

In the mid and late 80's, my father and I began fishing the Long Island Sound. We had to re-learn the striped bass fishery because the territory is considerably different from that of the waters of Jamaica Bay. But, our tagging efforts persisted. Slowly and steadily, the striped bass population recovered to the point where it is today. These waters offered a better opportunity to catch larger fish. The year 1986 seemed to me to be the turning point for this population that originates from the Hudson River. An explosion of bait that year helped to keep the fish population around the Sound.

Thanks to good management practices, cooperation among interest groups, and an understanding of the striped bass's nursery grounds, it appears that this fish has made a remarkable comeback. Certainly, the fish tagging program

has been a part of the superb effort over the last thirty years.

George Cardel
Tagger since 1980
Queens Village, NY

Tag Return II

Back in the days when we were not allowed to take any striped bass, a friend of mine visiting from Florida asked me to take him fishing to tag some bass. We left very early in the morning to avoid heavy boat traffic. It was a beautiful fall morning and took only ten minutes to get to my favorite spot on the Bay.

I gave my friend a plug and told him where and how to throw it. First cast and he was in! "Wow" he said, "This is almost as good as snook fishing". Then I made my first cast - wham - I was in, too. Then it happened - I reached for a tag and realized that I had left them back at the dock. Boy, was I mad at myself. But then I remembered my live well, so I took the fish (and four others) back to the dock where they were tagged and released.

My friend wanted to know if that was legal. Since they swam away and did not suffer any ill effects, I wasn't concerned.

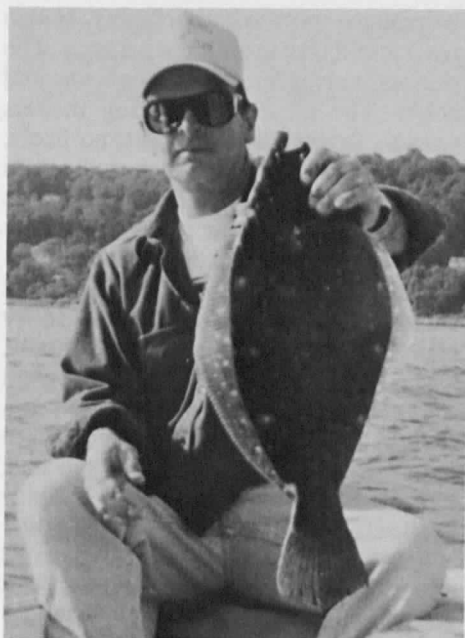
Needless to say, I've never forgotten my tags again.

Paul Grippio
Tagger since 1973
Bellmore, NY

Fishing and Tagging from My Kayak

There's no doubt about it - I like to kayak and I like to fish. When not fishing the surf, I fish from my kayak in Jamaica Bay. The kayak I use is a Klepper single seat folding boat. Fishing from a single kayak forces you to keep things simple. Although I try, I do not always succeed. My safety gear consists of a pump, whistle, air horn, VHF radio, two spare paddles stowed along the decks, and of course, prayer beads.

I prefer to use lures rather than bait. Less messy and more fun. My favorites are the small popping plugs. I am continually amazed that large fish take such



This fluke bears ALS tag number 300,000. It was 23 inches long, weighed about five pounds, and was caught, tagged, and released in Sandy Hook Bay on August 30, 1992, by Pete and Tom Hahn (pictured here) who made a special effort to see that tag 300,000 went on an extra special fish. It hasn't been heard from since.

small plugs, and that the small treble hooks on these plugs hold the fish. I keep lures and tackle in a bag placed between my feet. The fishing pole is propped up in the mast hole at the forward end of the cockpit ready for use.

I carry a sturdy wooden paddle that looks like a tennis racket. The wooden paddle is placed over the front of the cockpit and is used to support a fish while I remove the lure from its mouth. The paddle also provides a good base for supporting bass that are to be tagged.

Everything is tied down to lines that are tethered along each deck between the bow and stern. My double paddle is also tied to a deck line.

I have tried to get everything down to a routine. If the fish is a striper, I try to get the fish on board as quickly as possible so

as not to tire him out. Better for survival after release. I lay the fish across the wooden paddle and cover him with a wet cloth to keep his skin moist. The cloth also helps me hold the fish while I remove the plug and tag him.

After tagging, I slip the fish overboard and move him around until he revives sufficiently to take off on his own. I then record the tag number and fish length. When I return home, I fill out the tagging card and send it to the American Littoral Society for recording. For the present, I have a grand total of four returns.

Soon I plan to retire and hope to continue fishing on a daily basis. It may help me from slipping into the jaws of senility.

Irv Gordon
Tagger since 1991
Rockaway Park, NY

The Striper Gets the Last Laugh

A few days ago while jigging for 30 inches near shore, I got into a tug-of-war with a somewhat larger fellow. When I reeled him into view alongside the boat, I realized that I had snagged a crab which the striper thought he should have. Finally he took most of the crab and left me holding the bag, so to speak, with half an arm and the claw dangling on the hook of the jig!

Stocker Sturgeon
Tagger since 1973
Cape Cod, MA

The Striper That Couldn't Keep Its' Mouth Closed

This youngster grabbed a bucktail at the jetty in Breezy Point, NY a few falls ago. A quick stick with the needle, a tail tag, and off it went (or so you'd expect). Six months later I received a letter from ALS announcing that one of "my" tags had been returned from Breezy Point on a certain day that same fall. Guess who it was? Despite tide changes, wind storms, etc., that same youngster had been caught by someone else off the same rock on the same jetty the very next day!

I probably should have bought a lot-

tery ticket when I received ALS' letter, but I unfortunately forgot. I guess I'll just have to keep fishing and tagging.

Bob Pearson
Tagger since 1987
Breezy Point, NY

Hoosier Tagger

I was born and raised in South Jersey and began my fishing career in 1950 at age nine. I've experienced the ups and downs of fishing, but nothing as devastating as the loss of striped bass in the mid 70's and the loss of big weakfish in the early 90's. I felt there was a need to get involved with the preservation of the fish stocks along the Jersey coast if my sons were gonig to be able to experience the same fishing I enjoyed.

The American Littoral Society was discovered as a way of assisting scientists from the recreational side of fishing. I started tagging fish in 1987 and I started very slowly.

You see, my employer transferred me to Indiana in 1976, but my love of saltwater fishing never diminished and I managed to find a way to come back and fish four or five weeks each year. I fish primarily the waters of Cape May County and the data I have gathered from my tagging, as well as the tagging done by others, has increased my catches, as I have been able to predict the best times to make a trip to New Jersey. Increased catches has resulted in increased tagging.

There is a certain accomplishment I feel when I see my tagged fish swim off to fish another day.

Bill Shillingford
Tagger since 1987
Cornersville, IN

Tagger's Diary

DATE: 04-15-95: Saturday morning. Got up at 4:30 a.m. Left the house, boat in tow, with Kevin and Karen by 5 a.m. Cold and stiff northwest wind. We were the first at the launch ramp, still dark but a big, bright full moon. It was just about dead low tide. Got underway with kids

helping me spot the harbor buoys. Had to real careful thru the middle passage. The ride across Northport was rough, wet and cold. The wind was making matters worse. Arrived at Northport, no boats, but three surfcasters. Anchored out in front of them. Two other boats joined us soon thereafter. Four more surfcasters came out from the shore. Nobody, including us, was catching fish. Kids had curled up on the floor of the bow to try and stay warm. Kept trying and finally, about 7 a.m., decided to give it up. Went to start the motor - it hesitated - this was a sick feeling. Finally fired up and we got underway. Will have to look into this, will probably replace the starter. The ride back across was worse than coming over - stiff winds and high waves. Settled down a little as we approached the middle passage. The sun had never really come out - lots of scattered dark clouds. Coming thru the middle passage we saw a good number of boats out in front of Manresa, probably flounder fishing. Even though there was no smoke, we decided to take a look at the Norwalk Power Plant. As we neared we saw the Plant was running and it was a scramble for position - no easy task with the wind. Kevin threw out the rattle trap and caught a fish right away. What a sorry looking fish! It was covered from tip to tail with a white fungus. He was 19 inches. Nothing else for a while. I finally caught one more fish on a bucktail, 16.5 inches. That was it. We left at 9 a.m., got home at 9:45 a.m. Trying to decide whether to paint the bottom now or later. Tomorrow is Easter Sunday. Monday is Sally's Birthday.

TAG: 360106

DATE: 04-15-95

RELEASED: Norwalk Power Plant

COMMENTS: covered from tip-to-tail with white fungus of some sort (lymphocystis disease).

Robert Kyker
Tagger since 1990
Norwalk CT

□

We asked three fish biologists to describe how fish tag-and-release data have helped them in their research and to comment on the relative usefulness of information developed from volunteer tagging programs.

WHY TAG FISH?

by JOHN BOREMAN

Back in 1983, during the peak of public concern over the declining numbers of striped bass along the Atlantic coast, a woman living in Brooklyn called me and said she had a striped bass with a tag containing a message to contact the North Carolina Division of Marine Fisheries. In a somewhat excited state, I told the woman that the tag could be an important piece of information. I proceeded to give her an extensive (and probably boring) lecture on the significance of the tag in her possession to unraveling the mystery behind relative contributions of Chesapeake, Hudson River, and North Carolina fish to the coastal harvest. When I asked her where in the New York area she caught the fish, hoping to increase the precision of my new data point, she replied: "I didn't catch the fish, I bought it at the Fulton Fish Market!" Embarrassingly, I realized that she was paying for a long distance call to hear me ramble about stock composition of striped bass.

I asked the woman from Brooklyn why she had called. She answered by asking me a question in return: "What's wrong with the fish?" She had thought that the tag was placed on the fish to warn people not to eat it because of excessive contamination. Thinking back on that conversation, I wonder how many people before and since decided not to eat a fish because it was tagged. Do people really understand the scientific basis for tagging fish and the importance of angler participation in both tagging fish and returning tags from fish they caught?

Dr. Boreman is director of the Univ. of Massachusetts/National Oceanic and Atmospheric Admin. Cooperative Marine Program in Amherst, MA.

With the growing popularity of catch-and-release, due to a combination of increased minimum size limits and growth in the conservation ethic, more recreational anglers than ever are actively participating in tagging programs. For example, the number of tags placed on striped bass by recreational anglers volunteering for the tagging program sponsored by the American Littoral Society (ALS) increased approximately 7-fold between 1985 and 1992 (see Figure 1). Anglers who tag and release fish, such as those participating in the ALS program, are curious to know what happens to the fish they release. They are interested in how far it travels, where it goes, and how long before it is once again caught. However, other valuable scientific information can be obtained from tagging programs such as the one conducted by ALS. By releasing tagged fish and then recapturing them at some later date, scientists can estimate population size, survival rates, and, as I explained to the woman from Brooklyn back in 1983, relative contribution of individual populations to the harvestable stock.

The principle behind using a tagging program to estimate population size involves ratios. Scientists release a known number of fish and, after allowing sufficient time for the tagged fish to intermingle with the untagged fish in the population, they sample the population and record the ratio of tagged fish recaptured to the total number of fish sampled. Knowing how many they originally released, they can then extrapolate from the ratio to an estimate of total abundance at the time they released the tagged fish. For example, if 1,000 tagged fish are released and half of the number of fish

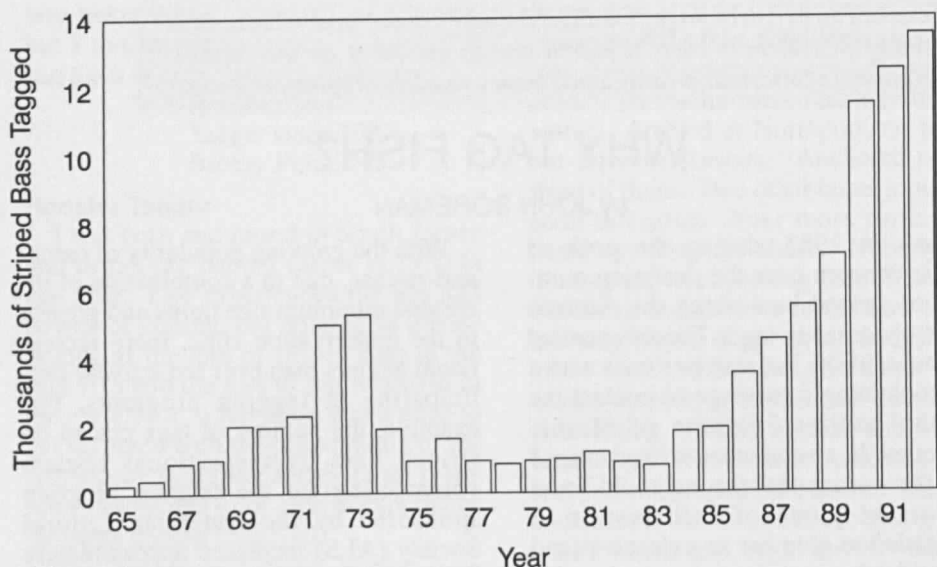


Figure 1.

that are subsequently sampled have tags, then the population abundance at the time of tagging should be close 2,000 fish. Of course, this is a very simple case, but all methods of estimating population abundance using tagging are based on this ratio principle.

Estimating survival rates by using a tagging program requires release of tagged fish and subsequent repeated sampling of the population over time. As tagged fish succumb to fishing or natural mortality, the number of tagged fish still at large will decline over time, and repeated sampling should show that the ratio of tagged fish to total fish sampled also declines over time. The rate at which the ratio of tagged to total fish captured declines with repeated sampling gives an indication to the survival rate. Ken Sprankle and I used such an estimation procedure with the tagging data compiled by ALS to see if the restrictions on harvest of striped bass instituted by the northeast coastal states in 1984 had any noticeable effect on adult survival. They most certainly did (see Figure 2). Prior to the new regulations, the average survival of adult striped bass was an estimated

37% per year; survival increased to an estimated 68% per year after the more restrictive coastwide management plan for striped bass went into effect.

Finally, the relative contribution of individuals to the harvestable stock can be estimated by first capturing the fish when the populations are separated (usually on their spawning grounds), then examining the proportions of tags returned from the fisheries representing each population.

The key to using a tagging program to derive estimates describing population characteristics such as migratory behavior, abundance, mortality, and relative contributions to fisheries is the removal of as much bias from the estimates as possible. Significant bias may occur when (1) tagged fish do not survive as well as untagged fish (perhaps due to trauma caused by the tagging experience), (2) fish lose their tags before being recaptured, (3) tagged fish are easier to catch than untagged fish, and (4) not all fish caught with tags are reported. Adjustments to the estimates can be made if any of these assumptions are violated by knowing the direction and extent of the bias. The first three biases

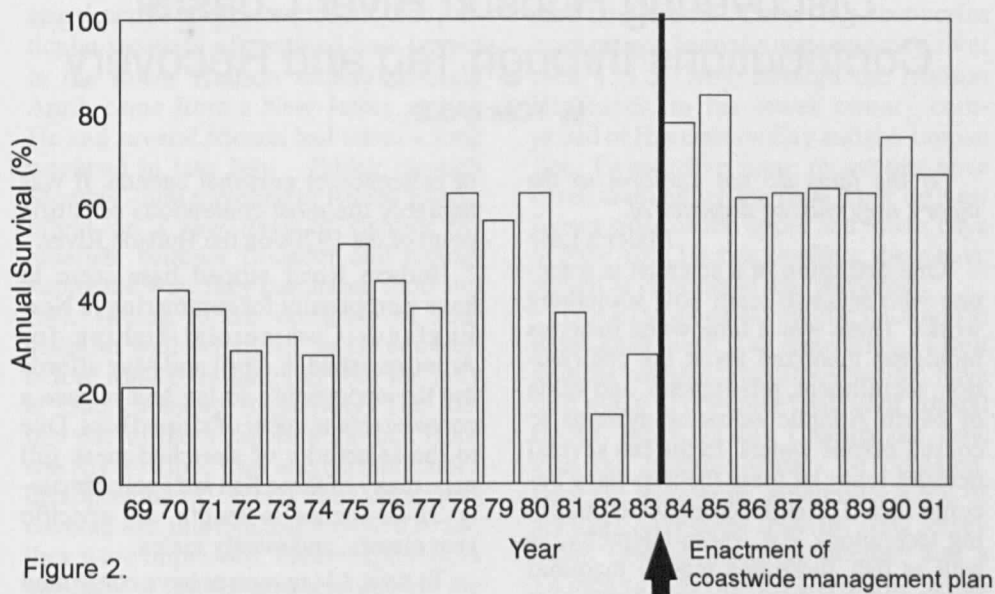


Figure 2.

can be tested experimentally in a relatively straightforward fashion. The fourth, under-reporting of tags, is very difficult to test because it relies on the willingness of people who catch tagged fish to take the time (and perhaps expense) to report or return the tag to the requesting agency or organization.

People do not report tags for a number of reasons, probably the most important of which is out of concern that reporting capture of a tagged fish will subject them to more restrictions on their fishing activity. In some cases, their concern is justified. An example is the long-term tagging program for Atlantic salmon conducted by the Maine Sea-Run Salmon Commission, which eventually led to institution of seasonal closures and harvesting quotas on salmon interception fisheries in Canada and Greenland.

Reporting tags is a matter of individual choice and conscience. Under-reporting tags erodes the scientific underpinnings of fishery management. Failure to remove the bias caused by under-reporting tags from a stock assessment may lead fishery managers to the false assumption that overfishing is not occur-

ring. As a result, additional restrictions may not be placed on the fishery and the stock will eventually collapse.

The potential extent of scientific information that can be gained by volunteer tagging programs is enormous. As we have witnessed for the coastal migratory stock of striped bass, management based on science can work. The quality of the science depends on availability of information, expertise of the scientists, and, just as importantly, on the conscientious efforts of the resource stakeholders. □

What do Tagged Fish Do?

Many ALS tagged fluke are recaptured within months of tagging, often near where they were originally tagged. Many ALS fish, often striped bass, may be at large a year or more between catches but are often recaptured "at the same place next year." But some are free a long time: an 11-inch striped bass tagged 10/28/78 on the Brooklyn, NY, waterfront, was recaptured 5/29/88 back in Brooklyn after 9.5 years free. It grew to 30 pounds... and a 12-inch fluke tagged 8/10/84 at Fire Island Inlet, NY, was recaptured six years later (9/15/90) south of Block Island. It was 23.5 inches at recapture.

Discovering Hudson River Coastal Contributions through Tag and Recovery

by TOM LAKE

"If the facts do not conform to the theory, they must be disposed of."

Maier's Law

One definition of a scientist is someone who seeks to learn how something works. There was a time when fisheries biologists theorized about the contribution, recruitment, relationship, and value of North Atlantic estuarine systems to coastal marine waters. In the last several decades many of these theories have become fact. Through sophisticated tracking technology, e.g., radio-telemetry, as well as fish, turtle and marine mammal tagging, it has been clearly shown that the coastal waters and estuarine systems of the Atlantic, from the St. Lawrence River to northern Florida, are linked, connected by the life histories of the fauna that inhabit them.

In 25 years of involvement in Hudson River ecology, fish tagging and recovery provided me with first-hand examples. Reading academic analyses conducted by others is one thing: personally experiencing these phenomena is yet another; more rewarding, more memorable. Reciting anecdotal accounts is interesting; relating actual occurrences can be compelling.

Many fish species in the Hudson River estuary have a story to tell. Many are here for a portion of their life history, then migrate elsewhere along the Atlantic coast, or into other estuaries. Hudson River estuarine contributions of striped bass to Mid-Atlantic coastal stocks, both through recruitment and migration, were alternately felt to be minimal or maximal, depending upon whom you asked, and specifically dependent upon their frame

Tom Lake is a long-time ALS member and tagger and edits the Hudson River Almanac for the New York State Department of Environmental Conservation.

of reference or personal agenda. It was arguably the most contentious scientific point of the 1970s on the Hudson River.

Hudson River striped bass seem to have a propensity for summering in New England. Commercial fishing for American shad in April and May affords me the opportunity to tag and release a considerable number of striped bass. Due to the selectivity of stretched-mesh gill nets, many of these fish are approximately 21-24 inches in length, are specific year classes, and mostly males.

To date, 14 tag returns have confirmed this speculation. Eight returns have come from Rhode Island: Watch Hill (3), Quonchontaug, Charlestown, Galilee, Narragansett, and Newport. These were from striped bass, averaging 22 1/2 inches total length, tagged between April 5 and April 30, and recovered between June 3 and August 24. These might have come as a result of increased angler interest in the summer months, yet there is no doubt that many of our spawning contingent of striped bass head north out of the estuary in late spring and early summer. One Hudson River-to-Rhode Island return stands out as being a little different. This one, a 20-inch fish, lasted 1443 days, from October to October spanning four years, and a growth of eight inches. It is very likely that this striped bass had visited its river of origin, the Hudson, in the interim, perhaps several times.

