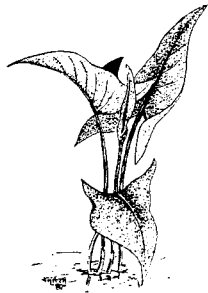


# The Pelican Post

WEEKS BAY  
NATIONAL ESTUARINE RESERVE NEWSLETTER  
FEBRUARY, 1988

*Welcome to the fourth issue of the official newsletter of the Weeks Bay National Estuarine Reserve. Articles of interest to bay watchers, wetland watchers, and to others interested in the coast and in nature will be featured.*

## New Advisory Committee Appointed

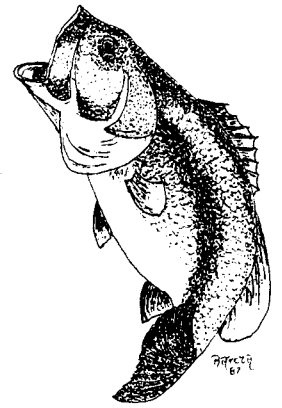


The Weeks Bay National Estuarine Reserve Advisory Committee was recently appointed by Governor Guy Hunt to provide assistance and guidance to the Reserve manager. Committee members are:

Dr. John Borom, The Nature Conservancy  
Dr. Gary Branch, Faulkner State Junior College  
Dr. George Crozier, Dauphin Island Sea Lab  
State Senator Perry Hand, District 32  
Dr. Don Hines, Alabama Dept. of Economic and Community Affairs  
Commissioner Richard Jenkins, Baldwin County  
Dr. Jim Jones, Alabama/Mississippi Sea/Grant Consortium  
Mrs. Myrt Jones, Mobile Bay Audubon Society  
Mr. John Lee, Baldwin County Board of Education  
State Representative Walter Penry, District 94  
Dr. Doug Phillips, Troy State University  
Mrs. Hattie Smith, Citizen  
Dr. Judy Stout, University of South Alabama  
Mr. Walter Tatum, Marine Resources Division, Alabama Dept. of Conservation and Natural Resources  
Mr. Skipper Tonsmeire, The Nature Conservancy  
Mr. Bill Tucker, Game and Fish Division, Alabama Dept. of Conservation and Natural Resources  
Mr. John Williford, Alabama Dept. of Environmental Management

## Estuarine Research Is Important

Perhaps some of you who have not had the opportunity to fish in Weeks Bay may wonder just what sort of conditions exist along the coast that produces both salt and fresh water fishes and an apparent dramatic seasonal fishing for certain species. Well, it is a situation where Gulf waters mix with the rivers and marsh watersheds to give us a brackish (low salinity) environment that can be tolerated by many freshwater fishes and is apparently the preferred habitat for many marine species. The latter have become so adapted to this coastal environment that they are seldom found far from the coasts. Some marine organisms may utilize this brackish coastal area only during the early developmental stages of their life histories.



This transition zone between the fresh water of the rivers and marshes and the sea is called an estuary (when the term estuary is used in the descriptive form, it becomes estuarine, as in estuarine habitat or estuarine fish). The morphology (structure) of an estuary may, of course, vary greatly from one coastal area to another.

A considerable amount of information has been written about the natural history of Gulf coastal fishes and other organisms, but compared to our knowledge of fresh water fishes, much more research is needed in this particular area. The physical environment in estuarine waters is constantly changing. These changes may occur gradually through time in the form of natural geological processes or by the development of areas by man in the form of canals, seawalls and levees. Seasonal shifts in temperature, salinity, and other chemical factors due to the prevailing climatic conditions are a natural phenomena. Daily changes in water depth and salinity, among other things, by tidal action and winds are commonly experienced by all estuarine organisms.

The fishes in this habitat, therefore, will have to adapt to or

(Continued on Page 2, Column 1)

## More About Research . . .

(Continued from Page 1, Column 2)

tolerate these environmental fluctuations. In some cases the organisms leave the habitat and migrate in search of conditions that are more suitable for their particular needs. You can see why, with all these factors to consider, a great amount of detailed research and long-term investigation would be necessary to understand the reasons for the present day distribution of fishes along our coasts.

