

OREGON STATE
GAME COMMISSION

BULLETIN

SEPTEMBER 1971



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SEPTEMBER 1971
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The Cover

Solitude . . . Man and a lake. Lakes, like humans, each have their own personality and set of characteristics. Our feature article discusses some of these differences.

Photo by Harold Smith

HUNTER SAFETY TRAINING PROGRAM

Instructors Approved

Month of July 16
Total to Date 2,380

Students Trained

Month of July 326
Total to Date 168,145

Firearms Casualties Reported in 1971

Fatal 0
Nonfatal 12

Courtesy Costs Nothing

"Have you ever wondered how some lucky people get all the hunting they want? They seem to have the right contacts all over the country and know a host of friendly farmers.

"There are scores of little do's and don'ts in hunting etiquette but most of them boil down to good manners, common sense, and fair play.

"Apart from the various things you should not do when hunting on someone else's land, there are various things you should make a point of doing. An obvious one is writing a thank you letter whether or not you had a good day. To start at the beginning, however, there are various ways of approaching a landowner for permission to hunt. You could arrive at his front door, loaded gun in hand and full cartridge belt around the waist. Likely as not you would leave just the same way. A better approach would be to make a simple courtesy visit beforehand, even before the season opens.

". . . At the least you could offer the host a share of your bag. This would mean calling at his house on your way out and that's about the most courteous thing you could do anyway. You might also suggest that the farmer join you in hunting; who knows, he might enjoy it too, or he may just like to see if you yourself know what you are up to."

The foregoing comments sound much the same as ones you've seen and heard many times in the past. They point out just a few of the thoughts a good hunter should have.

Perhaps in the past you have felt that Oregon hunters were being "picked on" with the various campaigns to make them better guests on the land. However, the problem of the irresponsible hunter is not confined to Oregon or the United States. The suggestions quoted above are by Roger N. Grafton, editor of Fauna & Flora, the official publication of the Transvaal Nature Conservation Division, Republic of South Africa.

The problem of the "slob" hunter apparently is universal. If concerned responsible hunters everywhere don't weed out the litterers, fence cutters, fire leavers, and other kinds of undesirable characters who take to the outdoors during hunting season, there may be a time when there is no sport hunting available for anyone. Only by making the "slobs" so unpopular they will either stay home or shape up can the concerned hunter help upgrade the image of the sport and possibly help assure its future.

The job is not one that can be done by law enforcement officers. It is everyone's chore. Any hunter who ignores the acts of the "slob" hunters is in effect condoning them and as guilty as the one who commits the transgression. Both threaten the future of recreational hunting.

— R. E. S.

IN MEMORIAM

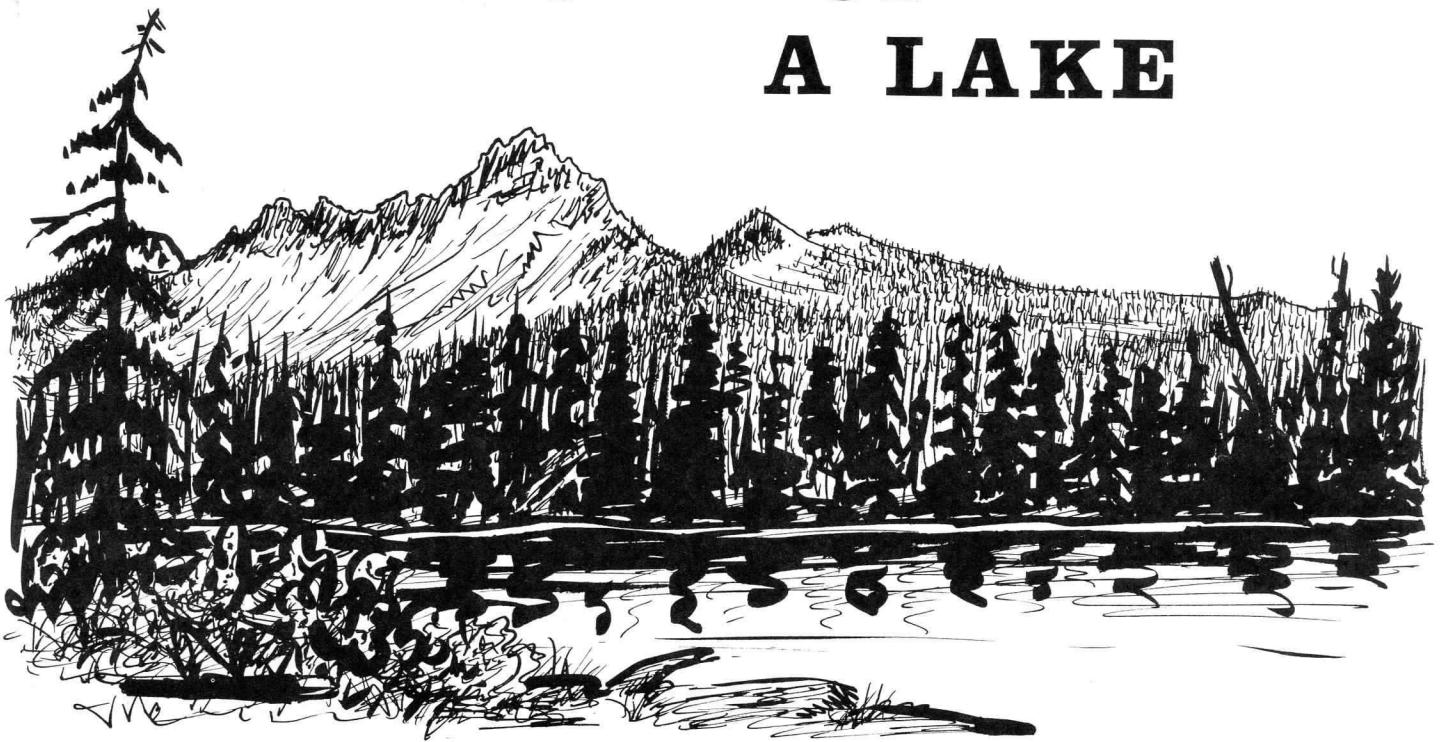
Game Commission Controller Bill DeCew suffered a heart attack and died at home on July 20. He was 56 years of age.

