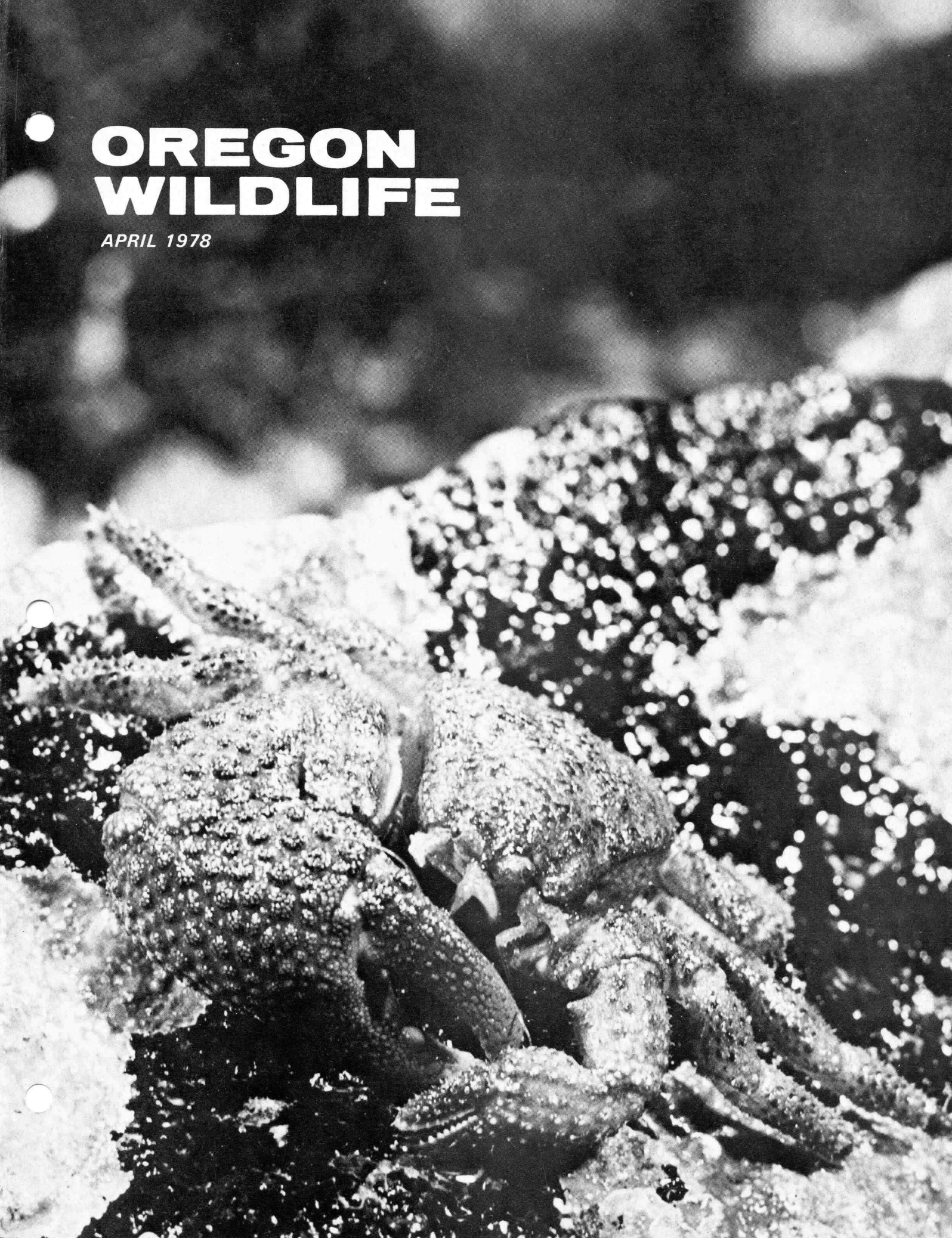
OREGON WILDLIFE

APRIL 1978



OREGON WILDLIFE

April 1978
Volume 33, No. 4

OREGON FISH AND WILDLIFE COMMISSION

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The Cover

The soft bellied crab *(Oedignathus indermis)* is usually less than ¾ inches long and is named for its soft, thick abdomen. It is usually found secluded in pockets or cracks among intertidal rocks and uses the large claw to shield and protect its vulnerable underside.

Photo by Bob Kuhn

HUNTER EDUCATION PROGRAM
INSTRUCTORS APPROVED
Month of February..... 31
Total Active.....1,659
STUDENTS TRAINED
Month of February..... 375
Total to Date 252,180
HUNTING CASUALTIES REPORTED IN 1978
Fatal..... 1
Nonfatal..... 3

GUEST EDITORIAL

Editor's Note: A few issues ago we ran excerpts of a talk given by Commission Chairman Louisa Bateman. We extended an invitation to the remainder of the Commissioners to express their views on the subject of their choice. This month Commissioner John Boyer of Monroe presents his views on elk management. □

A Commissioner's Views on Elk

By Commissioner John Boyer
Monroe, Oregon

What is the future of our elk herds and elk hunting? Elk are one of Oregon's most important natural resources. Times are changing. Habitat is changing. Herd quality is changing. The nature of hunting is changing. Landowner tolerance is changing. You should care about these changes. You should speak out on the future management and use of your public assets.

It appears to me you have three urgent reasons to join in developing a comprehensive policy on elk management and elk hunting. What are those reasons? First, bull escapement is low, thus the natural quality of herds is poor. Second, in hunting camps, concern is expressed about excessive hunter numbers adversely affecting the quality of the hunt. Third, the price of feeder steers is increasing. In 1978 it is probable that up to 20,000 new elk hunters will enter the general season hunt after "free meat". As a result, you will see a decline in the quality of the hunt. More important, you will see a decline in the bull escapement and the quality of our herds.

You may ask why these predictable adverse impacts can happen. The reason is: past Commissions accommodated unlimited hunter numbers with a limited elk resource and within limited elk habitat. You may ask why your current Commission has not adopted a policy that balances recreational demands with resource supply. The reason the Commission has not adopted a new policy is simple. Practically no one has taken the time to write or phone their Commission representative and request change. Ten thousand concerns voiced in the woods are of little value unless also expressed in open public planning meetings.

