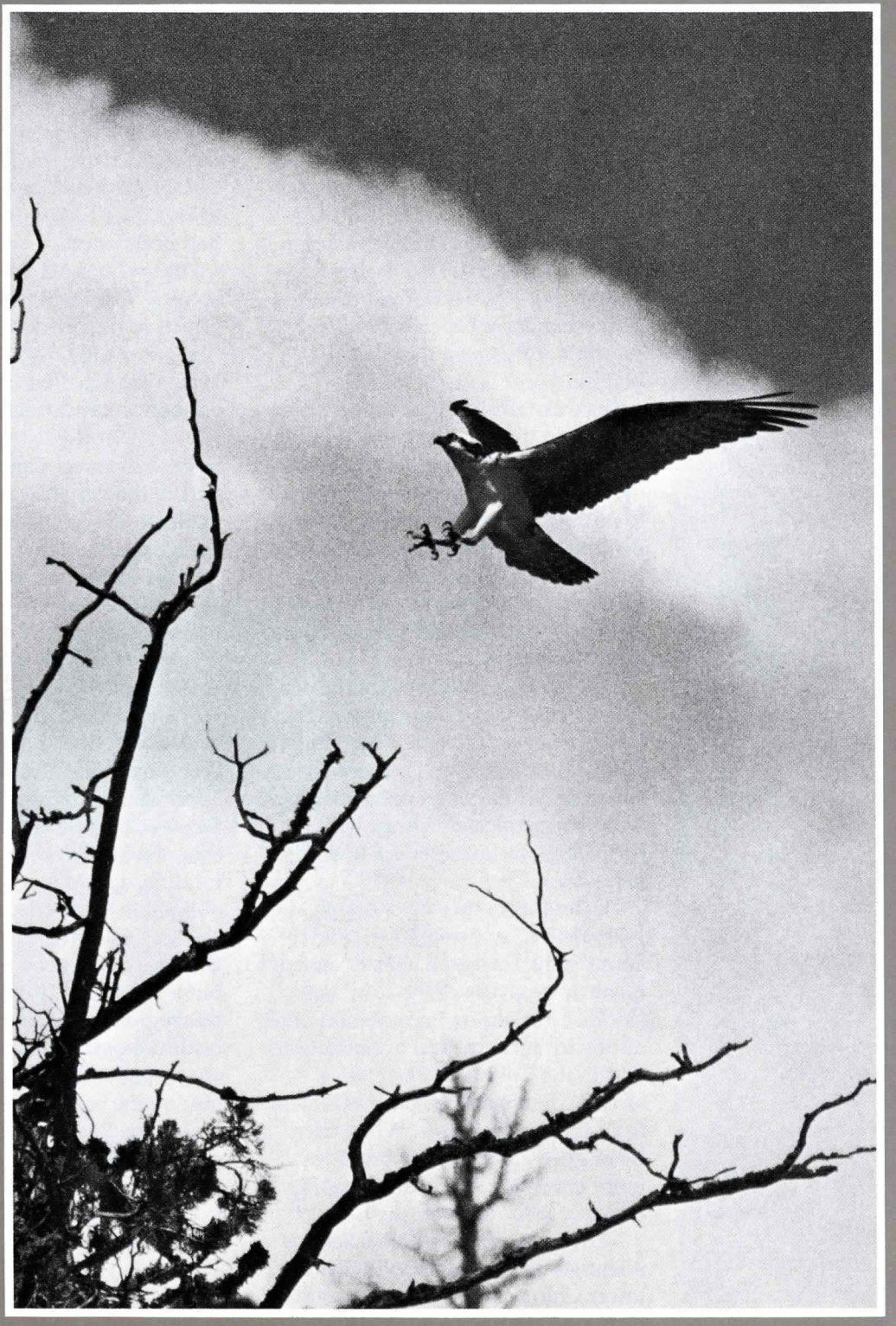
OREGON WILDLIFE

July-August 1991



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The Cover

An osprey, backed by blue sky and an incoming storm, lands in a dead tree on the Metolius arm of Lake Billy Chinook. Osprey and eagles have enjoyed a bumper crop of kokanee from the lake this year. Photo by Randy Henry.