Mr. DeCew was born at Great Falls, Montana and lived in Portland for 22 years while employed by the Commission. He was instrumental in modernizing budgeting procedures and in promoting the utilization of computers for accounting and information gathering activities carried on by the Commission.

Mr. DeCew graduated from the University of Oregon in accounting and served in World War II as a sergeant in the Army Air Corps.



ANATOMY OF A LAKE



By JOE WETHERBEE
District Fishery Biologist

Have you ever wondered why some lakes look blue while others look brown or greenish? Or perhaps why some lakes always have small fish? Isn't it strange that lakes within a few hundred feet of each other can be completely different?

The first thing that one might ask is how are lakes formed? Glacial and volcanic action formed the majority of our lakes in the Cascades and other mountain ranges. Lakes are also formed by landslides that obstruct valleys, crustal movements of the earth, activities of rivers that form oxbow lakes (such as those along the Willamette River), shifting of sand dunes that block stream flow (forming many of our coastal lakes), and impoundments above permanent beaver dams. Crater Lake is an example of a lake occupying an extinct volcano.

Nature certainly did not repeat herself in the creation of lakes. You could probably visit several hundred lakes in Oregon alone and never find two alike. Some are deep, some shallow; some look blue, some brown or green; some have timber around them, some are in open meadows; some have mud bottoms, some are sandy or rocky; some have inlets and outlets, some have none. There is usually a distinct

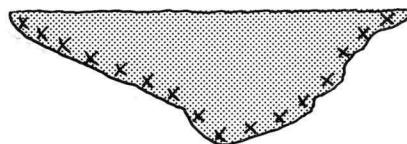
characteristic or combination of characteristics that make each lake unique. The type of bottom in a lake is important. A mud bottom is much more productive in trout food than a sandy bottom. If you have ever swam or waded in lakes, you may have noticed an accumulation of ooze material on the bottom. This material is formed from decaying organic matter. Insect life such as caddis flies, May flies, and dragonflies spend their larval period in or on the lake bottoms or vegetation. The majority of the bottom food for trout is found in relatively shallow waters of lakes. Consequently some shal-

low lakes are productive over their entire bottom area while deeper lakes may be limited to the edges for food production.

The waters of most lakes are relatively clear unless shoreline soils are washed away by wave action and put into suspension. Large tributaries can also add turbidity to a lake when sediment is disturbed by man's activities or by natural glacial erosion. A lake's color is from the reflection of the sky or the color of the bottom showing through when no reflection occurs. A profusion of minute free-

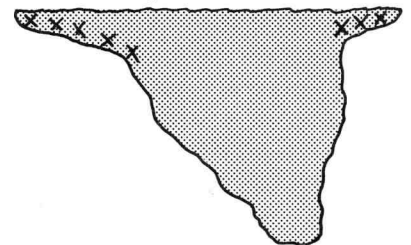
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Shallow Lake



x x food producing area

Deep Lake



The shape of a lake has much to do with its ability to grow numerous fast growing fish. Many of Oregon's volcanically formed lakes are almost inverted cones with steep sides and little food producing area. Diamond Lake is an example of the shallow, rich type of lake whereas Crater Lake more resembles the inverted cone.

ANATOMY...

(Continued from Page 3)

floating plants and animals may also reflect light and give the lake an off-color of brown or green.

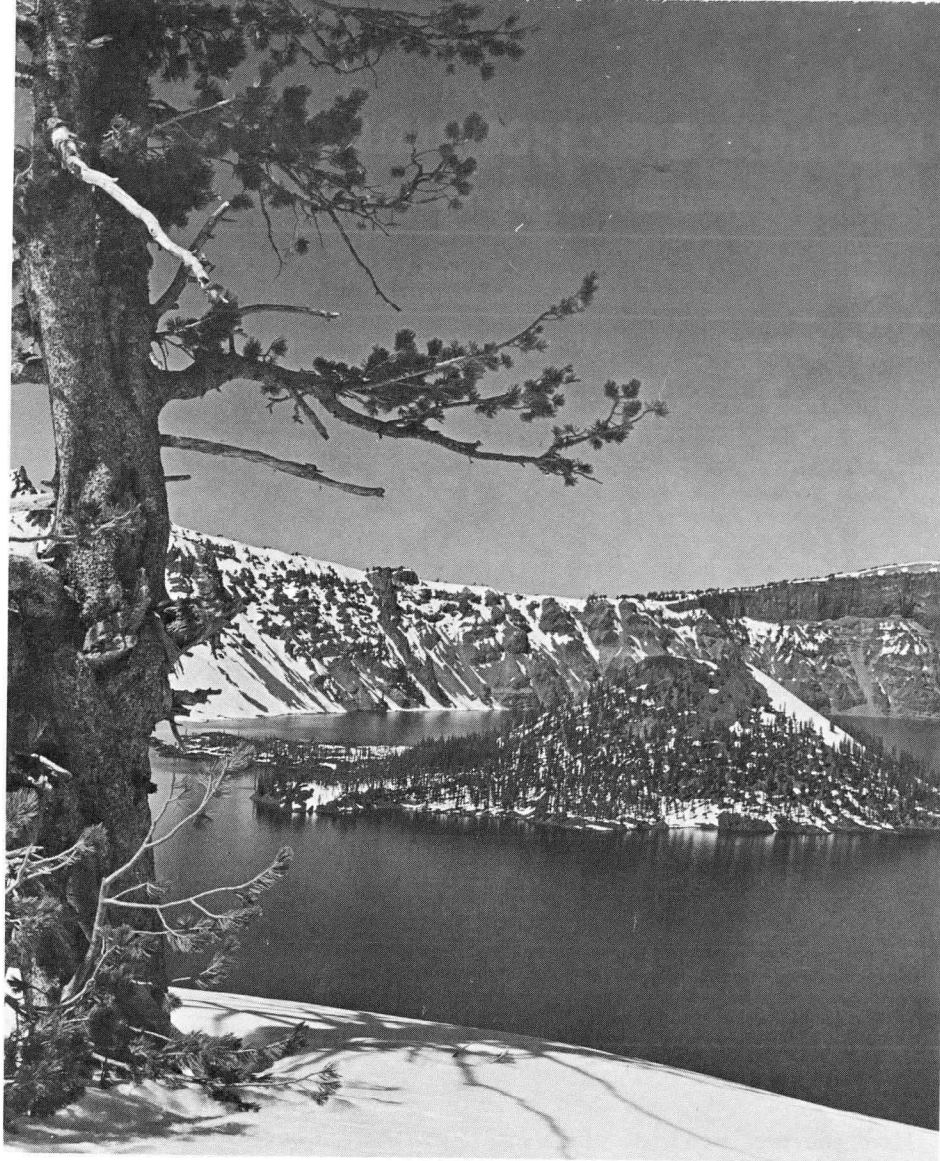
Minute free-floating plants are called *plant* plankton or phytoplankton. These small chlorophyll-bearing plants are the essence of life and when they appear in peak numbers in a lake, this is called an algae "bloom."