Six of my returns have come from the south shore of Connecticut and its estuaries. Others have come from along routes which clearly were heading in that direction: five from the East River, three from the north shore of Long Island, and seven from the south shore of Long Island as far out as Montauk.

Returns from New England not only

define the ecological connection, they also describe the economic link. One particular recovery of a striped bass tagged in the lower Hudson estuary in early April, came from a New Jersey angler. He and several friends had taken a long weekend in late July - Friday through Monday - and travelled to Rhode Island, intent on a few days of fishing for bluefish, summer flounder and tautog. Along the way, they purchased food and fuel, adding to the economy of four states, as well as lodging, tackle and bait, before finally walking out onto the jetty at Quonchontaug Breachway. The fact that one of them caught a 23-inch Hudson River striped bass was certainly not a disappointment. When they later discovered that this fish had travelled so far, they were impressed. These experiences engender a lasting appreciation for the resiliency of such species.

Not all of my Hudson River-tagged fish are recovered from far away exotic places. One of the inherent problems in defining the Hudson River-New York Bight striped bass stock, is their propensity for having a dynamic life history. Most year classes, particularly younger fish, seem to move freely between the estuarine waters of the Hudson River and the marine waters of the New York Bight, and elsewhere. Thirty-two returns of Hudson River tagged striped bass over the years have contributed little insight

into their behavior other than to reinforce that contention. These tag recoveries have ranged from the upper estuary, river mile 153 at Troy, through the Hudson Highlands, to the lower estuary comprised of Haverstraw Bay and the Tappan Zee. Twenty-five more recoveries have come from either the New York or New Jersey sides of the upper and lower bays of New York Harbor. In effect, these have served as controls to the "travellers."

Not all striped bass exiting the Hudson River head north. Tag recoveries, as well as more sophisticated DNA testing, have lead many to conclude that other coastal stocks, most notably Chesapeake Bay, visit the Hudson estuary on occasion. Four tag recoveries, albeit only 4.5% of my total, have come from the New Jersey coast. One of the more notable was a 17-inch striped bass tagged at The Statue of Liberty and recovered 683 days later at Barnegat Light, New Jersey. It had grown two inches, gained half a pound, and seen the world.

Hydrologists tell us that the Hudson River does not technically end at the Verrazano Narrows, but flows seaward for a considerable distance, out beyond Rockaway Point and Sandy Hook into Hudson Canyon. One July morning in 1990, on the beach at first light at Sandy Hook, New Jersey, I was deep into striped sea robins and lady crabs. Another angler, 200 feet up the beach to

Tagging Programs

ALS tags are designed for inshore fish, usually brought into a boat or in through the surf. For other, bigger fish, write or phone the other organizations listed below.

FOR INSHORE FISH:

American Littoral Society
Sandy Hook
Highlands, NJ 07732
Phone: (908) 291-0055

FOR BILLFISH (*swordfish, marlin, sailfish*):

The Billfish Foundation
2419 E. Commercial Blvd.
Suite 303
Fort Lauderdale, FL 33308
Phone: (305) 938-0150
(800) 438-8247

FOR SHARKS:

NOAA/NMFS
28 Tarzwell Drive
Narragansett, RI 02882
Phone: (401) 782-3200

FOR PELAGICS (*tunas*):

NOAA/NMFS
Southeast Fisheries Center
75 Virginia Beach Drive
Miami, FL 33149
Phone: (305) 361-4253
(800) 437-3936

my left, let out a yell. She was holding on as her drag screeched. After what seemed like a considerable period of time, at least five minutes, we netted a 32-inch striped bass. It may well have been a Hudson River striped bass, back in saltwater after spawning. It was her first striped bass from the surf, or anywhere for that matter; therefore, it had special meaning. As with all special fish, we tagged and released it. In late November 1990, several miles to the south along the Monmouth County shore, another angler, this time off a jetty, recovered the tag. The bass was now 34-inches; once again it was released.

Not all recoveries, and consequently not all stories, stem from the tag and recovery of Hudson River striped bass. A male American shad taken from a commercial gill net at Nyack one April morning, tagged and released in the Tappan Zee, Hudson River mile 28, was recovered two weeks later by a commercial fisherman a short distance up the Connecticut River at Old Saybrook. It is believed that shad and herring return to their natal rivers to spawn. Did this shad switch allegiance when it was treated so rudely in the Hudson? After being tagged and released, he probably exited the Hudson through the East River into Long Island Sound, and hugged the south shore of Connecticut until a suitable estuarine system was found. As it turned out, he was treated no better in the Connecticut River. In 1979, a 24-inch Atlantic sturgeon was tagged and released in upper Haverstraw Bay. One hundred thirty-five days later this juvenile sturgeon was recaptured in the York River, near Williamsburg in Virginia, by a commercial fisherman. The tag was returned and the sturgeon was released.

Longevity does not always translate into distance travelled, at least we are not always able to infer distance when we interpret a recovery. An 11-inch striped bass tagged and released at Diamond Reef, Hudson River mile 68, was

recovered 1451 days later under the Throgs Neck Bridge, the eastern gateway to Long Island Sound, a modest distance for nearly four years at freedom. The real story, in this case, will never be known. There is little doubt that in those four years this fish had been a coastal traveller, adding to the faunal mix of inshore waters, perhaps from Rhode Island to southern New Jersey.

My favorite recovery was one that occurred wholly within the framework of my own tagging efforts. In May 1983, I captured a male striped bass on a white bucktail at Denning Point, Hudson River mile 58. There was little doubt that this particular fish was a part of the spring spawning migration from the lower estuary and marine waters, upriver to fresh water where spawning occurs. In May of 1983, Hudson River mile 58 was just above the "salt front," that dynamic blend of brackish water, at the beginning of the fresh water reach, where striped bass and other anadromous species must go to broadcast or otherwise deposit their eggs. One hundred forty-eight days later, October 1983, Christopher Letts and I were jigging silver spoons over Diamond Reef. On our "last cast" of the day, Chris hooked and landed a striped bass. It was the same bass I had tagged in May, and it was now 10 miles upriver. A very short distance. Normally, this fish would have had little to add to our knowledge of striped bass behavior within the estuary, except for the fact that this tag had several bay barnacles attached. Bay barnacles require at least consistently minimal salinity. Although we had recovered this fish ten miles north of where it had been tagged, it told a story of a journey south, to the more mesohaline waters of the lower Hudson estuary, perhaps to the New York Bight or Long Island Sound, where such conditions would have provided not only the opportunity but the environment to have barnacles settle and grow. This striped bass had a story to tell; tag and recovery provided a way for us to listen, and learn. □

Tags Fishery Biologists Never See Again (But Should)

by JOHN WALDMAN

In a fishery biologist's dream world, any tag applied to a fish would be retained by that fish until the fish was recaptured, at which time the recapturer would immediately return the tag to the fishery biologist, complete with all relevant data. Fortunately, this scenario occurs frequently enough to make mark-recapture programs work. But exceptions occur often enough to force fishery biologists to have to consider these issues.

An unbiased mark-recapture study is impossible because of tag loss by fish and non-reporting of captures of marked fish. The actual return rate is the number of tags returned divided by the number of marked fish released. Thus, the actual return rate may be lower or higher than our theoretical optimum because either the numerator (non-reporting) or denominator (tag loss), or both, may be biased downward. These biases, if uncorrected, may seriously inflate or deflate population abundance estimates calculated from mark-recapture data.

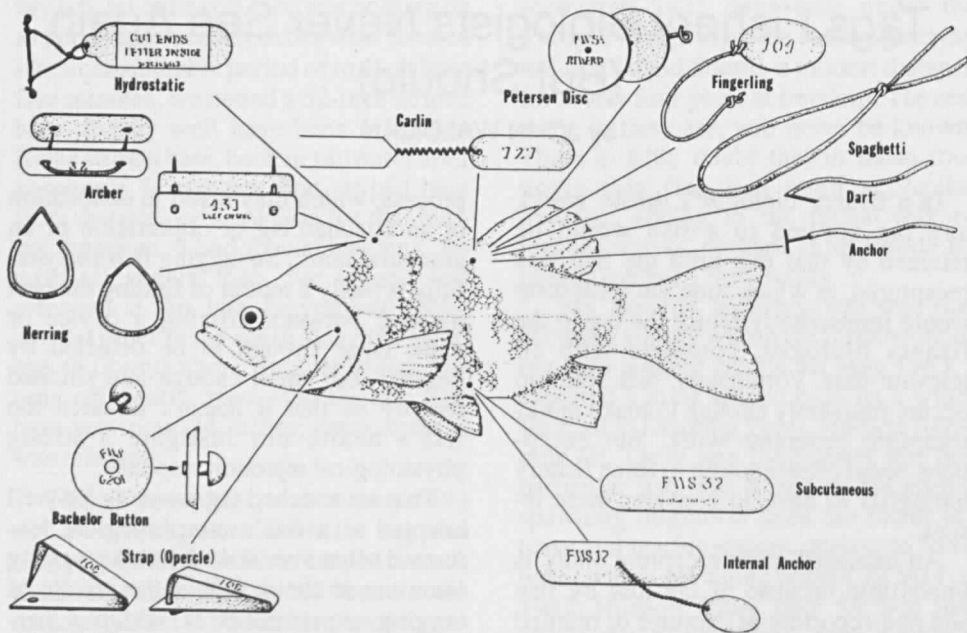
Why would a fish lose a tag? Some tags are natural (e.g., particular genotypes, parasites) and are not lost, but they are not unique to individuals and are technologically difficult and expensive to use. What we typically think of as tags are manmade devices that attach to a fish (e.g., spaghetti tag used by the American Littoral Society), or unnatural marks imposed on a fish's body (e.g., fin clip, brand). Attached tags or unnatural marks create what are essentially minor wounds. Healthy fish undergo a healing

Dr. Waldman is a research associate with the Hudson River Foundation, New York City, and a striped bass angler of renown in the Hudson estuary and on and around Long Island.

process, which may result in dislocation of an attached tag or obliteration of an unnatural mark. So tagging fish successfully is really a matter of finding the best tradeoff between affixing a device or mark large enough to be detected by humans, but small enough and situated smartly so that it doesn't threaten the fish's health nor instigate a strong physiological rejection response.

That an attached tag needs to be well adapted to a fish's morphological features is often overlooked, but the tagging literature is chock full of the results of tagging experiments in which a particular tag simply did not work well for a given species and was supplanted as new tag styles emerged. Figure 1 shows some of the most widely used attached tags and their recommended sites for placement on a fish's body. The sites fall into three general categories: the gill flap, the area under the dorsal fins, and the belly region. Note the intended relationship between tag form and its attachment point. Tags meant to attach to the gill flap are short and flat to prevent interference with essential gill movements. Tags that insert under the dorsal fin are either braced on both flanks of the fish, looped through the trunk, or held in place through one flank by the vertebral spines of the internal fin supporting elements, named pterygiophores. Tags that are inserted into the belly cavity have anchors that are broad and flat, to take advantage of the large but soft abdominal wall.

How can fishery biologists determine which of several alternative tag styles would perform best for their requirements? There are two empirical methods, both of which involve tradeoffs. One is to tag fish and hold them in tanks to directly observe the tag loss rate. This provides



absolute measure, but one which is obtained under the unrealistic conditions of captivity. The other method is to tag fish with two different tags affixed at different body locations and then to release them to the wild. Fishermen can provide information from fish recaptured that bore both tags or that lost only one of the two; thus, only a relative retention rate of one tag type to the other can be calculated because there are no data acquired on the number of fish that lost both tags.

There are a number of quantitative models of tag loss and some of these attempt to partition tag loss into two categories. Type I tag loss is tag shedding that occurs immediately after release; Type II shedding occurs throughout the tagging experiment. Both forms of tag shedding may not occur equally among all size classes of fish tagged. For instance, I helped compare the results of the Hudson River Foundation's and the Hudson River electric utilities' Striped Bass Tag Recovery Program with a tagging study conducted in the Hudson River during the 1970's by Texas Instruments. A fundamental result of both studies disagreed: the new study found

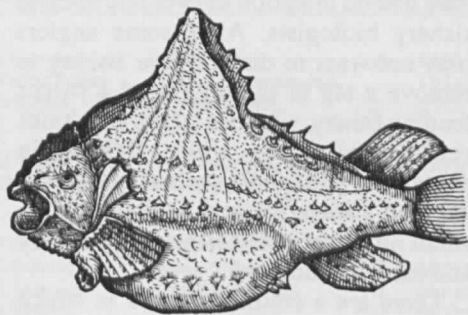
that larger striped bass were caught farther from the mouth of the Hudson, whereas the earlier study found no relationship between fish size and distance traveled.

The tag used in the new study was an internal anchor tag, a style that is anchored by the abdominal wall and therefore, should not be sensitive to fish size. However, the Texas Instruments study used the then popular Dennison-style tag. Dennison tags have 10 mm wide t-bar anchors designed to latch behind paired bones such as pterygiophores or vertebral spines; in the study in question, vertebral spines were used. I examined a series of striped bass skeletons to determine that fish 592 mm and longer have a 10 mm gap or greater between the particular vertebral spines used to anchor the Dennison tags. We then reanalyzed the Texas Instruments data base, distinguishing between striped bass shorter and longer than 592 mm. Based on the number of days at large following release, it was apparent that recaptures of the larger fish became scarce very rapidly, indicating Type I loss, whereas smaller fish were recaptured at a fairly

steady rate. The only reasonable explanation was that larger striped bass, which had interspine distances greater than the 10 mm width of the tag anchor, shed their tags quickly. The net result in the earlier study was an erroneous conclusion—the actual tendency for larger striped bass to travel farther from the Hudson was obscured by their tendency to shed tags faster, so that larger strippers no longer bore tags by the time they reached locations distant from the river.

The particular design of tags has led to other artefactual results. A primary way in which striped bass were tagged during midcentury was through the use of Petersen discs affixed to gill covers; however, Petersen discs were notorious for snagging on gill nets, leading to extremely high recapture rates. One tagging study employing Petersen discs that was conducted in the heyday of the Albemarle Sound gill net fishery for striped bass resulted in the unheard of recapture rate of 50% in just 49 days; alternative tag types provided much lower (and more realistic) estimates of harvest rates.

There also are reasons why tags are never returned from fish that still bore tags when recaptured. Some tags simply don't hold up. In the program conducted by the Hudson River Foundation and the Hudson River electric utilities, the first



tag used was an internal anchor tag. Within nine months after release, we began to receive tags in which some of the printing wore off. Apparently, the plastic streamer portion of the tag that hung externally from the fish's belly hardened into a curved set. As the tagged fish swam in the wild, whatever was on the front surface of the streamer rubbed against the sand, rocks, and barnacles below, so that, depending on the orientation of the streamer, these tags either lost their instructions to the angler or the serial number of the individual fish.

To try to solve the problem, we added a clear plastic sleeve to the streamer. However, algae grew between the streamer and its sleeve, resulting in the appearance of a mysterious dark tube emanating from the fish; some anglers reported that they thought the tag "was a piece of wire." It is safe to assume that for both of these tag styles, many recaptures were not reported because the angler either did not recognize the tag as such or could not read the tag to know where to send it. We now use a completely reengineered tag that is highly resistant to abrasion.

Then there is the problem of non-reporting the recaptured fish. Non-reporting may occur for a variety of reasons. Commercial fishermen sometimes believe that any information provided by them about their catches will be used to justify further harvest restrictions. I have heard commercial fisher-

How to Become an ALS Tagger

If you are a member, you can order tags by mail. Send a check for \$6 for each kit of 10 tags, needle, and instructions. Additional kits without needles are \$5 each. You need to be an ALS member to participate in the program, so if you want to join and tag, add \$25 to your check for a year's membership (\$15 for students and seniors).

men speak of hording dozens of tags that they had no intention of ever returning to fishery biologists. Also, some anglers may not want to disrupt their fishing to remove a tag in the middle of a striper feeding frenzy, whereas others won't risk reclaiming a tag while fishing in precarious situations, such as being perched on a wave washed jetty at night. A small minority of fishermen are just lazy and can't be bothered.

There are a couple of ways in which non-reporting rates may be estimated. One is to use a staggered reward system, in which the tags used have different reward values printed on them, ranging from no reward on up. An estimate of non-reporting of low or no value tags may be obtained by determining the increase in return rates that can be expected to occur with increased reward values. Another approach involves surreptitiously tagging already caught fish,

such as directly from the fish buckets on a party boat. Assuming the fishery biologist is not caught in the act of tagging, they will know exactly how many tagged fish went home with the unknowing anglers and can estimate directly the non-reporting rate.

When one considers the numbers of untagged fish swimming in the wild, a tagged fish represents a scarce and valuable commodity that required a good deal of planning, field effort, cost, and personal commitment. Recaptures of these fish are comparatively rare, thus, it behooves fishery biologists to use the best-retained tags they can and for sport and commercial fisherman to follow through and return tags. The fishery biologist's dream world of perfect tag retention and compliance in reporting probably will never occur. Fortunately, there are ways to estimate and correct these nagging biases. □

GENERAL STORE

Here is a sampling of books and items for sale. More selections available in our BEACHLOVERS Catalog. Call or write for a copy.

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AMERICAN LITTORAL SOCIETY BOOKS

Published by Lyons & Burford

Discovering Sharks. Edited by Samuel Gruber. 23 chapters written by 27 scientists currently conducting research on the world's shark populations. Covers feeding habits, reproductive strategies, anatomical features, and sensory systems from deep-sea dwellers to coastal cruisers. \$10.

Seaside Reader. Edited by D. W. Bennett. A coastal anthology mixing nature writing and other casual coastal musings. \$20.

The Complete Surfcaster, by C. Boyd Pfeiffer. Covers in great detail the art and science of fishing from the shore. \$10.

The Whale Watcher's Handbook, by David K. Bulloch. A field guide to the whales, dolphins and porpoises of North America. \$12.



SHIPPING CHARGES: \$ 30.01 to \$ 50.00—\$ 5.50
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\$ 15.01 to \$ 30.00—\$ 4.25 \$ 75.01 to \$ 100.00—\$ 8.50

Fishwatching, by John Quinn. A guide to the diver's underwater world. How to gear up, where to look, when to go. Many drawings and a color photo section. \$18.

Game Fish Tag & Release, by Capt. Al Anderson. A complete guide to tag & release techniques and programs. Many ALS taggers interviewed for the book. \$16.

Fishing for Striped Bass, by Gary Caputi. History, tackle, fishing strategies from boat, beach or jetty. Everything you need to know. \$16.

OTHER ITEMS

Crab T-shirt: It's back and all new. Crab on the front - explanation of "littoral" on the back. 100% cotton, beige w/navy blue printing. M, L, XL, \$15.

Zippered Sweatshirt: 50/50 hooded jersey, navy blue with Society's original logo in white on front. M, L, XL, \$28.

30 Years of A.L.S. Fish Tagging: (1965-1995) with a limited edition commemorative T-Shirt - 50% polyester/50% cotton in ash gray with a school of strippers on the front. L & XL only. \$12.