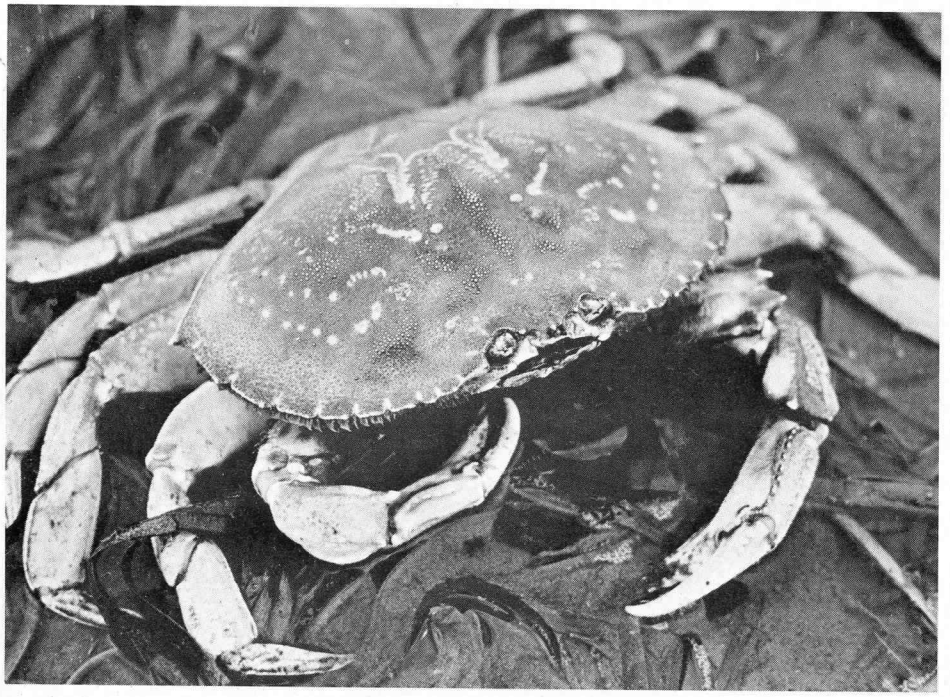
It is increasingly apparent to wildlife managers, game enforcement officers, and dedicated hunters that unlimited hunter use of the public elk herds cannot be fully accommodated. So why has the policy not been changed? Again, because you, the public, have not spoken. The large predictable hunter increases of 1978 indicate we are nearing an emergency situation this hunting season. I believe the public should examine now the desirability of adopting temporary means of controlling hunter numbers. And the public should now meet its opportunity to comment on bull escapement standards. Research has not demonstrated what will happen to elk as habitat shrinks, harvest pressure expands, and bull escapement declines. No genetic or behavioral research has proven low bull escapement is biologically sound. *(Continued p. 11)*

Commission Meets

The Fish and Wildlife Commission will participate in a Columbia River Compact meeting with the Washington Department of Fisheries starting at 10 a.m. April 24. This will be a general information session with a report on the status of the spring chinook run.

On April 25, starting at 9 a.m., the Oregon Commission will start a general business meeting. At 10 a.m. it will consider adopting a fee for controlled hunt applications and the modification of the boundaries of several of the game management units. At 1 p.m. it will consider several private fish hatchery permit applications.

Both meetings will be held at Department headquarters at 506 SW Mill in Portland.□



Dungeness crab

Interesting Crabs of Oregon

by C. Dale Snow

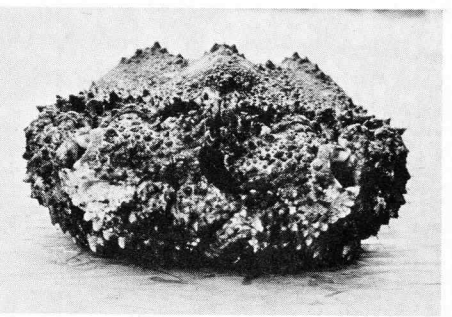
The bays, beaches and ocean along Oregon's 310 miles of coastline contain a wide variety of crabs. However, most residents and tourists are aware of only one or two species, the Dungeness crab (*Cancer magister*) and the red-rock crab (*Cancer productus*). The other species, though not as well known, are of interest and to some degree of economic importance. The purpose of this article is to acquaint the readers with a few of the crabs found in our bays, along our shores, and in the ocean.

The best known of the Oregon crabs is the Dungeness which is the base for a multi-million dollar industry. Dungeness crab are found to some extent in nearly all of our estuaries and out to depths of 180 fathoms (1,080 feet) off shore. However, the majority of ocean crab will be found in 50 fathoms (300 feet) of water or less. Commercial crab production fluctuates on a somewhat cyclic basis over a seven to ten year period with the catch ranging from 3.5 to 16.0 million pounds. The precise cause of these fluctuations is not known but it is believed to be environmentally related rather than fishery caused. Present regulations allow the males to mate at least once or twice prior to attaining legal size and the females are completely protected, thus assuring us of a continuing brood stock. Each female Dungeness crab will produce 800,000 to 1,500,000 eggs. Needless to say, all of the offspring do not survive.

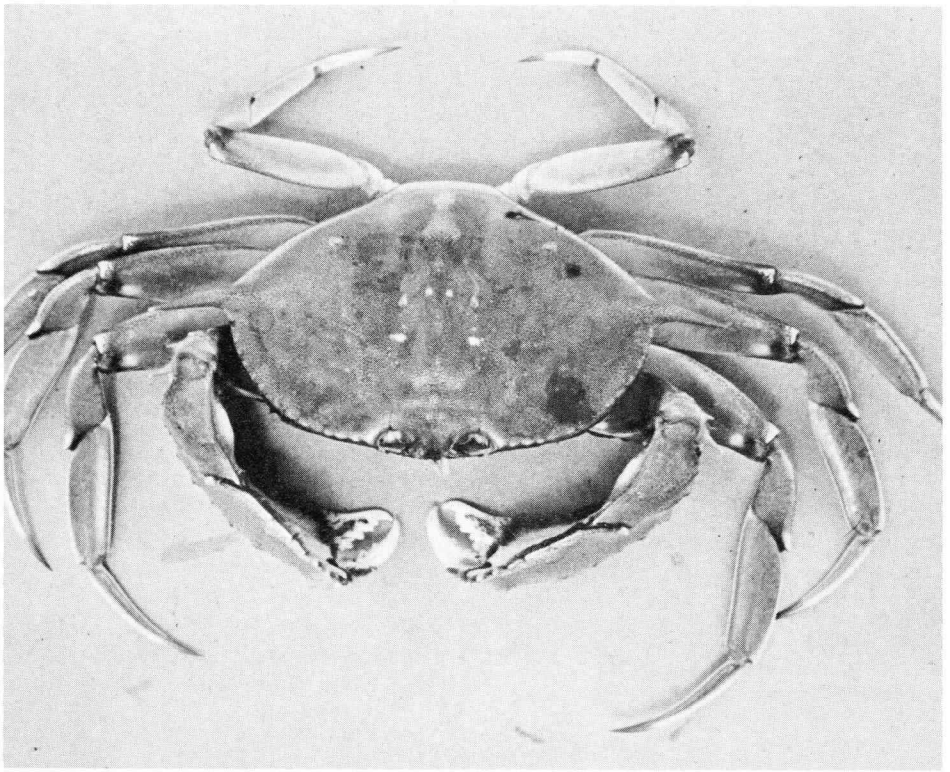
Most Dungeness crab mate during the months of April through June and the females become egg-bearing or "berried" during October and November. The eggs hatch during the winter months and the resultant larvae are free swimming for three to five months, dependent upon water temperature. During this free swimming period Dungeness crab larvae (Zoeae) are preyed upon by birds and many species of marine fish, including salmon. When the last free swimming stage, called a megalops, sheds its shell and settles to the ocean floor, it looks like a tiny crab about half the size of a dime. Three to four years later and after changing shells 15 or more times, this little crab will have attained the legal sport and commercial sizes of 5¾ and 6¼ inches respectively.