Small *animal* plankton feeds on the plant plankton and the essential food chain of a lake begins. In some lakes intermediate links in the food chain are absent and fish rely entirely on the small animal plankton as a food source. Some species of fish are adapted to feed almost entirely on plankton their entire life regardless of other food available. Other fish utilize plankton-eaters such as insects and crustaceans.

When surveying lakes at different times—spring, summer, or fall—you may be surprised by a considerable change in the water level. With the melting of snow surrounding the lake basin, the highest water level occurs. In many lakes with no inlets, melting snow is the only source of water. Through the heat of the summer months a certain amount of evaporation occurs. This natural evaporation can mean a drop of several feet in the water level of some lakes. Most lakes vary from one to three feet. These fluctuations can usually be predicted regardless of when the lake is observed. High water marks are often prominent on vegetation and low water can be detected by how far last year's vegetation extends under the water.

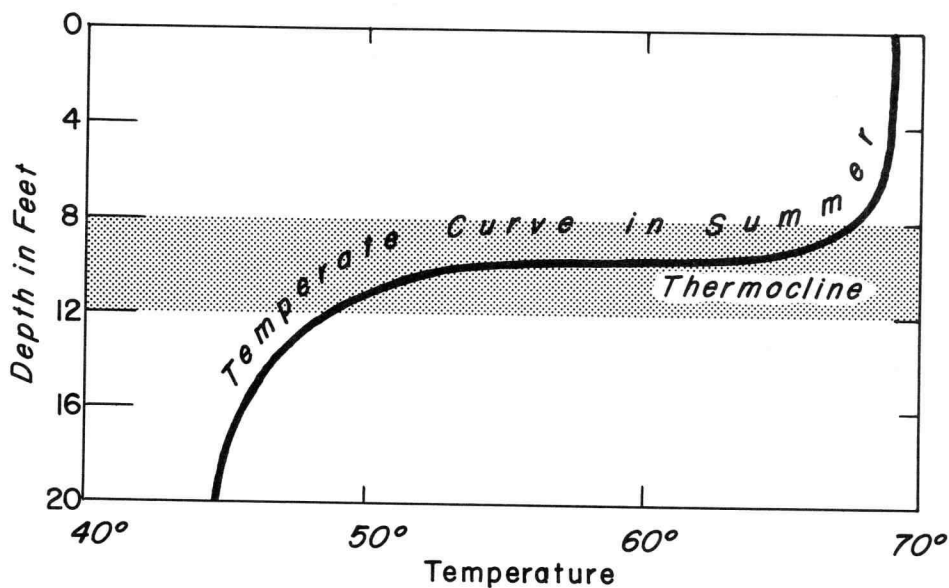
Many people believe that high mountain lakes all have cold water. Actually, during the summer months many high lakes have surface temperatures that exceed 70 degrees. Deeper lakes go through a summertime stratification with three distinct temperature layers of water. In the winter months water temperatures are usually uniform from top to bottom. With spring, the sun begins to heat the surface waters while the deeper waters remain cold. The interesting middle layer is called a thermocline. In this layer water temperatures go through a steady rapid drop until they taper off to a uniform layer of cold water. The lower layer of cold water does not usually circulate, thus has little, if any, oxygen.

(Continued on Page 5)



Oregon's most famous lake, Crater Lake. One of the deepest, clearest lakes in the world it affords spectacular views and is a tremendous scenic attraction. It is not particularly productive from a fishery standpoint. Its steep sides and lack of shallow food producing areas makes it less productive than some of the small shallow lakes of eastern Oregon.

Deeper lakes go through a summertime stratification with three distinct temperature layers of water. The interesting middle layer is called the thermocline. Author Wetherbee discusses it in more detail in his article.



ANATOMY...

(Continued from Page 4)

With warmer water in the upper layer and lack of oxygen in the lower layer, the thermocline is the likely area to find fish. However, the average angler is not equipped for taking temperature recordings every few feet. In the majority of smaller high lakes with depths of 10 to 20 feet the sun's rays generally penetrate through the clear water to eventually produce a uniform temperature range. In other words, the water may be 70 degrees on top and 70 degrees on the bottom. With no escape to cooler temperatures, fish will either seek the deepest area of the lake or whatever refuge they can find under logs or rocks. With cooler fall temperatures, the surface again cools and the lake is more or less inverted with a uniform temperature again prevailing.