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Bringing Back Our Salmon

This issue of Oregon Wildlife contains an article summarizing components of a draft plan for management of coastal chinook salmon. That information is included here so as many people as possible may become aware of and get involved in the process of setting future management directions.

The plan does not include salmon stocks that enter the Columbia River system, but lessons learned from the Columbia Basin experience have certainly influenced the coastal planning process.

Since Columbia River salmon runs have been the subject of much public debate during the last year, I would like to use the remainder of this space to outline the Department of Fish and Wildlife view of the National Marine Fisheries Service proposals to list Snake River chinook stocks as threatened species under the federal Endangered Species Act.

First of all, we believe that the action was necessary and appropriate. The past year of status review has drawn public attention to an issue that has concerned fishery managers for years. Now, the proposed listings will formalize continuing work toward recovery.

The less strict classification of "threatened" as opposed to "endangered" will not lessen agency commitments to recovery of the troubled stocks. The Salmon Summit and other efforts by agencies and organizations within the Columbia Basin have already demonstrated a commitment to restoring these runs. While the threatened classification provides more breathing space and flexibility, it does not let anyone off the hook.

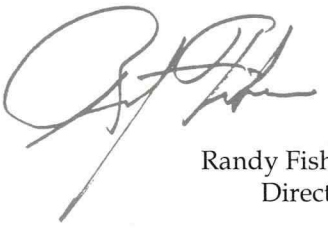
National Marine Fisheries Service scientists also decided not to list the lower Columbia River coho as either threatened or endangered. They concluded that generations of interbreeding with other coho stocks has eliminated unique genetic characteristics in these natural runs. That is no reason, however, to back off on sustaining and improving naturally-producing coho runs in lower river tributaries.

Oregon's rivers and streams are still the best hatcheries. The Department of Fish and Wildlife remains committed to restoring these runs, just as if they had been listed.

For the Snake River chinook, the coming years will feature intense efforts to restore declining populations. Probably the greatest challenge is to ensure that we can provide enough water through the system. The key to the entire listing is what we refer to as travel time. We want to ensure that smolts can travel from the Snake to the mouth of the Columbia in the least amount of time possible.

Some water management options to achieve this are being criticized as having large potential impacts on the regional economy. We do not agree that will be the case. Our belief is that we can get through this, bring the fish back and not have major effects on the economy of the Northwest.

We also believe that loss of these fish would have effects surpassing economic concerns. Recovery to some minimum level is not enough. Our obligation is to bring these fish back and go beyond to provide not only for fisheries and a good economic base, but a good quality of life for people in this region of the country. Without healthy populations of wild salmon spawning in the Columbia Basin, and also on the coast, a key ingredient that makes the Pacific Northwest a special place would be lost. □



Randy Fish
Director

"UPDATE"

Big Game Seasons Approved for 1991-92

Oregon's big game hunting regulations for 1991 bear, deer, elk and squirrel general seasons as well as most antlerless deer and elk and all controlled cougar hunts were adopted by the Oregon Fish and Wildlife Commission in June.

The application deadline for these antlerless deer and elk, and controlled cougar seasons for 1991 is August 1. The regulation synopsis for 1991 seasons covered in this hearing will be available at license outlets by early July.

Controlled hunt seasons for all eastern Oregon buck deer, all northeast Oregon bull elk first period hunts, selected other bull elk units in the state, early antlerless deer and elk hunts, pronghorn antelope and bighorn sheep hunts were set in February. Application deadline for those hunts was April 8.

1992 Seasons

The commission also adopted all general and controlled big game seasons for 1992. This includes season dates and other regulations for antelope, bear, bighorn sheep, cougar, deer, elk and silver gray squirrels.

This action marks the transition from two separate regulation settings processes (February for controlled and early antlerless seasons and June for general and late antlerless seasons) used for the past several years.