Crabs are enclosed in a hard shell or exoskeleton. In order to grow they must periodically shed this shell. If you look closely at the edge or side of a crab and just under the back, you will see a faint line. When the crab is ready to shed its shell, this "splitting-line" opens up, the back raises up like a lid and the animal backs out of the old shell, withdrawing its legs very much like you would pull your hand out of a glove. During this process the crab grows by taking in water and expanding the new shell which is very soft and rubbery. Growth will continue for several hours after shedding. During this softshell stage crabs are quite vulnerable to predators. Even a relatively small fish can tear a newly shed crab to bits if the crab does not quickly bury itself in sand where it will hopefully be undetected. The new shell will firm up fairly well in 48 hours; however, it will remain springy or flexible for several weeks.

Fishermen should carefully return crabs to the water that have soft or flexible shells. This should be done regardless of how large the crab is. The reason for this is that the rapid growth and absorption of water leaves you with an animal that may be large in size, but containing only a small amount of low quality meat. To harvest these animals in this condition is a waste of the resource. Within three to four months this same animal will be filled with high quality meat. A crab of legal size will grow from 1 to 1⅓ inches when it sheds its shell.



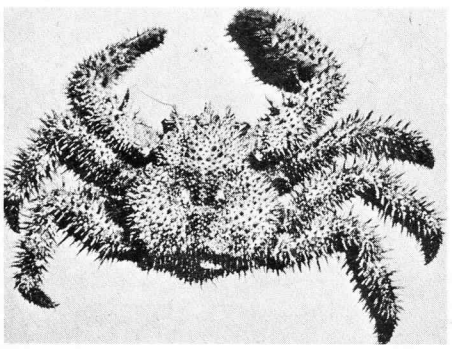
Box crab



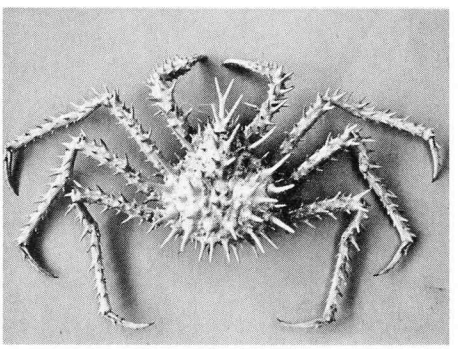
Long-horn crab

The best method to determine if a crab should be kept or not is to "squeeze" the shell just beneath the lateral points (points where you measure the crab for size). If the shell is compressible and/or the crab feels light, it should be carefully returned to the water. Crabs that have recently molted usually have clean, bright shells whereas hard crab have dark stained shells.

The next best known, but frequently maligned, crab is the red-rock crab. This crab is also called "Japanese Crab"; however, this is a misnomer. The red-rock is a native species and is a close relative of the Dungeness crab. It is an edible species although it has much less body meat than the Dungeness. Contrary to what some people believe, the red-rock crab is not a predator on the Dungeness. In fact, if the two species were to engage in combat, I would put my money on the Dungeness because it is more active and quicker of movement than the red-rock. However, if it came down to a contest of brute strength, I would bet on the red-rock. This crab has massive pinchers that it uses to crush clams such as cockles and littlenecks and frequently digs these species out of the substrate. It also crushes and eats barnacles. If you set your pots or ring-nets and seem to be catching mostly red-rock crab, you would be well advised to move to another location for Dungeness crab. The reason being that you are probably fishing in a rocky area which is the preferred habitat of the red-rock crab. Dungeness crab prefer and seek out a sand or sand-mud bottom. The red-rock crab is an important member of the marine community and should be utilized, not wantonly destroyed and wasted.



Spider crab species . . .



Another spider crab species

Some of our more unusual crabs are found in deep water and are seen only occasionally by commercial trawlermen, shrimp fishermen or scientists sampling for bottom species.

Four species of deep water crab occasionally encountered are: (1) Box crab (*Lopholithodes foraminatus*); (2) Long-horn crab (*Mursia gaudichaudii*); and (3) two spider crabs (*Paralithodes rathbuni* and *Acanthalithodes hispidus*).

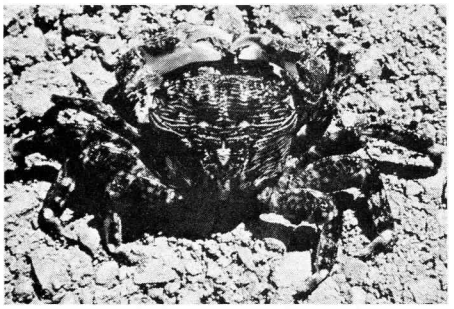
Very little is known about the foregoing species because of their deep water habitat. The box crab, probably because of its larger size, is most frequently caught and has been reported by some fishermen as quite edible.

A fifth species of deep water crab is the Tanner crab (*Chionoecetes tanneri*) and is a close relative of the Alaskan snow crab (not related to the author). In appearance it looks much like a miniature king crab, with a rounded body and long, slender legs. It is believed that commercial quantities of this crab exist off Oregon in water from 300 to 500 fathoms deep (1800-3000 feet).

Oregon is blessed with many rocky areas along its coast. These rocky areas are home for myriads of animals, not the least of which is an assortment of small crabs.

In the high and middle intertidal zone two species of crabs can be found, the striped rock crab (*Pachygrapsus crassipes*) and the purple shore crab (*Hemigrapsus nudus*). These small, but pugnacious crabs can be seen scurrying about sideways or backwards when alarmed or rearing up to challenge intruders of much greater size. These crab require only an occasional inundation to survive and actually seem to prefer being out of water. This trait does not endear them to the salt water aquarist because they are adept at escaping aquarium tanks.