What happens when a lake suffers a winter kill? Fish are dependent upon oxygen derived from water. When a lake is open or free of ice, constant interchange of oxygen from the air occurs with wind and wave action. As a lake freezes over, the ice cover reduces this interchange of water and air. Oxygen may also be added to the water through photosynthesis—the ability of chlorophyll-bearing plants to release oxygen directly into the water. To accomplish this process, plants must be exposed to a certain amount of light. Light penetration can be seriously reduced when the ice is topped by several feet of snow. Lakes without sufficient depth and water volume have a limited supply of oxygen and may experience a fish kill.

Sheltered north slopes with deep drifts of snow and a long duration of snow cover increase the likelihood of winter kill. Many lakes only four or five feet deep may support fish while ones in other areas may be eight or ten feet deep and suffer a winter kill. There are some lakes on a borderline status that will support fish through several "mild" winters and then winter kill when a heavier snow-pack persists. In many cases the only real way to determine whether certain lakes will support fish through the winter is by trial stocking and checking for survival. For borderline lakes that may support fish except in severe winters, the best policy may be to stock every year with a small number of fish. In this way you might prevent the lake from being void of fish if it did winter kill and you weren't able to check it for a year or two later.

(Continued on Page 6)



Two lakes side by side may have a completely different set of characteristics. The lava country of the Cascades makes for endless variation.



Some lakes "winter kill" regularly, some occasionally, others never. All of them may freeze over each year. Many factors including lake depth, snow depth, and location of lake determine carry-over of fish.

ANATOMY...

(Continued from Page 5)

Another important physical characteristic of a lake is spawning area. With adequate spawning area, a lake's fish population can be self-supporting. Natural reproduction may, however, outpace the available food supply and result in an overpopulation of small, stunted fish. The ideal spawning area is a free-flowing tributary or outlet with a gravel bottom. In many lakes that have no streams, some species can reproduce in gravel deposits around the shoreline or, in some cases, in spring areas on the lake bottom. If you want to check for yourself if natural reproduction has occurred, look in the inlet or outlet if there is one or the other. If you see small fish an inch or so long, these will be fry as a result of natural spawning. In a lake with no inlet or outlet that has other spawning possibilities, you will probably find fry around the edge of the lake. Any fish that you see after mid-July and are about 2 or 3 inches could be from stocking.

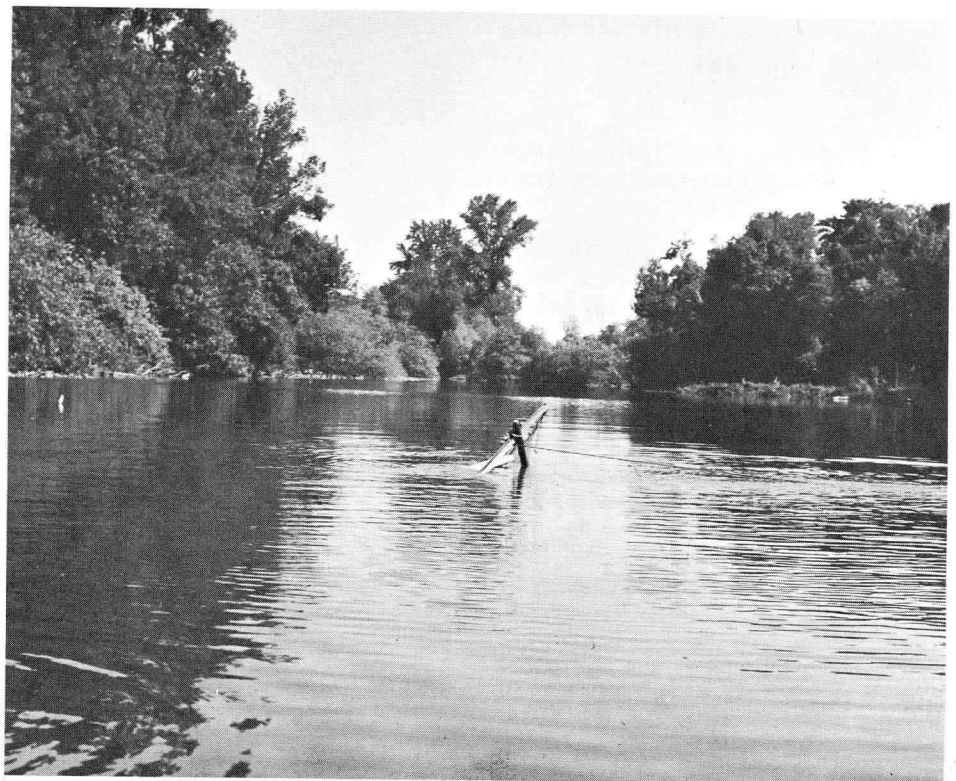
You may wonder how fish got into Oregon's lakes. There are several ways. Initially many isolated lakes were indeed void of fish. Some lakes were connected with a stream system and were naturally stocked by stream fish. A good many remained barren until stocked by man. Early pioneers probably stocked the more accessible lakes by the turn of the century. By the 1940s Game Commission pack strings made more extensive stocking forays. During the last 20 years airborne fingerling (2 to 4 inches in length) have dimpled the waters of nearly every high lake suitable for fish.

Brook and rainbow trout are the most commonly stocked species in lakes. In many lakes where either species would be suitable, it may be a matter of determining what species anglers want. Brook and rainbow trout spawn at different times and have different capabilities. Brook trout are prolific and may overpopulate a relatively small lake with good spawning area. In a lake with limited spawning area, brook trout may provide a fishery if angling pressure is not too great. In larger lakes with good spawning areas it is still sometimes necessary to supplement the population by stocking fingerlings. Fish populations in lakes with no spawning area can generally be controlled by the number of fish stocked. However, unforeseen angling success can greatly alter a stocking program—especially in a small lake.

(Continued on Page 7)



Oregon has a tremendous variety of lakes. Volcanic action in the mountainous areas formed some of the lakes. Twisting and upheaval of the land formed ones found in other areas. Even the peaceful meanderings of slow running rivers created still others when the oxbows formed by the stream were closed off.