Send check or VISA/MASTERCARD details to:

AMERICAN LITTORAL SOCIETY, SANDY HOOK, HIGHLANDS, NJ 07732

TAGGING RETURNS

Species

Lgth	Tagger	Place Tagged	Date	Recapturer	Location	Lgth	Date
Atlantic Cod							
19	A Alosso Jr.	Offshr., MA	07/30/94	J Greenleaf	Offshr. MA	19	08/03/94
18	T Stanik	Offshr., Gloucester, MA	07/08/94	Yankee Patriot	Offshr., Gloucester, MA		12/14/94
17	T Stanik	Offshr., MA	07/05/94	D Staples	N. Bedford, MA	21	05/05/95
Black Sea Bass							
10	N Nelson	Rockaway Reef, NY	08/06/94	M Noble	Rockaway Reef, NY		09/11/94
10	G Horvath	Is. Beach St. Pk., NJ	09/21/94	J Mittelsdorf	Is. Beach St. Pk., NJ	12	10/04/94
Bluefish							
16	A Schweithelm	Northport, NY	07/03/95	P Piccininni	Hempstead, NY		
26	M Barrett	Annadale, NY	05/18/94	C Selnick	Romar Shoals, NJ	28	08/09/94
33	M Favale	Boston, MA	07/30/94	H Andersen	Cape Cod Bay, MA	33	08/13/94
30	K Kyker	Norwalk Islands, CT	08/03/94	R Fiorelli	Norwalk, CT	32	08/30/94
22	J Niemczyk	Baiting Hollow, NY	06/04/94	F Lewie	Watch Hill, RI	25	09/03/94
16	J Axisa	Rockaway, NY	08/13/94	R Pepe	Verrazano Brdg., NY		09/10/94
25	B Finke	Northport, NY	08/29/93	J Mead	Cape Cod Bay, MA	28	09/10/94
20	N Fiorillo Jr.	Sandy Hook Bay, NJ	05/14/94	A DelMoral	Staten Is., NY		09/11/94
25	A Schweithelm	Ft. Salonga, NY	08/28/94	A Benedict	Cold Spring Hbr., NY	29	09/11/94
16	A Schweithelm	Ft. Salonga, NY	08/26/94	W Yackel	Port Jefferson, NY	18	09/19/94
18	M Barrett	Great Kills, NY	06/12/94	F Buban	Ellis Is., NY		09/24/94
26	A Schweithelm	Northport, NY	06/17/94	S Rumanoff	Branford, CT	30	09/25/94
23	D Zurheide	The Battery, NYC	09/11/94	S Santos	NY Harbor		09/25/94
13	P Lefebure	Norwalk, CT	10/04/94	D Lauer	Northport, NY		10/14/94
13	H Rolufs	Cape May, NJ	08/13/94	C Johnson	Nantuxat Cove, DE Bay		10/18/94
16	A Schweithelm	Ft Salonga, NY	09/02/94	L Halleck	Huntington, NY		10/25/94
14	W Gundersen Jr.	Keansburg, NJ	09/03/94	M Greco	Bowers Beach, DE	14	11/07/94
31	D Zurheide	The Battery, NYC	09/11/94	J Orlando	Offshr., 17 Fathoms, NJ		11/12/94
Fluke							
11	R Anderson Jr.	Fire Is. Inlet, NY	07/24/94	R Cooper	Fire Is. Inlet, NY	12	08/01/94
12	S Fries	Gravesend Bay, NY	07/17/92	J Sawicki	Mystic, CT	21	08/01/94
13	C Witek	W. Islip, NY	05/15/94	C Niessner	Fire Is. Lt., NY		08/01/94
14	W Gano	Moriches Bay, NY	06/13/94	J Tuszyński	Moriches Bay, NY	17	08/01/94
13	J Hickey Jr.	S. Belmar, NJ	07/08/94	M Slatin	Avon, NJ	13	08/03/94
13	R Anderson Jr.	Fire Is. Inlet, NY	07/16/94	P Ferrari	R. Moses Fish. Pier, NY	13	08/04/94
14	R Anderson Jr.	Fire Is. Inlet, NY	07/19/94	B Brown	Fire Is. Inlet, NY	14	08/04/94
13	J White	Robert Moses Brdg., NY	07/20/94	F Dufek	Fire Is. Inlet, NY	13	08/04/94
12	R Anderson Jr.	Fire Is. Inlet, NY	07/24/94	A Triolo	Fire Is. Inlet, NY	12	08/05/94
13	T Cusmano	Manasquan, NJ	07/06/94	T Funk	Spring Lake, NJ	13	08/05/94
14	W Filce	Sea Bright, NJ	07/12/94	A Casagrande	Sandy Hook, NJ	14	08/05/94
14	W Gano	Moriches Bay, NY	07/14/94	W Cowles	Moriches Bay, NY		08/06/94
12	R Anderson Jr.	Fire Is. Inlet, NY	07/19/94	L Gobler	Fire Is. Inlet, NY		08/06/94
14	F Haimes	Merrick Bay, NY	06/16/94	F Horner	Jones Inlet, NY	15	08/07/94
13	W Gano	Moriches Bay, NY	06/03/94	G Washburn	Moriches Bay, NY	14	08/07/94
13	B Bannick	Newport, RI	07/03/94	D Rainville	Newport, RI		08/07/94
13	S Fries	Ambrose Chan. #5, NJ	07/07/94	W Bucher	Sandy Hook, NJ	14	08/07/94
14	C Wilcox	Moriches Bay, NY	05/22/94	G Giancola	Moriches Bay, NY	15	08/08/94
10	C Fiorello	Long Branch, NJ	05/25/93	S Spink	Quonset Pt., RI		08/10/94
15	JC Wright	Lynnhaven Inlet, VA	05/19/94	C Dawson	Virginia Beach, VA	16	08/10/94
13	A D'Amato	Cape May, NJ	08/05/93	J Coronese	Shinnecock Bay, NY	14	08/10/94
12	B Shillingford	Ocean City, NJ	07/11/94	K Block	Inland Waterway, NJ	12	08/11/94
11	B Shillingford	Corson's Inlet, NJ	07/07/94	Unknown Fisherman	Ocean City, NJ	11	08/11/94
13	W Gano	Moriches Bay, NY	06/30/94	P Polla	Moriches Bay, NY	13	08/11/94
14	W Gano	Moriches Bay, NY	07/19/94	K Weber	Moriches Bay, NY	14	08/11/94
13	L Ruch Jr.	Asbury Park, NJ	07/23/94	A Wu	Deal, NJ	13	08/12/94
14	R Paganini	Long Beach Brdg., NY	06/21/94	P Longarello	Jones Beach, NY		08/12/94
12	R Anderson Jr.	Fire Is. Inlet, NY	07/24/94	C Cardinale	Fire Is. Inlet, NY	12	08/12/94
13	E Swain Jr.	Fire Is. Inlet, NY	08/03/94	G Johnson	Babylon, NY		08/12/94
14	W Filce	Manasquan R., NJ	07/31/94	K Kloo	Manasquan R., NJ	14	08/12/94
14	R Anderson Jr.	Fire Is. Inlet, NY	07/19/94	N Martello	Fire Is. Inlet, NY		08/12/94
14	W Filce	Shrewsbury R., NJ	07/02/94	R Silkowski	Sandy Hook Bay, NJ	15	08/12/94
12	T Stanik	Sandy Hook, NJ	07/17/94	W Hratko	Sandy Hook, NJ	12	08/13/94
12	R Anderson Jr.	Fire Is. Inlet, NY	07/27/94	S Phojanakong	Great South Bay, NY		08/13/94
11	S Knapik	Pt. Lookout, NY	05/30/94	F Broyles	Long Beach, NY	12	08/14/94

Species

Lgth	Tagger	Place Tagged	Date	Recapturer	Location	Lgth	Date
Fluke (continued)							
15	W Filce	Pt. Pleasant, NJ	06/16/94	B Ralicki	Sandy Hook, NJ	17	08/14/94
12	A D'Amato	Cape May, NJ	07/23/93	M Brown	Tuckerton, NJ	21	08/15/94
14	R Nelson	Jones Inlet, NY	07/16/94	A Roth	Jones Inlet, NY	14	08/15/94
13	K Miles	Manasquan R., NJ	07/25/94	A Bianchetti	Manasquan Inlet, NJ	14	08/15/94
11	F Rupp	Raritan Bay, NJ	07/08/94	G Mileski	Sandy Hook Bay, NJ		08/16/94
11	A Wolenter Sr.	Sandy Hook, NJ	07/17/94	S Szabo	Sandy Hook, NJ		08/16/94
11	C Witek	Babylon, NY	05/31/93	E Ehehalt	Sag Harbor, NY	16	08/16/94
12	D Obropta	Sandy Hook, NJ	07/29/94	R de la Prida	Sea Bright, NJ	13	08/17/94
12	E Zinke	Spring Lake, NJ	07/13/94	R de la Prida	Sea Bright, NJ	13	08/17/94
12	C Fiorillo	Avon, NJ	07/13/93	J Gross M.D.	Ambrose Chan., NY	15	08/17/94
13	S Carlsen	Shark R., NJ	08/10/94	D Johnson Jr.	Shark R., NJ		08/17/94
10	J White	Fire Is. Inlet, NY	05/22/94	J Cruz	Great South Bay, NY	14	08/17/94
13	E Puzio	Pt. Lookout, NY	05/14/94	N Johnson	Jones Inlet, NY	14	08/19/94
12	R Meyer	Earle Pier, NJ	08/08/93	R Trueb	Pt. Judith, RI	14	08/19/94
13	D Zurheide	Swinburne Is., NY	07/09/94	C Ferrante	Ambrose Chan., NY	15	08/20/94
13	V Galgano	Sea Girt, NJ	07/16/94	A Sheffler	Manasquan, NJ		08/20/94
11	J White	Robert Moses Brdg., NY	07/20/94	M Haupt	Robert Moses Brdg., NY	13	08/20/94
13	S Knapik	Pt. Lookout, NY	06/17/94	J Lucas	Pt. Lookout, NY	15	08/20/94
13	F Rupp	Raritan Bay, NJ	07/08/94	V Demidon	Sandy Hook, NJ		08/20/94
13	R Anderson Jr.	Fire Is. Inlet, NY	07/24/94	B Reynolds	Robert Moses Brdg., NY	13	08/20/94
12	E Zinke	Belmar, NJ	06/04/94	W Burke	Manasquan R., NJ	14	08/21/94
13	W Filce	Sea Girt, NJ	08/08/94	T Olsen	Manasquan R., NJ	14	08/22/94
14	R Anderson Jr.	Fire Island Inlet, NY	07/24/94	I Cook	Captree Brdg., NY	15	08/22/94
13	K Leopold	Great South Bay, NY	07/02/94	G Ris	Fire Is. Inlet, NY	13	08/22/94
12	S Carlsen	Shark R., NJ	07/07/94	D Lanni	Belmar, NJ	15	08/24/94
14	W Gano	Moriches Bay, NY	08/04/94	D Grau	Moriches Inlet, NY	14	08/25/94
13	S Knapik	Pt. Lookout, NY	07/09/94	P Ott	Reynolds Channel, NY		08/25/94
14	S Wisniewski	Provincetown, MA	06/19/94	L Spenle	Provincetown, MA	15	08/26/94
	E Feret	Moriches Bay, NY	08/13/94	R Nowak	Moriches Inlet, NY	15	08/28/94
12	J Hickey Jr.	Seaside Hgts., NJ	08/28/93	P Kujawski	Connecticut R., CT	15	08/28/94
14	C Wilcox	Moriches Bay, NY	08/16/94	M Kowalski	Moriches Inlet, NY	15	08/28/94
14	W Filce	Pt. Pleasant, NJ	06/16/94	L Puntolillo	Manasquan R., NJ		08/28/94
14	M Frawley Jr.	Shinnecock Bay, NY	07/19/94	C Groth	Hampton Bays, NY	14	08/28/94
13	R Joyce	Pt. Judith, RI	06/15/94	M Sternberg-Powidzki	Newport, RI	13	08/30/94
12	S Carlsen	Shark R., NJ	06/05/93	J O'Connor	Freeport, NY	15	08/30/94
12	R Anderson Jr.	Fire Is. Inlet, NY	08/09/94	G Normoyle	Great South Bay, NY	13	08/31/94
14	W Filce	Mantoloking, NJ	07/17/94	R Sharp	Mantoloking, NJ	15	09/01/94
12	S Carlsen	Shark R., NJ	05/15/94	B Epstein	Shark R., NJ	15	09/01/94
12	R Anderson Jr.	Fire Is. Inlet, NY	08/25/94	T Dobler	Fire Is. USCG, NY	12	09/01/94
11	R Anderson Jr.	Fire Is. Inlet, NY	08/11/94	R Pearsall Jr.	Fire Is. Inlet, NY	12	09/02/94
13	W Gano	Moriches Bay, NY	06/24/94	M Alderino	Moriches Bay, NY		09/03/94
13	B Allen	Bushy Pt., CT	07/12/94	D Herbert	Mouth of Mystic R., CT	14	09/03/94
14	W Filce	Mantoloking, NJ	07/17/94	R Francis	Bay Head, NJ	15	09/03/94
12	E Feret	Moriches, NY	08/28/94	N Fulfaro	Moriches Bay, NY	12	09/03/94
15	G Ottavio	Cape May, NJ	07/30/94	J Beck	Cape May Pt., NJ	15	09/04/94
14	W Gano	Moriches Bay, NY	08/19/94	A Plastino	Moriches Bay, NY	15	09/05/94
13	M Fritz	Delaware Bay, NJ	07/02/94	R.W. Jones Fish Co.	Delaware Bay, NJ		09/05/94
14	W Gano	Moriches Bay, NY	07/14/94	S Bigora	Moriches Bay, NY		09/06/94
13	W Filce	Mantoloking, NJ	09/02/94	F Pranio	Pt. Pleasant, NJ	14	09/08/94
16	R Haug	Moriches Inlet, NY	07/12/94	G Stephani	Moriches Inlet, NY		09/08/94
13	W Gano	Moriches Bay, NY	08/24/94	M Lang	Moriches Inlet, NY	13	09/08/94
12	J White	Baldwin, NY	07/09/94	J Silber	Baldwin, NY	14	09/08/94
14	E Puzio	Pt. Lookout, NY	04/30/94	J Puccio	Jones Inlet, NY	14	09/09/94
14	E Swain Jr.	Robert Moses Brdg., NY	08/12/94	C Rubino	Robert Moses beach, NY		09/09/94
12	R Anderson Jr.	Fire Is. Inlet, NY	07/24/94	A Probeck	Fire Is. Inlet, NY	13	09/09/94
12	R Anderson Jr.	Fire Is. Inlet, NY	07/24/94	B Ponce	Robert Moses Brdg., NY	13	09/09/94
10	S Carlsen	Atlantic Highlands, NJ	06/27/94	L Bancheri	Sandy Hook, NJ		09/10/94
11	S Fries	Rockaway Inlet, NY	07/10/94	A Elliott	Jamaica Bay, NY	15	09/10/94
13	W Filce	Manasquan R., NJ	08/16/94	F Millen	Manasquan R., NJ	14	09/10/94
13	D Haines	Cape May Pt., NJ	06/05/94	R Wlazlowski	Lavallette, NJ	15	09/11/94
14	W Filce	Mantoloking, NJ	08/16/94	L Tammaro	Bay Head, NJ		09/12/94
17	A D'Amato	Cape May, NJ	08/15/94	D Loudon	Cape May, NJ	17	09/13/94

Species

Lgth	Tagger	Place Tagged	Date	Recapturer	Location	Lgth	Date
Fluke (continued)							
13	S Carlsen	Shark R., NJ	08/16/94	G Larson	Shark R. Inlet, NJ	13	09/13/94
13	W Filce	Manasquan R., NJ	08/25/94	J Horvath	Manasquan Inlet, NJ	14	09/13/94
13	D Mann	Fire Is. Inlet, NY	08/04/94	S Wilhelm	Fire Is. Inlet, NY	15	09/13/94
11	F Tenore	Sandy Hook, NJ	07/08/94	R Herrick	Sandy Hook, NJ	13	09/13/94
13	P Migliaccio	Deal, NJ	08/24/94	H Coleman	Asbury Park, NJ	13	09/14/94
13	R Anderson Jr.	Captree, NY	05/21/94	P Quinn	Captree, NY	14	09/14/94
13	W Filce	Manasquan R., NJ	07/31/94	D McCall	Manasquan Inlet, NJ	14	09/16/94
13	A D'Amato	Delaware Bay, NJ	08/03/94	C Bergman	Offshr., Cape May, NJ	14	09/17/94
14	D Evans	Spring Lake, NJ	05/15/94	S Lesniak	Princess Bay, NY	16	09/18/94
15	W Filce	Mantoloking, NJ	08/16/94	J Palmisano	Manasquan Inlet, NJ	17	09/20/94
14	W Filce	Mantoloking, NJ	08/30/94	C DeWalt	Mantoloking, NJ	15	09/21/94
13	S Carlsen	Shark R., NJ	07/27/94	Unkn fisherman	Shark R., NJ	15	09/21/94
12	T Marburger	Shinnecock Canal, NY	05/31/94	R Bandazian	Hampton Bays, NY	14	09/24/94
13	A Wolenter Sr.	Highlands, NJ	08/07/94	F Coles	Leonardo Pier, NJ	14	09/25/94
10	R Piscopo	Englewood, NJ	09/15/94	J Donohue	Englewood, NJ	10	09/28/94
13	M Daniewicz	Swinbourne Is., NY	07/26/94	C Cona	Jones Inlet, NY		10/03/94
14	R Rizzie	Leonardo, NJ	08/11/94	S Machalaba	Sandy Hook, NJ	15	10/08/94
14	W Gano	Moriches Bay, NY	07/26/94	R Basile	Moriches Bay, NY	15	10/08/94
14	R Nelson	Swift Creek, NY	08/03/94	J Keegan	Fulton Fish Mkt., NY	14	10/10/94
11	R Anderson Jr.	Captree, NY	06/03/94	M Bonito	Robert Moses Brgd., NY	15	10/10/94
14	T Surgent	Manasquan R., NJ	08/09/93	J Gutowski	Offshr., Barnegat, NJ	18	10/15/94
14	D Mann	Moriches Bay, NY	08/27/94	R Barber	Offshr., RI	17	10/15/94
14	J Calamia	Democrat Pt., NY	08/21/93	R Barber	Offshr., RI		10/15/94
11	S Knapik	Pt. Lookout, NY	06/15/94	L van der Does	Freeport, NY		10/16/94
13	T Stanik	Great Kills, NY	08/28/94	D Byrne	Long Branch, NJ	15	10/21/94
12	R Anderson Jr.	Captree, NY	05/21/94	J Gortakowski	Robt. Moses Brgd., NY	14	10/29/94
14	W Filce	Sandy Hook, NJ	07/10/94	Penn Fish Co.	Camden, NJ		11/23/94
14	W Stuvén	Buoy 13, W.L.I. Sound	08/16/94	R Barber	S of Block Is., RI	16	12/15/94
12	M Zielen	Sandy Hook, NJ	07/01/94	R Barber	S of Block Is., RI	15	12/15/94
13	B Dalton	Long Branch, NJ	07/10/93	F/V Capt. Garland	Offshr., NJ in a trawl		12/20/94
10	A Hagovsky	Chincoteague Inlet, VA	06/26/93	F/V Capt. Cecil	Offshr., NJ in a trawl		12/20/94
14	P Hahn	Atlantic Highlands, NJ	08/07/94	F/V Stirs I	Offshr. Barnegat, NJ		01/08/95
13	R Anderson Jr.	Fire Is. Inlet, NY	09/03/94	F/V Scott N Mike	Offshr., Cape May, NJ	14	01/09/95
13	N Fiorillo Jr.	Long Branch, NJ	08/28/93	K Barber	Offshr., Hudson Canyon		01/12/95
13	A Wolenter Sr.	Sandy Hook, NJ	08/21/94	F/V Scott N Mike	Offshr., Cape May, NJ	14	01/17/95
13	S Wisniewski	Island Beach, NJ	09/14/94	F/V Scott N Mike	Offshr., Cape May, NJ	14	01/17/95
13	W Gano	Moriches Bay, NY	08/24/94	F/V John B. Reye	Offshr., Cape May, NJ	15	01/18/95
13	D Mann	Moriches Bay, NY	09/10/94	P Westcott	Offshr., Montauk Pt., NY	14	01/28/95
13	W Filce	Bay Head, NJ	09/02/94	F/V Sandy Potter	Offshr., Sea Isle City, NJ	14	01/28/95
11	R Haug	Moriches Inlet, NY	08/09/94	T Daley	Offshr. Island Beach, NJ	14	01/30/95
13	E Zinke	Seaside Pk., NJ	09/15/94	T McCausland	Offshr., Barnegat Lt., NJ	14	01/31/95
14	J Schmidt	Manasquan Inlet, NJ	09/11/94	F/V Susan-L	Offshr., Ludlam Bch., NJ	14	01/31/95
13	M Daniewicz	Flynn's Knoll, NJ	06/01/94	J Coronese	70 mi. offshore	15	02/07/95
15	W Filce	Pt. Pleasant, NJ	06/16/94	S Martin	Offshr., Ocean City, MD	15	03/15/95
13	M Zielen	Sandy Hook, NJ	06/18/94	M Daniels	Offshr., Virginia	18	03/15/95
12	J Seton	Sandy Hook, NJ	07/16/94	F/V Miss Amanda	Offshr., Nantucket, RI		03/19/95
14	W Gano	Moriches Bay, NY	07/13/94	F/V Miss Amanda	Offshr., Nantucket, RI		03/19/95
13	E Feret	Moriches Bay, NY	08/13/94	S Paterson	Block Is. Sound, RI		03/24/95
13	B Quick	Holgate, NJ	09/16/94	Luther Smith & Sons	Cape May, NJ	14	03/27/95
14	G Horvath	Island Beach St. Pk., NJ	09/21/94	F/V Jennifer Daniele	Offshr., Hudson Cnyn, NJ	15	04/08/95
13	B Allen	Vixen Ledge, CT	07/12/94	F/V Neves	Offshr., NE Block Is., RI	14	04/10/95
15	A D'Amato	Cape May, NJ	08/30/94	Sam Rust Seafood Co.	Chesapeake Bay, VA		05/02/95
13	R Anderson Jr.	Fire Is. Inlet, NY	07/19/94	M Behnke	Robert Moses Brgd., NY	16	05/21/95
16	S Carlsen	Shark River, NJ	05/21/95	Sea Pigeon IV	Sandy Hook, NJ	17	06/01/95
9	B Goodman	Jones Inlet, NY	07/30/94	J Whaley	Narragansett Pier, RI	14	06/01/95
14	P Hahn	Sandy Hook, NJ	09/10/94	J Bilotti	Sandy Hook, NJ	15	06/03/95
Gag Grouper							
10	D Sherman	Offshr., Savannah, GA	10/22/94	B Morrissey	Offshr., Tybee Is., GA	10	11/25/94
Grouper							
14	D Sherman	Offshr., Savannah, GA	11/26/94	D Sherman	Offshr., Savannah, GA	14	12/10/94
14	D Sherman	Offshr., Savannah, GA	11/26/94	D Sherman	Offshr., Savannah, GA	14	12/10/94
14	F Waltzinger III	Marathon, FL	01/09/95	E Davis	Marathon, FL		01/27/95