Also in the middle intertidal zone, if you turn over rocks you will see

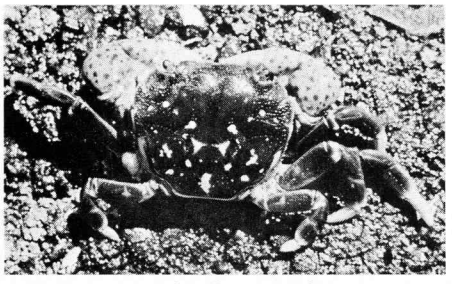


Striped rock crab

hundreds of porcelain crabs (*Petrolisthes sp.*) scurrying off to new hiding places. If you are quick enough and catch one of these little crabs, don't be surprised or overly alarmed if you find that legs and pinchers have fallen off. These little crabs are masters of autotomy or the ability to voluntarily drop appendages. This can be an escape mechanism and if the crab gets away it will grow new appendages.

In the middle and lower intertidal zone you will encounter pools of water. If you stand still and watch carefully, you may see the shell of a snail go scurrying across the bottom of the pool in a very unsnail-like manner. The locomotor for the shell is the hermit crab (*Paqurus sp.*). The hermit crab has a very soft body and, in order to protect itself, finds an empty snail shell that it will fit into. When alarmed, these little crabs will completely withdraw into the shell leaving only the hard pinchers visible. As the little hermits grow they seek out new and larger shells to live in. One of the most comical sights you can observe is a hermit crab that has been displaced from its regular home and put in with a number of shells that are not quite big enough for it.

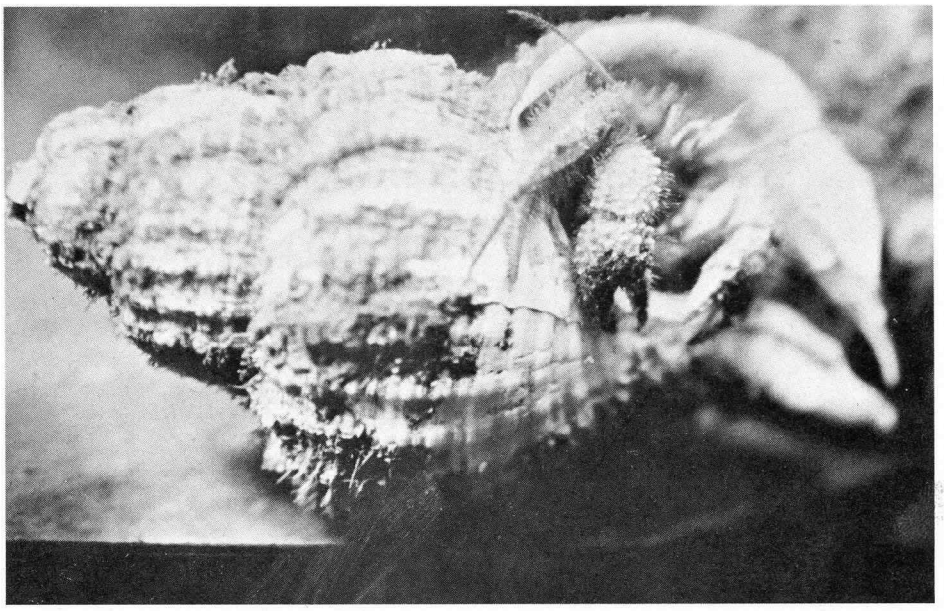
Not all soft bodied crabs utilize shells for their homes. The soft bellied crab (*Oedignathus inermis*) makes its home in abandoned sea urchin pits and crevices in rock, thus protecting its softer abdomen.

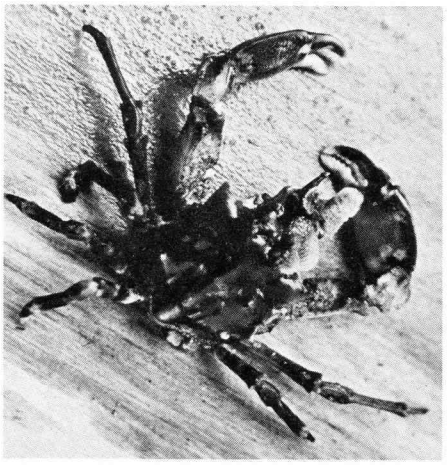


Purple shore crab

A porcelain crab and . . .

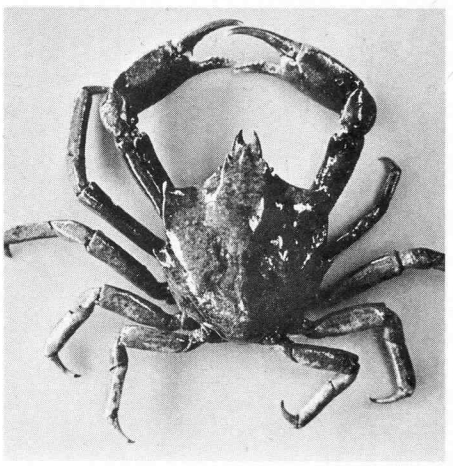
A hermit crab in his borrowed shell





Decorator crab

Umbrella crab



Kelp crab

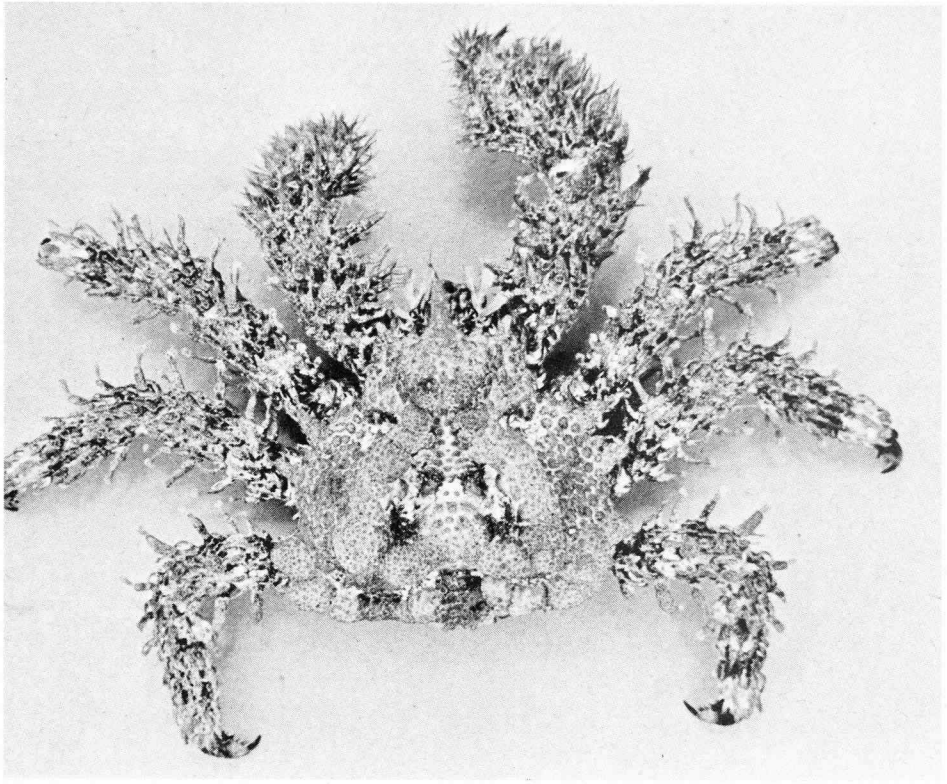
Frequently in the lower tide pools you will find a crab that has sponge or algae growing on the shell. This is the Decorator crab (*Pugettia gracilis*) and the adornment is not an accident. These little crabs purposely place these materials on their shells for camouflage, hooking them onto curved spines. A similar appearing, but larger and unadorned crab, the Kelp crab (*Pugettia productus*) can frequently be found in the same area, hiding in and looking very much like the algae it has taken refuge in.

