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RECREATIONAL AND COMMERCIAL USE PATTERN FOR THE FISH AND WILDLIFE
RESOURCES OF YAQUINA BAY, OREGON

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General

Yaquina Bay is centrally located on the Oregon Coast and receives fresh water from both the Yaquina and Big Elk Rivers and their tributaries. Major tidewater areas extend upstream to Toledo (Zones I through III) over an inverted "S" course for about 12-1/2 miles. Approximately 1,700 acres of tideland are contained within this area, which places Yaquina Bay third in size in Oregon.

From Toledo, the tidewater area is compressed into a narrow channel winding eastward to Elk City, about 14 miles (Zone IV on map), where the two major fresh water streams join. Above Elk City, the Yaquina Tidewater area extends northward in a still, narrower (but nearly straight) channel to Pioneer (Zone V), about 3 1/2 miles above Elk City, and to the south for 3 miles to the head of tide.

In describing the bay use pattern, bay zones will be referred to by numbers I through V. These zonal designations should not be confused with the clam bed areas 1 through 10.

Descriptions of bay zones are as follows (Figure 1):

- Zone I. From the west end of north and south jetties to the west side of the highway bridge at Newport.
- Zone II. From the west side of the highway bridge up bay to River Bend Boat Works on a line extending through navigation buoys 22 and 23.

