

OREGON WILDLIFE

JUNE 1978

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The Cover

Fish runs in the mighty Columbia River have suffered construction of one dam after another, many without fish passage facilities, as well as other man's abuses. In the first of a two-part article, biologist Bill Robinson looks at this most important river system, its past, present, and future.

Photo by Jim Gladson

Points to Ponder

In an article entitled "The Marine Revolution", Dr. C. Carleton Ray, a marine biologist at Johns Hopkins University, commented on man's relationships with the sea. Writing in the Bulletin of the International Union for Conservation of Nature and Natural Resources (IUCN), Dr. Ray makes some points that seem appropriate for consideration by us Oregonians since we are a seacoast state.

"With man's accelerating dependence on the sea and massive entry into it, the marine revolution has arrived," according to Dr. Ray. He continues, "The agricultural revolution allowed hunter-gatherers to become city folk. The industrial revolution taught these folks to withdraw still farther from the land. Now in the marine revolution, we seek to 'conquer' the sea — though we are still largely hunter-gatherers there. We hunt whales and fish and gather clams and kelp, and as our needs increase, we lower the sea's productivity through pollution and coastal development."

"The marine revolution, no less than the earlier socio-economic revolutions, marks an evolutionary change in our relationship with this planet. It requires a new awareness of the Earth-Sea's true nature. We know the sea is in danger, but we do not know how it works. Some say it is dying which is deceptive. Others say it is too big to pollute which is irresponsible nonsense."

"Our problem is that marine science lags decades behind terrestrial science and marine conservation is minimal. Is there time to study the sea before man has so altered it that what he learns today will not apply tomorrow? We must learn more — and fast. But also on the basis of what we already know nations must learn to act with greater wisdom and self-restraint."

Dr. Ray continues to explain what he believes needs to be done, but the total article is too long to include here. However, his basic point is clear. We really don't know what we are doing with and to the sea. He mentions that terrestrial science is well ahead of marine science, which is probably true but still the intricate relationships of biological systems are still far from being understood.

One other point he brings out that is very significant, we feel, is that the industrial revolution has caused people to be farther removed from the land. This is highly important in that much of the emotional outcry against hunting and other forms of wildlife management comes from the urban areas where folks have little contact with wildlife under natural conditions. It seems unfortunate that the time, efforts, and funds of some of the various groups which philosophically are opposed to hunting, and even angling in some cases, could not be devoted to supporting studies and investigations that add to our store of knowledge of the lands and seas. Instead, in recent months many of their efforts have made it necessary for management agencies to expend money and time in courts defending actions that have been discussed and accepted by most informed persons in the past.

Continued on page 10

HUNTER EDUCATION PROGRAM INSTRUCTORS APPROVED	
Month of April	10
Total Active	1,406
STUDENTS TRAINED	
Month of April	454
Total to Date	253,041
HUNTING CASUALTIES REPORTED IN 1978	
Fatal	1
Nonfatal	7

Commission Meetings

The Fish and Wildlife Commission will conduct a general business meeting on Thursday, June 22. A review of wild and scenic rivers will be heard and other business conducted. The meeting will begin at 9 a.m. in the auditorium at 506 SW Mill Street in Portland.

On Friday, at 10 a.m., the Columbia River Compact will meet in Vancouver Washington at the Clark County Public Utilities District auditorium, 1200 Fort Vancouver Way (at Mill Plain Boulevard). A review of Columbia River summer chinook, sockeye salmon, and shad runs is scheduled. □



THE COLUMBIA

A River System Under Siege

(Part one of two)

*by William L. Robinson
Columbia River Fishery Biologist*

The Columbia River's salmon and steelhead resources have played a major role in the settling and development of the Columbia Basin.

Before the arrival of early settlers, Indian fisheries occurred on massive salmon runs migrating from the Pacific Ocean nearly 1,200 miles up the Columbia to Lake Windermere, British Columbia and more than 900 miles east and south into the headwaters of Idaho's Salmon River and Nevada's Owyhee River. Many Indians either lived along the rivers or traveled there to fish or barter. The best fishing sites were usually at natural barriers, such as Kettle and Celilo Falls, or in tributaries where fish concentrated and were easily accessible.

With the coming of the first white settlers, a major commercial fishing

industry developed rapidly along the lower Columbia River. Fishing primarily with gill nets, beach seines, and fish wheels, the commercial fishermen averaged more than 30 million pounds per year and often peaked at more than 40 million pounds during the 75 years from 1866 to 1940.

Recreational fisheries on Columbia River salmon and steelhead evolved more slowly and over a much broader geographical area. By the 1960s, Americans had unprecedented amounts of leisure time. As a result, sport fishing began to assume major social and economic significance throughout the basin and along the Pacific Coast.

Prior to modern man's interference, some 163,200 square miles of Columbia Basin watershed contained habitat ideal for the production of

salmon and trout. The essential requirements for producing healthy fish runs — good quality water, suitable gravel for spawning and egg incubation, food and shelter for rearing young fish, and unhindered access to and from the ocean — occurred throughout the basin.

Today less than 73,000 square miles of the basin remain accessible to migrating fish and much of that has been transformed to aquatic environment hostile to salmon and steelhead. Fish passage losses at main stem Columbia and Snake River dams, tributary dams, water flow manipulations and diversions, forest and agricultural watershed management practices, pollution, and mining, as well as rapidly growing ocean fisheries have all contributed to severely declining numbers of fish returning to the Columbia River. Most of these activities have long-term and, in many cases, irreversible impacts on the resource.

Generally, the most severe declines of Columbia River salmon and steelhead have occurred among those fish that migrate the greatest distance upstream and over the most dams to reach the spawning grounds. Those runs destined for the upper Columbia and Snake Rivers have suffered the most while those returning to tributaries below Bonneville Dam are relatively healthy and have even improved in recent years.