One of the most attractive and interesting crabs to be found in the rocky intertidal zone is the Umbrella crab (*Cryptolithodes sitchensis*). This little crab may be brilliant red, pink and brown mottled, or any number of color variations. The carapace or shell is so large that it covers walking legs and pinchers like an umbrella. Only by turning the crab over can you see the rest of the animal.

One of the rarer crabs to be found in the intertidal zone is the leafy rock crab (*Phyllolithodes papillosus*). Whether the infrequency of occurrence is related to limited numbers or chance wandering into the intertidal zone from a deeper water habitat is unknown.

This does not represent all of the crabs found in the intertidal zone or ocean. It is merely a quick overview of a few selected and interesting crabs that are found in Oregon waters. If the reader should decide to visit the coast and go tide-pooling, he or she would be well advised to review the regulations for intertidal animals found on page 55 of the angling synopsis. All intertidal animals are subject to limits. Some areas have been set aside where no collecting is permitted and others are restricted to collecting for scientific and educational purposes only.

Finally, if you go into the intertidal area, remember your manners. If you roll over a rock to see what's underneath, carefully return it to its original position so that you disturb the habitat as little as possible. This way future generations can also go tide-pooling to see the interesting crabs of Oregon.□



Leafy rock crab

THIS AND THAT

compiled by Ken Durbin

MICE AND MAN

If a pair of field mice can produce six baby mice 17 times a year – which they can – then in just a few months two mice could become millions. So why isn't the earth overrun with mice?

The explanation can be found in a new six-page publication entitled "Populations", available free of charge for the first copy and ten cents per copy thereafter from the National Wildlife Federation.

Designed to teach children about the relationship between population and environment, the four-color pamphlet points out that man has found ways to avoid the "natural controls" that limit other animal populations. But, it concludes, "man is beginning to see that the earth's resources are limited and that his population cannot increase forever."

For copies of "Populations" write National Wildlife Federation, Box RRP, 1412 - 16th Street NW, Washington, D.C. 20036.

*

SLIME SAVES TIME

That slippery stuff on the surface of a fish's skin or scales is a form of mucous that sharply cuts friction as the fish speeds through the water. Ship designers are now studying this mucous film, and the way it adheres to fish, to see if a similar system could be made available for ships. Skin friction causes drag on ships, slowing them and forcing greater fuel needs. One artificial material currently under study for this purpose is polyethylene oxide.

Michigan Natural Resources

*

PHILOSOPHICAL REALISM

"You know, the Lord has sure been good to us. Now what are we doing to warrant that good luck any more than any other nation? Just how long is that going to last? The way we are acting, the Lord is liable to turn on us any minute; and even if He don't, our good fortune can't possibly last any longer than our natural resources."

Will Rogers, 1928

MULLET IN HOT DOGS OF FUTURE?

An inexpensive hot dog made from Florida mullet has been developed that is more nutritious and significantly lower in calories, according to University of Florida food scientists who developed it. Dubbed the sea dog, the sausagelike product has less than 10 percent fat. Ordinary hot dogs with beef and pork may contain up to 30 percent fat. The sea dog has 148 calories compared to 248 calories in the standard hot dog and 470 in pork sausage. Mullet was used because of its abundance and low cost. And cost could be reduced even further by substituting soybean vegetable protein for up to 25 percent of the contents.

Texas Parks & Wildlife

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BIG FLAPPER

A bird with a 51-foot wingspan? Talk about the Age of the Flapper! Well, there really was such a creature, one that would make Alfred Hitchcock's horror movie "The Birds" look like a nursery rhyme. The bones of one such flier were discovered in Big Bend National Park in Texas in 1971. Recently assembled, these form the huge flier. Some airplanes are smaller.

Called Pterosaurs, these huge creatures, along with their little brothers, the Pteranodons, dominated our skies for about 135 million years, finally dying out with all other dinosaurs about 65 million years ago.

Pterosaurs probably weighed between 125 and 300 pounds, while Pteranodons had wingspans of only 26 feet and weighed about 33 pounds. The smaller Pteranodons were capable fliers, but the larger Pterosaurs weren't supposed to be able to fly. Fly they did, however, or at least flapped their way off the ground, then soared upward on thermal currents. Landings were probably pretty spectacular, and crack-ups were a common disaster for these big creatures.

Pterosaurs and Pteranodons were probably warm-blooded flying reptiles, covered not with feathers or scales, but with a light fur. They had long slender beaks, and probably lived on bits of meat picked from dead dinosaurs.

Michigan Natural Resources

WILDLIFE BOOSTED IN EXTENSION REORGANIZATION

Assistant Agriculture Secretary M. Rupert Cutler announced recently that reorganization within the Agriculture Department has given wildlife a more prominent position within the Extension Service, the Wildlife Management Institute reports.

A new agency, the Science and Education Administration, combines into a single agency what were formerly the Agricultural Research Service, Cooperative State Research Service, Extension Service, and National Agricultural Library. Extension is retained as a unit within SEA and is being restructured to provide for a separate natural resources staff with greater emphasis on wildlife and other noncommodity natural resources, Cutler said.

The Extension Service has had only two full-time fish and wildlife specialists employed in Washington during the history of the program – one for a year or so in the 1930s and the second for a similar time in the late 1960s.

*

TIMBER COMPANY HELPS DEPARTMENT

Willamette Industries, an Oregon timber corporation, has made it possible for the Fish and Wildlife Department to acquire a much needed site for future expansion of the Cedar Creek Fish Hatchery near Hebo.

When a 5.1-acre improved tract on Three Rivers was offered for sale, there were no funds available in the fish culture budget for its acquisition. Willamette Industries came to the Department's rescue by purchasing this land and then exchanging it with the Department for surplus timber land of equal value the Department owned at its Fall Creek Hatchery in Lincoln County.

Then Willamette Industries added the frosting to the cake. The company also owned the 5.7 acres of meadow land continuing upstream from the purchased Three Rivers tract. Willamette Industries made a gift of this land to the Department. Now the Department has nearly 11 acres ideally suited for expanding fish producing facilities many years into the future.