ANATOMY...

(Continued from Page 6)

The determination of the best stocking policy for each lake in terms of species, numbers, and size is one of the greatest challenges facing the fishery biologist.

As we said earlier, each lake is different. One lake may be able to produce twice as many fish as a similarly sized lake next to it. To develop a good stocking policy for each lake takes trial stocking and careful evaluation of survival and growth of fish for a year or two afterwards. Even though the ideal fish population is attained, this doesn't assure angling success. The many feeding moods of fish and weather conditions can discourage angling activity and success.

Now that you've received your short course in lake biology, let's stock a lake.

Suppose we have a 5-acre lake, 15 feet deep, mud bottom, with limited spawning area, and it's about a 2-mile hike from the nearest road. There is no trail from the road leading to it. The lake's physical credentials tell us it should support fish and should have fair food potential. With limited spawning area, there should be no problem of overpopulation with brook trout. With no trail and a 2-mile hike, only light to moderate angling pressure would be expected. For an initial stocking it is usually safer to start with a light stocking and go from there. If a lake is overstocked, it may take several years before the population is thinned out enough to produce desirable size fish. With your concurrence, let's stock 500 brook trout fingerling for openers.

The following year we learn the brookies grew fast in their new home and averaged 8 to 10 inches by fall but few anglers visited the lake. Unfortunately, angler use can usually be determined by the amount of litter around the lake. Well-beaten trails around the lake usually indicate heavy use. In the accumulation of garbage, present and past use can be detected. With a little study you can probably determine the ages and types of people who have been there.

Back to our fish, we find good growth continues the second summer with still little angling use so we decide to hold off stocking again. Later that fall we learn that several parties visited the lake and reported good catches. Too late to stock now as the air-stocking program was through in July. The next June we decide

(Continued on Page 8)



Each lake has to be managed as an individual taking into consideration angling pressure, food supply, water source, spawning areas and numerous other things that affect growth and productivity of fish.



ANATOMY...

(Continued from Page 7)

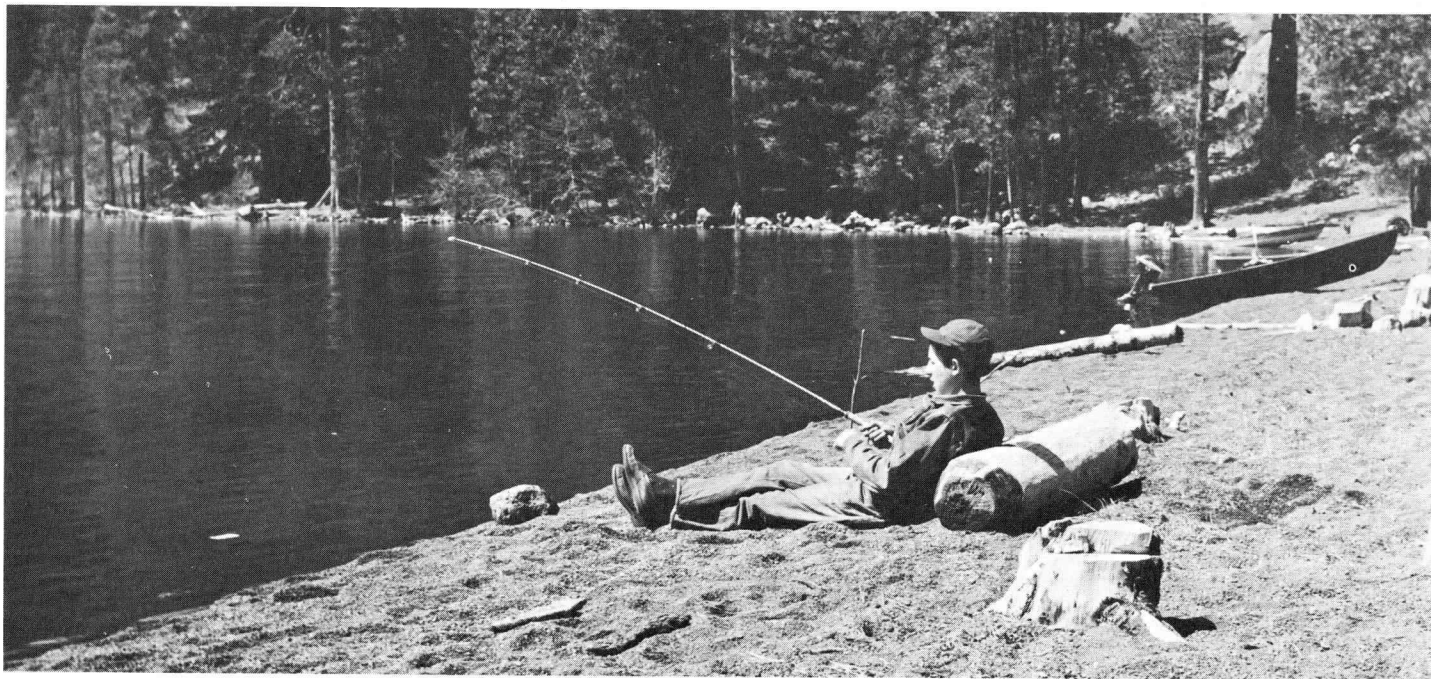
to visit the lake and check on our brook trout. We see little visible fish activity. By skindiving with a face mask, we locate what must be most of the population—about three dozen fish 14 to 16 inches long. Angling pressure will probably taper off again now with fewer fish. Even though the larger fish will attract some anglers, their success will be limited compared to the previous year.

As we sit on the shore mulling over a

proposed number to stock this month, we suddenly become aware of numerous fry cruising the shallow waters. We almost forgot about the spawning potential which was apparently more productive than anticipated. With nature taking its course, we'll now hold off on the stocking. It will probably take two or three more years of followup to determine if natural reproduction will be sufficient to maintain an adequate population. Of course, angling pressure will also be important and probably unpredictable. And so it goes. This is only one lake of perhaps 100 a biologist attempts to monitor.