Species

Lgth	Tagger	Place Tagged	Date	Recapturer	Location	Lgth	Date
Grouper (continued)							
10	F Waltzinger III	Marathon, FL	01/15/95	J Henry	Marathon, FL		02/14/95
Mullet							
12	D Spring	Hatteras, NC	10/13/94	Pittman Seafood Co.	Cape Hatteras, NC	13	01/16/95
Nurse Shark							
42	J Wright	Venice, FL	09/06/94	B Schneider	Venice, FL	42	09/08/94
39	J Wright	Gulf off Nokomis, FL	09/03/94	J Wright	Venice, FL	42	09/12/94
Red Drum							
17	L Gordon Jr.	Lynnhaven R. VA	06/18/94	B Raymor	Nags Head, NC	22	10/18/94
Red Grouper							
27	B Semasek	Florida	10/28/93	F Kunreuther	Hawks Channel, FL	18	03/18/95
Sheepshead							
8	D Sherman	Savannah, GA	01/13/95	J Cavuoto	Savannah, GA	10	03/25/95
10	D Sherman		01/13/95	D Sherman	Savannah Reef, GA	10	04/15/95
Silver Hake (Whiting)							
14	M Barrett	Caswell Beach, NC	09/02/94	G Skipper	Yaupon Beach, NC		09/24/94
Snook							
20	B Norris	Venice Inlet, FL	06/10/94	M Capel	Venice, FL	22	09/05/94
22	G Milo	Boynton Inlet, FL	08/20/94	J Zubak	Boynton Beach, FL	23	12/07/94
Spotted Seatrout							
	J Doyle	Crescent Beach, FL	10/15/93	L Welch	Fernandina Beach, FL		08/11/94
Striped Bass							
16	J Karolides	Beverly, MA	10/14/92	R Ares	Connecticut Coast		05/15/94
30	T Rinaldi	Montauk, NY	09/22/91	R Lindholm	Portsmouth, NH	36	07/01/94
36	J Goulart	Newport, RI	06/13/93	R Colagiovanni	Watch Hill, RI	40	07/15/94
35	P Krueger	Long Beach, NY	10/14/92	R Colagiovanni	Watch Hill, RI	40	07/15/94
37	B Billerman	Merrimack R., MA	09/15/92	H Stossel	Plum Is. Inlet, MA		07/31/94
22	F Stunkel	Norwalk, CT	04/09/92	R Froio Jr.	Cohasset, MA	32	08/01/94
26	M Berger	Atlantic Bch. Brdg., NY	06/14/94	J Maffucci	Silver Pt., NY	27	08/02/94
37	T Lake	Chelsea, NY	05/05/94	B DeMarinis	Fishers Is., NY		08/02/94
24	J Foti	Ft. Wadsworth, NY	07/02/94	G Buono	Ft. Wadsworth, NY		08/03/94
24	J Foti	Ft. Wadsworth, NY	08/22/93	G Buono	Ft. Wadsworth, NY		08/03/94
32	A Marsello	Cape Cod Canal, MA	07/26/94	R Parabolici	Bourne, MA		08/03/94
22	R Pearson Jr.	Croton Bay, NY	04/21/90	J Wysocki	Fishers Is. Sound, NY		08/04/94
33	J Kleuskens	Little Egg Inlet, NJ	11/15/93	V Sakovich	Groton, CT	34	08/05/94
40	J Doyle	Sandy Hook, NJ	10/05/91	R Lowerre	Sandy Hook, NJ	45	08/06/94
28	A Marsello	Cape Cod Canal, MA	07/26/94	D Walton	Cape Cod Canal, MA	28	08/06/94
24	J Foti	Ft. Wadsworth, NY	07/16/94	S Kahwaji	Rosebank, NY		08/07/94
28	L Richards	Atlantic Beach, NY	07/02/94	A Malvito	Atlantic Beach Brdg., NY	31	08/07/94
26	D Kelly	Orient Pt., NY	10/16/93	T Currier	Waterford, CT	28	08/07/94
33	A Drew Jr.	Charlestown, RI	09/29/93	J Nunes	Sow & Pigs Reef, MA		08/07/94
23	J Caputo	Hart Is., NY	06/22/94	R Cook	Hart Is., NY	25	08/07/94
24	M Berger	Atlantic Bch. Brdg., NY	07/07/94	C Tuzzolo	Breezy Pt., NY	25	08/08/94
	D Partusch	Shark R., NJ	05/14/94	T Surgent	Spring Lake, NJ	31	08/08/94
20	A LoCascio	Manhasset Bay, NY	11/11/93	T Currier	Waterford, CT	27	08/08/94
28	K Bilodeau	Norwich, CT	04/14/94	W Hall	Monomoy Pt., MA	31	08/08/94
24	G Ciriello	Sandy Hook, NJ	06/02/93	B Shulman	Raritan Bay, NJ	24	08/08/94
26	G Ruest	Sow & Pigs Reef, MA	08/20/93	B LaFleur	Sow & Pigs Reef, MA	28	08/08/94
15	W Edwards	Stratford, CT	06/16/94	G Ponganis	Stratford, CT		08/08/94
27	J McAfee Jr.	Quick's Hole, MA	06/11/94	J McAfee	Quick's Hole, MA	27	08/08/94
24	T Rinaldi	Mattituck, NY	10/07/92	G Dalecki	Mattituck, NY	31	08/09/94
21	R Wellman	Horton's Pt., NY	08/18/92	R Jacobs	Orient Pt., NY	26	08/09/94
18	W Anderson	Provincetown, MA	06/02/94	D Tran	Provincetown, MA	18	08/09/94
24	R Templeton	Charlestown, RI	09/26/92	J O'Brien	Watch Hill, RI	31	08/09/94
16	T Marburger	Northport, NY	04/08/90	R Zambzyski	Hampton Bays, NY	30	08/10/94
22	J Dotsey	Long Beach, NY	11/17/92	A Piszczatowski	Glen Cove, NY	26	08/10/94
26	W Sharpe	Navesink R., NJ	11/05/93	D Ambrico	Statue of Liberty, NY		08/10/94

Species

Lgth	Tagger	Place Tagged	Date	Recapturer	Location	Lgth	Date
Striped Bass (continued)							
28	J McAfee Jr.	Quick's Hole, MA	06/18/94	G Ruest	Quick's Hole, MA	28	08/11/94
20	J Gibbons	Sea Bright, NJ	10/14/93	J DellArena	Verrazano Brdg., NY		08/11/94
33	G Ruest	Quick's Hole, MA	08/03/94	G Ruest	Quick's Hole, MA	33	08/11/94
25	F Stunkel	Darien, CT	10/02/92	C Nelson	Darien, CT	26	08/12/94
33	C Payne	Boston Harbor, MA	08/08/94	R Stearns	Lynn Harbor, MA		08/12/94
25	A Anderson	Quonchontaug, RI	10/05/92	S Newton	Wiscasset, ME	29	08/12/94
32	C Ponte	Quick's Hole, MA	07/10/94	A Malgieri	Quick's Hole, MA		08/13/94
24	R Wellman	Duck Pond Pt., NY	06/13/93	K Meklenburg	Orient Pt., NY	27	08/13/94
	E Costello	Montauk, NY	05/21/94	K Johnson	Old Lyme, CT	31	08/13/94
31	F Stunkel	Stamford, CT	07/10/93	V Sokolohorsky	Little Capt. Is., CT	34	08/13/94
28	T Nowell	Plum Is., MA	06/05/94	D Beshara	Hampton, NH	30	08/14/94
28	B Shillingford	Cape May, NJ	05/12/94	W Raye	Chatham, MA	28	08/14/94
22	J Mulkerin	Union Beach, NJ	04/16/94	W Utley	Harpwell, ME	25	08/14/94
23	W Perlman	Atlantic Beach, NY	07/23/94	C Ambrosia	Atlantic Beach Brdg., NY		08/14/94
27	S Penta	Boston, MA	07/14/92	I Cramphorn	Newburyport, MA	32	08/15/94
23	J Foti	Pt. Wadsworth, NY	07/16/94	C Beatty	Caven Pt., NJ		08/15/94
24	J Foti	The Narrows, NY	07/16/94	C Beatty	Caven Pt., NJ		08/15/94
22	E Petronio Jr.	Pt. Judith, RI	07/15/94	P Tuttle	Narragansett, RI		08/15/94
22	P Pelletier	Merrimack R., MA	06/28/94	P Damian	Newburyport, MA	22	08/15/94
16	GS Gray	Charlestown, RI	06/03/93	B Wazer	Westerly, RI		08/15/94
16	J Karolides	Danvers, MA	06/10/94	J Karolides	Danvers, MA	17	08/15/94
24	T Shaheen	Highlands, NJ	04/26/94	M Cassano	Cape Cape Canal, MA		08/15/94
29	F Stunkel	Darien, CT	06/29/94	F Danko	Westport, CT	32	08/15/94
25	K Gleason	Darien, CT	07/17/94	F Danko	Westport, CT	28	08/15/94
39	M Keegan	The Race, L.I. Sound	07/29/94	E Wright	The Race, L.I. Sound	41	08/16/94
33	C Keenan	Shinnecock, NY	06/09/93	T Marburger	Shinnecock Inlet, NY	34	08/16/94
31	F Casey	Boston Harbor, MA	07/19/94	M Loud	Boston Harbor, MA		08/16/94
22	C Silva	Middletown, RI	06/04/94	J Gallagher	Westport, MA		08/16/94
34	I Steinborn	Rye, NY	07/04/92	K Keating	Offshr., Montauk, NY	35	08/17/94
21	J Powers	Throgs Neck Brdg., NY	08/09/94	M Jasinski	Throgs Neck Brdg., NY	22	08/17/94
37	S Fries	2 mi. E Montauk, NY	08/10/94	J DeMaio	2 mi. E Montauk Pt., NY	37	08/17/94
27	D Riemann	East R., NY	10/24/93	M Horowitz	East R., NY		08/18/94
21	J Mulkerin	Port Monmouth, NJ	04/29/94	J Boyhan	Jamaica Bay, NY		08/18/94
21	T Dziedzic	Nauset Beach, MA	06/22/92	R Mill	Martha's Vineyard, MA	26	08/19/94
24	D Mann	Quick's Hole, MA	08/13/94	P Zimbone	Nashawena Is., MA	24	08/19/94
17	GS Gray	Charlestown, RI	06/11/93	W Hopkins	Darien, CT		08/19/94
22	J Foti	Ft. Wadsworth, NY	08/07/94	M Casavillo	Ft. Wadsworth, NY	22	08/20/94
12	B Reynolds	Ellis Is., NY	11/26/93	J Pinkard	J.F.K. Airport, NY		08/20/94
28	W Johnson	Stamford, CT	07/15/94	F Pelliccione	Stamford, CT	30	08/20/94
35	F Tenore	Sandy Hook, NJ	07/22/94	P Bianco	Breezy Point Jetty, NY	37	08/20/94
26	G White	Portsmouth, NH	06/17/94	G Horton	Sandwich, MA	27	08/20/94
29	H Goldblum	Sandy Hook, NJ	07/28/94	D Ambrico	Statue of Liberty, NY		08/20/94
24	J Karolides	Beverly, MA	08/17/93	A Latauskas	Danvers R., MA	26	08/21/94
32	F Strmiska	Fishers Is., NY	07/10/94	R Masciarelli	Watch Hill, RI	34	08/21/94
31	O Vernacchio	Island Beach St. Pk., NJ	05/31/94	J Breitenbucher	Montauk Pt., NY	32	08/21/94
27	G D'Amato	Housatonic R., CT	10/13/89	R Wrinn	Old Saybrook, CT		08/21/94
24	G White	Piscataqua R., NH	08/19/94	G White	Piscataqua R., NH	24	08/21/94
32	J Mettler	Kennebec R., ME	06/21/94	R Mikulec	Weir R., Hull, MA	32	08/23/94
25	D Sowerby	York, ME	09/10/93	J Williatte-Battet	Ogunquit, ME	27	08/24/94
31	K Sprinkle	Outer Banks, NC	02/04/92	R McVickar	Monomoy Is., MA	33	08/24/94
31	F Stunkel	Darien, CT	06/09/92	C Nelson	Darien, CT	32	08/24/94
14	J Karolides	Danvers, MA	05/30/94	J Karolides	Danvers, MA	16	08/24/94
31	R Anderson	Plum Island, NY	05/30/94	A Fogal	Orient Pt., NY	33	08/25/94
20	J Niemczyk	Baiting Hollow, NY	11/04/93	B Brennan	Waterford, CT		08/25/94
28	M Murphy	Kings Pt., NY	07/01/94	F Confino	Great Neck, NY		08/25/94
14	J Feller	Milford, CT	10/01/93	R Shaw	Housatonic R., CT	18	08/25/94
28	M Berger	Atlantic Bch. Brdg., NY	06/26/94	L Richards	Atlantic Beach, NY	28	08/26/94
14	I Gordon	Jamaica Bay, NY	09/01/91	G Carlo	Coney Is., NY	19	08/26/94
24	P Krueger	Atlantic Bch. Brdg., NY	05/25/94	D Layport	Quick's Hole, MA	26	08/27/94
27	S Wisniewski	Surf City, NJ	11/17/93	B Young	Stony Brook Harbor, NY	29	08/27/94
37	D Sowerby	York Harbor, ME	08/04/94	T Chatterton	Sciatuate, MA	38	08/27/94
29	D Goodwin	Indian R. Inlet, DE	06/25/94	M Murphy	Indian R. Inlet, DE	30	08/27/94

Species

Lgth	Tagger	Place Tagged	Date	Recapturer	Location	Lgth	Date
Striped Bass (continued)							
18	T Marburger	Shinnecock, NY	08/16/94	P Skow	Shinnecock Inlet, NY		08/28/94
38	F Strmiska	Watch Hill, RI	08/02/94	W Matyka	Sugar Reef, RI		08/28/94
24	G White	Piscataqua R., NH	08/06/94	L Miller	Kittery, ME		08/28/94
18	A Marsello	Cape Cod Canal, MA	08/12/94	J White	Bourne, MA		08/28/94
21	T Marburger	Northport, NY	12/01/92	L Flores	G. Washington Brdg., NY	23	08/29/94
32	A Marsello	Cape Cod Canal, MA	07/21/94	J Driscoll	Cape Cod Canal, MA	34	08/30/94
30	A Arcabasio	Ellis Is., NY	08/15/93	S Sea	U.N., East R., NY	30	08/30/94
37	F Casey	Boston Harbor, MA	06/02/94	A Artimovich	Merrimack R., MA	38	08/31/94
28	J McAfee	Quick's Hole, MA	07/30/94	R Donnelly	Quick's Hole, MA	29	08/31/94
24	T Shaheen	Sea Bright, NJ	05/22/93	E Borak	Fire Is. Inlet, NY	30	09/01/94
22	P Hartsgrove	Highlands Brdg., NJ	08/03/94	P Sciortino Jr.	Highlands Brdg., NJ	23	09/01/94
18	J Karolidis	Beverly, MA	05/29/94	R Bell	Danvers, MA	19	09/01/94
24	J Karolidis	Danvers, MA	08/01/94	R Bell	Danvers, MA	25	09/01/94
30	J Gibbons	Sea Bright Brdg., NJ	05/04/94	T Bohn	Sandy Hook, NJ	31	09/02/94
15	A LoCascio	Manhasset Bay, NY	11/11/93	V Monaco	Manhasset Bay, NY	15	09/02/94
18	J Sullivan	Newburyport, MA	07/25/93	P O'Connor	Salisbury, MA		09/02/94
20	A LoCascio	Manhasset Bay, NY	11/12/93	M Kaiser	Niantic, CT	22	09/03/94
35	S Fries	Montauk, NY	08/10/94	P McCourt	2 mi. E Montauk Pt., NY	37	09/03/94
25	A Dangelo	Watch Hill, RI	10/04/92	J Amaral	Newport, RI		09/04/94
32	D Mann	Sow & Pigs, MA	09/23/93	M Coviello	Cuttyhunk, MA	34	09/04/94
33	F Strmiska	Fishers Is., NY	07/10/94	R Vanty	Watch Hill, RI		09/04/94
25	R Grobarz	Sea Bright, NJ	08/17/94	S Skinner	Sea Bright, NJ	25	09/04/94
22	S Kellner	Mattituck, NY	05/14/93	S Dinizio	Plum Gut, NY	24	09/05/94
27	J Foti	South Beach, NY	06/12/94	T Bunker	Hoffman Is., NY	34	09/06/94
35	S Fries	Montauk, NY	08/10/94	J Lore	Montauk, NY	40	09/06/94
28	D Magnasco	Boston, MA	07/16/94	S Penta	Boston, MA	28	09/07/94
33	GS Gray	Charlestown, RI	10/25/92	T Golebiewski	Saco R., ME	36	09/08/94
19	B Ferrara	Newport, RI	07/05/92	C Balfour	Montauk, NY	25	09/09/94
18	T Rinaldi	Mattituck, NY	11/10/92	R Stiffler	Bass R., MA	20	09/09/94
24	A LoCascio	Manhasset Bay, NY	06/09/93	L Meyran	Manhasset Bay, NY	26	09/09/94
25	E DiCarlo	Montauk Pt., NY	05/21/94	P Horton	Windham, NH		09/09/94
36	A LoCascio	Manhasset Bay, NY	07/17/94	L Meyran	Manhasset Bay, NY	36	09/09/94
29	J McAfee	Quick's Hole, MA	07/19/94	G Ruest	Quick's Hole, MA	30	09/09/94
34	M Favale	Boston, MA	07/31/93	C Lee	Boston, MA	35	09/10/94
39	F Strmiska	Watch Hill, RI	07/31/94	F Dyer	Watch Hill, RI		09/10/94
17	D Krantz	Southampton, NY	10/30/90	J Buonocore	Jacob Riis Park, NY	20	09/10/94
31	J Posh	Watch Hill, RI	08/09/94	S Barry	The Race, L.I. Sound	31	09/10/94
34	W Sharpe	Sandy Hook Bay, NJ	04/22/94	B DiMento	Rowley, MA	34	09/11/94
30	G Caputi	Raritan Bay, NJ	11/26/93	G Gwynne	Boston, MA	33	09/11/94
29	E Wargo	Bridgeport, CT	06/27/94	G Bucholz	Plum Gut, NY		09/11/94
23	J Della Porta	Swampscott, MA	07/01/94	D Magnasco	Boston, MA	23	09/11/94
26	A D'Amato Jr.	Cape May, NJ	04/27/94	W Harding	Nantucket, MA		09/12/94
14	T Marburger	Northport, NY	04/27/88	J Coffey	Robt. Moses Field, NY	38	09/14/94
18	R Kyker	Norwalk, CT	08/17/93	K Williams	Old Field Pt., NY	24	09/15/94
21	T Rinaldi	Horton's Point, NY	10/09/91	C Berry Jr.	Old Lyme, CT	28	09/15/94
25	J Foti	Staten Island, NY	07/06/94	J Spinella	69th St., Bklyn., NY		09/15/94
28	S Kellner	Mattituck, NY	07/05/93	P Seebeck	Orient Pt., NY	33	09/15/94
38	J Kane	Kennebec R., ME	09/09/94	M Kane	Kennebec R., ME	38	09/15/94
28	S Penta	Boston, MA	09/07/94	M Favale	Boston, MA	29	09/16/94
16	R Testa	Saco River, ME	05/20/92	N Sherman	Kennebec R., ME	21	09/16/94
29	D Sowerby	York, ME	08/26/93	H Moore	Boston, MA	33	09/16/94
34	D Sowerby	York, ME	07/16/94	C McGowan	Cohasset, MA	35	09/17/94
25	F Tenore	Sandy Hook, NJ	07/20/94	R Rasa	Breezy Pt. Jetty, NY	26	09/17/94
34	F Heal	Staten Is., NY	10/30/93	M Gnad	Coney Is., NY		09/17/94
39	F Coronato	Old Orchard Lt., NY	06/03/94	J Koske	Old Saybrook, CT	39	09/17/94
20	C Payne	Boston, MA	09/01/92	B Bowers	Marshfield, MA	32	09/18/94
27	J Silva	Prudence Is., RI	08/15/94	B Magnan	Prudence Is., RI	32	09/18/94
21	M Romano	Kill Van Kull, NY	07/29/92	M Napalitano	Hoffman Is., NY	25	09/19/94
21	D Magnasco	Boston, MA	10/23/91	J Glowa Sr.	Kennebec R., ME		09/19/94
27	H Fisher	Susquehanna flats, MD	05/15/94	R Manning	Chester R., MD		09/20/94
38	F Casey	Boston, MA	08/30/94	T Cetra	Provincetown, MA	40	09/21/94
31	D Kelly	Orient Pt., NY	09/28/89	D Quinn	New Haven, CT	42	09/21/94
27	J McAfee Jr.	Monomoy, MA	08/05/93	N Bouchard	Barnstable Harbor, MA	30	09/21/94