The upriver spring and summer chinook runs are two races that have suffered greatly and are now at critically low levels. The summer chinook, for example, was a victim of overfishing prior to 1940 and subsequently a victim of the containment of the upper river for hydroelectric power and flood control. The most famous race of summer chinook consisted of the huge "June hogs", which averaged 30 pounds apiece with 60 and 70-pound fish not uncommon. These huge fish, which spawned as far upstream as British Columbia, were wiped out by construction of Grand Coulee Dam in 1941. Coulee has no fish passage facilities. Summer chinook production in the remaining watersheds has been severely crippled by degradation and loss of spawning and rearing habitat, mortalities of adults and juveniles at dams, and the lack of any major

**MAIN-STEM COLUMBIA AND SNAKE RIVER DAMS
WITH IMPACT ON ANADROMOUS FISH**

Columbia River	Year of Initial Service	SNAKE RIVER	Year of Initial Service
Rock Island	1933	Swan Falls	1910
Bonneville	1938	Lower Salmon Falls	1910
Grand Coulee	1941	Bliss	1949
McNary	1953	C.J. Strike	1952
Chief Joseph	1955	Brownlee	1958
The Dalles	1957	Oxbow	1961
Priest Rapids	1959	Ice Harbor	1961
Rocky Reach	1961	Hells Canyon	1967
Wanapum	1963	Lower Monumental	1969
Wells	1967	Little Goose	1970
John Day	1968	Lower Granite	1975

attempts to propagate this race in hatcheries. Despite the fact that no commercial gillnetting for summer chinook has been allowed since 196 the runs have continued to decline and have leveled over the last five years at about 40,000-50,000 fish compared to runs averaging 100,000-200,000 during the 1950-70 period.

The role of commercial gillnetting in the Columbia River has been the subject of a great deal of controversy during the last 10-15 years in the three Northwest states. Some have claimed that gillnetting has been the cause of the poor upriver salmon and steelhead runs and that the numbers of fish would bounce back to rival the years of abundance if all gillnetting was stopped. Whether you are for or against commercial gillnetting, the simple facts do not substantiate those specific charges. Commercial gillnetting is the most tightly controlled and strictly managed of all the fisheries on Columbia River stocks.

Escapement goals for each race of fish have been developed over the past 20 years by relating past escapements and the runs returning to the river produced by those escapements three, four, and five years later. From these data, biologists have been able to determine the optimum number of spawning fish that can fully utilize the available spawning and rearing areas and perpetuate the runs at optimal levels.

The joint staffs of the Oregon Department of Fish and Wildlife and Washington Department of Fisheries recommend commercial seasons to the Columbia River Compact that are designed to harvest only fish that are surplus to escapement goals for each race. Because of increasing cumulative adult mortalities at main stem dams, escapement goals for some upriver stocks have been revised upwards resulting in little or no fishing on those stocks.

Escapement/production data clearly show that allowing more fish to spawn than the optimum necessary does not necessarily produce any bigger runs of fish returning to the river. In all probability, if all fishing on the Columbia River ceased immediately, the effect on future runs would be hardly noticeable. Above certain minimum spawning levels,



the successful production of a run of salmon or steelhead is almost totally dependent upon the survival of the young fish in their home stream, during their migration to and from the sea, and as they grow to maturity in the ocean.

In the rest of this article we will look in more detail at some of the many interrelated factors that are responsible for the declining Columbia River runs.

Ocean Fisheries

Uncompensated habitat and passage losses have dramatically reduced the number of juvenile salmon and steelhead emigrating from the Columbia River to the ocean. Rapidly expanding ocean commercial troll and sport fisheries have reduced the number of adult salmon, especially coho and fall chinook, that return to the river from the ocean. Prior to 1951 the Washington and Oregon troll fleet averaged about 1,800 boats. By 1975 the number of boats had tripled. Ocean sport fisheries developed more slowly, expanding into a major industry only in the last 20 years. Ocean catches of salmon dropped to very low levels about 1960 due to declining natural production and survival. Beginning in the early 1960s, the catches began to rise as the lost wild production was replaced through successful hatchery programs and the fisheries expanded. In recent years large ocean catches of coho, for example, combined with poor returns to the Columbia River indicate the ocean fisheries are now taking a greater proportion of the available coho than ever before.

In addition, the ocean fisheries, both commercial and sport, catch mixed stocks of fish without being able to discriminate between hatchery versus wild or abundant versus weak stocks of salmon. Consequently, salmon that are in trouble back in their streams of origin are caught along with those that are abundant enough to support productive sport and commercial catches.

Ocean Survival

Variability in a young salmon's ability to survive and grow upon entering the ocean has recently drawn the attention of biologists seeking to explain the disastrous coho run that occurred in 1977. The relationship between ocean upwelling which releases

basic nutrients to enter the food chain and the survival of anadromous fish as they enter the ocean has been poorly understood. It now appears that variability does exist in ocean conditions from year to year and this may affect both the survival of the young salmon and their final size at maturity.