Information on the changing spatial distribution and movements of the fish along the coast is of prime importance. This knowledge coupled with the reasons why they occur would greatly help us in the harvesting of this food and sport resource. And, as far as future industrial development of this area is concerned, by having information of this type on hand, one might conceivably be able to predict what effect these proposed changes would have on the ecology of the area. If the development might prove to be harmful, alternative or modified methods could be suggested that would reduce the damage to our natural resources.

The accumulation of knowledge and the practical application of this information can benefit everyone who wants to utilize this natural resource to its fullest extent without destroying it.

## NERR Workshop

The Sixth National Estuarine Research Reserve Workshop was hosted in Apalachicola during the week of October 19, 1987. The following fourteen Reserves were represented: Apalachicola, FL; Chesapeake, MD; Elkhorn Slough, CA; Great Bay, NH; Hudson River, NY; North Carolina, NC; Old Woman Creek, OH; Padilla Bay, WA; Rookery Bay, FL; Sapelo Island, GA; South Slough, OR; Tijuana River, CA; Waquoit Bay, MA; and Weeks Bay, AL.

Several guest speakers presented information during the week-long meeting. Topics discussed included developing publications, designing facilities, internships in the Reserves, recruiting researchers, linking research and education, and organizing citizen support groups.

The organization of NERRA, the National Estuarine Research Reserve Association, took a giant step forward during the workshop. Bylaws were drafted and Betsy Blair of Hudson River NERR was elected Chair of the Governing Board. The purpose of the Association is to promote and enhance the National Estuarine Reserve Research System by (1) promoting coordination among the Reserves and coastal, estuarine, and other programs of mutual concern and (2) promoting estuarine research, education, and public awareness of estuaries.

The Reserve staff at Apalachicola worked hard planning and conducting the workshop.

Next year's NERR workshop will be held at Padilla Bay, WA.

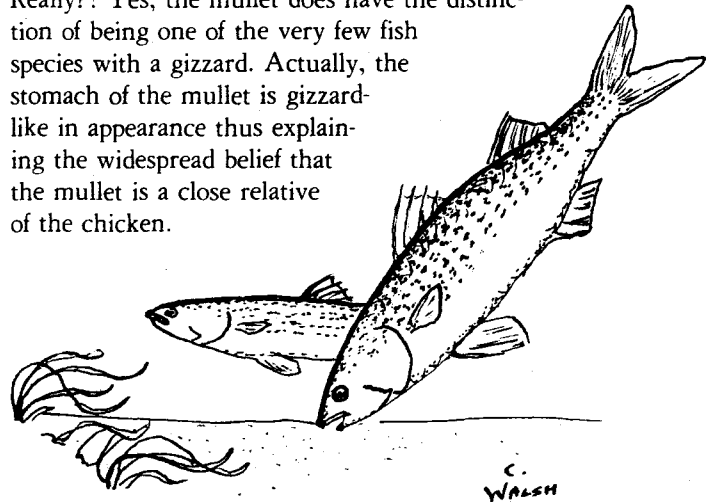


## Let's Mullet Over

Question: Do fish have gizzards?

Answer: Of course not, birds have gizzards.

But there is a member of the fishes that has a gizzard. (You've got to be kidding!) A mullet must be a fish, but it has a what? GIZZARD! Really?! Yes, the mullet does have the distinction of being one of the very few fish species with a gizzard. Actually, the stomach of the mullet is gizzard-like in appearance thus explaining the widespread belief that the mullet is a close relative of the chicken.



Members of the mullet family occur worldwide and are an important species with both commercial and recreational appeal. Two species occur in Alabama waters: the striped mullet (*Mugil cephalus*), and the white mullet, (*Mugil curema*). Both species are abundant year around in coastal waters of Alabama. The striped mullet often travels hundreds of miles upstream into fresh water, whereas the white mullet rarely goes far upstream.

There are many differences of opinion among Alabama fish fanciers about the status of the mullet. Many river fisherfolk consider the mullet to be a "trash" fish with little or no redeeming value. Some say that mullet take on a muddy taste when they enter fresh water. There are many river fishermen in the lower river areas who seek the river mullet and say that they are much tastier than the mullet taken from salt water. Many coastal residents say just the opposite — mullet from salt or brackish water are fine, but river mullet are only good for crab bait. Regardless of your feelings about the mullet, it is an abundant fish in Alabama waters and is important in many ways.