Species

Lgth	Tagger	Place Tagged	Date	Recapturer	Location	Lgth	Date
Striped Bass (continued)							
26	W Sharpe	Navesink R., NJ	11/12/92	J Rosendale	Sandy Hook Bay, NJ	29	09/22/94
19	T Shaheen	Highlands, NJ	06/22/94	B Sharpe	Navesink R., NJ	21	09/24/94
17	P Sexton	Barnstable, MA	10/22/93	J Perry	Newburyport, MA	24	09/24/94
27	F Stunkel	Darien, CT	08/04/92	C Nelson	Darien, CT	32	09/24/94
21	S Penta	Boston, MA	07/30/92	M Gnad	Coney Is., NY	28	09/24/94
24	G Horvath	Barnegat Inlet, NJ	09/09/94	R Piedmont	Is. Beach St. Pk., NJ		09/24/94
32	J Henson	Milford, CT	10/15/93	C Asman	Madison, CT	34	09/24/94
26	W Swartz III	N. Barnegat Inlet, NJ	11/05/92	C Woolnough	Manasquan, NJ	34	09/25/94
29	O Van Helmond	Stony Brook, NY	05/31/94	P Valkavich Sr.	Smithtown Bay, NY	30	09/25/94
31	F Stunkel	Stamford, CT	07/11/94	F Stunkel	Stamford, CT	31	09/25/94
23	R Nystrom	Stratford, CT	07/10/93	B Gozzi	The Race, L.I. Sound	26	09/25/94
28	A LoCascio	Hart Island, NY	06/04/92	W Arnini	Niantic, CT	35	09/25/94
29	W Perlman	Atlantic Beach, NY	05/22/93	R Stephens	Cape Cod Canal, MA	30	09/25/94
16	B Quick	Holgate, NJ	09/25/94	V Vassalluzzo	Holgate, NJ		09/25/94
26	W Kobel Jr.	Kings Park, NY	11/22/93	J Conti	Boston, MA	28	09/25/94
29	R Szellan	Sandy Hook, NJ	11/22/93	F Stassen	Sandy Hook, NJ	30	09/26/94
37	T Nowell	Plum Is., MA	06/29/94	J Williams	Hull, MA		09/26/94
14	W Lemon	Jamaica Bay, NY	07/19/94	B Annunziato	Woodmere, NY	16	09/27/94
22	B Quick	Beach Haven, NJ	11/20/93	N Neves	Magnolia, MA	28	09/28/94
33	J Goulart	Newport, RI	06/12/93	D Lucas	Montauk, NY	35	09/29/94
26	J Jackson	Cape May Rips, NJ	10/30/92	B Cork	Montauk Pt., NY	28	09/30/94
23	T McCandless	Jamestown, RI	08/17/94	T McCandless	Jamestown, RI	23	10/01/94
26	G Hodnick	Sandy Hook, NJ	10/20/90	K Larsen	Sandy Hook, NJ		10/01/94
27	K Sprankle	Outer Banks, NC	02/04/92	R Vrablic Jr.	Pooles Is., MD	30	10/01/94
33	W Matyka Jr.	Fishers Is., NY	07/01/94	H Marques	Fishers Is. Sound	35	10/01/94
16	J Leonard	Tiverton, RI	07/18/94	P Auclair	Somerset, MA		10/01/94
27	R Rodriguez	Buzzards Bay, MA	09/18/93	J Carson	Worton Pt., MD	28	10/01/94
33	J Posh	Stratford, CT	08/31/93	E Wargo	Bridgeport, CT	35	10/01/94
19	F Stunkel	Stamford, CT	10/29/93	J Samsel	Bridgeport, CT		10/01/94
16	A Malgieri	Swansea, MA	05/05/93	G Penza	Connecticut R., CT		10/02/94
22	J Karolides	Danvers, MA	07/17/92	G Penza	Connecticut R., CT		10/02/94
30	G Buono	Staten Is., NY	05/28/94	A Divine	Montauk Pt., NY	30	10/02/94
23	A Fette	Charlestown, RI	10/10/92	J Cordeiro	Sakonet R., RI	27	10/02/94
20	D Ebner	Stony Brook, NY	04/28/88	L DiDonato	Orient Pt., NY	37	10/03/94
24	A Dangelo	Watch Hill, RI	10/04/93	D Drapeau	Groton, CT		10/03/94
35	F Strmiska	Watch Hill, RI	07/31/94	K Bilodeau	Pawcatuck, RI	35	10/04/94
32	S Fries	Montauk, NY	08/10/94	J Callanan	Montauk Pt., NY	34	10/04/94
18	J Karolides	Danvers, MA	07/14/93	G Labry	Groton, CT		10/04/94
36	J Conti	Hull, MA	09/10/94	E Foran	Boston, MA	36	10/04/94
33	C Lee	Boston, MA	09/11/93	B Carman	Montauk Pt., NY	34	10/07/94
23	T Marburger	Northport, NY	04/22/91	C Messina	Montauk, NY	37	10/07/94
11	J Calamia	Ft. Totten, NY	11/11/93	E Hnat	Greenpoint, NY	16	10/07/94
18	B Fonash	Corson's Inlet, NJ	10/07/94	B Shillingford	Corson's Inlet, NJ	18	10/08/94
35	G Ministeri	Cape Cod Bay, MA	07/26/92	M Lambroschino	Montauk, NY	40	10/08/94
32	J Foti	Montauk, NY	10/16/93	R Rossner	Cape Cod Canal, MA	34	10/08/94
31	B Roesch	Bridgeport, CT	09/30/92	R Nystrom	Bridgeport, CT	31	10/08/94
	R Brousseau	Boston, MA		J Cahill	Watch Hill, RI		10/08/94
22	R Nystrom	Stratford, CT	05/17/94	J Craven	Menunketesuck Pt., CT		10/09/94
37	J Mettler	Kennebec R., ME	07/02/93	C Hutnick	Moriches Inlet, NY	43	10/11/94
17	R Pearson Jr.	Breezy Pt., NY	09/30/94	R Singleton	Coney Is., NY		10/11/94
28	D Kelly	Orient Pt., NY	06/19/94	B Smith	Orient Pt., NY	30	10/11/94
19	M Kowaleski	Sandy Hook, NJ	10/06/93	W Joiner	Rock Hall, MD		10/11/94
17	T Lake	Bay Ridge Flats, NY	11/27/92	J Zimmerman	Barnegat Lt., NJ	19	10/11/94
27	D Brodeur	Milford, CT	07/16/93	B Meyers	Milford, CT	32	10/13/94
36	S Kellner	Mattituck, NY	07/03/94	T Balke	Tobay Beach, NY	37	10/13/94
20	W Sharpe	Navesink River, NJ	04/21/93	O Vernacchio	Bay Head, NJ	27	10/13/94
32	F Coronato	Flynn's Knoll, NJ	07/01/94	D Puleo	Raritan Bay, NY	32	10/13/94
26	J Gibbons	Sea Bright, NJ	05/30/94	B Snyder	Sandy Hook, NJ	29	10/14/94
25	J McAfee Jr.	Quick's Hole, MA	09/21/92	G Ruest	Quick's Hole, MA	30	10/14/94
23	R Grobarz	Sea Bright, NJ	09/02/91	B Snyder	Sandy Hook, NJ	29	10/14/94
28	G Ruest	Quick's Hole, MA	08/08/94	G Ruest	Quick's Hole, MA	29	10/14/94
35	F Casey	Boston, MA	08/30/94	M Gnad	Coney Is., NY	35	10/14/94
30	S Fries	Montauk, NY	08/10/94	M Gnad	Coney Is., NY	31	10/14/94

Species

Lgth	Tagger	Place Tagged	Date	Recapturer	Location	Lgth	Date
Striped Bass (continued)							
21	T Rinaldi	Mattituck, NY	05/28/93	T Rinaldi	Mattituck, NY	25	10/14/94
25	T Rinaldi	Mulford Pt., NY	09/20/93	C Bacchi	Orient Pt., NY	28	10/15/94
28	P Grippo	Wantagh, NY	08/21/92	M Shine	Jones Inlet, NY	33	10/15/94
29	M Romano	Kill Van Kull, NJ	07/16/93	D Marino	Ellis Is., NY	32	10/15/94
24	S Penta	Boston, MA	08/29/92	M Shine	Montauk, NY	37	10/15/94
24	N Auriti	Verrazano Brdg., NJ	06/29/94	J Pabon	Rockaway, NY		10/15/94
23	S Keiper	Thomas Pt. MD	08/06/94	L Roser	Hooper Strait, MD		10/15/94
18	T Shaheen	Highlands, NJ	05/09/94	B Biedinger	Highlands Brdg., Nj	22	10/15/94
26	A Walker	Deal, NJ	07/30/94	C Fago	Manasquan R., NJ		10/16/94
38	G Keenan	Shinnecock, NY	06/03/94	F Makin	Shinnecock Inlet, NY	40	10/16/94
30	W Matyka Jr.	Fishers Is., NY	07/01/94	F Strmiska	Fishers Is., NY	31	10/17/94
34	T Long	Trenton, NJ	06/05/94	G Jetton	Chesapeake Bay, MD	34	10/18/94
26	K Sprankle	Outer Banks, NC	01/27/91	V Pass	Pt. Lookout, MD	31	10/18/94
22	L Quinn	New Haven, CT	08/20/94	L Ciolino	Milford, CT		10/18/94
18	D Kay	Somerset, MA	11/07/91	E Silvia	Fall River, MA	26	10/19/94
22	A Anderson	Block Is., RI	06/22/94	M Linton	Block Is., RI	28	10/19/94
28	G Ciriello	Sandy Hook, NJ	06/23/94	J Waldman	Governor's Is., NY	28	10/20/94
21	W Sharpe	Navesink R., NJ	10/30/93	M Mershon	Staten Is., NY		10/20/94
30	A Dangelo	Block Is., RI	06/09/94	J Perry	Charlestown, RI	35	10/20/94
27	W Sharpe	Sandy Hook, NJ	04/17/94	P Bombino	Sandy Hook, NJ	29	10/20/94
	T Galletta	Great Kills, NY	11/26/93	S Magurczek	Barnegat Light, NJ	36	10/21/94
	J Powers	Throgs Neck Brdg., NY	08/09/94	W Denning	Throgs Neck Brdg., NY	27	10/21/94
20	G Kerkhan	Long Branch, NJ	10/09/93	S Nemeth	Smithtown Bay, NY	24	10/21/94
19	H Sweet	Warren, RI	09/22/94	K White	Pt. Judith, RI	19	10/22/94
30	N Jalbert	Bonnett Shores, RI	06/19/93	R Wisneski	Bartlett's Reef, CT	34	10/22/94
27	S Keiper	Indian R. Inlet, DE	10/01/92	B Salzer	Kent Is., MD	28	10/22/94
23	K Lohraff	Sandy Hook Bay, NJ	10/10/92	F Tenore	Sandy Hook, NJ	28	10/22/94
14	J Karolidis	Danvers, MA	06/29/91	J Farias	Newport, RI	23	10/22/94
22	L Raymond	Island Beach St. Pk., NJ	07/06/94	D Sweeney	Sandy Hook, NJ		10/24/94
24	J Karolidis	Beverly, MA	06/03/94	F Dabrico	Danvers, MA	24	10/25/94
24	G Cairns	Plum Island, MA	08/01/92	J Wirt	E. of Nantucket Is., MA	28	10/26/94
37	M Keegan	The Race, L.I. Sound	10/02/94	L Livingston	Jones Inlet, NY	41	10/26/94
18	T Marburger	Northport, NY	04/25/92	M Tombari	Fishers Is., NY	24	10/26/94
21	JC Wright	Ches. Bay Brdg. Tun., VA	03/31/94	R Daiger	Little Wicomico R., VA	23	10/27/94
25	W Edwards	Stratford, CT	06/02/94	S Hanlon	Devon Brdg., CT	27	10/28/94
20	I Gordon	Jamaica Bay, NY	10/19/91	E Green	Moriches Inlet, NY	24	10/28/94
32	M Russo	Westhampton, NY	11/01/92	E Cornell	Shirley, NY	34	10/28/94
31	G Ruest	Quick's Hole, MA	08/08/94	Unknown fisherman	Sandy Hook, NJ		10/28/94
13	M Aiken	Milford, CT	10/15/94	S Formanick	Milford, CT	13	10/29/94
12	M Aiken	Milford, CT	10/28/94	S Formanick	Milford, CT	12	10/29/94
16	D Zurheide	Ellis Is., NY	09/14/94	S Kozik	Ellis Is., NY	16	10/29/94
32	E Wargo	Bridgeport, CT	06/08/94	C Weller	Gardiner's Bay, NY		10/30/94
28	D Hawkins	Smithtown Bay, NY	05/19/92	R Spievak	Beach Haven, NJ	38	10/30/94
17	B Magnus	Brooklyn, NY	06/30/88	H Dixon	Croton, NY		10/30/94
20	J Karolidis	Danvers, MA	06/04/94	T Timmins	Danvers, MA	22	10/30/94
22	F Tenore Jr.	Sandy Hook, NJ	09/26/93	H Dixon	Croton, NY		10/30/94
15	M Matula	Arthur Kill, S.I., NY	06/29/91	H Dixon	Croton, NY		10/30/94
21	A LoCascio	Manhasset, NY	05/06/94	H Leeman	Governor's Is., NY	23	11/01/94
19	G Blank	Piermont, NY	03/25/94	R Taverner	Verrazano Brdg., NY		11/02/94
16	J Silva	Barrington, RI	09/25/94	D Bascom	Pt. Judith, RI	16	11/03/94
22	JC Wright	Ches. Bay Brdg. Tun., VA	07/16/94	G Copeland	Ches. Bay Brdg. Tun., VA	22	11/03/94
22	JC Wright	Ches. Bay Brdg. Tun., VA	07/16/94	J Long	Middle Grounds, MD		11/03/94
24	F Fink	Hoffman Is., NY	09/18/93	G DeCosta	Tiverton, RI	24	11/03/94
31	P Krueger	Atlantic Bch. Brdg., NY	05/22/93	B Longstreet	Atlantic Beach Brdg., NY	33	11/03/94
24	J Karolidis	Danvers, MA	07/07/94	R Harbina	Sandy Hook, NJ	25	11/03/94
22	E Petronio Jr.	Pt. Judith, RI	07/16/94	G Grosselfinger	Herod Pt., Wading R., NY		11/04/94
19	J Karolidis	Beverly, MA	06/05/94	P Savona	Wading R. Creek, NY	22	11/04/94
35	D Kelly	Orient Point, NY	06/27/91	M Wintjen	Buoy 1, Delaware Bay	40	11/05/94
33	S Fries	Montauk, NY	10/03/94	B Shillingford	Cape May Rips, NJ	34	11/05/94
21	S Kellner	Mattituck, NY	06/15/92	A Young	Mattituck, NY	28	11/05/94
20	K Gleason	Darien, CT	07/19/94	F Allen	Nissequoque R., NY		11/06/94
19	J Reiches	Davids Is., NY	10/13/94	A LoCascio	Manhasset Bay, NY	19	11/06/94
21	J Krauss	Sandy Hook, NJ	11/19/88	P Kamienski	Sandy Hook, NJ	30	11/06/94