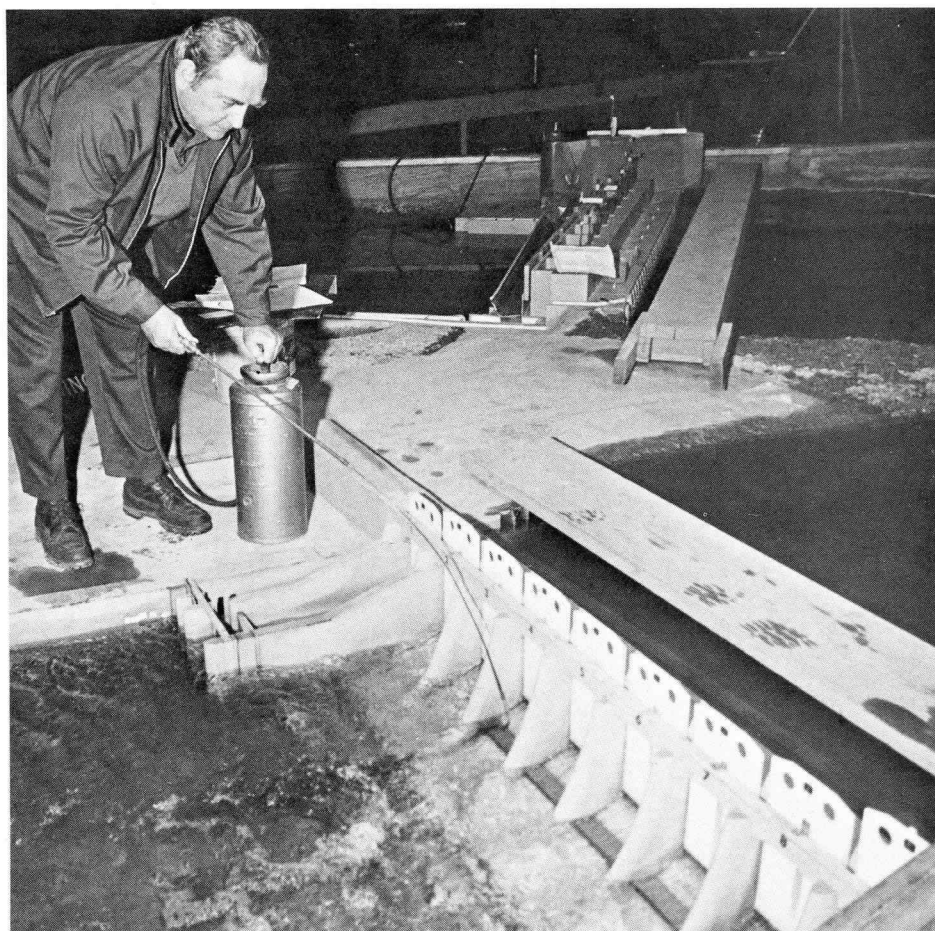
Dams

Dams without fish ladders on the main stem Columbia and Snake Rivers and their tributaries have reduced by more than one-half the natural habitat available to anadromous fish. No fish ladders occur at or above Chief Joseph Dam on the upper Columbia and Hells Canyon Dam on the middle Snake River. However, the most serious long-term threat to the once productive fish runs are the remaining dams that fish must pass to reach their spawning grounds.

Adult and juvenile salmon and steelhead are injured and killed attempting to pass those main stem

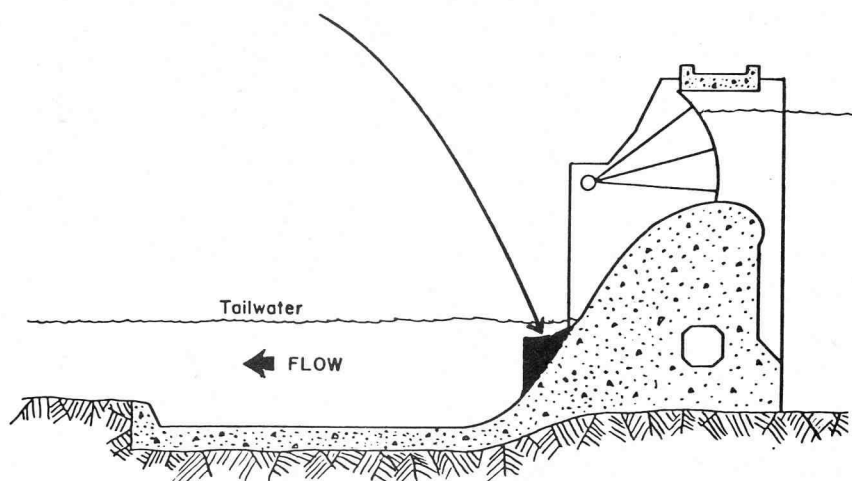
dams. The dams substantially delay upstream migrating adults and have essentially tripled the time required for juvenile downstream migration. Depending on flows, researchers estimate juvenile losses average 15-20 percent at each main stem dam and mortalities as high as 30 percent have occurred under particularly adverse conditions at individual dams. An average of 15 percent of all upstream migrant adult salmon and steelhead are killed at each dam.

Nitrogen supersaturation is blamed for a major portion of mortalities ranging from 40 to 95 percent of Snake River juveniles migrating during 1965-75 high flows. During low flows, most water and downstream migrant salmon and steelhead pass through the turbines of successive dams. In 1973, for example, researchers estimated more than 95 percent of all Snake River downstream salmon and steelhead were killed before reaching the lower Columbia River below Bonneville Dam.



Chuck Junge, Fish and Wildlife Department, releases dye in tailrace of miniature Bonneville Dam. Studies help determine flow regulation patterns most beneficial for fish passage.

SPILLWAY DEFLECTOR



Despite the present bleak situation, efforts are underway to attempt to reverse the trend. Major state and federal fish passage research programs have produced five principal means to preserve the anadromous fish runs of the upper Columbia Basin. These are 1) spillway flow deflectors to reduce nitrogen supersaturation, 2) turbine intake screens, 3) collection and transportation of downstream migrants around the dams, 4) improved fishway design, and 5) flow manipulations at main stem dams.