Commission Proposes Wild Fish Policy

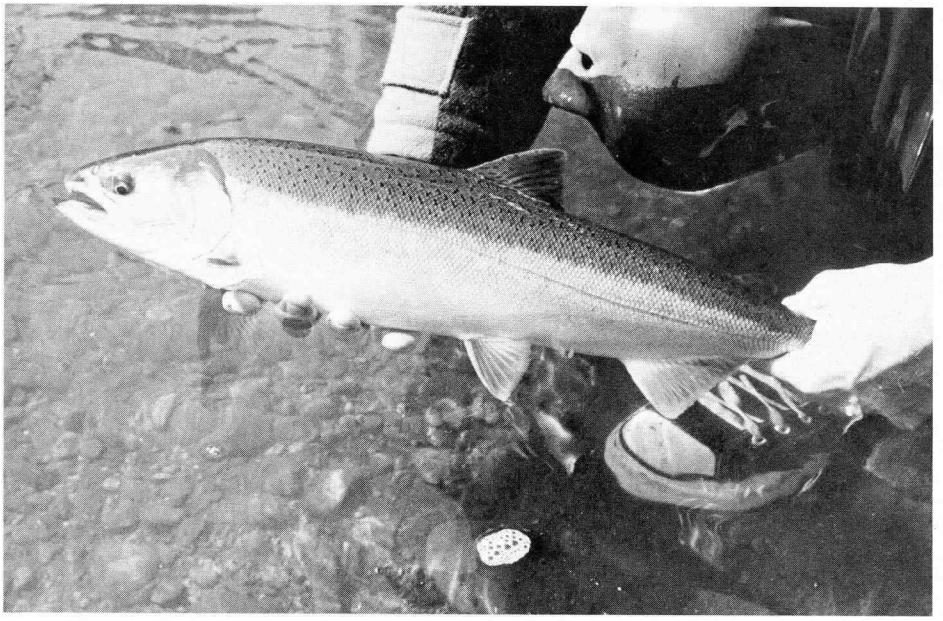
Before the coming of the white man, and even before aboriginal man, wild fish lived in Oregon's streams. Each drainage network contained its own unique strain or strains of fish evolved over the milleniums for the environmental conditions in that particular system.

Man came, his numbers grew. His activities changed the land, the streams that drained it, and in many instances the fish populations that lived there. Some of these unique populations of fish are lost. Some streams will no longer support healthy, self-sustaining populations because of erosion, siltation, pollution, excessive withdrawal of water part of the year, and other factors.

Yet, in spite of it all, there are still systems capable of supporting healthy, self-sustaining, natural populations of fish if they are given protection from overfishing and if their habitat is protected from the many activities that can destroy it. There are even a few unique strains of fish still to be found in some of the streams of the state that are probably just as they were thousands of years ago.

Wild fish and natural stream systems are important to a great many people. In order to put the management of wild fish in perspective, the Fish and Wildlife Commission is proposing a management policy. It was developed by the Commission, staff biologists within the Department, and many interested citizens who attended two public workshop sessions on wild fish management.

The proposed policy follows. It has been modified several times and may be modified again before or after a public hearing and formal adoption, probably in May. The Commission would like public reaction to its policy proposal and written comments can be directed to the Fish and Wildlife Department, mailing address on the back cover.



PREAMBLE

Oregon Revised Statutes 496.012 and 506.109 stipulate that fish and wildlife of the state shall be managed to provide optimum benefits to present and future generations of Oregonians; that all species of fish and wildlife shall be maintained at optimum levels; and, that indigenous species shall not be depleted or made extinct.

Past introductions of hatchery fish and transplants of wild fish have resulted in populations in many waters that are not native to the area. For the purpose of this policy, "wild" fish are defined as fish from natural spawn hatched in the wild.

Wild fish are highly valued for many reasons: Native wild fish are a heritage that merit being preserved in a natural habitat in at least part of their original range. Managing for wild fish encourages man to do what is best for the resource and it places environmental concerns ahead of proposed trade-offs. The presence of cold-water wild fish usually indicates good water quality and a healthy ecosystem. The protection of wild fish preserves genetic diversity and reserves management options for the future. The aesthetics of fishing for, seeing, or at least having the potential to catch or see, wild fish is widely treasured; the fewer wild fish there are, the more they will be valued. Also, we do not have to pay for construction and operation of hatcheries to produce wild fish.

The Commission is concerned about the condition of Oregon's wild fish populations and their ability to provide optimum benefits to Oregon users. Environmental degradation, dams, and increasing fishing pressure have had serious adverse impacts on many stocks of wild fish. Certain populations are no longer capable of self-perpetuation even if fishing were not permitted. In other cases, social problems preclude managing for wild fish. Artificial production and fish transplants are often necessary to maintain or supplement existing stocks or to develop new populations.

An extensive hatchery system is necessary to maintain and satisfy intensive river, estuary, and ocean fisheries. Management strategies need to be developed which will prevent overharvest of wild fish yet adequately harvest hatchery fish. Until these are developed, harvest of some mixed hatchery and wild stocks must be limited to prevent overharvest of the wild fish. Also, we must not release more hatchery fish than the rivers, estuaries, and ocean can support without adverse impact on wild fish.

The Commission recognizes the need for written fish management programs that clearly define waters managed exclusively for wild fish and waters where wild fish will be supplemented or replaced with artificially produced or introduced fish.

PROPOSED POLICY

The protection and enhancement of wild stocks will be given first and highest consideration in the fish

management program of the Department of Fish and Wildlife. Hatchery or foreign stocks of fish will be released only where deemed necessary to provide optimum benefits from the resource. Management options and harvest strategies will be:

1. *Manage exclusively for wild fish:* Harvest will be regulated to maintain production potential, genetic integrity, and genetic diversity of the fish populations. Extra protection will be provided depressed stocks that are being revived.
2. *Manage for wild plus hatchery fish:* Harvest will be regulated so that added fishing pressure created by, and for, the hatchery fish does not significantly reduce future production of wild fish.
3. *Manage exclusively for hatchery fish:* Harvest restrictions will not be imposed to protect wild fish populations.

The following guidelines will be followed to carry out this policy; recognizing that they can be implemented only to the extent of available technical knowledge, funds, manpower, and cooperation of other public and private interests:

1. Aquatic and terrestrial habitat must be actively protected, rehabilitated, and enhanced.
2. Written management plans will be developed for all waters of the state. The plans will identify physical and biological capacities, limiting environmental factors, and the fish management scheme best suited to each area.
3. Instream competition between wild and hatchery fish will be investigated.
4. Proposed Department activities that will create adverse impact upon wild fish will be publicized and trade-offs explained prior to implementation.
5. Indigenous stocks will be used wherever possible when stocking waters with hatchery fish.
6. The Department shall, within 12 months after this policy is adopted, establish a minimum of three streams, or portions thereof, to be managed exclusively for wild fish.
7. The Commission will periodically review progress in implementing this policy.□

Northwest is Bald Eagle Stronghold

by Ken Durbin

The bald eagle, our national bird, is now classified by the U. S. Fish and Wildlife Service an endangered species in most of the "lower 48" states. Steady losses of nesting, roosting, and feeding areas and other factors have resulted in steady declines to the point where the bald eagle is now in "immediate" peril of disappearing completely from many of these states.