Species

Lgth	Tagger	Place Tagged	Date	Recapturer	Location	Lgth	Date
26	D Kelly	Orient Pt., NY	10/29/93	H Gjertsen	Montauk Pt., NY		11/07/94
24	S Gross	City Island, NY	08/10/93	J O'Dwyer	Saint James, NY	28	11/07/94
25	G Ottavio	Cape May, NJ	09/19/94	C Blaney	Ches. Bay Brdg. Tun., VA	27	11/08/94
27	M Habel	Raritan R., NJ	05/19/94	F Maurer	Perth Amboy, NJ	31	11/08/94
25	D Partusch	Shrewsbury R., NJ	10/27/92	W Sharpe	Sandy Hook Bay, NJ	27	11/09/94
27	J Karolidis	Beverly Harbor, MA	10/03/93	J Wadsworth	Bartlett's Reef, CT	32	11/09/94
27	F Stunkel	Darien, CT	07/16/92	P Devlin	Smithtown, NY	30	11/09/94
31	J Mester	Staten Island, NY	07/17/94	G Schweiger	NY Harbor		11/09/94
17	GS Gray	Charlestown, RI	06/21/94	D Cammarata	Groton, CT	18	11/10/94
20	S Keiper	Thomas Pt., MD	07/30/94	J West	York R., VA		11/10/94
27	W Sharpe	Sandy Hook, NJ	10/08/94	W Sharpe	Sandy Hook Bay, NJ	27	11/10/94
33	J Conti	Boston, MA	07/31/94	F Cardello	Brooklyn, NY	36	11/10/94
26	R Pearson Jr.	Croton Bay, NY	04/29/94	K Larsen	West Bank Lt., NY		11/11/94
33	A Anderson	Block Is., RI	10/15/93	T DeSibio	Atlantic Beach Brdg., NY	37	11/11/94
46	J Mester	Staten Island, NY	11/14/93	J Mach	Gilgo Beach, NY	47	11/12/94
18	R Bolduc	Barnstable, MA	09/10/94	Unknown Fisherman	Stratford, CT	20	11/12/94
12	D Zurheide	Ellis Is., NY	07/20/94	B Jarmolinski	Ellis Is., NY		11/12/94
16	D Zurheide	Ellis Is., NY	07/27/94	J Spilewski	Tappan Zee Brdg., NY		11/12/94
17	T Marburger	Northport, NY	12/26/93	A Ferraro	Stratford, CT	20	11/12/94
29	S Fries	Montauk, NY	11/08/94	R Nichelsen	Montauk, NY		11/12/94
20	J Sullivan	Newburyport, MA	06/08/94	O Adams	Hampton Bays, NY	22	11/12/94
31	G Ministeri	Cape Cod Bay, MA	08/28/94	M Lowcher	Brick, NJ	34	11/12/94
32	S Jakubowski	Verrazano Brdg., NY	06/08/94	C Travolino	Norton's Pt., NY	35	11/13/94
19	A Olivieri	Quincy Bay, MA	06/18/94	P Bile	Bayville, NY		11/13/94
20	D Kelly	Orient Pt., NY	11/14/89	A Rose	Tangier Is. VA	28	11/13/94
23	D Kelly	Sag Harbor, NY	05/19/93	A Smith	Sandy Hook, NJ	29	11/13/94
30	R Litke	Jones Beach, NY	10/16/92	R Drinkwater	Merrick, NY	32	11/14/94
31	F Coronato	West Bank Lt., NY	06/27/94	M Barrett	West Bank Lt., NY	31	11/14/94
34	R Fink	Rockaway, NY	06/04/93	M Mohnack	Brigantine Inlet, NJ	38	11/14/94
29	E Petronio Jr.	Block Is., RI	10/19/94	J Gemmell	Sea Bright, NJ		11/14/94
23	P Krueger	Atlantic Bch. Brdge., NY	07/24/92	P Sciortino Jr.	Sandy Hook Chan., NJ	27	11/14/94
36	J Hutchins	Delaware River, NJ	04/25/91	E Loodus	Fire Is. Inlet, NY	41	11/15/94
29	J Alexander	Nashon Is., MA	07/23/93	N Wagenheim	Cape May, NJ	33	11/15/94
35	J Karolidis	Beverly, MA	09/03/94	A Spinelli	Rockaway Inlet, NY	36	11/15/94
28	J Faulhaber	Atlantic Bch. Brdg., NY	05/27/94	J Mazurie Jr.	Avalon, NJ	31	11/15/94
33	T Cataldo	Provincetown, MA	09/15/91	E Smith, Jr	Chesapeake Bay, MD	41	11/15/94
26	R Wellman	Horton's Pt., NY	07/03/92	J Jones	Cape May, NJ	35	11/15/94
17	S Penta	Boston Harbor, MA	10/25/90	B Talamonte	Barneгат, NJ	28	11/16/94
21	R Grobarz	Sea Bright, NJ	06/24/94	E Bradford	Flynn's Knoll, NJ	25	11/16/94
14	A Schweithelm	Ft. Salonga, NY	05/09/94	E Stamm	Waterford, CT	16	11/17/94
20	F Stunkel	Stamford, CT	10/08/92	J Hoffman	South Amboy, NJ	25	11/18/94
24	F Stunkel	Stamford, CT	10/23/94	A Gewirtz	Chester, CT		11/19/94
20	G Ottavio	Cape May, NJ	10/30/94	M Yandle	Cape May, NJ		11/20/94
24	J Neville	Bourne, MA	05/18/93	G Ardito	Fisher Is. Sound, NY	35	11/20/94
30	J Mester	West Bank Lt., NY	07/07/94	M Barrett	West Bank Lt., NY	30	11/20/94
27	M Berger	Atlantic Bch. Brdg., NY	06/23/94	F Delnero	Sandy Hook, NJ	33	11/20/94
21	M Nickolite	Ches. Bay Brdge. Tun., VA	05/24/94	J Flexer	Sheridan Pt., MD	22	11/20/94
26	K Court	Block Is., RI	08/18/94	S Loukis	Bayonne Pk., NJ	29	11/21/94
33	J Dotsey	Long Beach, NY	11/17/93	N Congress	Norwich, CT	35	11/22/94
20	R Dayton	Trenton, NJ	06/09/94	A McClure	7 mi. S Ches. Beach, MD	27	11/22/94
20	T Marburger	Northport, NY	05/14/94	M Cucinotta	Beach Haven, NJ	25	11/24/94
28	F Heal	Staten Island, NY	07/14/92	K Larsen	S. Beach, S.I., NY		11/25/94
24	G Ministeri	Provincetown, MA	06/26/94	T Foster	Northport, NY	26	11/25/94
31	A Anderson	Block Is., RI	11/14/93	J Thompson	Manasquan Inlet, NJ	34	11/25/94
28	D Mann	Sow & Pigs, MA	08/20/93	N Jackson	Maurice R. Cove, NJ	30	11/25/94
32	S Trask	Newburyport, MA	06/18/94	T Tiernan	Block Is. Sound	32	11/26/94
35	D Kelly	Orient Pt., NY	08/28/93	J Golemi	Breezy Pt., NY	36	11/27/94
25	M Berger	Debs Inlet, NY	06/10/93	K Larsen	Sandy Hook, NJ		11/29/94
29	F Coronato	West Bank Lt., NY	10/07/93	K Larsen	Sandy Hook, NJ		11/29/94
23	R Wellman	Horton's Pt., NY	09/05/92	J McQuillan	Newport News, VA	29	11/29/94
25	L Richards	Atlantic Beach, NY	05/26/94	P Jakits	Montauk, NY	27	11/30/94
28	A Dangelo	Charlestown, RI	11/15/91	K Larsen	Sandy Hook, NJ		12/01/94
25	R Belanger	Salem Power Plant, MA	05/12/91	P Fusco	Bayonne Brdg., NJ	30	12/01/94
27	J Karolidis	Beverly, MA	09/03/94	H McAllister	Block Is., RI		12/02/94

Species

Lgth	Tagger	Place Tagged	Date	Recapturer	Location	Lgth	Date
Striped Bass (continued)							
23	S Gordon	Manns Harbor, NC	10/21/94	W Craddock	Manns Harbor, NC		12/02/94
20	G Cardel	Eatons Neck, NY	11/27/92	K Larsen	Sandy Hook, NJ		12/03/94
16	J Karolides	Danvers, MA	06/24/94	T Loughman	Everett, MA		12/03/94
32	A Anderson	Block Is., RI	07/23/94	K Gadsby	Barneget Bay, NJ	35	12/03/94
24	M Muzslay	Long Branch, NJ	12/08/92	G Ewerth	Cape May Rips, NJ	31	12/03/94
28	G Ruest	Quick's Hole, MA	08/11/94	W Gouse Jr.	Stone Harbor, NJ	29	12/04/94
35	C Ponte	Quick's Hole, MA	06/05/94	R Fanning	Montauk, NY		12/06/94
26	F Strmiska	Fishers Is., NY	10/17/94	F Delnero	Sandy Hook Bay, NJ		12/07/94
24	K Leopold	Babylon, NY	06/16/93	B Reimer	Montauk, NY		12/07/94
17	D Kelly	Sag Harbor, NY	06/16/93	G Keating	Stone Harbor, NJ	22	12/09/94
25	F Tenore Jr.	Sandy Hook, NJ	12/04/93	J Lehner	Is. Beach St. Pk., NJ	27	12/10/94
42	R Fink	Breezy Pt., NY	06/25/93	F Tyler	Lower Chesapeake Bay, VA		12/15/94
24	S Kellner	Mattituck, NY	07/05/93	K Tierney	Chesapeake Bay, MD	30	12/17/94
23	S Penta	Boston, MA	09/29/92	C Newton	Newport News, VA	29	12/18/94
18	R Fink	Northport, NY	03/26/94	R Grandinetti	Northport, NY		12/24/94
19	B Wilkins	Merrimack R., MA	09/28/94	F Donovan	Lavalette, NJ		12/29/94
31	P Grippo	Tobay Beach, NY	10/29/94	Chin. Fish. Co-op	Offshr., Chincoteague, VA		12/30/94
26	J Caville	Cape May Rips, NJ	11/06/94	Chin. Fish. Co-op	Offshr., Chincoteague, VA		12/30/94
	C Kuczynski	Bayonne, NJ	04/16/94	J Golemi	Rockaway, NY	16	01/15/95
18	A LoCascio	Manhasset Bay, NY	11/17/93	J Mulvey	Norwich, CT		01/30/95
19	T Marburger	Northport, NY	01/03/95	M DelFerraro	Northport, NY		02/17/95
17	T Marburger	Northport, NY	04/30/93	M Napalitano	Northport, NY	24	02/19/95
20	R Kalenka	Hempstead, NY	05/15/94	M Napalitano	Northport, NY	23	02/19/95
18	T Marburger	Northport, NY	01/17/95	J Sondersted	Northport, NY		02/22/95
31	T Marburger	Northport, NY	02/26/95	T Marburger	Northport, NY	31	02/28/95
17	R Curci	Warwick, RI	05/23/94	T Marburger	Northport, NY	20	02/28/95
19	T Marburger	Northport, NY	01/01/95	D Beacham	Northport, NY		02/28/95
23	S Keiper	Thomas Pt., MD	07/24/94	P Burch	St. Catharine's Is., VA		03/01/95
18	H Sweet	Warren, RI	09/20/94	J Lantiegne	Norwich, CT	18	03/02/95
19	D Kay	Swansea, MA	05/26/90	G Bradley	Hull Cr., Potomac R., VA		03/06/95
18	T Marburger	Northport, NY	01/10/95	T Marburger	Northport, NY	18	03/07/95
17	L Yanick	S. Mantoloking, NJ	07/30/94	D Wall	Toms River, NJ	19	03/11/95
21	J Beck	Cape May, NJ	09/11/94	J Swint	Egg Harbor R., NJ	22	03/13/95
17	T Marburger	Northport, NY	01/08/95	A Dix	Northport, NY		03/14/95
28	P Grippo	Tobay Beach, NY	10/23/93	T Baum	Delaware Bay, NJ	30	03/14/95
19	J Carroll	Cape Cod Canal, MA	10/14/94	W Kobel Jr.	Northport, NY		03/14/95
16	T Marburger	Northport, NY	02/19/95	R DeMarco	Northport, NY	18	03/15/95
21	T Rinaldi	Riverhead, NY	11/03/93	R DeMarco	Northport, NY		03/15/95
18	T Marburger	Northport, NY	01/22/95	R DeMarco	Northport, NY	18	03/15/95
24	F Stunkel	Stamford, CT	10/24/92	F Eicherly	Bowers Beach, DE	28	03/16/95
19	G D'Amato	Stratford, CT	11/09/94	W Kobel Jr.	Northport, NY	20	03/17/95
12	K Gomolson	Corson's Inlet, NJ	09/11/94	R Malinowski	Alder Cove, DE Bay, NJ	13	03/18/95
20	M Russo	Old Field Pt., NY	08/17/94	T Catucci	Georges Is., NY	26	03/25/95
18	J Karolides	Danvers, MA	06/25/94	T Lavinio	Croton Pt., NY	19	03/26/95
24	D Kelly	Orient Pt., NY	08/02/94	T Baum	Delaware Bay, NJ	25	03/29/95
19	R Pearson Jr.	Breezy Pt., NY	12/03/93	G Ciriello	Old Orchard Lt., NY	20	03/29/95
16	H Sweet	Warren R., RI	09/24/94	J Hanatow	Norwich, CT	20	04/01/95
18	T Marburger	Northport, NY	02/05/95	B Kobel	Northport, NY	18	04/02/95
19	T Marburger	Northport, NY	02/26/95	T Marburger	Northport, NY	19	04/02/95
18	A LoCascio	Manhasset Bay, NY	09/14/91	D Feague	Delaware Bay, DE		04/02/95
22	H Sweet	Bristol, RI	06/08/94	T Baum	Delaware Bay, NJ	25	04/03/95
19	T Marburger	Northport, NY	02/20/95	D Beacham	Northport, NY	19	04/03/95
21	P Johnson Sr.	South Shore, RI	10/16/93	M Napalitano	Northport, NY	23	04/03/95
29	R Templeton	Block Is., RI	06/22/94	D Feague	Delaware Bay, DE		04/04/95
24	R Smith	Shrewsbury Rocks, NJ	11/26/94	D Feague	Delaware Bay, DE		04/06/95
29	A D'Amato	Delaware Bay, NJ	11/17/93	D Efford	Nanticoke, MD	33	04/07/95
23	JC Wright	Ches. Bay Brdg. Tun., VA	01/02/94	M Harris Jr.	Delaware Bay, NJ		04/11/95
18	H Sweet	Warren R., RI	09/27/94	R Bergman	Northport, NY		04/13/95
19	J Lenahan	Rips, Sandy Hook, NJ	10/19/94	M Buckley	Piermont, NY		04/13/95
18	T Marburger	Northport, NY	01/10/95	G Finneran	Smithtown Bay, NY		04/14/95
24	F Adams	Highlands Brdg, NJ	05/18/94	W Sharpe	Sandy Hook Bay, NJ	26	04/14/95
28	G Dulka	Ches. Bay Brdg. Tun., VA	11/24/93	L Phillips	1 mi. N Hoopers Is., MD		04/15/95
16	J Mulkerin	Sandy Hook, NJ	09/08/94	S Mora	Beacon, NY	18	04/15/95

Species

Lgth	Tagger	Place Tagged	Date	Recapturer	Location	Lgth	Date
Striped Bass (continued)							
28	P Lowcher	Sandy Hook, NJ	10/10/94	L Phillips	1 mi. N Hoopers Is., MD		04/15/95
27	G D'Amato	Milford, CT	05/14/93	D Morgan	Cape May, NJ	32	04/17/95
18	T Marburger	Northport, NY	03/19/94	R Holmberg	Northport, NY	22	04/18/95
12	M Aiken	Milford, CT	10/29/94	L Perez	South Ferry, NYC	13	04/20/95
14	A Becker	Sands Pt., NY	11/13/94	W Tabone	Beacon, NY		04/22/95
35	M Murphy	Kings Pt., NY	07/01/94	S Levine	Choptank R., MD	38	04/22/95
15	C Wilcox III	Moriches Inlet, NY	09/13/94	A Bongers	Break Neck, NY	15	04/22/95
13	GS Gray	Charlestown, RI	06/04/93	D Walenczyk	Uncasville, CT	24	04/22/95
18	M Matula	Arthur Kill, NY	05/29/94	R DiNunzio	Arthur Kill, NJ	23	04/24/95
17	D Mann	Port Jefferson, NY	11/20/93	M McKeon III	Croton on Hudson, NY	21	04/25/95
18	T Marburger	Northport, NY	03/19/95	O Van Helmond	Stonybrook, NY	18	04/27/95
19	R Fink	Northport, NY	03/01/95	M Chorabik	Fort Shantok, CT	20	04/27/95
18	B Kyker	Norwalk, CT	03/13/95	B Kyker	Norwalk Pwr. Pl., CT	19	04/27/95
31	K Bilodeau	Norwich, CT	03/06/94	M Thurz	Norwich, CT	34	04/27/95
26	E Johnson	Shagwong Pt., NY	09/18/93	T Abell	Cedar Pt. Lt., MD	30	04/29/95
20	T Marburger	Northport, NY	12/10/94	K Meunier	CT R. at Windsor Locks	22	04/29/95
35	J Karolides	Beverly Harbor, MA	10/03/93	D Dean	Chesapeake Bay, MD	39	04/30/95
15	B Cairns	Charlestown, RI	05/28/94	R Beaulieu	Norwich, CT	20	04/30/95
19	T Marburger	Northport, NY	01/16/94	B Fitzsimons	New Haven, CT	21	04/30/95
15	R Fink	The Narrows, NY	12/09/93	L Gladding	Cornwall, NY	17	05/01/95
21	T Pendyk	Verrazano Brdg., NY	10/14/94	D Dibblee	Rondout Creek, NY	21	05/03/95
24	R Allen	Ches. Bay Brdg. Tun., VA	12/30/94	D Bradley	Mouth of Potomac R., VA		05/03/95
16	A Schweithelm	Northport, NY	12/03/94	A Lorenzo	Charlestown, RI	17	05/03/95
23	T Rinaldi	Horton's Point, NY	09/20/90	J Jamros	Kingston, NY	30	05/03/95
16	J Karolides	Danvers, MA	07/23/94	J Lantigne	Norwich, CT	16	05/04/95
29	W Perlman	Atlantic Beach, NY	06/24/93	D Stratton	Norwich, CT	32	05/05/95
22	D Kelly	Orient Pt., NY	11/11/92	R Spraski	Norwich, CT	25	05/05/95
24	D Partusch	Shrewsbury R., NJ	11/02/92	J Parr	Newburgh-Beacon Brdg., NY		05/06/95
36	J Dotsey	Long Beach, NY	11/04/94	A Garguilo	Great Kills, S.I., NY	37	05/08/95
	B Shillingford	Cape May Rips, NJ	04/27/95	R Allen	Harvey Cedars, NJ	26	05/08/95
26	A Schweithelm	Northport, NY	11/06/94	A Gerstman	Mastic, L.I., NY	27	05/09/95
31	D Zurheide	Ellis Is., NY	07/10/94	C Vane	Chesapeake Bay, MD	33	05/09/95
20	A Schweithelm	Ft. Salonga, NY	04/26/95	W Rossler	Smithtown Bay, NY	20	05/10/95
17	R Fink	Northport, NY	01/10/95	J Lewis	Milford, CT	20	05/10/95
21	M LeBlanc	Brayton Pt Pwr. Plant, MA	01/15/95	M Scherer	Brayton Pt. Pwr. Plant, MA	22	05/10/95
20	A LoCascio	Manhasset Bay, NY	11/12/93	K Schultz	Storm King on Hudson, NY	21	05/11/95
22	J Zaffuto	Democrat Pt., NY	07/05/93	M Melito	Fire Is. Inlet, NY		05/11/95
31	S Fries	Montauk Pt., NY	10/22/92	J Prester	Green Is., Hudson R., NY		05/11/95
26	A Anderson	Block Is., RI	07/18/94	S Worster	Charlestown, RI	27	05/12/95
25	F Tenore	Sandy Hook, NJ	04/29/95	L Howard	Matunuck, RI		05/13/95
22	D Kelly	Orient Point, NY	11/04/91	J Kelly	1/4 mi. S of Kingston, NY	27	05/13/95
17	J Karolides	Danvers, MA	05/06/95	B Wilkins	Newbury, MA	19	05/13/95
29	W Perlman	Atlantic Beach, NY	06/25/94	C Bates	Milton, NY		05/13/95
23	C Wilcox III	Moriches Inlet, NY	10/12/94	K Dolan	Newburgh, NY		05/13/95
19	C Tamboia	Croton R., NY	05/10/90	J DeLuca	Old Orchard Lt., NY	35	05/13/95
19	T McCandless	Jamestown, RI	08/13/94	C Aponte	69th St., Bklyn, NY	22	05/14/95
12	M Aiken	Milford, CT	07/03/93	J Raccio	Mouth of Housatonic R., CT	25	05/15/95
24	JC Wright	Ches. Bay Brdg. Tun., VA	01/06/94	M Brantley	Ches. Bay Brdg. Tun., VA	28	05/15/95
15	J Karolides	Danvers, MA	07/14/93	G St. John	Norwich, CT	21	05/15/95
17	T Marburger	Northport, NY	11/27/94	C Coppola	Sakonnet Pt., RI		05/15/95
17	A LoCascio	Manhasset Bay, NY	04/28/95	C Coppola	Sakonnet Pt., RI		05/15/95
14	J Karolides	Danvers, MA	05/06/95	J Lynch	Danvers, MA		05/15/95
26	G Ciriello	Sandy Hook, NJ	10/05/94	I Tyler	Port Ewen, NY		05/15/95
26	C Bassano	Nantucket, MA	10/01/94	C Jackson	Ches. Bay Brdg. Tun., VA	30	05/15/95
36	R Kalenka	Glen Cove, NY	05/07/95	R Kehlenbeck	Bar Beach Park, NY		05/16/95
23	J Karolides	Danvers, MA	07/03/92	R Sjolholm	Catskill, NY	30	05/16/95
24	T Rinaldi	Mattituck, NY	07/03/94	J Gilkey	Island Beach St. Pk., NJ	27	05/16/95
22	D Kelly	Orient Pt., NY	10/28/92	R Lufkin	Falmouth, MA		05/17/95
26	B Silva	Staten Island, NY	06/23/93	J Schiller	5 mi. N Poughkeepsie, NY		05/18/95
16	A Schweithelm	Northport, NY	11/20/94	C Albert	Little Compton, RI	16	05/18/95
14	B Shillingford	Corson's Inlet, NJ	10/04/94	J Storelli	W. Dennis Beach, MA		05/18/95
17	A Schweithelm	Northport, NY	11/19/94	W Merrick III	Old Saybrook, CT	18	05/19/95
22	C Payne	Boston, MA	08/06/92	A Malvito	Atlantic Beach Brdg., NY	26	05/19/95