Nitrogen becomes supersaturated in water when the dam spill plunges deep into the stilling basin and trapped air is subjected to pressure. Spillway deflectors direct the spill out along the surface of the tailwater where it is exposed to normal atmospheric pressure. Flow deflectors have already been installed at three of the lower Snake River dams and McNary and Bonneville Dams down-

stream. They are tentatively scheduled for installation at the remainder of the main stem projects.

Turbine intake screens simply block the path of the young fish as they enter the turbine intakes and divert them to a bypass system where they are safely transported below the dam. The Corps of Engineers has installed screens at two Snake River dams and has scheduled them for McNary and Bonneville Dams also. One of the major roadblocks to screening at all the dams is cost. In 1975 it was estimated that it would cost \$59 million to complete the job at all main stem dams.

An immediate, but short-term, solution to reduce juvenile mortalities has been to collect and transport the young fish around the dams. In 1968 the National Marine Fisheries Service first began trapping young salmon and steelhead at the uppermost Snake River dam and hauling them by truck around the four lower main

stem dams to the lower Columbia River. Biologists estimated that transporting increased survival rate by 24-47 percent. In the spring of 1977 about 1.7 million smolts were detoured by truck, barge, and even airplane to below Bonneville Dam. Biologists now believe that without the transporting program the poor spring and summer chinook runs of the last several years could have been total disasters.

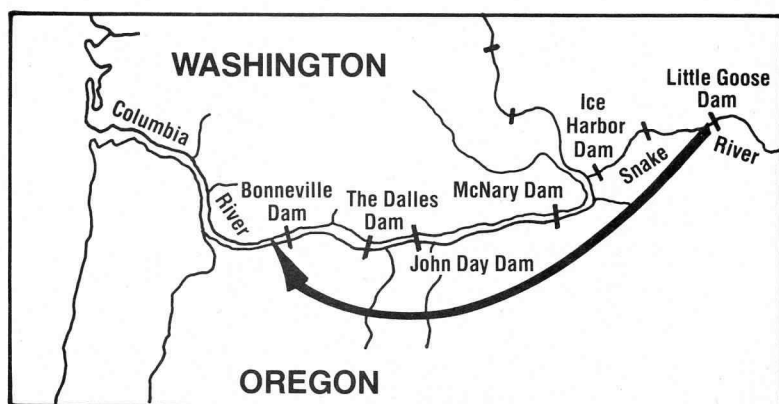
Manipulating flows at main stem dams has been widely practiced to increase the survival of both adult and juvenile salmon and steelhead as they pass each dam. However, Columbia Basin anadromous fish have no legal protection or priority in the use of water, so management agencies are dependent upon the cooperation of the power producers to accomplish their goals. On high flow years, manipulations have been possible without materially affecting power production. But the power interests have made it clear that when river flows are low, power production will continue to have highest priority.

Habitat Degradation

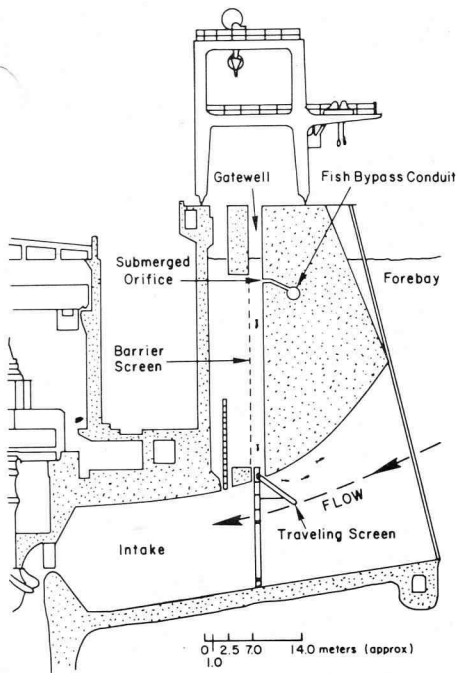
So far, I have primarily discussed the problems inherent in the salmon and steelhead's need to have access to and from the sea. The other critical habitat requirements — an adequate supply of good quality water, spawning gravel, food, and shelter — are of equal importance.

Watershed management practices have had a close relationship to the decline of anadromous fish resources in the Columbia River system. As natural resource based industries developed and grew, such as agriculture, mining, forestry, and power development, fisheries habitat in the Columbia Basin proportionately diminished and many anadromous fish runs vanished.

Pollution, stream channelization, streamflow depletions, and streamside habitat removal are the results of various land use practices. Excessive grazing has resulted in ground disturbance and compaction, increased erosion and loss of streamside vegetation, reducing the productivity of streams for fish life. Sedimentation, reduced summer flows, and loss of spawning areas have often resulted from logging practices and accom-



Recently downstream migrant salmon have been trucked, barged, and flown around intervening dams and released below Bonneville Dam to continue their migration to the ocean.



panying road building. Poor mining practices have essentially the same impacts.

One of the more subtle practices that is destructive to salmon and steelhead habitat is urbanization. Careless development and road building along stream corridors have resulted in widespread removal of life-giving streamside vegetation, depletion of natural streamflows, and channelization.

Most developments which affect fisheries habitat are now subject to federal and state laws and regulations designed to minimize their adverse impacts. These controls on environmental degradation have been difficult to achieve, are expensive to administer, and are often contrary to the goals of land and waterway developers. The ultimate success of environmental controls will depend on social acceptance of their need and considerable change in attitude on the part of developers.

Replacement of a Lost Resource

Obviously, habitat lost to impassable dams is gone forever. Much of the remaining habitat has been degraded to the point where its capacity to produce salmon and steelhead will never equal what it once was. To protect the remaining habitat and prevent further degradation is of vital importance to the survival of the species. The importance of main-

taining healthy wild stocks of fish cannot be overemphasized. It is only in the wild environment that the gene pool is continuously subject to the process of natural selection which allows the species to adapt to a changing environment and endure through the years.