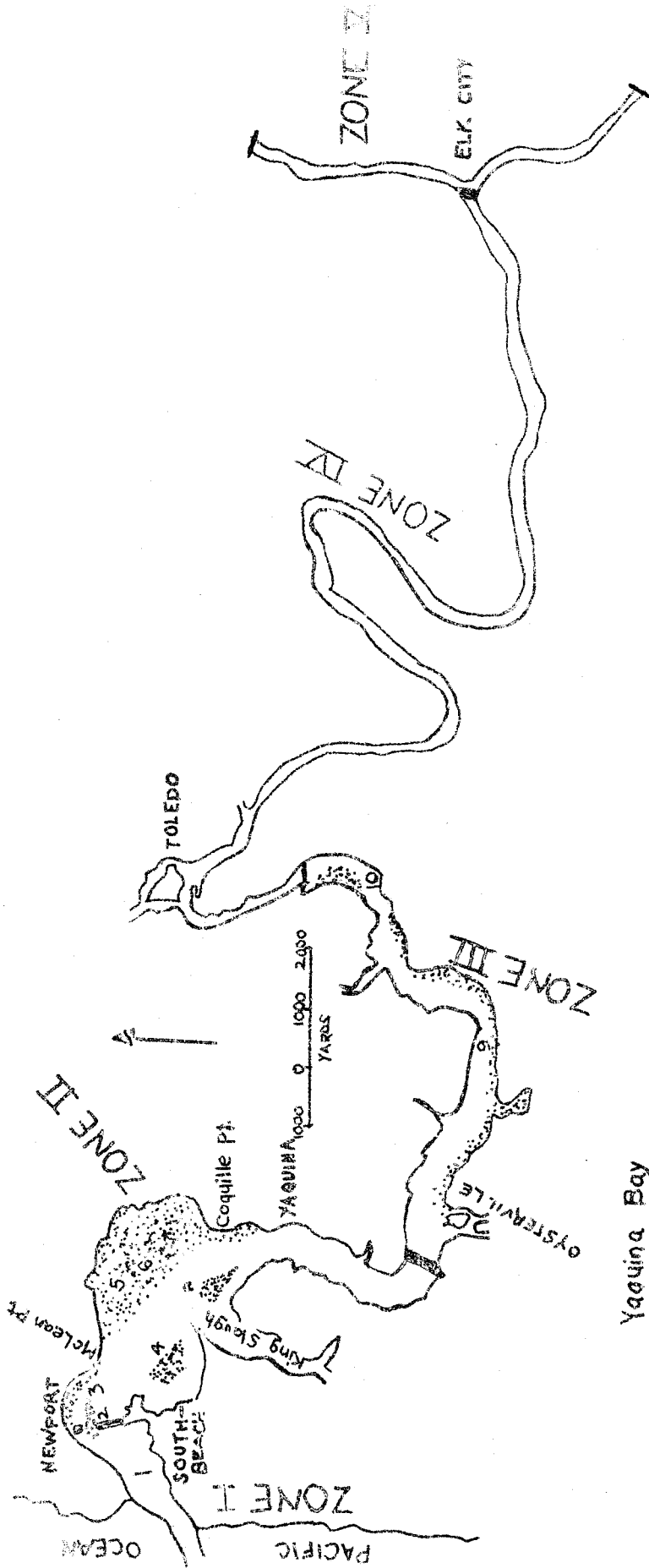


Figure 1. The recreation and commercial fishing zones, and the clam bed areas of Yaquina Bay, Oregon

- Zone I. From the west end of north and south jetties to the west side of the highway bridge at Newport.
- Zone II. From the west side of the highway bridge up bay to River Bend Boat Works on a line extending through navigation buoys 22 and 23.
- Zone III. From the line extending through navigation buoys 22 and 23 at River Bend Boat Works up bay to a line perpendicular to navigation buoy 47.
- Zone IV. From navigation buoy 47 up bay to the public dock at Elk City.
- Zone V. From the public dock at Elk City approximately 3-1/2 miles up the Yaquina River to the railroad overpass (head of tide), and approximately 3 miles up the Big Elk River to the concrete bridge (head of tide).

Clam bed digging areas are indicated by numbers 1 through 10.

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- Zone III. From the line extending through navigation buoys 22 and 23 at River Bend Boat Works up bay to a line perpendicular to navigation buoy 47.
- Zone IV. From navigation buoy 47 up bay to the public dock at Elk City.
- Zone V. From the public dock at Elk City approximately 3-1/2 miles up the Yaquina River to the railroad overpass (head of tide), and approximately 3 miles up the Big Elk River to the concrete bridge (head of tide).

The Crab Fishery

Both a recreational and a commercial crab fishery takes place in Yaquina Bay. The commercial fishery operates mainly during the summer months and is most intensive in years when outside crabbing success is poor or inclement weather makes it difficult for crab boats to operate at sea, or after the legal ocean crab fishing season closes. The commercial bay fishery is carried out with the use of crab rings only. Tagging experiments by Fish Commission of Oregon biologists have indicated that the commercial fishery is exceedingly successful in capturing a very large percentage of the legal sized crabs available in the bay. An intensive recreational crab fishery might be expected to be equally efficient.

Crabs of two species are utilized in the recreational crab fishery. These are the Dungeness crab, Cancer magister, and the red rock crab, Cancer productus. Personal use crab fishing regulations for Yaquina Bay are as follows: Dungeness crabs, daily bag limit 12 male crabs measuring not less than 5 3/4 inches across the back, inside the points. It is unlawful to use more than three crab pots and/or rings per individual. There is no bag or size limit on red rock crabs. Skin divers may also

take a legal limit of crabs by hand.

The red rock crab is not harvested commercially and is of little importance in the sports fishery. This species is smaller in size than the Dungeness crab and is found mainly around rocky-ledge type areas in the lower bay (Zones I and II). Most of the edible meat in this species is contained in the very large pinching claws. The Dungeness crab prefers open sandy bottoms and is found mainly in Zones I and II, but during the summer months may be found up bay as far as the mid-portions of Zone III. Dungeness crabs may be taken in Yaquina Bay throughout the year.

Crab fishing pressure on Yaquina Bay, both sports and commercial, has increased markedly over the last five-year period.

The Clam Fishery

Both a considerable recreational and commercial clam fishery exists on Yaquina Bay. In 1958, commercial production of the bay ranked third in Oregon, producing an average of 40,000 pounds annually, which was approximately 20 percent of the state's total.¹ Recently the commercial yield was estimated at around 15,000 pounds from June through September, while the sports yield has been estimated at about 55,000 pounds during the same time period.²

In all, five species of bay clams are harvested by diggers in Yaquina Bay. These are: the gaper or horseneck clam, Schizothaerus nuttalli; the cockle, Clinocardium nuttalli; the softshell clam, Mya arenaria; the butter clam, Saxidomus giganteus; and the littleneck clam, Protothaca staminea. Species dug incidentally include rough piddocks, Zirfaea pilsbryi; bentnose Macoma nasuta; sand clams, Macoma secta; and jackknife clams, Solen sp.