As the name indicates, the striped mullet has horizontal stripes along its back. The white mullet is almost identical in appearance to the striped mullet except for the stripes and the presence of scales on the soft dorsal fin of the white mullet. They are schooling fish by nature, the schools sometimes covering several acres. Mullet are also a jumping fish and are probably the most frequently observed jumping fish in our waters. Mullet commonly attain sizes of 1-2 lbs., however, individuals approaching 10 lbs. have been reported. Striped mullet spawn in open salt water in the winter months while white mullet spawn in the spring. They feed primarily on organic detritus filtered from bottom materials.

In the coastal areas of Baldwin and Mobile Counties, cast netting for mullet is a very popular sport. The sight of a cast netter with his net cocked in his arms and a piece of the net in his teeth, wading in the shallows or lurking on a pier or dock is a study of skill and cunning.

(Continued on Page 3, Column 1)

# More About Mullet . . .

(Continued from Page 2, Column 2)

Mullet are also an important commercial fish in coastal Alabama. Commercial mullet fishermen cruise bay and Gulf waters in fast skiffs looking for large schools of mullet. When a school is located, the fishermen attempt to surround the school with gill or trammel nets. Once accomplished, the circle is closed and the fishermen create a disturbance within the circle to drive the mullet into the net. The commercial harvest of mullet is sold to both local and out of state markets. The annual commercial harvest of mullet from Alabama coastal waters is estimated to be 600,000 pounds.

The most common ways to prepare mullet are frying and smoking. Most agree that the fresher the better, and mullet does not keep well by freezing.

The mullet is an important fish in Alabama waters. It certainly does not deserve the rap of a trash fish. In coastal Alabama the mullet is an important recreational and commercial species and is deeply ingrained into local traditions of Baldwin and Mobile Counties.

*Fried or smoked, man they're really  
somethin';*

*"They're fowl," said the Wizard*

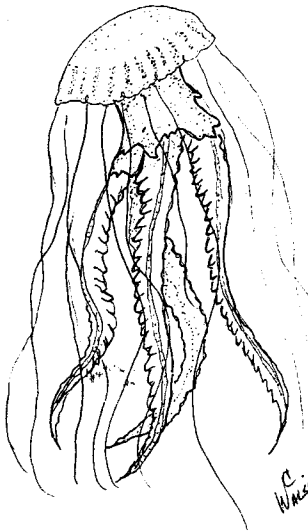
*"'Cause they've got a gizzard."*

*But I've never had a mullet and dumplings'.*

William H. Tucker

## The Sea Nettle

Alabama waters contain several kinds of large stinging jellyfish. Of these, the sea nettle (*Chrysaora quinquecirrha*) is one of the most common and causes most of the discomfort to swimmers in Mobile Bay.

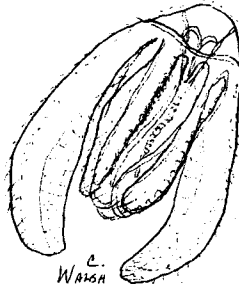


Sea nettles have a complicated life cycle that includes two different forms. The familiar umbrella shaped form is called a medusa. The other form called a polyp resembles a small sea anemone and remains attached to the bottom. These two forms alternate during the life cycle. The summer and early fall is spent as medusae and the winter and spring as polyps.

The beautiful umbrella-shaped medusa may reach eight inches in diameter. Forty tentacles and four oral arms trail behind the umbrella

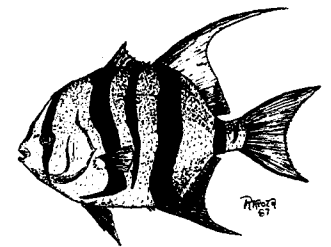
for a considerable distance. The oral arms which are broader than the tentacles are attached near the mouth. Both the tentacles and the oral arms contain stinging cells with which the sea nettle immobilizes prey. A medusa propels itself through the water with pulsating contractions of the umbrella. The color is usually pale yellow or pink with maroon stripes radiating from the center. A single medusa produces both sperm and egg cells. These are shed into the sea water. This condition is exceptional since most medusae have separate sexes. Fertilization occurs in the sea water and a microscopic ciliated larval form develops which eventually settles to the bottom and finally develops into a tiny flower like polyp with feeding tentacles.