Beginning in 1992, all big game hunts of all types will be included in a single regulation synopsis. The 1992 big game regulations will be available in January of that year with an application deadline of March 2 for all big game controlled hunts, except for spring bear seasons which will be January 15.

Commissioners also approved:

- Development of a point system that would improve future chances of drawing a tag for unsuccessful controlled hunt applicants. This system will not be implemented until 1993.
- Supervised juvenile hunts for 1991-92 to provide special big game hunting opportunities for young people 12 through 17 years of age.

Elk Plan Process Begins

A "Public Working Group" of representatives from sportsmen's groups, elk hunters, agencies and other organizations is working with the Oregon Department of Fish and Wildlife to develop a species management plan for elk.

"We will meet in mid-July to identify issues and concerns in elk management," said Dan Edwards, assistant staff biologist. "The issues identified at that meeting, and information from an elk hunter questionnaire will be discussed during a series of 20 statewide public meetings on elk management set during August and September."

A draft plan will be available in late winter, 1992, followed by a second round of five public meetings in early spring, according to Edwards.

1991 Elk Plan Meetings

Date	Location	Time	Place
		NE Region	
Aug 15	Pendleton	7 p.m.	Pendleton High School
Aug 16	Enterprise	7 p.m.	Enterprise High School
Aug. 19	John Day	7 p.m.	Grant Union High School
Aug. 20	La Grande	7 p.m.	E. Oregon State College
Aug 23	Baker City	7 p.m.	Baker City High School
		SE Region	
Aug. 20	Lakeview	7 p.m.	Lake County Court House
Aug 27	Burns	7 p.m.	Burns High School Cafeteria
Sep. 4	Ontario	7 p.m.	Treasure Valley CC
		Central Region	
Aug. 20	Klamath Falls	7 p.m.	OIT, Student Union
Aug 22	Redmond	7 p.m.	Redmond High School
Sep. 5	The Dalles	7 p.m.	Dry Hollow School Gym
		Columbia Region	
Aug. 20	Milwaukie	7 p.m.	Rex Putnam High School
Aug. 27	Tillamook	7 p.m.	Tillamook High School
Aug. 27	Astoria	7 p.m.	Astoria Middle School
		NW Region	
Aug. 13	Eugene	7 p.m.	Lane Comm. College
Aug. 20	Newport	7 p.m.	Marine Science Center
Sep. 4	Salem	7 p.m.	McKay High School
Sep. 5	Albany	7 p.m.	Linn Benton C. College
		SW Region	
Aug. 21	Roseburg	7 p.m.	Fremont Jr. High School
Aug. 22	Coos Bay	7 p.m.	North Bend High School

TIP Nets Poachers

A phone call to the Turn In Poachers (T.I.P.) hotline, swift action by Oregon State Police game officers, and a tough sentence by Curry County District Court Judge Richard Michelson has given a Gold Beach resident a 60 day jail sentence, fines and other penalties for illegally killing game.

The report indicated that an individual had killed an elk east of Gold Beach. The following investigation revealed that two Gold Beach residents shot a cow elk and a bobcat. One suspect plead guilty to unlawfully taking elk during a closed season, and unlawful possession of a bobcat. The other suspect plead no contest and was found guilty of aiding in the unlawful taking of elk during closed season.

Judge Richard Michelson imposed the following sentence on the first person:

- Sixty day jail sentence
- Five years probation
- Hunting and angling privileges suspended for four consecutive years
- $500 restitution for the elk
- $250 penalty to be awarded to Oregon Hunter Association T.I.P. fund

The second defendant received a $250 fine for Aiding in the Taking of an Elk, and a $250 penalty to be paid to Oregon Hunter Association T.I.P. fund

This is the first case in southwest Oregon where a court has awarded penalties to replenish the T.I.P. fund operated by the Oregon Hunters Association.

The association will pay up to $500 for information that leads to the arrest of poachers. Information provided through the T.I.P. program can remain confidential. Help stop poachers. Call, toll-free, 1-800-452-7888 to report what you believe are illegal activities.