Equally important is the need to successfully pass juvenile and adult fish around main stem dams. To date, water project developers have made capital expenditures of more than \$269 million for salmon and steelhead passage facilities throughout the Columbia Basin. These fish passage facilities require an annual expenditure of over \$1.6 million for operation and maintenance. Research continues today to improve the design and operation of these facilities with the ultimate goal of increasing survival.

The final alternative left to compensate for now extinct runs, declining wild production, and mortalities at fish passage facilities is to replace those fish by hatchery propagation. Over \$131 million has been spent in compensation for lost habitat. In 1974 a total of 44 hatcheries and 13 rearing ponds produced about 152 million salmon and steelhead smolts weighing almost 6 million pounds for

release in the Columbia Basin. These hatcheries now contribute an estimated 50 percent of the basin's adult salmon and steelhead production. As of this date a \$50 million compensation package has been approved by Congress for lost production due to damming the lower Snake River. This program, when completed, could produce an additional 25 million salmon and steelhead smolts for the Columbia River. The federal government pays for about 90 percent of this production while the states pay 10 percent. □

(Editor's note: Next month Mr. Robinson will address the commercial gill net, recreational, and Indian fisheries in the Columbia River — the history of their regulation, how they are regulated now, and how they interact.)

References

1. Columbia Basin Salmon & Steelhead Analysis — Summary Report. September 1, 1976. Funded by the Pacific Northwest Regional Commission.
2. Investigative Reports of Columbia River Fisheries Project. July 1976. Prepared for Pacific Northwest Regional Commission.
3. 1977, Korn, L. Information on Columbia River Salmon Runs and Fisheries. Int. N. Pac. Fish. Comm. Bull. 36 pp. 1-14.
4. Columbia River Fish Runs & Fisheries 1957-76. Status Report. Oregon Department of Fish and Wildlife and Washington Department of Fisheries. Vol. 2 #2.



Major efforts are being made to rear young salmon like these in hatcheries to partially compensate for spawning areas lost to dam construction.



Never noted for their beauty, opossums are becoming more plentiful in urban areas.

Country Boys Move to Town

by Bob Maben
Nongame Wildlife Specialist

Have you found a 'possum sleeping under your patio or a raccoon perched on your roof? Many of these "country" critters have moved into the city and are now common residents.

We usually don't think of "wild" animals living in the city, but they do, and recently their numbers seem to be increasing. Their presence often provides enjoyment for people who happen to see them, but they also create some headaches.

Three different animals are the primary trouble makers — the opossum, raccoon, and skunk. Of that group the opossum is rated number one.

Opossums are not native to Oregon. They arrived here in the late 1930s from the southern states, probably brought as pets. Some of those animals escaped or were released and their offspring have spread throughout northwestern Oregon, east to The Dalles, south as far as Cottage Grove, and west to the ocean.

'Possums belong, with kangaroos, in a group of animals known as marsupials, or animals which carry their young in a pouch. Several litters

of 10-12 young are born each year. From birth on, the young always travel with the mother, either in her pouch, on her back, or tagging along behind.

A recent study of opossums in the Portland area found that pet food makes up nearly 50 percent of their diet. They sleep during the day in hollow trees, under or inside buildings, in old cars, or any other protected area. Opossums are not aggressive animals. They snarl, hiss and show their teeth as a bluff but they will bite only if attacked. They move slowly but are very good climbers. In Oregon the opossum has no natural enemies except the automobile.

Opossums, as well as skunks and raccoons, are most active at night but can often be seen abroad early in the morning or late in the day. A variety of food items are eaten by all three including insects, slugs, vegetables, fruit, and dead animals.

City folks most commonly meet these animals when an opossum, raccoon, or skunk moves into a garage, storage building, attic, basement, or under a patio deck to spend the day.

Following are some of the methods that can be used to prevent this from occurring or correct it if it does.

Reduce attractions for animals around your place

1) Don't place food out for wild animals unless you want them to keep coming back. This may also be attracting undesirable species.

2) Don't leave pet food dishes outside. Feed your pet indoors or pick up the dish after they finish.

3) Keep garbage cans covered tightly.

4) Don't place meat products or other attractive foods in uncovered compost piles.

5) Keep surplus bird food cleaned up around feeders. Place bird food such as beef suet out of reach of opossums and raccoons.

Keep animals out of unwanted areas

1) Close garage, storage buildings, basement, and attic doors and windows, especially at night.

2) Close off all vents or open spaces under buildings with metal, hardware wire, or boards. (Note: Be careful not to seal animals inside. If animal is present, close off all of the area except for one small 12" by 12" opening. Wait until after dark, then close it off. If the animal is still inside, repeat the process.)

3) Moth balls and flakes scattered heavily in the area occupied by the animals is reported to have some value in discouraging use.

4) Prune all large overhanging tree limbs that animals may use to gain access to building roof or upper floor windows and vents.

5) If trees cannot be pruned, tack a metal band, 16-24 inches wide, around the tree trunk below first limbs but 4-8 feet above the ground.

Removing animals from unwanted areas

Before trying to remove the animal from a building, make plans on how to keep others from moving in. The chances are good that when one animal is removed, the site will be reoccupied by another.

1) The easy method is to lock the animal out after he leaves in the evening as explained above. Remember, these three mammals feed at night.