Species

Lgth	Tagger	Place Tagged	Date	Recapturer	Location	Lgth	Date
Striped Bass (continued)							
16	A Schweithelm	Ft. Salonga, NY	05/07/94	M Coffey	Charlestown, RI	18	05/21/95
28	D Goodwin	Indian R. Inlet, DE	07/01/94	R Salimbene	Pt. Lookout, MD	29	05/21/95
27	M Barrett	West Bank Lt. House, NY	11/14/94	V Baresse	Saugerties, NY	27	05/21/95
37	R Nystrom	Stratford, CT	10/29/94	M Aguiar	Catskill, NY	40	05/22/95
9	G Blank	Piermont, NY	11/13/94	A Tacinelli	Dobbs Ferry, NY	11	05/23/95
18	T McCandless	Jamestown, RI	10/17/94	R Cote	Fall River, MA	20	05/24/95
18	T Kazimiroff	Manhasset Bay, NY	09/08/93	A Harder	Little Neck Bay, NY	27	05/26/95
25	R Grobarz	Sea Bright, NJ	10/10/94	C Scully	Kingston Pt., NY	26	05/26/95
22	Z Pike	Phippsburg, ME	09/06/93	R Grobarz	Sandy Hook, NJ	23	05/26/95
28	R Wellman	Horton's Pt., NY	08/09/92	W Campbell	Montauk Pt., NY	33	05/26/95
30	A Olivieri	Quincy Bay, MA	07/31/94	W O'Neal IV	Ches. Bay Brdg. Tun., VA		05/26/95
28	R Allen	Cape Charles, VA	01/14/95	F Brooks	Annapolis, MD	28	05/27/95
16	T Marburger	Northport, NY	03/25/95	A Ramos	F. Rockaway, NY		05/27/95
23	J Brzozinski	Fire Is. Inlet, NY	06/10/92	W Palmer Jr.	Sandy Hook, NJ	29	05/27/95
22	R Travis	Popponeset Beach, MA	05/18/94	W Jackson	Seabrook, NH	28	05/27/95
26	R Conklin	Moriches Inlet, NY	11/17/94	G D'Amato	Block Is., RI	27	05/27/95
21	P Grippo	Jones Beach, NY	09/11/92	R Scanlon	1 mi. E Jones Inlet, NY	23	05/27/95
24	M Habel	Raritan R., NJ	08/19/94	S Kozlowski Jr.	Staatsburg, NY		05/27/95
18	A LoCascio	Manhasset Bay, NY	04/29/95	S Matteson	Stonington, CT	18	05/27/95
27	B August	3 mi. S Jones Bch., NY	10/16/93	J Jenkins	Watch Hill Reef, RI	28	05/28/95
20	T Marburger	Northport, NY	03/25/95	M Carpenter	Groton, CT		05/28/95
27	P Grippo	Jones Inlet, NY	11/03/94	J Baxter	Atlantic Bch. Brdg., NY		05/28/95
26	T Marburger	Northport, NY	01/03/93	R Williams	Kingston, NY	29	05/28/95
26	P Lowcher	Rumson, NJ	05/15/95	B Biedinger	Sea Bright Brdg., NJ		05/29/95
19	R Kalenka	Hempstead, NY	07/31/94	A DeMeo	Glen Cove, NY	20	05/29/95
16	G Ciriello	Sandy Hook, NJ	11/06/93	B Mastro	Roundout Creek, NY	22	05/30/95
33	B Billerman	Newburyport, MA	08/16/91	H Bodenrader	Newburyport, MA	40	05/30/95
27	W Sharpe	Sandy Hook Bay, NJ	04/14/95	P Sciortino Jr.	Highlands Brdg., NJ	28	05/31/95
15	A LoCascio	Manhasset Bay, NY	04/29/95	R Bongiolatti	Charlestown, RI		05/31/95
31	M Russo	Davis Park, NY	09/14/94	R Beck	Fire Is. Inlet, NY	32	05/31/95
36	W Edwards	Stratford, CT	06/26/93	G Maravelas	Norwalk, CT	40	06/01/95
17	J Karolides	Danvers, MA	06/20/94	J Karolides	Beverly, MA	18	06/01/95
34	N Jalbert	Providence, RI	06/03/94	S Gregoire	Providence, RI	36	06/01/95
31	F Coronato	Flynns Knoll, NJ	07/01/94	F Tenore	Sandy Hook, NJ	31	06/01/95
28	A Anderson	Block Island, RI	10/18/94	C Ingersoll	Great Egg Harbor R., NJ	30	06/01/95
22	F Adams	Raritan Bay, NJ	10/25/92	G Klemm	Kingston, NY	34	06/02/95
31	F Coronato	West Bank Lt., NY	06/02/94	C Esperon	Rockaway Jetty, NY		06/02/95
23	A Marsello	Swansea, MA	05/28/94	R Brady	Swansea, MA	29	06/03/95
18	C Wilcox III	Moriches Inlet, NY	11/29/94	B Fornario	Cotuit, MA	19	06/03/95
20	T Marburger	Northport, NY	12/26/94	GR Gray	Charlestown, RI	21	06/03/95
26	K Conway	Hull, MA	07/25/94	G Smith	Hingham, MA	30	06/03/95
22	A Dangelo	Charlestown, RI	09/27/92	J Sapio	Hingway Cedars, NJ		06/03/95
28	F Tenore	Sandy Hook, NJ	07/17/93	K Anness	Sea Bright, NJ	32	06/04/95
28	F Strmiska	Fishers Is., NY	10/17/94	D Heath	Marblehead, MA	30	06/04/95
24	R Leja	Bridgeport, CT	07/20/93	P Mandel	Montauk, NY		06/04/95
15	J Karolides	Beverly, MA	05/24/95	M Listro	Beverly, MA	15	06/04/95
15	J Karolides	Beverly, MA	05/24/95	L Walker	Saugus, MA	15	06/04/95
31	A Anderson	Block Is., RI	06/25/94	L Menocal	Shinnecock Inlet, NY	34	06/04/95
Tautog							
12	M Frawley Jr.	Rye, NY	10/18/93	W Fischer Sr.	Mamaroneck, NY	15	10/08/94
13	M Frawley Jr.	Rye, NY	10/13/94	N Whiting	Rye, NY	14	10/18/94
10	M Murphy	Buoy 11B, L.I. Sound	10/16/93	G Boyle	Buoy 11B, L.I. Sound	13	10/22/94
10	J Samyn	Pea Is., NY	10/18/94	J Redalan	Pea Is., NY		10/25/94
12	J Samyn	Pea Is., NY	10/24/94	D Brown	Pea Is., NY		11/10/94
15	J Samyn	Hewlett Point, NY	09/24/91	C Link	Hart Is., NY	16	11/16/94
14	R Carlson Jr.	Buzzards Bay, MA	12/04/94	D Wood	Buzzards Bay, MA	14	12/22/94
10	JC Wright	Latimore Shoals, VA	05/14/94	JC Wright	Latimore Shoals, VA	10	04/27/95
11	JC Wright	Latimore Shoals, VA	05/14/94	JC Wright	Latimore Shoals, VA	11	04/27/95
11	JC Wright	Latimore Shoals, VA	04/27/95	JC Wright	Latimore Shoals, VA	11	05/13/95
12	M Frawley Jr.	Rye, NY	09/13/94	P Piccininni	Hempstead, NY	13	05/15/95
11	M Zielen	Sandy Hook Reef, NJ	05/07/95	J Diaz	Seaside, NJ	11	05/19/95



IMMIGRANTS OF ANOTHER KIND

BY ROBERT G. BACHAND

Throughout maritime history, ships have contributed to the spread of organisms from one harbor to another and from region to region. Wood boring isopods (gribbles) and shipworms (teredinid bivalves) inhabiting the structures of wooden vessels were carried to new sites. Then, if conditions were favorable (salinity, temperature, food, predation, competition, disease), these animals reproduced and their offspring established themselves in new habitats. Between 1917 and 1920, nearly all of the timbers in the San Pablo Bay, CA, were destroyed. The main culprits may have been immigrant shipworms.

Fouling organisms attached to the hulls of ships have similarly expanded their geographical range. These organisms include algae, sponges, hydroids, mussels, barnacles, tubedwelling polychaete worms, bryozoans and tunicates, along with certain associated crustaceans and fishes. Ballast carried aboard ships has also been a vehicle for the spread of marine organisms.

To stabilize their ships and balance their cargos, early sailors took on ballast of sand or stones and their associated beach debris. The ballast was often discarded at the ship's destination. Small crustaceans (talitrid amphipods), worms and other organisms trapped in or on the materials were thus introduced to new sites. During the mid to late 1800s, seawater ballast tanks came into use, creating still another means of transporting alien species to new coastlines.

Water pumped into ballast tanks in one harbor is often discharged at the next

Robert Bachand is an active diver/naturalist who recently moved from Norwalk, CT to Estero, FL. This article is from his recent book "Coastal Atlantic Sea Creatures: A Natural History."

harbor. Numerous organisms have been found alive in ballast water including larval crustaceans, copepods, amphipods, polychaete worms and small fishes. Transported in ballast waters, gobies from the coast of Japan were introduced to Australia. During the early 1940s, the Indo-Pacific barnacle *Elminius modestus* was transported to Britain in ballast water or attached to the bottom of ships. Aided by the barnacle's month-long drifting or planktonic larval stages, the animal spread rapidly. On the shoreline of Wales it extended its range at a rate of 20 to 30 kilometers per year. The



Littorina Littorea.

immigrant barnacle is now common to the English Channel and the North Sea.

The common periwinkle, *Littorina littorea*, is one of the best known snails inhabiting the shores of the Gulf of St. Lawrence to New Jersey. It is a European immigrant. First discovered on the beaches of Pictou, Nova Scotia, by 1840 it made its way to the north shore of Cape Cod, MA. Nine years later it was found in New Haven Harbor, CT, and by 1928, it extended its range southward to Cape May, NJ.

The snail's spread was aided by its planktonic egg capsules and larvae. Each capsule released by the female contains from one to nine eggs (average of three). As the capsules drift in the currents, the eggs develop into pear-shaped larvae. With further development, the creatures metamorphose into free-swimming larval veligers and escape from the egg capsules. After having spent additional time in the coastal plankton, the veligers metamorphose into tiny snails that settle along the shoreline.

The coastal current that flows along the mid-Atlantic states facilitated the periwinkle's southern invasion. In 1959, adults were found on the shores of Ocean City, MD. Sea temperatures of 70 F (21 C) or more and the seaward swing of the coastal current just north of North Carolina, will probably prevent further intrusion to the south. But just when and how the snail first made its way to North America remains uncertain.

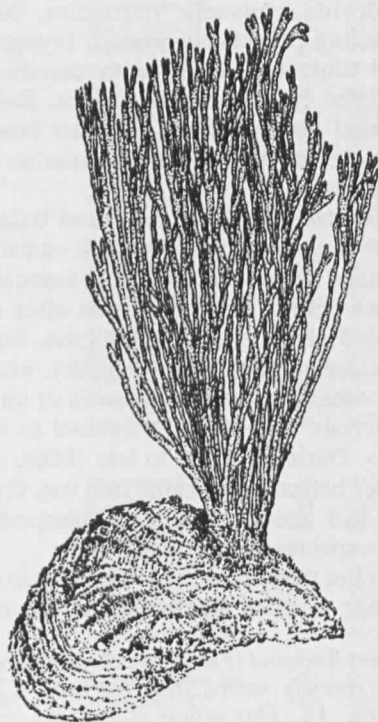
It was originally felt that the creature made the transit from Europe around 1840, mixed in with stone ballast or lodged in recesses of a ship's bottom. It may also have been carried intentionally as food for ship's crew. During the early 1960s, however, discarded periwinkle shells were found at Mimac Indian camp sites in Nova Scotia; radiocarbon testing placed their age around 1000 A.D.

The periwinkle is very common along the Norwegian shoreline. It is frequently found there in ancient refuse piles with the shells of other edible mollusks. The Norse are known to have sailed from Greenland to Newfoundland and Nova Scotia around 1000 A.D. The snail may have been introduced at that time. Its failure to spread from Nova Scotia until the mid-1800s, however, is assumed to have been due to regional surface circulation of that era. Once conditions were favorable, the snail began its southward invasion. Its arrival on the shores of New England was soon felt by the mud snail, *Ilyanassa (Nassarius) obsoletus*.

An 1873 survey of the Cape Cod

region described *Ilyanassa* as "...dominant on sand and mud flats, pilings, sea walls, salt marshes, and eel grass beds, and common on protected rocks, cobble beaches, and pilings." In 1899, naturalist F.N. Balch observed that the periwinkle was beginning to crowd out the mud snail at Cold Spring Harbor, NY. Two decades later, *Ilyanassa* had been displaced from 70 percent of its former habitat, and it was then and is now confined primarily to the soft mud/sand flats. But not all immigrants have had such an obvious effect on indigenous species.

The bushy green seaweed, *Codium fragile*, was first detected on our shores at Southold Bay, Long Island, NY, in 1957. A native of the northwest Pacific region, deadman's fingers or green fleece as it is commonly known made its appearance in Europe during the early 1900s. Over the next fifty years, it expanded its range throughout that area.



*Deadman's fingers
attached to an oyster shell.*



Juvenile green crab.

Following its discovery at Southhold Bay, the seaweed quickly spread into Long Island Sound. In 1961, it was reported in Fishers Island Sound and on the south shore of Cape Cod. Over the next six years, it gained a foothold in the Mystic River estuary and Narragansett Bay. It was then able to make its way from Buzzards Bay, MA, to the north shore of Cape Cod through the Cape Cod Canal. A separate population of *Codium* was reported at Boothbay Harbor, ME (1964), and along the coast of New Hampshire (1983). To the south, a population was established on the Virginia shoreline in 1976, and in North Carolina around 1979.

Some have suggested that *Codium* may have been first transported from the Netherlands to Milford, CT, as a fouling organism on the shells of European flat oysters. At the time of their arrival in 1949, however, the oysters were reportedly thoroughly cleaned with chemicals. Considering the ease of the seaweed's dispersal, it seems unlikely that even if it had been inadvertently introduced at that time, it would have taken a decade to establish itself in Milford Harbor. Thus, it is generally believed that the im-

migrant may have made its way across the Atlantic attached to the hulls of ships.

Once established on our coastline, *Codium* spread on rafts of the seaweed that were carried by the currents. In addition, it spread by means of mobile reproductive cells (gametes) and fragments of the seaweed that were broken off during the winter. The transplantation of local oysters from one site to another also contributed to its dispersal. (The seaweed is often attached to the shells in the form of small "green bumps" that quickly proliferate). Near-shore fishing trawls have also been implicated. Trapped in nets, the seaweed presumably breaks away at the next fishing site. Bait-worms packed in clumps of seaweeds that included *Codium*, are also thought to have contributed to its spread. The discarded seaweeds may have caused its introduction into San Francisco Bay.

Codium's impact on our ecosystem has not been well studied. It often fouls shellfish beds and in some areas, it displaces local species of seaweeds. A more recent immigrant to New England, the club tunicate *Styela clava*, also fouls shellfish beds. In Europe, Danish fishermen have reported blue mussels so over-



Japanese shore crab.

grown by the tunicate that the mollusks could not be cleaned and made saleable.

The club tunicate is a native of coastal China, Korea and Japan. In Korea it is consumed as seafood. *Styela* first appeared in British waters around 1954. It is assumed to have made its way to that coast attached to ships' bottoms, in their ballast tanks, or attached to imported oysters. During the 1970s, H.W. Pratt of the National Marine Fisheries Service discovered the tunicate on our shoreline, at Narragansett Bay, RI. It was later found in Fishers Island Sound, in eastern Long Island Sound and on the New Jersey shoreline. New Jersey was also the site of a more recent immigrant, a Japanese species of crab.

While on a field trip at Townsends Inlet, NJ, in 1988, a Franklin and Marshall College student parted rock weed and discovered an egg-bearing crab. The unfamiliar-looking crustacean was transported to the college where it was later identified as the Japanese shore crab, *Hemigrapsus sanguineus*. Two years later, Japanese shore crabs were found at Townsends Inlet and Cape May Harbor, NJ, and during the early summer of 1994, they were discovered in the intertidal zone at Bridgeport, CT.

A female *Hemigrapsus* lives about three years. She can produce five or more broods per year with up to 56,000 eggs

per brood. In Japan, the same latitude as New Jersey, the crustacean is the most common crab of the rocky intertidal zone.

At Sherwood Island State Park, CT (Long Island Sound), *Hemigrapsus* may be displacing another immigrant, the green crab *Carcinus maenas*. During the fall of 1994, juvenile green crabs were completely absent in areas usually occupied by them. Does this just represent a fluctuation in the green crab population or a competition between the two species? In place of the juvenile green crabs were large numbers of Japanese shore crabs. Considering *Hemigrapsus*' reproductive potential, the crustacean may soon become as common to our shores as it is in Japan. □

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CTENOPHORES: CLEAR INTENTIONS

by SYRIL DIRECTOR

Ctenophores spend their lives getting pushed around. As a planktonic animal, the jellyfish-like ctenophore has little control over its location or direction. Even the smallest current is an unconquerable force. But as the simplest animals to evolve muscles, they have achieved some compensatory control over their own motion. Indeed, ctenophores seem to have garnered more than their share of such creativity. The chemical make-up of the open ocean is generally static, temperature changes are infrequent and subtle, and mechanical stresses are few. One might expect that in such a homogeneous environment, the evolutionarily selective pressures would be minimal. But the bizarre, brilliant, and varied form and features of the ctenophores prove otherwise.

Cleverness, as we know it, implies far more intentional thought than could ever be generated by a ctenophore's rudimentary nervous system. But, somehow the temptation to describe ctenophores as clever is difficult to resist. Take, for example, the ctenophores of genus *Euchlora*. Unlike true jellyfish, ctenophores lack stinging nematocyst cells. But, *Euchlora* refuses to be out-gunned. It has adopted a mechanism termed "kleptocnidism." The *Euchlora* consumes nematocyst-containing jellyfish and then stores these second-hand weapons in its own tentacles. When approached by a predator, chemical triggers signal the release of the nematocysts from their new host.

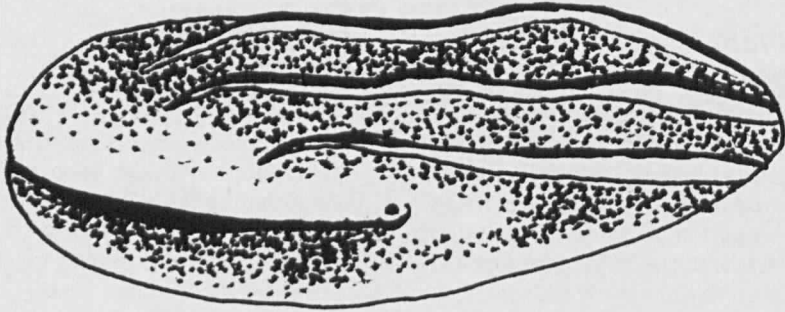
If anyone can sing the praises of a six-inch mass of gelatinous muscle, it is Dr. Sidney Tamm of the Woods Hole Marine Biological Laboratory, whose re-

search — cell biology — leads him to look at objects as intricate and bizarre as the ctenophore, but who will openly admit that he went into science only because he couldn't make a living as a cartoonist. It's not surprising that these cartoonist inclinations have led him to a highly successful career in cell biology, as staring endlessly into a microscope or glass dish at a transparent creature floating about in a few inches of seawater requires a certain comic acceptance of things. It is only fitting that Tamm's premier achievement in the study of these creatures involved one of the more bizarre members of the phylum, the *Beroe*.

The *Beroe*, which can range in size from several inches up to a foot in length, looks something like a jellyfish's best impression of a disembodied mouth. Place your palms together and imagine a joint at the knuckles and you will have an excellent representation of the shape of the *Beroe*. But, the physical resemblance to a swimming mouth is not merely symbolic. The *Beroe*, a carnivore, is a voracious consumer of marine zooplankton. It eats them whole...or sometimes bite by bite. While it is swimming, it maintains a close-mouthed, streamlined form. Considering that the *Beroe*'s lips stretch across nearly 25 percent of its circumference, this is no small feat. Tamm became intrigued by the extent of muscular control necessary to achieve such a precise system.

Anyone who has seen a *Beroe* perform this feat can sympathize with the fascination. First, the tightly sealed lips contact a food source. A small separation between upper and lower lips appears at the site of contact. Then, in a motion that, when observed on slow motion video, distinctly resembles the peeling apart of a zip-lock bag, a tremendous gaping maw is

Syril Director wrote this piece while a student at Amherst College; she is now doing graduate work at Duke University.

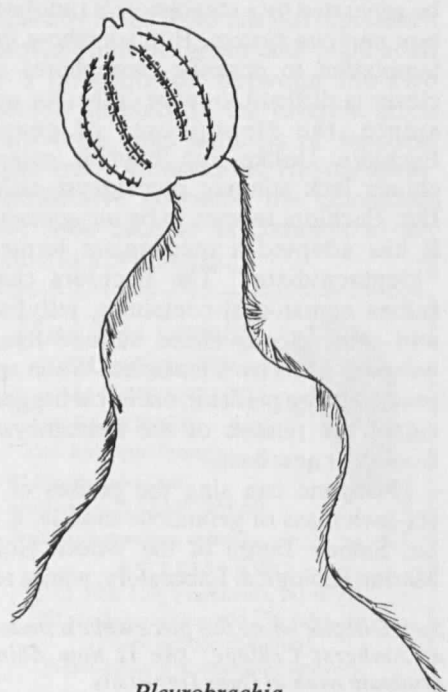


Beroë.

revealed. But, what exactly holds this acorporeal grin together and how does it get itself unstuck? Is it molecular attraction? Is it the velcro-like physical interaction of cellular adhesion molecules?