SPRING CREEK

Where the big ones are

Story and Photos by Pat Wray

As small tributary streams go, Spring Creek is not unique. This two-mile long tributary of the Williamson River resembles lots of spring-fed streams. It has a fairly constant temperature, its waters are clear and its bottom ranges from silty pumice to gravel.

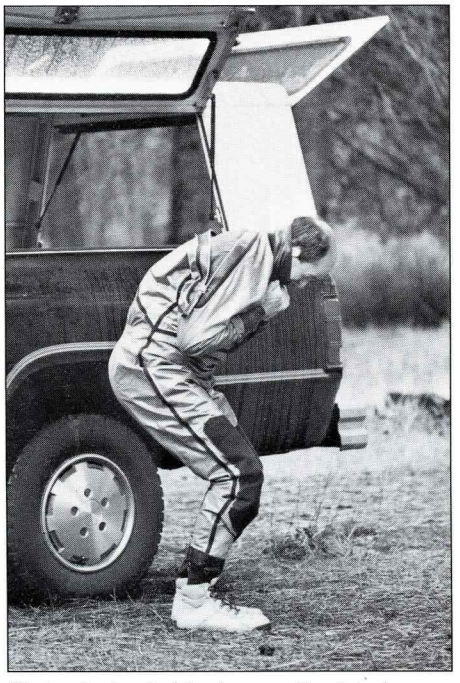
Its fish population is not that extraordinary either, unless of course you consider size of the fish. All but a very few of the Spring Creek fish recently examined by Oregon Department of Fish and Wildlife researchers measured between 20 and 30 inches.

These are rainbow trout, not steelhead, salmon, sturgeon or marlin.

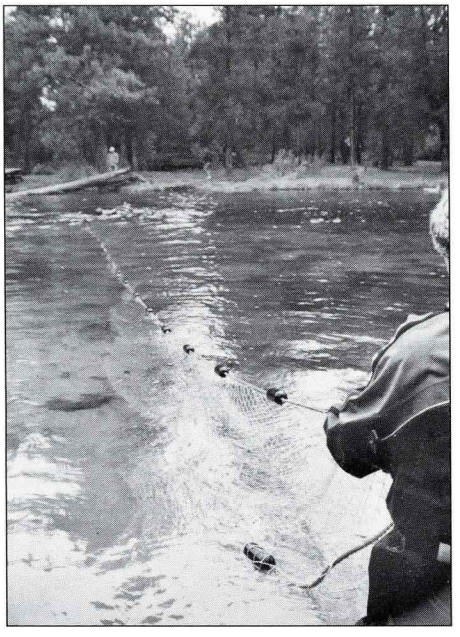
Also, consider these facts. Recent data indicates that Klamath rainbow trout spawn 11 months of the year in Spring Creek. Rainbows are typically spring spawners and department biologists are unaware of rainbow populations anywhere else that spawn on a near-year-round basis.

Research indicates that spawning rainbows in Spring Creek are as much as eight years old.

Some rainbows in Spring Creek have spawned as many as five times during their lives.



The toughest part of the day — getting into dry suits. Phil Howell, a research biologist, squeezes himself into his dry suit in anticipation of a day in 40 degree Spring Creek.



Setting a stationary net is the first step in capturing Spring Creek trout. A seine net is then dragged downstream to trap the fish between the nets.

So, maybe Spring Creek is unique. At least it is very special. It does not hold many resident trout, but acts as a spawning area for Klamath rainbow trout that travel up the Williamson River almost 30 miles from Klamath Lake.

It certainly gets special treatment from biologists who sample fish there each month.

"Because Spring Creek is shallow, smooth-bottomed and almost perfectly clear, we can trap fish between two nets," said project leader Dave Buchanan. "Netting is easier on big fish like this than electroshocking, which is a method we use to collect fish when the stream is nc so easy to cover."