2) Another approach is to enclose the area except for the 12" by 12" exit. Leave the exit open 3-4 days to allow the animal to find his way out. Then hang a wooden framed door covered with hardware wire over the exit, hinged at the top to open out only. This allows the animal to leave by pushing the door open but prevents its return. (Caution — if you discover raccoons or skunks are using the site, be sure not to lock the young inside. Unlike opossums, raccoons and skunks leave the young in the nest for 3-6 weeks. You should wait until they are old enough to travel with the parents.)

3) Moth balls might help in driving the animals out.

4) Animals can be trapped in wire cage live traps and removed. These traps are nice in that they won't harm neighborhood pets that may be accidentally captured. Traps can be obtained at some hardware stores and equipment rental places.

Skunks, raccoons, and opossums have adapted well to the big city because they are primarily nighttime feeders, they find lots of places to hide during the day, and foods they thrive on are often readily available. Remember they will remain as long they find conditions to their liking.□

Antelope and August Elk Hunters Must Hurry

The application period for prospective antelope and August elk hunters is shorter this year than it has been in the past, says staff biologist Greg Hattan. So applicants should not delay submitting their cards.

Because of concern that the antelope season was extending into the beginning of the breeding period when bucks are more vulnerable, staff biologists recommended a season beginning a week earlier than last year.

As we go to press, the seasons are scheduled for final approval by the Commission in late May. They cannot be set earlier than that because biologists must have time to finish their spring inventories of game animal populations. The data from these

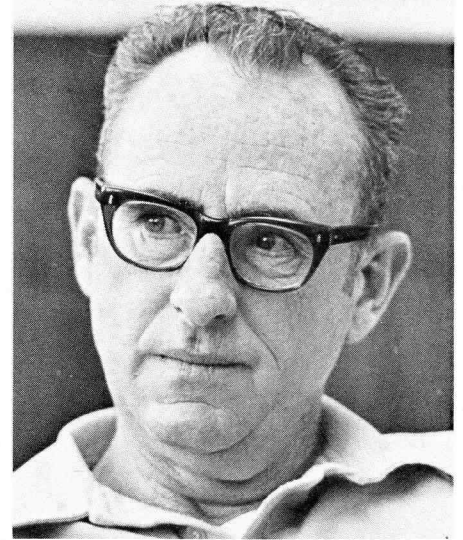
OREGON WILDLIFE

Monty Montgomery Named Assistant Director

Monty L. Montgomery, supervisor of the Fish and Wildlife Department's Northwest Region, has been named to succeed Leslie Zumwalt, who will retire as assistant director in charge of operations and administration in December.

For the past two years Montgomery has headed the Department's land-based field operations in all of Oregon north of the Lane-Douglas County line and west of the summit of the Cascades. Under his direct supervision during that time have been more than 125 employees, 14 fish hatcheries, the Department's only game farm, and three wildlife management areas. The region also includes the highest human population density of any region in the state and the problems that go along with trying to manage fish, wildlife, and people in the same area at the same time.

Montgomery has been with the Department 28 years, grew up in the southern Oregon community of Talent, and is a graduate of the fish and wildlife management school at Oregon State University.



Monty Montgomery

He began working for the Oregon State Game Commission, as it was known then, in 1950 as a biologist on a river basins investigation crew. Later he became a district fisheries biologist with management responsibilities for all the popular fishing country around Bend.

In 1963 he moved to Portland, serving in several staff positions in the Fishery Division, and returned to Bend in 1969 to serve as assistant supervisor for the Department's Central Region, which he did until 1976 when he took charge of the Northwest Region based near Corvallis.

Zumwalt has worked for the Department since January 1940 following his graduation from Oregon State University in the biological and marine sciences. He served in the armed forces during World War II and, following his discharge, worked as a district game biologist for the south coastal area, as regional supervisor of the Northwest Region, as assistant director of the Oregon State Game Commission. Since creation of the Department of Fish and Wildlife in 1975, he has served in his present position supervising the Department's technical and support services and its field operations through seven regions. He will retire December 31 and Montgomery will assume his new responsibilities the first of the year.□

surveys are very important when considering seasons and bag limits, Hattan said.

The bottom line of all this is that hunters will have a shorter period of time in which to submit their applications for antelope controlled hunts. Application cards and printed controlled hunt regulations should be available at license agencies by June 19. The deadline for application for 1978 antelope hunts is July 5. The squeeze on hunters is necessary to provide enough time to process applications and distribute permits to successful applicants before the August 19 opening day.

The application deadline for controlled elk hunts proposed to begin in August is also July 5.□

Controlled Hunt Application Fee Set

Beginning this year a nonrefundable application fee of \$1 will be charged for controlled hunts of all kinds under a regulation adopted by the Fish and Wildlife Commission. The fee will cover the cost of processing applications, an expense that until now has been borne by funds from the sale of license and tag fees.

The new regulation means a hunter will be required to submit a \$1 fee each time he applies for an antlerless deer, antlerless elk, bighorn sheep, antelope, cougar, turkey, or other controlled hunt permit or tag. A law

passed by the 1977 Legislature authorized the application fee and makes it possible for the cost of conducting public drawings and controlled hunts to be supported by individuals who take part in them.

The annual cost of processing controlled hunt applications in recent years has ranged from \$40,000 to \$55,000. With the application fee, funds that have in the past been spent for processing applications can now be used in other management programs. □

Some Management Unit Boundaries and Names Changed

Boundaries for several game management units have been modified for 1978 and a number of units have been renamed. Boundary changes were made for several reasons, including more efficient management of individual animal populations and in some cases elimination of confusing unit boundaries.