¹Marrige, Dean. The bay clams of Oregon. Educational Bulletin No. 2, Fish Commission of Oregon, 29p., 1958.

²Snow, C. Dale, and Darrell Demory. The 1960 Yaquina Bay clam study. Oregon Fish Commission, Research Division, Portland, 11p. dup., 1961.

Present harvest regulations for personal use are as follows:

Season open year-round. Daily bag limit, the first 36 clams dug regardless of size, only 12 of which may be gaper clams.

The softshell clam is widely distributed on both sides of the bay in areas 9 and 10 and in the up bay portion of area 7 (inside the lagoon). Beds are also found in many of the small sloughs leading off the main bay in areas 9 and 10.

The softshell clam is available to diggers on any normal low tide, is found about 8 to 14 inches below the surface, and is easily harvested with almost any type of shovel. Although this clam is available year-round, the main digging period for personal use coincides with the peak recreational use period on the bay, roughly from early March into November on daylight low tides.

The gaper (horseneck) clam is found in the lower bay areas 1 through 8. This large clam will average 4 to 6 inches in length and larger specimens will weigh from 1 to 4 pounds. Gapers are in best condition for harvesting just prior to the November-December spawning period when about 35 percent of the total weight is edible. After spawning the body meat is much more watery and only approximately 15 percent of the total weight (including shell) is edible. At this time the large "neck" or siphon produces the greatest amount of edible meat. Gapers are found from 14 to 24 inches below the surface of the tide flats and are harvested with a shovel. Clam beds are exposed only on minus tides -- most of which occur during the spring and summer months. Skin divers report beds of this species below the minimum low tide levels which may serve as a permanent breeding stock reservoir.

The cockle is found in the same bay region as the gaper clam, areas 1 through 8. Having a very short siphon, the cockle is found about 1-3 inches

under the surface. Cockles are usually harvested by dragging a "clam rake" through the upper surfaces of the bay soil. Experienced harvesters are able to locate this species by visually identifying the excrement on the surface and simply picking up the clam from the mud by hand. Although cockles may be found higher up on the tide flats than gaper clams, the best harvesting occurs on minus tides during the late spring, summer and early fall months. As with the gaper clams, cockles are watery after spawning but recover condition rather quickly. Most of the edible meat, about 10 to 15 percent of the total weight, is contained in the muscular foot of the cockle.

The butter clam is not abundant in Yaquina Bay, although a relatively stable population exists in the up bay portion of area 7, between Yaquina and the lagoon outlet. Little harvest pressure exists on this species as its habitat is in the rocky, sandy area where digging is difficult or sometimes impossible. In addition, few diggers can distinguish between the siphon hole of a butter clam and that of the burrow opening of a ghost shrimp, which are many times as abundant as are the clams. Butter clams are intermediate in size, between the gaper and softshell clam and are found from 6 to 14 inches below the surface. Although potato forks are used in other bay areas, a shovel is essential for harvesting this species in Yaquina Bay. Beds are exposed only at minus tides.

The littleneck clam is found mainly in the same area as the butter clam, although a very few exist in areas 4, 5 and 6. This species is found just under the soil surface and is harvested incidentally in Yaquina Bay while looking for or digging for butter clams. Littlenecks average slightly smaller than cockles, or about 2-1/2 inches in rib length.

The bentnose and sand clam are also found in the lower areas in Yaquina Bay. A very limited harvest of mussels, Mytilus sp., occurs along the rocky areas of the north and south jetties below the highway bridge (Zone I). Clams and mussels are used for bait for various species of bottom fishes as well as for food.

The Outside Sports Salmon Fishery

From an economic and total angler participation standpoint, this is by far the most important fishery in the area.

Participating are anglers in owned and rented outboard motor boats, inboard motor boats of various sizes, and large commercial vessels (such as Tradewinds) taking out paid passengers. This fishery usually begins in early June and may extend well into October.