It's a never-ending game—but one I like to play.

We sincerely hope this discussion has enlightened you and perhaps helped you to become aware of the many problems involved in the management of a lake. But more importantly, we hope you will have gained enough knowledge to make your own analysis of some of the lakes you visit in the future. Next time they aren't bitin' like they should, take time out and study some of the characteristics of the lake. Who knows? Maybe your observations and knowledge will shorten the times between bites.



COMMISSION PROTECTS SEALS AND SEA LIONS

Following a public hearing on August 14 the Game Commission adopted a regulation which prohibits the taking of seals and sea lions in Oregon. The regulation becomes effective on September 9.

The Game Commission passed the regulation under new authority granted to it in HB 1123 passed by the 1971 Legislature. Under the new law, which goes into effect on September 9, the Commission will have jurisdiction over nongame animals, birds, amphibians, and reptiles in the state with the exception of whales and porpoises. The new law also adds that nothing in the Act is intended to affect the authority of the Fish Commission of the state to carry on a seal control program in the Columbia River.

The Game Commissioners took no

action concerning other nongame wildlife following the August hearing. It did outline a program emphasizing statewide investigations of the status of populations and limiting factors regarding all Oregon wildlife.

Existing law already protects most of the song birds and raptors such as eagles, hawks and owls.

In its discussion at the meeting the Commission also noted that none of the various nongame species are in jeopardy because of hunting. However, changing land use patterns and human encroachments on critical habitat areas may make it necessary to take action that will ensure the continued existence of all native species of wildlife.

Commission Honored

The Oregon State Game Commission was awarded the first COMMISSION OF THE YEAR AWARD by the Western Association of State Game, Fish and Conservation Commissioners at its annual meeting at Aspen, Colorado on July 22.

The new award is designed to recognize the ideal fish and game commission, basing the judging on such characteristics as avoidance of partisan politics in making decisions regarding the wildlife resource, consideration of the professional staff's suggestions on biological matters, lack of provincialism, and several other criteria.

Oregon's Game Commission being recognized by the award consisted of John Amacher of Winchester, who resigned prior to the end of his term; Frank Moore of Idleyld Park, who replaced him; Dan Callaghan of Salem; George Hibbard of Oregon City; Pat Metke of Bend; and James Whittaker of Pilot Rock.

Commission To Hold Nongame Hearing

The Game Commission will hold a second public hearing concerning Oregon's nongame species. On September 10, starting at 10 a.m., the commissioners will convene at the Portland office of the Game Commission to hear public suggestions concerning regulation of the nongame species.

At the August meeting some testimony was received. However, some questions arose and clarification of the new law was sought from the State Attorney General. With the new information in hand, the second hearing was felt necessary. The public is invited to present testimony either orally in person or by letter.

Commission on TV

Oregon wildlife and hunting will be featured in four half-hour programs being presented by the Game Commission in cooperation with Oregon Educational Television.

Scheduled to be aired on KOAP-TV, Channel 10 in Portland, and KOAC-TV, Channel 7 in Corvallis, the programs will be on Wednesday nights at 7:30 starting September 8.

The four programs will feature the Commission's new responsibilities concerning nongame wildlife, Oregon's big game animals and the forthcoming seasons, upland birds and waterfowl, and hunting safety and survival.

Oregon Game Director Elected President of Western Association

John McKean, Oregon state game director, was elected president of the Western Association of State Game, Fish and Conservation Commissioners at its annual meeting in Aspen, Colorado. McKean, who took office on July 22, will guide the destiny of the Association of conservationists for the next year.

In conjunction with the presidency, McKean and the Oregon Game Commission will act as hosts of the Association meeting next year. It is scheduled to be held in Portland from July 16 through 19.

The Western Association of State Game, Fish and Conservation Commissioners is composed of fish and wildlife departments in the 13 western states and the province of British Columbia. The annual meetings are attended by 600 to 700 members and other interested conservationists.

GAME COMMISSION SETS BIRD RULES

1971 UPLAND GAME BIRD SEASONS

SPECIES	OPEN SEASON (All Dates Inclusive)	OPEN AREA	DAILY BAG LIMIT	POSSESSION LIMIT
Silver Gray Squirrel	Sept. 1 - Oct. 31	Hood River & Wasco Counties Southwest Area	5	5
	Entire Year	Northwest Area	No limit	No limit
Blue & Ruffed Grouse	Sept. 4 - Sept. 26	Eastern Oregon	3	6
	Sept. 11 - Sept. 19	High Cascade Buck Season Areas (see Big Game Regulations for area boundaries)	3	6
	Oct. 2 - Oct. 31	Western Oregon	3	6
Sage Grouse	Sept. 4-5-6	Malheur County south of U. S. Highway 20	2	4
Chukar & Hungarian Partridge	Oct. 2-Jan. 23, 1972	Eastern Oregon	8	16
	8:00 a.m. Oct. 16 - Nov. 14	Western Oregon and Ladd Marsh Management Area	4	8
Cock Pheasant	**8:00 a.m. Oct. 16 - Nov. 14	Eastern Oregon except Klamath County	3	9
		Western Oregon and Klamath County	2	4
Valley and Mountain Quail	8:00 a.m. Oct. 16 - Nov. 14	Western Oregon	5	10
	**8:00 a.m. Oct. 16 - Jan. 23, 1972	Eastern Oregon	8	16
Turkey	8:00 a.m. Nov. 20-24	That portion of the state lying north of U. S. Hwy. 26 and east of the Cascade Summit	1 per season	