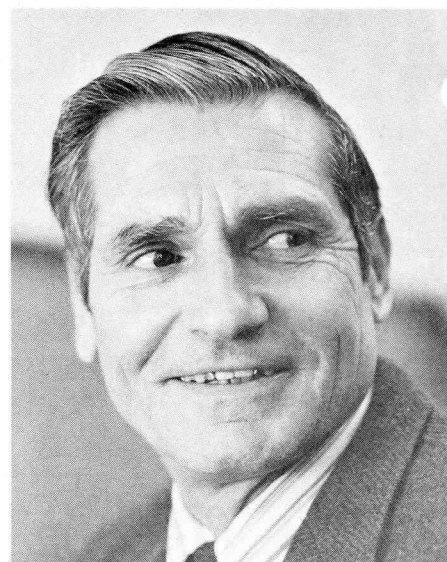
The Nestucca Unit, for example, has been eliminated and absorbed in the Wilson and Trask Units. It was felt that a separate Nestucca Unit was not needed for management purposes.

Parts of the McKenzie and Dixon Units have been made into a new unit which will be called the Indigo Unit. The new unit was created for more specific management, but, in addition, a confusing county line boundary has been eliminated and replaced with highway boundaries which should be easier for the public to locate.

New names have been assigned for management units that until now have carried names shared by counties such as Clatsop, Wheeler, Polk, Klamath, and others. The changes should help reduce confusion that has occurred in the past when counties and management units had the same name but different boundaries. The newly named units along with their former names are:

New Name	Old Name
Saddle Mountain	Clatsop
Stott Mountain	Polk
Hood	Hood River
White River	Wasco
Biggs	Sherman
Fossil	Wheeler
Upper Deschutes	Deschutes
Klamath Falls	Klamath
Mt. Emily	Umatilla
Sumpter	Baker

New management unit maps will be published and made available through license agents. □



Bob Mace

Award to Mace

Bob Mace, deputy director for the Department, received the Oregon Division, Izaak Walton League Golden Beaver award for outstanding government service. In presenting the award on May 6, Chairman Dear Jones stated, "Bob began his service with the Oregon Game Commission in 1946. He has served in various positions progressing to his current one of deputy director. For 12 years he headed the big game section of the Commission. He was instrumental in obtaining mountain goats for Oregon and California bighorn sheep for reintroduction into the state.

"Bob has documented much of the work of the Commission on film and has written a number of publications distributed by the Department. In recent years he has headed the program to recruit worthy students for summer jobs relating to environmental management." □

Points to Ponder *(continued)*

This is not to say that dissent is not desirable nor that questioning of programs is not good. The status quo should probably always be challenged. However, when such challenges are of strictly philosophical or emotional nature that end up in court, it makes one wonder about the motives of the challengers. Are they really concerned about the resources or are they more concerned with imposing their philosophies upon others?

Funds for managing resources are always in short supply and the pressures on our natural resource base continue to mount. Dollars spent in court can certainly be better spent if cool heads can prevail, emotions are sorted from facts, and rational discussions are held to plot the course of resource use for the benefit of the sea, the land, and their inhabitants. RES □

THIS AND THAT

compiled by Ken Durbin

Two New Panfish Records

The Fish and Wildlife Department received word of a new black crappie record for the state of Oregon. The new record tipped the scales at 4 pounds even, was 18 inches in length, and was taken May 1 of this year from Lost River by Billy R. Biggs. Previously, the largest black crappie recorded for the state was one weighing 2 pounds 12 ounces taken by Victor Luey in 1974.

The current state record for the similar white crappie is 4 pounds 12 ounces, set by Jim Duckett in 1967.

The state record warmouth has also been bested although the entry was somewhat belated. Roy Same reported a 1 pound 13 ounce warmouth taken from the Willamette River in September of 1964. It beat the previous record, also from the Willamette, by 13 ounces. Same took the little glutton on a nightcrawler.

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Fiddling With Our Middle

Is the earth growing larger? In recent years, a number of earth scientists have developed a theory that the force of gravity will weaken as time passes. If so, they say that as the attraction between the earth's various particles is lessened, the earth will expand.

But some other scientists take a different view. A team of Australians has made calculations which show that the earth's radius has changed by less than .8 of 1 percent in the last 400 million years. The earth's middle is still 24,901 miles around.

Michigan Natural Resources
magazine

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Access — Mixed Blessing

"Development of public access and facilities has as predictable an end result as boring a hole in the bottom of your boat — the larger the hole, the more and faster water will come in. If you bore enough holes or a very large one, you will sink your boat."

Stacy Gebhards
Fisheries Chief
Idaho Department of
Fish and Game

OREGON WILDLIFE

Peregrine Nest Under 24-Hour Guard

Life is tough enough just being an endangered species without additional pressure from human nest robbers.

Peregrine falcons are under strict protection of the national endangered species act of 1973. Even so, an active nest near Morro Bay, California has been robbed for the last ten years in a row. The nest is now under 24 hours guard to prevent an eleventh recurrence of what has become an annual pilfering of the peregrine young.

The Morro Coast Chapter of the Audubon Society has persuaded the Morro Bay City Council to designate the peregrine falcon as the city's official bird and has been instrumental in guarding the nest this year against further theft.

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Good Year for Marine Mammals

Eight species of marine mammals under the protection of the U. S. Fish and Wildlife Service either remained stable or increased last year. Animals included are polar bears, sea and marine otters, walruses, dugongs, and three species of manatees.

Texas Parks & Wildlife

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California Eyes Wildlife Funding Change

Oregon isn't alone in its fisheries and wildlife programs funding problems. California's Water, Parks and Wildlife Assembly Committee has concluded that simply raising the price of hunting or fishing licenses no longer is the answer to that state's Department of Fish and Game funding difficulties. The committee identified the department's problems as inflation, new programs assigned to the department, and fixed revenue from license sales. It recommends the California Legislature draw needed funds from the state's general fund to pay for nongame and free fishing license programs. The committee's report also recommends that hunting and fishing license fees and commercial fishing taxes be raised a small amount each year, rather than continuing the current practice of major increases on an irregular basis.