In Oregon, as in Washington, Minnesota, Wisconsin, and Michigan, eagle habitat and populations are faring somewhat better and the birds are classified as threatened, one step away from the endangered classification. Much has been learned and is being learned in recent years about the specific requirements of bald eagles and there are growing numbers of people determined that our magnificent national bird shall decline no further.

Oregon has a relatively healthy nesting population of bald eagles. About 220 nests are known to exist in Oregon and, on the average, about one-third of them are used each year. This sounds as if many nests have been abandoned but eagles commonly build more than one nest and use alternate sites from one year to the next. In recent years efforts have been intensified to preserve and protect these important nesting sites both on public and private property.

In addition to its resident or nesting population of bald eagles, Oregon is also an extremely important wintering area for eagles, many of which come from distant areas. The Klamath Basin in south central Oregon and north and eastern California is now believed to be the most important wintering area for bald eagles in the United States except for the collective wintering sites in the huge Mississippi River Valley.

Nearly 500 of these birds have been recorded in the basin in recent winters and they are known to come

from as far away as northern British Columbia as well as eastern Washington, eastern Oregon, and a few from northern California.

Several factors combine to make the Klamath Basin such an important bald eagle wintering area. A plentiful and stable food supply is one vital consideration. Although eagles subsist largely on fish, during the winter injured, sick, or dead ducks, geese, and swans provide the staple diet. The Klamath Basin, long famous for its huge numbers of migratory waterfowl, provides this needed food supply. A series of large waterfowl refuges in the basin attract and hold waterfowl and are therefore vital to the eagles.

But of equal or near equal importance to an adequate food supply is the presence of communal roosting sites nearby. The importance of these very specific habitat areas has become well known in recent years and biologists are now aware of three large communal roosting and resting sites in the Klamath Basin.

Two are in northern California and one is in Oregon south of Klamath Falls. Specific locations have not been widely publicized because of the need to protect the sites as much as possible from human disturbance. The two California sites are located mostly on national forest land and are now being managed as bald eagle roost sites. This, plus the endangered status of the bald eagle in California, helps insure the protection of these sites.

The Oregon site, however, is made up of numerous scattered ownerships, mostly private. Parts of this area have already been threatened with subdivision, logging, and construction by Pacific Power & Light of a 500 kilovolt power transmission line through its edge. State and federal agencies in the area are currently working with a private organization, The Nature Conservancy of Oregon, to secure that roosting area, through acquisition, for future eagle roosting use.

These eagle roosts seem to fill a very specific need for the eagles and the relative use at each varies with weather conditions and shifting in the basin waterfowl populations.

All three areas are within 10-15 line-of-sight miles of the valley floor feeding area. They are all generally located on north or northeast-facing slopes that contain mature or overmature timber stands. These slopes generally face away from prevailing storms and the timber stands provide the large open-topped trees or snags required by the large birds to perch in. A communal roost tree in any of these areas is typically a mature tall pine, fir, or cedar tree, either alive or dead. It is always open at the top, enabling relatively easy entry and exit by the birds. Up to 15 eagles have been seen in the top of a single communal roost tree.

Eagles fly out to feed usually just before or during sunrise and return to the roost areas in mid to late afternoon. Not all eagles feed daily, however. About a third remain at each communal roost each day where they apparently just rest and bask in the winter sun.

Eagles at the communal roosts need to be protected from human harassment, both intentional and otherwise, so visits to these areas are strongly discouraged. But it is possible to observe large numbers of bald eagles in the basin without undue disturbance. The best areas for this

are Lower Klamath Lake and Tule Lake, the major feeding areas for the birds.

There is no reason why eagle populations in Oregon need decline any further than they already have, but it will take the informed concern and voices of a great many of us to make this potential a reality in the years ahead. Pressures for development or economic gain will undoubtedly be weighed against the welfare of our national bird.□

Dedication of an $8 million expansion project at Bonneville Fish Hatchery is set for April 22 at 11 a.m. The project was funded by the Corps of Engineers in partial mitigation for the loss of fall chinook spawning grounds caused by construction of John Day Dam. The expansion increased the egg incubation capacity of the hatchery by 10 million and the rearing capacity for juvenile salmon by 8.5 million. Governor Bob Straub, representatives from the Corps, and from the Fish and Wildlife Department will take part in the dedication and the public is invited to attend.

ELK VIEWS . . .
(Continued from p. 2)

From 1964 to 1975, past Commissions attempted to accommodate unlimited hunter growth with limited elk resources. Hunter numbers reached 110,000. The harvest did not increase in proportion with hunter numbers. In fact, the quality of the herd declined. In previous years, bulls were harvested allowing an escapement of 12 per 100 cows. However, only 3 bulls per 100 cows escaped the 1975 season. In some areas following the hunting season, biologists would count 100 or more cows with a single surviving spike.

No other species in Oregon has the male cropped as low as on elk. On antelope we allow escapement of 25-30 bucks per 100 does. On blacktail an escapement of 20-25 bucks per 100 does is allowed and on mule deer, 15-18 bucks per 100 does. On elk we should allow escapement of about 12 bulls per 100 cows, depending on the individual characteristics of a game unit and user needs. We live in a society that places a premium on antlered male elk. In our haste to consume these males, the herds and ourselves are precluded from their full use and enjoyment.

In 1975 a significant biological discovery occurred. The Department completed a nine-year research program in the Millicoma area. According to research biologists, when Roosevelt cows were mated to adult bulls, the calf production was good. When cows were mated to Roosevelt spikes, the calf production was poor. Additionally, researchers found calves produced from spike bull breeding were dropped at a later date, which could affect their winter survival. This research has been confirmed by closing an area to hunting in 1976 and 1977 and comparing calf production to an area open to hunting. Calf production in the closure areas was higher than calf production in the hunting area.

There are human values the Commission should consider when setting regulations. Elk are some of the most magnificent big game animals in the world. Most hunters consider mature bulls to be the number one antlered game animal. Nonconsumptive users such as viewers and photographers also thrill at the sight of a mature bull elk.

The herd itself values mature bulls. It is sad that areas exist where there are few or no mature bulls. In these areas breeding depends on spikes that may be poor breeders.