With the aid of video recording and the electron micrograph work of Tamm's wife, Signhild, the answer was revealed. The juncture between the upper and lower lips of the *Beroë* is a rich topology of folded and interdigitated membranes — distinctly different from the region of cell-cell contact found in other organisms. When food is present, muscles near the lips begin to twitch. Eventually, one of the twitches is strong enough to separate the upper and lower lips. After the seal is broken, the powerful local muscle contractions peel open the remainder of the mouth. Dinner-time. Muscles relax. Lips re-seal. If the *Beroë*'s grimace looks strained, it is misleading. The natural seal is so tight that the *Beroë* maintains its streamlined form without exerting any muscular effort. In fact, it takes a couple of hands and a strong grip with a pair of forceps to pry the lips apart. The *Beroë* has hit upon a simple yet efficient method of minimizing the energy expenditures that come with such fancy evolutionary accessories as muscular mouths. True to form, Tamm concludes the abstract of his *Beroë* paper with the slogan, "Loose Lips Sink Ships." The *Beroë* seems to be a pretty safe sailor.

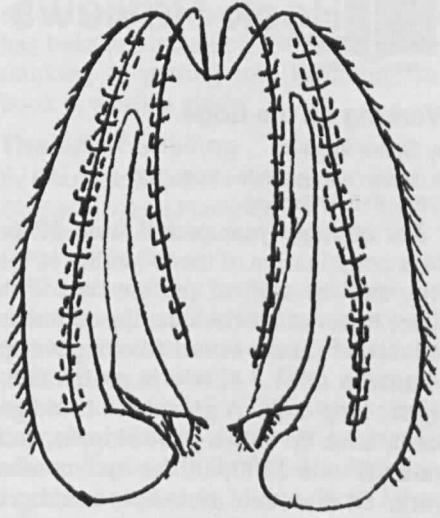
Brute strength is one way of surviving as a ctenophore, not *the* way. The *Pleurobrachia* proves that stealth and poise may be equally effective. The outstretched tentacles of the *Pleurobrachia* drape beneath its tiny oval body (about a half inch) with a delicacy that seems almost too fragile to be possible. The tentacles which range in length from two to four inches are made all the more intricate by their covering of filamentous,



Pleurobrachia.

retractable hairs called tentillae. When swimming freely, the Pleurobrachia retracts its tentillae and moves its tentacles in a breaststroke-kick type of motion that propels it upwards or laterally. Then, a pause. Gravity pulls the tentacles directly beneath the body and the tentillae are extended outwards. As the animal drifts to the bottom, the tentillae flutter like streamers. All this is more than just show. The tentillae are actually highly specialized feeding instruments. When viewed at high magnification, what was previously a barely visible thread becomes a formidable appendage. Each tentillae yields a club-like head covered with a sticky outer cell layer. Much as a spider captures its prey in the adhesive strands of its web, the sticky tentillae gather any microscopic zooplankton that happen to be floating past. After collection, the feeding dance progresses to the second movement. The Pleurobrachia executes a somersault, and in the process wraps the length of tentacles around its body. Acrobatics become the method of bringing food located in the distant tentacles to the mouth inconveniently placed at the top of the body. The mouth closes around the tentacle and then, with a flourish, the tentacles pull away leaving meaty planktonic treats in their place. The tentacles then drift again downwards, tentillae re-extend and the Pleurobrachia regains its posture as a stately predator.

Such a trend towards elegance seems popular in the ctenophore phylum. Although the globular Mnemiopsis lacks the striking aesthetics of the Pleurobrachia, its distinguishing trait, bioluminescence, grants it a vibrancy all its own. The surface of the Mnemiopsis, as with all ctenophores, is divided into eight equal sections. Each section is lined by a "comb row" consisting of tiny rectangular plates running longitudinally from their origin at the animal's mouth. In the dark, these rows can be induced to show off their biochemical tricks.



Mnemiopsis.

Mechanical stimulation (like jostling their tank or poking them) stimulates a nervous reaction which releases internal stores of calcium. The union of this calcium with the photoprotein, mnemiopsin, results in a brief flash of blue-green light. Voila — the Mnemiopsis's comb rows light up like so many strands of Christmas lights. Sometimes all the rows illuminate. Sometimes just one, or a part of one. Although much is known about the chemistry of this reaction, scientists are still guessing as to its significance. Perhaps the Mnemiopsis is trying to evade predators by blinding them with a sudden flash of light. Maybe it is trying to identify its own prey or, even more devious, attract the predators of those creatures bold enough to try and devour it. Or, maybe it is all part of Mnemiopsis communication system. As I sit in the darkened laboratory listening to the water flow into the holding tanks, the blue flashes appear with eerie suddenness and frequency and then, for a time, not at all. Cognizant only of its beauty, I eavesdrop on their conversation of light. □

Book Reviews

Working on the Edge

by Spike Walker

St. Martin's Press, New York, NY.

279 p. \$10.95 (paper).

For an eight-year period from 1976-84, a combination of the fecundity of the prey and the skill of the predator with better boats and technique, the cold seas off northern and western Alaska gave up a bonanza of \$1.4 billion in profits fishing for king crab. A greenhorn could go north, hook up with a good skipper, and walk off with \$100,000 for two months work. Or that same greenhorn could get mangled or killed in this fiercest of all commercial fisheries — winds of 70 knots and air and water temperatures around freezing, wrestling 750-pound crab pots on an icy, bucking deck.

Spike Walker came to Kodiak from Oregon with \$20 and the urge to go to sea and wrestle with the mad man. His story is one of learning the trade on the job and surviving where others often failed — as many as 42 deaths and uncountable injuries during each fishing season. Old crab boats splitting at the seams while looking for a safe haven from 30-foot

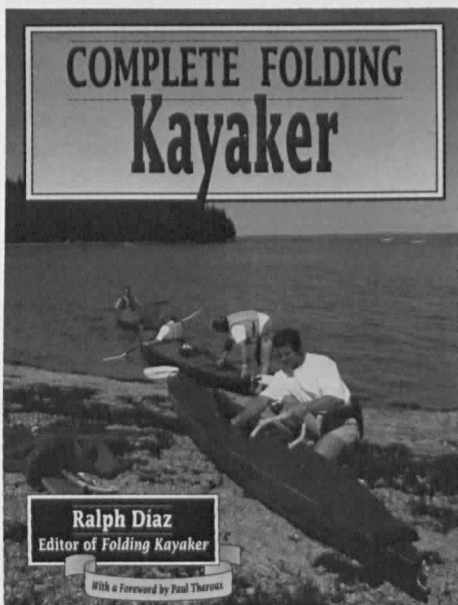
seas, capsizings followed by heroic or just plain lucky rescues, and the daily battle to bait and launch the pots, retrieve and unload them, and get back to port hoping the prices stayed high enough to make a killing.

Walker's adventure is written in four parts, one for each crab boat he crewed for. Part One is "The Greenhorn Season" aboard the Royal Quarry, for a winter season of tanner crab fishing. He gives lively descriptions of the boats, the people, and fishing techniques, from wandering the bars looking for a berth to the first day at sea, to return safely to dock with a healthy payload. It's a young person's game. The captain is 30, the crew 27, 27, and 20, and the 20-year-old is Susey Wagner, 135 pounds of power and skill. Spike Walker left the boat after that one trip, but Susey was back the next season, drawing \$40,000. She bought a house in Kodiak, tended bar, and became a commercial diver on the side — "She was often called upon to dive down and cut gillnets and seine nets and crab-pot lines wrapped around the propellers and rudders of crab boats and salmon seiners. When Mike Jones (the Royal Quarry's captain) eventually built another crab boat, he named it Sweet Sea. He hired Susey Wagner to skipper it."

Alaska's crab fishery took a dive in the



mid-80s, maybe overfishing, maybe disease. Boats got bigger and less personal, regulations set in, and the cowboy days have pretty much bitten the dust. But there was a time when a person could head north and make some really quick cash. This good book records a period of history that has passed. It's a worthwhile story and a great yarn. Highly recommended.



Complete Folding Kayaker

by Ralph Diaz

Ragged Mountain Press, Camden, Maine.
154 p. \$15.95 (paper).

The simple message of this book is that if you are considering entering the wonderful world of sea kayaking, consider getting a folding kayak instead of one of the rigid models. The author, who is editor of "Folding Kayaker," a bimonthly newsletter, is sold on folders: they are seaworthy, they more closely copy early skin boats, and you can put them in a duffle bag and take them along. And, indeed, the foldables have improved greatly since the earlier days of the bulky, unresponsive Klepper. Now there are many sizes and styles on the market, the materials are better, and, of course, sea kayaking is now right up

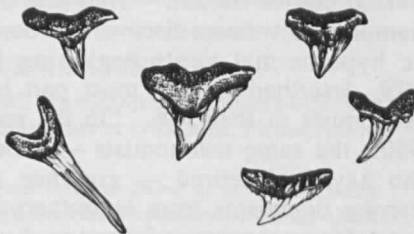
there with snow boarding, cross country skiing, and roller skating as in things to do in the 1990s (but the foldable kayak has been around since 1907). If you are thinking of getting into kayaking, this book is worth a study.

The Art of Shelling

by Chuck and Debbie Robinson

Old Squan Village Publishing,
18 Willow Way, Manasquan, NJ 08736.
132 p. \$14.95 (paper).

There's nothing complicated here, just a simple approach to the fine art of walking all hunched over along the tideline picking up seashells. Who among us haven't done it? This book helps describe what to look for where and when. Especially useful: detailed directions to hotspots in Maine, New Jersey, Virginia, North Carolina, and Florida. If you get seriously into shellfish study and identification, you will need more detailed field guides, but the Robinsons have pointed the way to start the game with this good book.



Understanding Marine Biodiversity

Committee on Biological Diversity in
Marine Systems

National Research Council
2101 Constitution Ave., NW, Washington, DC
20418

75 p. \$29.95 (cloth).

Biodiversity has become a buzzword; scientists crowd under its banner and foundations have adopted it as their major focus. Public interest groups now frame research and public policy funding proposals as fostering the biodiversity of tropical rain forests, deserts, old growth forests, and the like. Now comes this important book, actually the result of a

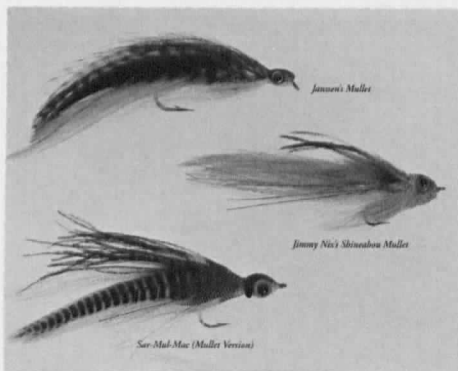
conference held two years ago when 54 scientists gathered to thrash out a national marine research agenda. In summary, they conclude that marine biodiversity deserves serious study within the context of man-made impacts on the ecosystem — habitat destruction, overfishing, climate change, chemical pollution, and exotic species introduction. These five factors, they say, threaten diversity and need to be studied.

Biologists generally agree that diversity is a good thing — a diverse population is more likely to withstand or adapt to changes in habitat — and that diversity is often one of the early victims of ecosystem stress. This book recommends serious study of marine biodiversity on a large scale over time and space. It reports that new marine species are being discovered almost daily and then points out that the science and art of taxonomy needs an infusion of young talent or “the appropriate scientists may not be available to describe the next round of unique species in a newly discovered marine habitat.” They cite the example of new fauna discovered around the hydrothermal vents beginning in 1979, described for the most part by taxonomists in their 40s. “In the mid 1990s, the same taxonomists — those who have not retired — continue to describe organisms from hydrothermal vents...for most taxonomic groups, there has been little or no training of younger workers in the identification and description of species.”

So we have a situation where the marine science community may not know biodiversity if it hits them in the face because they can't tell one organism from another. Also urged is the expanded use of museum specimens, which it says are “an invaluable and largely underutilized resource for biodiversity studies” like documenting biotic changes in areas of habitat alteration or analyzing long-term changes in species distribution.

This is not light reading, nor is it inex-

pensive, which brings up a quibble. Here is an important book; it should be read. But it costs \$30 and the text is only 75 pages long (not the 128 pages listed in the blurb). One would hope that the National Academy Press would whip out a cheaper paperback version and get the word out more broadly or simply tell people to go ahead and xerox it.



A Fly-Fisher's Guide to Saltwater Naturals and Their Imitation

by George V. Roberts Jr.

Ragged Mountain Press, Camden, Maine
155 p. \$34.95 (cloth).

The popularity of saltwater fly fishing continues to grow. Equipment is getting better (and more expensive), anglers are learning the ways of nearshore saltwater species, and flyrod imitations are getting more sophisticated.

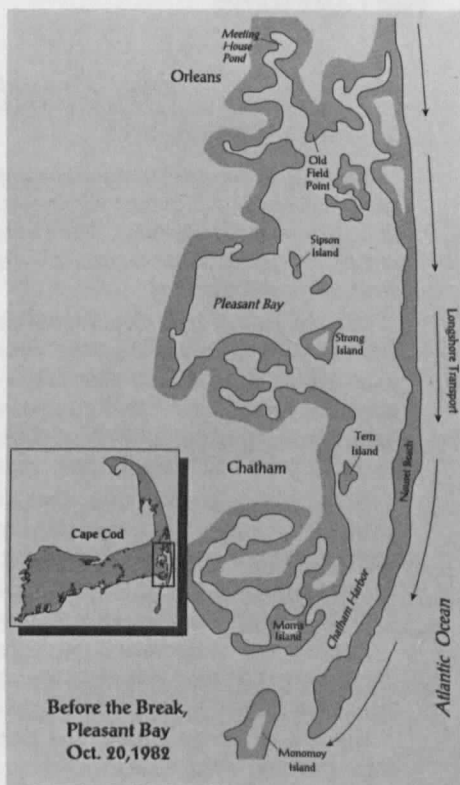
Roberts' book is an elegant guide to saltwater naturals and their imitations. He tackles the subject in three parts, one on how fish choose and chase prey, one on the life histories of common prey species, and one on the how-tos of saltwater fly tying. Parts I and II are worth any naturalist's time, full of good information about fish behavior and about the lives of small prey species. And then a directory of fly patterns — how a fly tyer can make some feathers, thread, and glue look like an anchovy or a sand flea. All this with superb watercolors and oils, terrific photos. Roberts' work looks and feels as if it will be around for a long time.

Storm Surge

by William Sargent

Parnassus Imprints,
270 Communications Way, Suite 4A,
Hyannis, MA 02601,
151 p. \$12.50 (paper).

On January 2, 1987, a northeaster' pounded its way through Nauset Beach, the barrier spit that lies between the Cape Cod, Massachusetts, village of Chatham and the open Atlantic Ocean. What followed was another chapter in the seemingly never-ending argument about what to do when people's houses and sea level conflict. Luckily, Bill Sargent lives near enough to Chatham to have been able to hustle over the beach breach and record the next five years of the pros and cons of seashore living as summer people and commercial fishing year rounders tried to answer such questions as: Do we fill the breach? How much will it cost and who will pay for more sand in front of houses? And, do we stay and fight or pull back? Taking no sides, Sargent records the debate in fine fashion. Good maps. Highly recommended. □



GUIDELINES FOR SUBMISSIONS

UNDERWATER NATURALIST is the Society's journal. We encourage members to submit articles, pictures, observations, comments, compliments or criticisms. Please follow these guidelines.

SUBJECT MATTER: Feature articles run 1,500-3,500 words (4-10 double-spaced, typed pages); please refer to back issues for guidance. For **Field Notes** and **Coast Issues**, submit no more than three pages of direct observations of interesting natural history found while walking, diving, or fishing in a coastal area. Topics can be of current interest, such as red tide in the Carolinas, whale deaths in New England, or mangrove preservation in the south; you can also submit a number of short observations or notes regarding a particular area. **Letters to the Editor** expressing thoughts on the magazine and its contents or general food for thought are especially appreciated.

ARTWORK: For illustrations, black and white prints are preferred, but clear color slides or color prints with good contrast, drawings, maps and charts will also be considered. For **Cover Photos**, we need clear, sharp 35mm color slides or color prints, either horizontal or vertical, of

littoral subjects above or below the water. Horizontals can wrap around from front to back. Action is not necessary. (Note: Unless otherwise requested, we keep all accepted art work until it is published).

HOW TO SUBMIT: Typed, double-spaced manuscripts, please. It would help, if you have access to a computer, to receive your manuscript saved as ASCII on a 3 1/2" double-sided, high-density disk. Use common, not Latin, species names. We do not carry footnotes; incorporate sources in your article. We edit for clarity using Strunk and White's Elements of Style as our guide and favor clear wording over specialized terminology. Send your work with a stamped, self-addressed envelope; we will acknowledge its receipt.

□ We do not pay for articles or illustrations, but we do send five authors' copies when published. Thank you for your interest. We look forward to receiving your submission.

On Getting Hooked

Last fall, my best night of surf-fishing ended suddenly when the ten-pound striped bass I had just landed embedded a treble hook in my thumb. The fish thrashed wildly, and I bled all over the beach. Afterward, I wound up in an emergency room getting the hook yanked out for about what a new rod and reel costs, with a couple of nice wooden plugs thrown in.

In eight years I've hooked myself three times, starting at Marco Island, Florida, with a 4/0 treble hook in the wrist. The hook was attached to a nine-inch swimming plug, which in turn, was attached to a 12-pound snook. This also required an emergency room visit. The doctor pushed the hook through with a pair of pliers, all the while pumping me for fishing information. The next day I saw him anchored off the exact point I had fished, catching snook on almost every cast.

My next body-hooking came from a tiny dry fly on the upper Delaware River two years ago. A sloppy back-cast aided by a light breeze slapped the line and leader across my upper arm, digging the fly in just above my elbow. Two well-dressed fly fishermen showed pity and popped the hook out, but not before lecturing me on how barbless flies do less damage — to trout, not me.

Hooking one's self ranks as one of the major occupational hazards among anglers, not nearly as common as sunburn and insect bites but more prevalent than, let's say, falling out of your boat or getting your finger chomped by a big bluefish.

But it's an accepted risk, and perhaps most importantly, it makes for good yarn-spinning, which all anglers enjoy. Late night campfires, local tackle shops, and smoke-filled clubhouses are full of "the time I got hooked" stories. Most involve things like sharp-as-a-razor buck knives, or using the contents of a flask as an on-the-spot anesthetic. The rare dullard will talk about health insurance.

Getting hooked reminds us that, occasionally, you can get messed up while fishing, or for that matter, birding, camping, or even walking on the beach. Sometimes you fall in, or step on glass, or get a tick. Once I spilled a pot of boiling water down my shoe on a camping trip, earning me the name "pus-foot," which I'm kind of proud of.

Another time, I nearly flipped my canoe while getting harassed by a pair of angry mute swans that decided I was too close to their nest site, even though I was a good quarter mile away.

And while no one wants to get seriously injured while in the woods or on the water, it's that same risk, or at least the lure of the unknown, that draws many of us there in the first place.

Recently, a friend of mine purchased a cellular phone for his car. He urged me to get one, too. "Just in case you go fishing and something happens," he said.

I immediately told him no, quoting the great fishing writer, Judge Robert Traver, who said he fishes, "Because mercifully there are no telephones on trout waters." It's a fishing sacrilege to go against the judge, I explained.

But later, still pondering my friend's concern, I realized why I go fishing in the first place: in case "something happens," and I can limp out of the woods, or from the surf, or a boat, and get to tell someone all about it.

Stephen C. Sautner

Continued from inside front cover

COST: \$695 covers cabin lodging, all meals while on the overnight float trip, guides, most flies, gratuities, and transportation to and from the Missoula airport.

June 14-16
MONTAUK WEEKEND
NEW YORK

Spend an extended weekend at the Montauk Manor on the tip of Long Island. Visit Montauk Light, explore tidepools, beaches and rocky cliffs, go hiking and birding, and take an optional whale watching boat trip.

COST: \$245 covers two nights at the Manor, five meals including a lobster feast, five field trips, two evening programs, pick up at the LIRR train station.

July 11-28
GALAPAGOS EXPEDITION

It's back and just as exciting! A 10-day excursion to the Islands for some exploration by boat and a little snorkeling. Optional 4-day trip into the jungles of Cuyabeno.

COST: \$3750 all inclusive price from Miami. Four day extension to Cuyabeno add \$698.

July 22-27
MACHIAS SEAL ISLAND MAINE

Five days in northern coastal Maine. Boat trip to Seal Island to see puffins, razorbills, Arctic terns and pelagic birds. Additional trips to see other northern wildlife including eagles, osprey, river otters, moose, and black bear.

COST: \$400 covers vans, lodging, guides and boat rental.

September 4 - October 1
BERMUDA WEEK

Natural history of this island of coral reefs, bays and tideflats. Stay at Bermuda Biological Station.

COST: \$870 covers room and board, boats, ground transportation, lectures, and guides.

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