**See Shooting Hours Timetable in synopsis for shooting times on opening day in Klamath, Lake and Harney counties.

1971 MIGRATORY BIRD SEASONS

SPECIES	OPEN SEASON (All Dates Inclusive)	OPEN AREA	DAILY BAG LIMIT	POSSESSION LIMIT
Mourning Dove	Sept. 1 - Sept. 30	Entire State	10	20
Band-Tailed Pigeon	Sept. 1 - Sept. 30	Entire State	8	8
Duck	Oct. 9 - Jan. 9, 1972	Entire State except Columbia Basin counties (a)	6(b)	12(b)
	Oct. 9 - Jan. 23, 1972	Columbia Basin counties (a)	7(b)	14(b)
Coot	Oct. 9 - Jan. 9, 1972 (c)	Entire State	25	25
Merganser	Oct. 9 - Jan. 9, 1972	Entire State	5(d)	10(d)
Goose	Oct. 9 - Jan. 9, 1972 (e)	Benton, Lane, Linn, Polk and Yamhill counties	2	4
	Oct. 9 - Jan. 2, 1972	Baker and Malheur counties	2	2
	Oct. 9 - Jan. 23, 1972	Wasco, Sherman, Gilliam, Morrow and Umatilla counties	3	6
	Oct. 9 - Jan. 9, 1972 (e)	Remainder of State	3	6
Black Brant	Nov. 20 - Feb. 20, 1972	Entire State	4	8
Common Snipe	Oct. 9 - Dec. 12	Entire State	8	16

(a) Columbia Basin counties are Baker, Gilliam, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, and Wasco.

(b) Bag limit may include not more than 2 canvasbacks daily or in possession.

(c) Coot season extends through January 23 in Columbia Basin counties. See (a).

(d) Bag limit may include not more than 1 hooded merganser daily or 2 in possession.

(e) Daily bag may be increased to 6 providing 3 or more are snow geese. One Ross' goose allowed in daily bag or in possession.

LEGISLATION

The Commission's legislative program met with marked success in the 1971 session of the Legislature. Of seven measures requested for introduction, six were enacted into law without major substantive changes. With the exception of the one providing for a bow hunting license, all will take effect on September 9.

Of significant importance was the bill broadening the Commission's responsibilities over wildlife. This measure defines wildlife as "game fish, wild mammals except whales and porpoises, birds, amphibians and reptiles." The new law extends the Commission's regulatory and management authority to include all nongame wildlife. It also directs the Commission to develop wildlife-oriented recreation not necessarily confined to fishing or hunting. Pending an inventory of nongame populations, it is anticipated that few regulatory changes will be made immediately. As needs arise to either protect or manipulate such populations, regulatory and other management steps will be taken.

Also of vital importance was passage of the bill which will relieve the Commission of excessive tax payments on wildlife management areas. The Commission will continue to pay taxes to the counties in which such lands are located but payments will be based on valuations at farm or forest land use rather than highest and best use which county assessors have been obligated to apply. To avoid an immediate inconvenience to taxing districts, the reduction will take place gradually over a period of ten years. At the end of that period the Commission will pay taxes only on the basis of farm or forest land use. Smaller Commission holdings such as access sites, public fishing impoundments, fish hatcheries, game farms, and office quarters will be exempt from taxation.

One of the bills introduced at the joint request of the Game Commission and Fish Commission became the center of considerable controversy and was incorrectly labeled as an estuary bill. This was Senate Bill 224, the intent of which was to provide control over the filling of materials in waterways throughout the state. It was designed to extend the law governing the removal of materials from such waters which was passed in 1967. This measure became enmeshed with other bills designed to protect and manage estuarine areas. Fortunately, it emerged in a form much like the original, and it gives the state the power to regulate the

deposition of fill materials not only in estuaries but in all waters of the state.

Bow hunters who wish to participate in special seasons set aside specifically for this type of recreation will be required to pay an extra fee commencing in 1972. The additional revenue will assist in defraying expenses associated with administering and conducting the special seasons. If purchased with a hunting or combination license, the bow and arrow license will cost \$2. If purchased separately, the fee is \$5. This latter provision is aimed at discouraging participation by persons inexperienced in the use of a bow and arrow as a hunting weapon. It is believed by the experienced bow hunters that many of the problems that have occurred in bow hunting areas result from the inexperience of opportunists who may never have used a bow and arrow previously.

The new hunting license will give the Commission a handle on the number of bow hunters and through a sampling of license holders will provide valuable information on their experiences and preferences that will prove helpful in administering bow hunting seasons.

The Legislature granted the Commission authority to enter into agreements with landowners, land managers, and timber owners to restrict the operation of motor-propelled vehicles at times and in areas where the evidence indicates that damage to wildlife or wildlife habitat is occurring. The growing use of motor vehicles, including a variety of all-terrain vehicles, in roaded and unroaded areas is of concern to wildlife and land managers. Any vehicle use regulations adopted by the Commission following a public hearing would become state law and violations of such regulations, even though they might occur on federal lands, could be handled in state courts.

Landowners suffering damage by wildlife received additional consideration from the Legislature. They can apply to the Commission for a permit to remove the offending animals by methods now prohibited by law. For example, if a farmer in western Oregon is having trouble with black-tailed deer in his young orchard, he could, by permit, use a spotlight at night or a vehicle in removing the animals. It must be emphasized that the new law applies only where and when wildlife damage is occurring and may be implemented only when the Commission issues a permit.

There were a number of other bills

enacted into law relating directly or indirectly to wildlife. Of these the most important was a measure involving license fees. This stemmed from a bill that was introduced to raise the fee from \$1 to \$2 for a salmon-steelhead license. This bill was tabled and a substitute bill was introduced and passed which does the following:

- Increases daily angling license fee from \$1.50 to \$2.50

- Increases nonresident angling license fee from \$15 to \$20

- Increases 10-day angling license fee from \$7 to \$10

- Increases nonresident hunting license fee from \$35 to \$50

- Provides that daily angling license holder is not required to have a salmon-steelhead license to fish for salmon and steelhead

- Eliminates the fifty-fifty split with the Fish Commission of revenue from the sale of salmon-steelhead licenses

- Provides that an amount of the State Game Fund equal to the revenue derived from the sale of 10-day and daily angling licenses used for salmon angling in the ocean will be made available to the Fish Commission on a contract basis for propagation, management, and research projects.