There are values in the sport of hunting the Commission should consider. As hunter numbers increase, what is going to happen to the future of hunting? Will anti-hunter sentiment grow? Older hunters know that despite the large size of an elk, a bull can elude an individual hunter quietly and safely. Unfortunately, for such a bull, when hunters saturate the woods he becomes an unwitting target.

Older hunters also know mature bulls develop a wariness as a solitary animal. In contrast, immature bulls typically are with their mother when hunting season opens. These immature bulls rely on safety in numbers in a herd. With high hunter numbers most immature bulls fail to escape opening day. Thus, they rarely learn to fully develop keen hearing, good eyesight, sharp sense of smell – the elements of wariness.

Wildlife managers do not prefer to crop below bull escapement thresholds. They have been generally unable to meet their goals or the higher escapement goals of the public because of past Commission policy. Theoretically, the wildlife manager's purpose is to remove surplus animals that would be lost to starvation, disease, or cause agricultural damage. Realistically, we have exceeded that point in bull harvest and we predominately crop the small, immature bulls. Excessive hunter numbers have frustrated meeting public goals.

One point must be emphasized. At this time there are plenty of antlerless elk. Many landowners can show you where they have been. These landowners need relief from excessive damage. The concern under discussion is the quality of the herd, not total elk population. I do not propose more elk where they conflict with agriculture. Elk management is a question of how to obtain optimum herd efficiency with minimum agricultural damage.

What do I think the public wants for an elk program? I think the public wants an elk herd to reasonably resemble an elk herd after the hunt. The public liked the bull escapement of the 1950s and 1960s when 12 bulls per 100 cows escaped. The public needs a diversity of human experiences with those herds. Landowners would be pleased to see fewer cows and some adult males in exchange. I find hunters willing to sacrifice quantities of hunters for some quality in the hunting experience. I believe we can accomplish these needs by developing new efficiencies with our herds. Our wildlife managers can achieve these efficiencies if they are not frustrated by old policies of unlimited hunter growth.

What is your role in planning for the future management and use of elk? If you prefer to say nothing, then the Commission may interpret that to mean you prefer the policy of unlimited hunter numbers. I think the Commissioners are prepared to listen to you. If you don't tell them what you value, then how are they to make suitable judgments? Voicing your complaints in the woods is of little good to sensible planning. After 20 years of hunting elk and after two years on the Commission, it appears to me that the squeaking wheel squeaks only in the woods and not in the meeting rooms.

There are enough elk for everybody if the Commission develops nonconsumptive alternatives to elk hunting. I believe by improving the quality of our herds we can enhance our ability to attract more people to nonconsumptive uses. Sixty-five thousand hunters can harvest all the surplus elk in an orderly hunt. Millions of nonconsumptive users of elk could enjoy quality herds that escape the hunt. The State of Oregon would enjoy more benefits from elk with nonconsumptive recreational alternatives.

All my life I've worked in industry or farmed in the free enterprise system. I am a proponent of individual freedom. It is sad for me to realize that the freedoms of an unlimited hunter demand have surpassed our limited elk supply. Times have changed very fast. There are now hundreds of thousands of people with vast amounts of time and money who can set up hunting camp in prime elk habitat overnight. I used to believe when elk hunting got bad enough,

Big Game Town Hall Meetings Set

The Fish and Wildlife Commission will conduct a series of town hall meetings in April and May to hear public comments regarding 1978 big game regulations. Meeting times and locations follow.

April 14 (Friday)
7:30 p.m., Astoria, Middle School Auditorium, 1100 Klaskanine

April 15 (Saturday)
7:30 p.m., Salem, Room A, State Capitol Building

April 29 (Saturday)
1 p.m., Pendleton, Indian Hills Motor Inn
Representatives of the Oregon Cattlemen's Association
(not a public hearing)

May 12 (Friday)
1 p.m., The Dalles, Wasco County Courthouse, Circuit Court Room
7:30 p.m., Pendleton, Indian Hills Motor Inn, Walla Walla Room

May 13 (Saturday)
10 a.m., La Grande, Community Center, 808 Adams Avenue
7:30 p.m., Enterprise, Cloverleaf Hall, Lewiston Highway

May 19 (Friday)
7:30 p.m., Baker, 5J Building, 4th and Broadway

May 20 (Saturday)
10 a.m., Ontario, County Extension Room, 710 SW 5th
8 p.m., Burns, Harney County Courthouse, Circuit Court Room

ELK continued

hunters would stay away. The fact is, every hunter who stays away is replaced by two who take his place. It's sad we don't have enough elk resources for unlimited numbers of hunters. But, on the bright side, we do have enough to bring reasonable satisfaction to most of the present hunters who care about elk. And we can build a herd that will benefit millions of nonconsumptive users.

We have dedicated wildlife managers who can deliver an elk program in tune with reasonable elk policies. By working together we can develop these policies and alternatives that will attract excessive hunter numbers into nonconsumptive recreational uses of elk. I'm personally convinced, with your involvement, you and your Commission can develop new elk policies which yield improved benefits for all Oregonians.□

Anglers Asked for 1977 Salmon-Steelhead Tags

Anglers who had a salmon-steelhead tag and catch record in 1977 are being asked to return them to the Fish and Wildlife Department if they have not already done so. Even though the deadline for return of the tags was March 1, the Department would like to receive those still in the wallets of anglers.

The information from the tags helps the Department determine the steelhead and salmon sports catch for the year and it gives a good indication of how the catch was divided among the various river systems and ports. The greater the number of tags returned, the more accurate the Department's estimates of catch will be.

Tags can either be dropped off at the nearest sporting goods or other store that sells angling licenses or mailed directly to the Department of Fish and Wildlife, P.O. Box 3503, Portland, Oregon 97208.□

Chuck Campbell Retires

Charles J. "Chuck" Campbell retired last month after 37 years of service with the Fish and Wildlife Department (formerly Game Commission, then Wildlife Commission).

He began work in 1941 following graduation from Washington State University and served in his early career as a fishery biologist on the Umpqua River and in the Willamette and Clackamas watersheds.

In 1949 he was appointed head of the newly formed River Basins Section (now Environmental Management Section) evaluating the impacts of a myriad of water development projects on fish and wildlife. He was named in 1959 head of the Game Commission's Fishery Division where he served until merger of the Wildlife Commission and Fish Commission in 1975.

Upon merger Campbell was named assistant chief of the new Fish and Wildlife Department's Fishery Division in which role he has served for the past three years.

Campbell has been national president of the American Fisheries Society and is a member of many other professional fishery associations. No successor has yet been named.□

Gillnetters Reminded Of New License

Columbia River gillnet fishermen are reminded that an additional Columbia River gillnet license ($2.50) is required to participate in the Columbia River gillnet fishery in addition to the commercial fishing and boat licenses. This license must be purchased prior to April 15.□

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