Angling pressure is mainly targeted at Chinook, Oncorhynchus tshawytscha, and silver, Oncorhynchus kisutch, salmon, but many other species are taken incidentally. On other occasions when salmon fishing is poor, angling effort may be specifically aimed at easier to locate and catch species such as rockfish (Sebastes sp.), ling cod, (Ophiodon elongatus), flounder (Platichthys stellatus), sand sole (Psittichthys melanostictus), halibut (Hippoglossus stenolepis), etc.

When weather permits, most salmon anglers fish beyond the bar and up to four miles offshore. However, quite often boats are "weathered in" and most of the fishing is then confined and concentrated from the Newport highway bridge to the bar.

The economy of many of the bay front establishments in Newport is largely tied up with the availability of good outside salmon fishing during the summer months. This fishery has been steadily increasing in angler effort and extent (depending upon seasonal availability of salmon) since 1950.

The Bay Troll Salmon Fishery

While the outside salmon fishery is still in full swing, the first Chinook and jack salmon (immature males) of both species (Chinook and silvers) begin to move up bay on the annual fall spawning migration. Early in the fall, many of these fish are actually bay feeders following schools of bait fish and not destined for spawning in this particular river system. After about October 1, silvers (both adults and jacks) usually predominate in the catch.

Angling is usually by a form of boat trolling, using various lures or "moochin" with fresh herring or anchovies.

Peak fishing activity in the lower bay (Zones II and III usually occurs from late September to mid-November. As various waves of fish enter and move upriver, the angling pressure adjusts accordingly and fishermen are found pursuing salmon in Zones III and IV as far upriver as Elk City.

The Bay Fishery for Bottom Fish Species

From a recreational use standpoint, probably second to the sports salmon fishery, is that for so-called bottom species commonly found in Yaquina Bay tidewater areas.

In order of relative importance in the catch (and this varies with season, salinity, temperature, time of spawning, etc.) are the following: starry flounders, various species of the surf perch, family Embiotocidae, and kelp greenlings, Hexagrammus decagrammus. Other incidental species taken include ling cod, sand sole, sculpins (Cottus and Leptocottus sp.), halibut, and sturgeon (Acipenser medirostris).

This fishery is concentrated mainly in Zones II and III. Both bank and boat anglers participate. Those fishermen who fish in Zone I may also

occasionally pick up rockfish, lingcod and cabezon (Scorpaenichthys marmoratus). Favored bank fishing areas in Zone II are (at low tide) along the bay side of the lagoon just north of the O.S.U. Marine Laboratory, and (at high tide) about 300 yards up bay from the River Bend Boat Works.

The peak period of angling for bottom fish is mainly correlated with recreational bay use in general, from early March to late November. Because of salinity tolerances, spawning and feeding movements, etc., the composition of bay inhabiting fish species fluctuates markedly. For example, surf perches and kelp greening may be found in the bay in large numbers only during the late spring, summer and fall months, while flounders are present throughout the year. On occasion during freshet periods flounders may be the only fish abundant in the bay. This is due to their tolerance for low salinity, as compared to other marine species.

The Jetty Fishery

The bank fishery off the jetty rocks (Zone I) might be very roughly divided into two angler groups--those fishermen who mainly cast lures for salmon and the larger salt water species from the south jetty (clean side), and those who fish with bait for bottom fish on the inside of the channel from both the north and south jetty rocks.

The south jetty lure fishery is largely aimed at Chinook and silver salmon, but other species such as rockfish, lingcod and cabezon are taken. Occasionally skates (Raja sp.), sharks and even halibut are hooked in this area.

The very intensive south jetty fishery for salmon usually begins in early June, peaks in July and August, and gradually tapers off in September and October. Chinook salmon predominate in June and early July with silver or coho salmon entering the fishery in late July and often predominating in the catch in the early fall months.

While salmon are the primary target of this fishery, their inshore movements are very erratic and the more stable populations of other non-salmonoid species such as rockfish, lingcod, and cabezon, results in these species often predominating in the total, overall catch statistics.