This law will become effective on January 1, 1972. A sampling method will be used to determine how many 10-day and daily angling licenses are used in ocean salmon angling.

Members of the Legislature are to be congratulated on the intelligent manner in which they considered fish and game legislation. This is particularly true of the members of Fish and Game and Natural Resources Committees who struggled with more than fifty measures either directly or closely related to management of the fish and wildlife resource. Their deliberations and decisions were instrumental in passage of sound legislation that will benefit the resource and the people of Oregon for years to come.

— R. C. Holloway



GOOD OUTDOOR MANNERS

OBSERVE FISH & GAME LAWS	Aim at Safety NOT at Signs	Leave a DEAD Fire
PROTECT the Land! Use Vehicles Wisely	STOP Vandalism!!	Leave Gates & Fences As You Find Them
Pack Out Litter	Handle Firearms Safely	Use Private Lands with PERMISSION ONLY

...a winning combination!

SOLV INC.

Commissioner Kelly Receives IWLA Award

Newly appointed Commissioner Allan Kelly recently received the National Izaak Walton League of America Conservation Award. At the League's annual meeting in Anaheim, California Kelly was cited

for his "long and meritorious service in his battles to achieve various conservation objectives, both as an individual and as a leader of Waltonians and the public."

This award is given annually to one member of the League selected from the national membership.

Also at the same meeting the SOLV organization was given an Honor Roll

Hunter Conduct Campaign Planned

Again this year the Game Commission is cooperating with SOLV, Inc., federal and state resource agencies, and farm groups in a fall campaign aimed at improving hunter conduct. The effort is aimed at the relatively small number of individuals who behave in an unsportsmanlike and often unethical manner and jeopardize the hunting opportunities of the average sportsman.

SOLV, Inc. is the statewide organization formed to stop littering and vandalism. Although relatively new, it has already made a major impact in the area of litter abatement. One of the gimmicks to be used in this fall's campaign will be a large litter bag on which has been imprinted several outdoor behavior messages. The bags are being provided by SOLV in cooperation with the U. S. Forest Service and the Bureau of Land Management. The hunter conduct program will be coordinated with the Johnny Horizon program of the BLM.

Assisting in distribution of bags will be service organizations, state and federal agencies, sportsmen organizations, and other groups.

Various cooperating agencies will conduct their own programs to supplement the efforts of SOLV. The Commission plans to issue a series of radio spot announcements and several television film clips related to hunter conduct and fire and firearms safety.

Allan Kelly, newly appointed to the Game Commission and current chairman of the Outdoor Behavior Committee for SOLV, suggests that hunters themselves must play the major role in bringing about improved conduct on the part of those who fail to abide by the rules of good conduct when afield. Kelly said that they must police their own ranks and that if they fail to do so, they are seriously endangering the future of hunting as a legitimate form of outdoor recreation.

Award "for its activities in public education and information concerning the solution to the problems of litter and vandalism."

Ernie Jeffries of the Fish Commission was also given an Honor Roll Award and Dr. Al Kreft of Portland was elected to the League's nine-member National Executive Board.

NUTRIA (*Myocastor coypus*)

The nutria, or coypu, is an import from the swamplands and waterways of South America. Promoted as a boon to the fur trade, this big, oversized water rat was raised extensively by fur breeders throughout the United States. Some escaped to start colonies in the wild. Breeders also turned animals loose when they found there was no market for the low-value pelts.

They found the Willamette Valley to their liking and established large colonies on all major streams. Their range also extends to the coast in Lincoln, Tillamook, and Clatsop Counties.

Nutria require large quantities of succulent vegetation. They are especially fond of alfalfa, clover, root crops, and garden produce. This diet preference plus their habit of digging burrows in irrigation canals, dikes, and stream banks makes their presence a constant threat.

The nutria is light to dark brown overall. It is a large rodent weighing up to 18 pounds. The tail is long, round, and scantily haired. It is similar in appearance to the muskrat and beaver except these valuable furbearers have flattened, naked tails. The nutria is found only near water.

OPOSSUM (*Didelphis marsupialis*)

The opossum is an import into Oregon. It is thought to have been introduced from the southern states during the CCC days in the late 1930s. It is the only North American survivor of the ancient order of Marsupialia, an animal that carries its young in a pouch. The opossum has not spread widely but is found throughout the Willamette Valley and in Clatsop, Columbia, and Tillamook Counties.

Young are born prematurely and appear only two weeks after mating. Each youngster is smaller than a bumblebee and the eyes, ears, and internal organs are still developing inside the transparent body covering. Each has the instinct to make its perilous way up the mother's abdomen and into the safety of the pouch.

Each of the blind youngsters grasps a teat and hangs on for several weeks without letting go. The mother has about 13 of these nurseries but may produce as many as 18 premature babies. Those that come late or fail to find the pouch die. At about one month the young begin to take an interest in the outside world and they leave to fend for themselves at three months of age.

The opossum will eat anything, including fresh flesh, fruits, vegetables, and carrion.

It is an expert climber and uses its prehensile, naked tail to hang by or to carry loads.

The normal color of the opossum is gray with black-tipped underfur. The animal has bushy fur and is about the size of a house cat. Muzzle is long and sharp and the mouth has many teeth. It has short legs and a long, naked tail. Weight is from 8 to 15 pounds.



Though they may not be familiar to many people east of the Cascades, two of the smaller mammals often seen by residents of the northwest part of the state are the nutria and opossum. As will be noted in the articles, they are both imports—examples of what can happen when exotic species are indiscriminately released. They now compete with native species.

The opossum is a very common victim of the automobile; the nutria is seldom seen on the highway. Incidentally, the opossum has more teeth (a total of fifty, all coming to sharp points) than any other American mammal. Handle with care!



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