Polyps are pale pink or colorless and can be found attached to a firm substrate such as oyster shells. These tiny organisms reproduce by budding. When conditions are right they begin to segment into stacks of saucer-like plates. Young medusae are released into the water and rapidly grow to the form we know as sea nettles.



Young medusae are produced in late spring or early summer and grow on a diet that consists primarily of the phosphorus jelly (*Mnemiopsis mccradyi*). Phosphorus jellies are most numerous in the coastal waters of Alabama in the summer and early fall. Sea nettle medusae are eaten by animals such as the Atlantic spadefish (*Chaetodipterus faber*). Medusae are fairly common in Mobile Bay from July through November. They are more common in August than any other month.

Adult sea nettles are weak swimmers that seem to prefer high salinity waters. Sea nettle concentrations along the coast probably occur when wind generated currents push them ashore, water salinity is high and maybe somewhere offshore conditions are just right for the tiny polyps to be producing more adults.



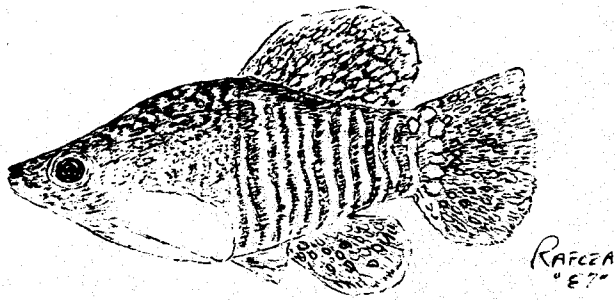
Sea nettles can be a painful nuisance to swimmers as a result of the stinging cells on the tentacles and oral arms. Contact should be avoided, although stings are usually mild and severe cases of poisoning are rarely reported. The pain from the sting can be relieved by applying moist sand or meat tenderizer to the moistened wound.

## Diamond Killifish

The diamond killifish (*Adinia xenica*) occurs sporadically from the Florida Panhandle to Southern Texas. This poorly known fish, often found singly with other killifish, seems to prefer bay margins and marshes. It lives in tidal creeks along the edge of Weeks Bay and during high tide can often be found in small groups among emergent cordgrass patches.

They have deep and compressed bodies and rarely reach two inches. The pointed snout presents a diamond-shaped body outline. The males display striking colors. The back is dark iridescent green and the sides are dark gray with 10-14 regularly and evenly shaped, narrow, pearly bands with wider interspaces. The belly is yellow and the lower jaw is orange. The fins are dusky with pale blue or orange spots. During breeding season, the dorsal and anal fins develop a yellow cream color trim and a black stripe appears under the eyes. They are very handsome. The females are much less ornate and the fins are smaller.

(Continued on Page 4, Column 1)



These beautiful fishes possess protruding lower jaws and tilted mouths which are well adjusted for surface feeding. They feed on the rich supply of organic matter associated with tidal creeks and brackish marshes. In turn, they are eaten by wading birds and larger fishes.

## River Otter

River Otters (*Lutra canadensis*) occur in Fish and Magnolia Rivers. Their permanent dens are often dug into banks, with underwater and exposed entrances, and contain a nest of sticks, grass, reeds, and leaves. Some anglers suspect river otters of depleting game fish stocks, but while otters will eat largemouth bass, they prefer the slower moving "trash fish" which are caught more easily. Because their fur is thick, durable, and beautiful, excessive trapping in the past has greatly diminished the number. The drawing of a river otter was done by Andy Brazil who is ten years old.



## The Northern Harrier

The Northern Harrier (*Circus cyaneus*) is a small-bodied hawk that may be easily recognized in flight by the conspicuous white patch on its rump. Its long, narrow, rounded wings and long tail make it appear much larger than it really is. The adult male is silvery gray with black wing tips, and the female is streaked brown with lighter-colored underparts. It is a bird of marshlands, tidal flats and prairies, and hunts primarily on the wing, flying close to the ground, taking small animals by surprise.