This is hands-on work, the kind biologists dream about when they go to school. They are in the water, setting nets, driving the fish into them, retrieving the fish, collecting data. In an era when paperwork has become the biggest part of most biologists' daily routine, a day on Spring Creek is like a day at the amusement park. And the fact that fish habits in this creek are so remarkable makes it even more exciting.

In fact, getting dressed is the hardest part of the day. Dry suits are nobody's idea of a good time. But

Divers retrieve the fish from between the nets and deposit them in net-pens.

they are certainly better than trying to function in 40 degree water without one. The constant low 40s temperature range of Spring Creek is thought to be a major reason for the near year-round spawning cycle of trout there. It is also possible that the relative scarcity of gravel elsewhere in the Klamath Lake/Williamson system has contributed to the evolution of trout that spawn throughout the year on Spring Creek's excellent gravel bottom.

The first project of the day is setting the capture net. Metal posts are pounded into the bottom, the ends are tied to streamside trees. Then the drive begins. From 200 yards upstream, a team of biologists pulls another seine net down toward the first one.

Nets work well in this shallow, smooth creek. Even so, snorkled swimmers must splash ahead of the net, scaring fish into the waiting stationary net. Some of the bigger trout hold so close to the few downed trees along the streamside that the swimmers must nearly touch them to convince them to move.

Soon the moving net meets the stationary net. Many fish are plucked from between the nets, others have drifted into the fyke, a narrow, funnel-like trap that extends downstream from the net.

All of the fish are put in live traps and the work begins. Each fish is first placed in a light, tranquilizing solution to make it easier to handle. It is then measured, a scale is removed and a tag is attached just beneath the dorsal fin. The tag will identify the fish if it is caught or trapped in the future.

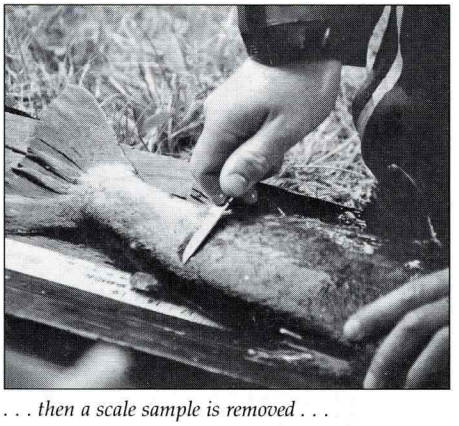
The trout spend a little time in a mild tranquilizing solution to make them easier to handle . . .

A variety of information can be gleaned from the scales. Age, number of spawning cycles and age-at-first-spawn are all being recorded here.

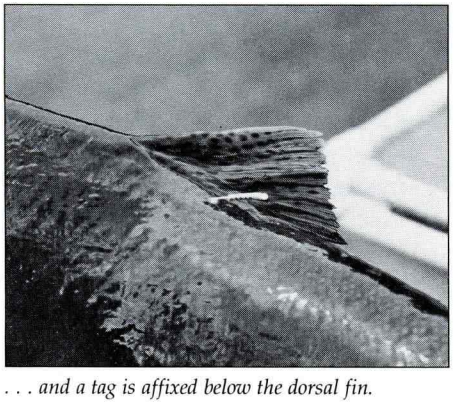
Biologists then return the fish to a live box in the stream, where they recover from the tranquilizer before being turned loose again.

The team collects eighty-one fish, all but a handful measure between 20 and 30 inches. Fish to make an angler drool. Fish that may teach us much that we do not know.

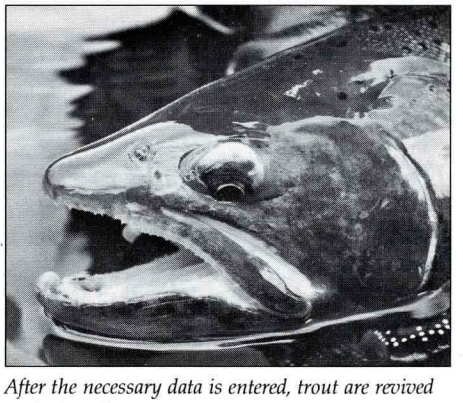
"Our data is still incomplete, but we are learning a great deal about the differences between stocks of the same species of fish," said Buchanan. "To our knowledge, even here in the Klamath Basin, there are no other resident salmonid stocks, rainbow or otherwise, that spawn on a year-round basis." □



. . . then a scale sample is removed . . .