Anglers using bait for bottom fish take the same species as listed under the section "Bay Fishery for Bottom Species." This jetty fishery for bottom species exists year-round (weather permitting), but is most intensive during the warmer summer months.

The Skin and Scuba Diver Fishery

Interest in salt water skin and scuba diving has steadily increased during the past five years. Underwater fishing success is dependent more upon clarity of the water than upon water temperature; thus bay usage by this group is dependent, in large part, on water conditions. Roughly the period of use extends from early January to mid-October. The period from early April to early July finds most ideal water conditions--after the winter freshets, and before the summer upwellings and subsequent plankton increase.

Diving activity is concentrated in Zone I from the highway bridge along either side of the rocky jetty and spur jetty areas and on the protected south (ocean) side of the south jetty. Regulations governing fish and shellfish harvest by divers are set by the Oregon State Game Commission and the Fish Commission of Oregon. Legal fish harvest is limited to non-game species. Certain shellfish, including crabs, may be legally taken under certain specified conditions. Salmonoid fishes may not be taken.

In order of importance, the fish species harvested by skin divers in the lower bay (Zone I) are as follows: Rockfishes, lingcod, kelp greenling, Hexagrammus decagrammus, cabezon and wolf eel, Annarrhichthys ocellatus.

Rockfishes (commonly called "sea bass") are found in varying abundance along the jetty areas throughout the year, and spectacular concentrations may occur during the summer months.

Lingcod numbers increase inshore during the early January and February spawning period and fluctuate throughout the summer and early fall months, possibly in relation to the inshore abundance of food fish.

Greenling are smaller in size than other species listed here, but are present along the rocky jetty area as a relatively resident population throughout the year and are of considerable importance in the diving fishery.

Cabzones are most abundant during the summer months and are highly prized as food fish.

Rather recently a popular diving fishery has developed on the wolf eel, with population peaks along the jetty area during January and February. Despite its appearance, the wolf eel produces delicious fillets.

All of the above mentioned fish are good eating and all are listed as non-game forms. Numerous other species are taken incidentally by divers, and a number of new ichthyological species occurrence records have been established.

It should be mentioned that minor conflict exists between diving activity and bank fishermen, especially on the intensively used south jetty (oceanside) fishing area. Divers are also endangered by the heavy boating traffic inside the jetties during the summer and early fall salmon fishing season.

The Outthroat Trout and Jack Salmon Fishery

This fishery is concentrated in Zone IV (below Elk City) and in the upper parts of Zone III.

Outthroat trout (Salmo clarki) are taken by trolling and by bait fishing both in the spring and early summer (May-June), and again in the fall (September-October).

Jack salmon and a few early migrating adult chinooks are taken in September and early October before the heavy runs of spawning fish enter the

upper river, primarily by fishermen using cluster eggs. This fishery is concentrated mainly in the area extending from Elk City two miles downstream. Angler participation on this early fall fishery is, at present, apparently limited to only a few individuals

Commercial Bay Fisheries

Actual:

1. Crab Fishery: (previously discussed)
2. Clam Fishery: (previously discussed)
3. Oyster Fishery:

The oyster fishery of Yaquina Bay is primarily operated by the Oregon Oyster Company and is located in Zone III. At the present time, no public harvest of oysters is allowed.

Commercial oyster beds extend from Poole's Slough at the lower end up to Johnson's Slough. Native oyster beds are found in the deep channels of the area and extend up bay along the south side above Johnson's Slough.

Five species of oysters are harvested in the bay, with the kumamoto (Crassostrea gigas variety kumamoto) the native oyster (Ostrea lurida) are the predominant ones utilized at present.

Oysters are harvested all year, the heaviest harvest occurring during the winter months. The average weekly yield is 30 gallons of meats and 7 sacks of oysters in the shell. One sack of shell oysters is equivalent to three gallons of meats; therefore, total production for one week is 51 gallons of oyster meats. Since one gallon of oyster meats weighs six pounds, the average weight of oysters harvested per week is 306 pounds. Average annual yield is 15,912 pounds.