The diet includes rats, rabbits, grass-

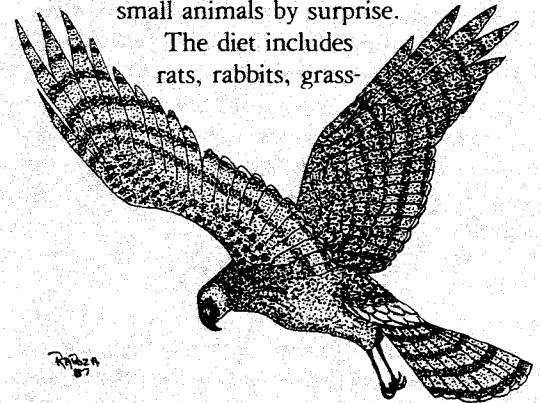
hoppers, frogs, lizards and snakes.

It is often observed hovering for a few seconds over

some suspected spot or suddenly dropping to the ground for its prey. Having satisfied its appetite, it will retire to a post or small tree and remain quietly perched on it for a considerable time.

This bird is uncommon on migration throughout the state, however, it is a locally common winter resident on the Alabama Gulf Coast. Migrants appear quite early in fall and remain until March or April.

The eyes of hawks are famous and help explain their success as predators. The greatest density of nerve receptors known for any eye is recorded for a hawk. The eyes are specially adapted for rapid change of focus and, unlike most birds, hawks have binocular vision. In addition to excellent eyesight, harriers are thought to have keener hearing than other hawks; their disk-shaped faces are believed to be able to amplify sound.

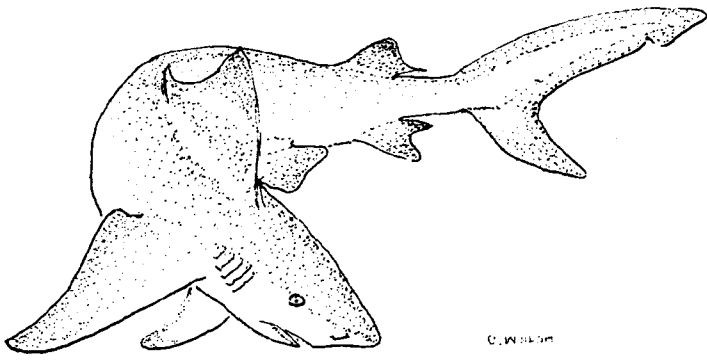


## The Bull Shark

The bull shark (*Carcharinus leucas*) is one of the most interesting sharks in our area. It is easily recognized by the extremely blount snout and stout body, sometimes doubling the weight of other species the same length. Basal color is dark grey to brown on the upper parts of the body and white below, and the fins are not trimmed with any special marking.

This is one of the most abundant inshore species of shark in the Gulf region, the most abundant in low-salinity estuaries, and it even penetrates fresh water. This species has been recorded further inland than any other species. They have been recorded on all the continents except Antarctica and Europe. In the United States, bull sharks have been taken from Lake Okeechobee and the Patuxent, Pascagoula and Atchafalaya rivers. A specimen was taken 160 miles up the Atchafalaya River in Louisiana. A photograph exists of a six-foot bull shark that was some 2,700 miles up the Amazon River near Iquitos, Peru. In Nicaragua, there are fresh water populations, which make regular migrations to and from the Caribbean Sea.

(Continued on Page 5, Column 1)



## More About The Bull Shark . . .

(Continued from Page 4, Column 2)

Most adults range from seven to ten feet in length. The maximum size is probably more than ten feet, but sharks more than nine feet are rare. However, even at this length, specimens may approach 600 pounds. The world record is 486 pounds.

Recent studies have added much information about the life history of the species. Bull sharks may live in excess of 20 years. In the Gulf they mate during early to mid summer, and the litter is shed about ten or eleven months later. From five to six pups are born at one time. Birth has been reported to occur in the spring on the Florida coast. The pups are usually a little more than two feet at birth, and they will reach maturity at about six or seven feet.

Young bull sharks about three feet long are common in Weeks Bay during the summer months and often travel in small schools. In our area they are commonly called "dog sharks" or "sand sharks". However, these names are incorrect. Young bull sharks are frequently taken with light tackle in Mobile Bay and are most common in July and August. At this size they are completely harmless to swimmers.

The bull shark is a carnivorous scavenger and is generally a loner, often cruising lazily in shallow water, and thus frequently seen by folks in small boats and water watchers on bridges and wharves. They often follow commercial shrimp boats and feed on scraps of fish and crabs that fall off of the boat as shrimp are being separated from the catch. Although sometimes caught during daylight hours, they prefer to feed in the evening, especially around bridges, passes, and channels. They sometimes appear to be slow and sluggish when observed close to shore. However, they are capable of rapid bursts, especially when pursuing live prey such as other sharks and small rays.