39 Lashes, Well Laid On

In 1816, fire hunting or jack lighting deer or any other animal was as illegal as it is today. Fine for the offense in North Carolina was 20 pounds. If the offender was unable to pay, he would receive "39 lashes on his bare back, well laid on, in open view by the sheriff; and stand committed until costs be paid."

Texas Parks & Wildlife

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HOT MUTTON

The University of Wyoming, aided by a \$160,000 federal grant from the Agricultural Research Service, is developing synthetic tobasco to be sprayed on sheep to discourage coyote attacks. Tests have indicated that coyotes do not like seasoned meat and will pursue other game if they discover mutton is hot or bitter tasting. Robert McCollock, supervisor of the university's project, predicts that the coyotes will still attempt to bite the sheep instead of merely smelling them. If they taste enough of the tobasco, the coyotes should run to find water or rub their muzzles in the dirt to soothe the irritation.

Outdoor Oklahoma

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The Bees Are Coming

Recent stories and movies depicting frightening attacks by huge swarms of killer-bees are alarmist and create an inaccurate impression of the actual northward migration of "Africanized" bees from Brazil, according to the U. S. Department of Agriculture's Animal and Plant Health Inspection Service. Crossbreeding between wild honey bees from Africa and local bees from Brazil created an "Africanized" bee strain. While no more venomous than predecessors, the aggressive new strain stings longer and attacks in larger numbers. Swarms of the super bee escaped and have fanned out in all directions from Brazil. If they arrive in the U. S., possibly in 10-15 years at their present migration rate, it should not be with the aid of the public. In 1976 Congress passed the "Honey Bee Act" to prevent bees and their offspring from being imported into the U. S. Should they arrive, the best defense, as with any bees, is to remain calm and move quietly away.

Conservation News

Page 11

SUPPLEMENT TO 1978 OREGON SPORT FISHING REGULATIONS

The following items are changes as of April 1, 1978, to the published "1978 OREGON FISHING REGULATIONS" booklet which has been in wide distribution since December 1977. These changes are in effect now and will remain so for the rest of 1978.

References are to page numbers, **HEADINGS**, and [action taken]. Underlined entries indicate new or modified wording.

Page 5, **HOOK REGULATIONS:** [new regulation]:

It is unlawful to use more than one artificial lure or bait for ocean salmon angling. Not more than 3 single or multiple point hooks may be attached to the single lure or bait.

Page 6, **IT IS ALWAYS UNLAWFUL TO:** [3rd item amended]:

Use more than one line or rod and line or to not closely attend such line or rod and line when angling for any fish. Line or rod and line must be held in hand while landing a fish; the use of a hand line or line without a pole is prohibited for the taking of salmon in the Pacific Ocean.

Page 13, **ZONE 1** [salmon-steelhead deadline modified]:

COOS RIVER SOUTH FORK, open up to concrete bridge near Tioga Creek, except closed to salmon angling upstream from 7 mile bridge. No restrictive one hook regulation downstream from hatchery bridge site 1/2 mile above Dellwood.

Page 15, **ZONE 1, PACIFIC OCEAN, EXCEPT** [items #2 and #3 modified]:

2. Minimum length for chinook salmon in the ocean is 24 inches north of Cape Falcon and 22 inches south of Cape Falcon (note: Cape Falcon is about 12 miles south of Tillamook Head). Minimum length for coho, pink, chum, and sockeye salmon is 16 inches in all ocean waters.
3. Bag limit is 3 salmon per day. Coho, pink, chum, and sockeye between 16 and 24 inches, and chinook between 22 and 24 inches (south of Cape Falcon) need not be entered on Salmon-Steelhead Catch Record. Jack salmon bag limit of **ZONE 1** does not apply.

Page 18, **ZONE 2, BAG LIMITS:** [area extended]:

JACK SALMON may be taken in all **ZONE 2** streams open to adult salmon angling. Bag limit is 10 per day; 20 in possession or in 7 consecutive days.

Page 24, **ZONE 3, OPEN WATERS:** [tributaries closed]:

UMPQUA RIVER NORTH FORK TRIBUTARIES are closed to salmon and steelhead angling. (Note: this action corrects an erroneous entry which should have appeared only in the trout section page 39.)

Page 53, **HALIBUT: LINGCOD: ALL OTHER**

OCEAN FISH: [combine into one group and modify bag limit]: **OCEAN FOOD FISH**, bag limit is 25 per day in the aggregate (50 in possession or in 7 consecutive days) of which not more than 2 may be **HALIBUT** (2 in possession), 3 may be **LINGCOD** (6 in possession), and 15 may be **ROCKFISH** (sea bass, black snapper, red snapper), **CABEZON**, or **GREENLING** (sea trout), (30 in possession or in 7 consecutive days). **HALIBUT** may be taken only March 1 through October 31.

Two Commissioners Reappointed

Fish and Wildlife Commissioners Jack Steiwer and John Boyer were reappointed to second four-year terms last month by Governor Bob Straub. Both men have served the Commission since 1975 when they were appointed by Straub following merger of the Wildlife Commission and Fish Commission.

Steiwer is a rancher from the Fossil area of eastern Oregon. Boyer is a farmer and contractor from Bellfountain in the upper Willamette

Valley.

The Fish and Wildlife Commission consists of seven members appointed by the Governor to serve staggered four-year terms. The terms of no more than two commissioners ever expire in any one year. The Commission sets hunting, angling, commercial fishing, trapping, and other regulations and sets the overall policies under which the Fish and Wildlife Department operates. □



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