4. Herring:

A minor commercial fishery exists in Zones I and II on herring during the spring and summer months.

These fish are taken largely by "jigging" and are either frozen or sold fresh (from live boxes) to anglers for salmon trolling or "mooching."

Potential:

Sizeable ghost shrimp (Callinectes sp.) populations exist in most of the lower clam beds (especially areas 3, 5, 6 and 7). These shrimp are used for bait for bottom fish species.

At present, a small commercial fishery for shrimp operates in Alsea Bay, which also supplies bait shrimp for the Newport area. No commercial shrimp harvest of consequence now exists in Yaquina Bay.

The Upper Bay Bullhead-Catfish Fishery

Recent reports indicate a year-round bullhead catfish fishery in the upper bay area (Zone IV) between Toledo and Elk City. This should be checked for intensity, time of peak fishing activity, and species harvested.

Bullhead catfish are not native to Oregon, but have been introduced and provide a fishery of considerable recreational value in other brackish water areas such as upper Coquille Bay near Coquille, Oregon.

Potential, but Unutilized Sports Fisheries

1. The Shad Fishery:

A potential sports shad (Alosa sapidissima) fishery exists in Zone V. These fine sports fish are found in Zone V, from Elk City to head of tide (about $3\frac{1}{2}$ miles) during the second week in June and are still abundant in early July. This is the annual spawning run, and numbers of fish available at least equal to those of such noted shad fishing areas as the north and south fork of the Coos River in the Coos Bay area.

At present, the only harvest on these fish is by the "pitchfork" method (illegal) used by local residents.

2. Green Sturgeon:

This species was formerly taken in limited numbers (when netting was legal) by gill netters mainly in Zones II and III. Present abundance is not known as no angling pressure (specialized) is directed toward this species.

3. Jack Smelt:

Occurring in fluctuating numbers, mainly in Zone II during the summer months, jack smelt Atherinopsis californicus, are taken incidentally by anglers.

When found "working on top," this fish may be caught by using very small lures, artificial flies, or small natural baits.

Because of its small mouth, this fish cannot usually ingest the larger baited hooks of bay anglers. It is a spectacular fighting fish for its size, 12-20 inches, and one of the better eating of the bay fishes.

Waterfowl and Waterfowl Hunting

Historically, Yaquina Bay has been a wintering area for many species of waterfowl and associated water bird forms such as loons, grebes, coots, cormorants, etc.

Recreational use might be divided into two areas: waterfowl hunting and (for want of a better term) "bird watching."

Those persons interested in the aesthetic pleasure of watching and identifying bird species have been utilizing the county road bordering the bay from Newport to Toledo in ever-increasing numbers.

Waterfowl hunting, however, in recent years has declined. The former large fall and winter concentrations of dabbling ducks, such as baldpate, Mareca americana, and pintails, Anas scuta, as well as the coots or mudhens,

Fulica americana, have (apparently) moved inland to the much more attractive feeding areas provided by state and private organizations and individuals in the Willamette Valley.

Diving duck species now predominate on Yaquina Bay throughout most of the late fall and winter period. These species include the scaups, Aythya sp., the canvasback, Aythya valisineria; the bufflehead, Bucephala albeola; the surf scoter, Melanitta perspicillata and the white-winged scoter, Melanitta deglandi. Other less abundant species of waterfowl visit or occasionally winter on Yaquina Bay. The formerly very abundant salt water goose, the black brant (Branta nigricans), is now observed mainly as a spring migrant on its northward migration to the Arctic breeding grounds.

These changes in waterfowl population numbers have not been due to hunting, as hunting pressure on Yaquina Bay has always been light. The lack of heavy hunting pressure has been due, perhaps, to the fact that most ducks in this area taste "fishy" or have an "off flavor" to most people.

Boat and decoy hunters utilize the slough areas such as King's McCafferty's and Pooler's slough in Zone II. "Sneak boat" hunters usually operate on the main bay. The formerly popular (though illegal) methods of hunting, shooting from the car and shooting from moving motor boats, have largely been discouraged in recent years by more efficient enforcement by State Police Officers.

July 18, 1963.