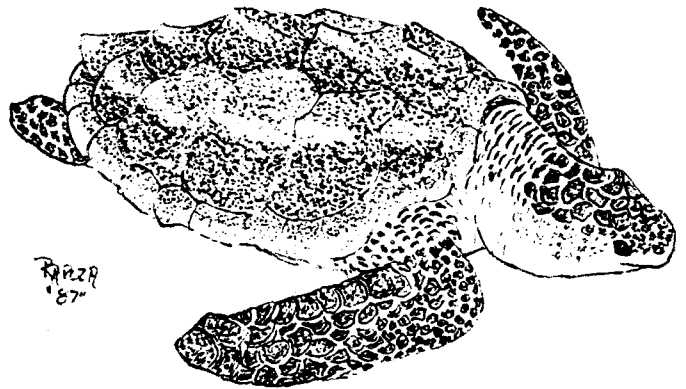
Large adults are authentic man eaters. Numerous attacks on swimmers in Central America and Florida have been verified to be by bull sharks.

## New Directions

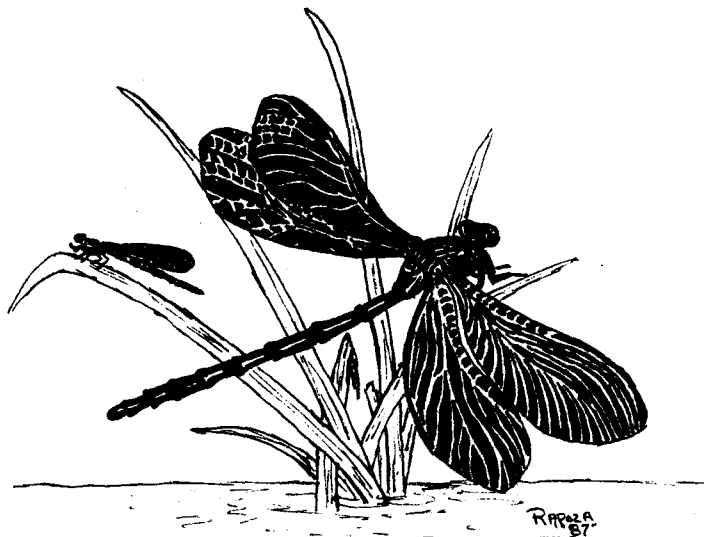
The October, 1987 issue of *Calypso Log* reported that sharks are useful in medical research. Shark corneas, which are similar to those of mammals, have been transplanted successfully in human beings. Shark cartilage yields chondroitin, an important substance in making synthetic skin for burn victims. Researchers are looking for an extractable, nontoxic substance from shark cartilage which might be involved in controlling tumor growth.

## Sea Turtles Would Rather Be Excluded

U. S. shrimp fishermen inadvertently trap an estimated 10,000 sea turtles every year, a drain on creatures that already are either threatened or endangered. The National Marine Fisheries Service, working with fishermen, devised a barrier that fits in the throat of a trawl, allowing shrimp to pass into the bag but shunting turtles and some of the unwanted catch back to the sea. Shrimpers have not embraced the new technology, feeling that there are many other causes of turtle mortality; that they would



lose significant amounts of shrimp either directly or indirectly; and, that the barriers, called TEDs (Turtle Excluder Devices), pose a safety hazard to crewmen in an already dangerous occupation. Despite their concerns, the power of the Endangered Species Act and of turtle conservation groups has prevailed. TEDs will become mandatory for offshore shrimpers in the Gulf of Mexico out to 15 miles on March 1, 1988 and continue through November 1, 1988. Thereafter, TEDs will be required in offshore waters out to 200 miles March through November.



*Reptiles are a part of the old wilderness of earth, the environment in which man got the nerves and hormones that make him human. If we let the reptile go it is a sign we are ready to let all wilderness go. When that happens we shall no longer be exactly human.*

Archie Carr

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**Illustrations**

Eastern Shore Art Association Wildlife Art Class

Suggestions and comments from readers on future topics of interest are welcomed by the editors. If you know of others who would be interested in receiving this newsletter, please have them send requests to be included on the mailing list to the return address shown on the panel below.

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