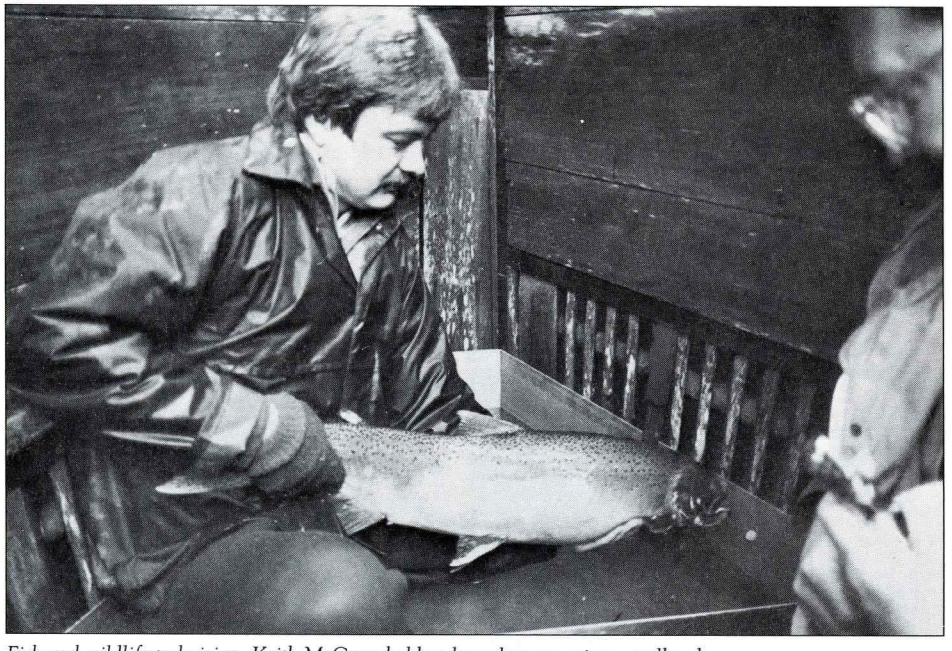


. . . and a tag is affixed below the dorsal fin.



After the necessary data is entered, trout are revived and released.

VOLUNTEER SUPPORT AIDS CLACKAMAS STEELHEAD



Fish and wildlife technician, Keith McCarty holds a large late-run winter steelhead.

Fish biologist Wayne Bowers tows a net-pen into place on the lower Clackamas River. These types of net-pens will hold summer steelhead in North Fork Reservoir to make room for the winter steelhead at Oak Springs Hatchery.

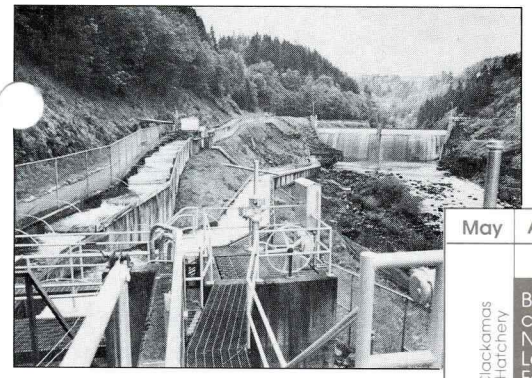
Story and Photos by Randy Henry

Each year, thousands of chinook, coho and steelhead work their way up the Columbia River, through the lower Willamette and into the Clackamas River. And each year, thousands of anglers take advantage of bank and boat fishing opportunities offered by this river. Hatchery and wild salmon and steelhead provide the temptation and the reward for anglers near Oregon's largest metropolitan area.

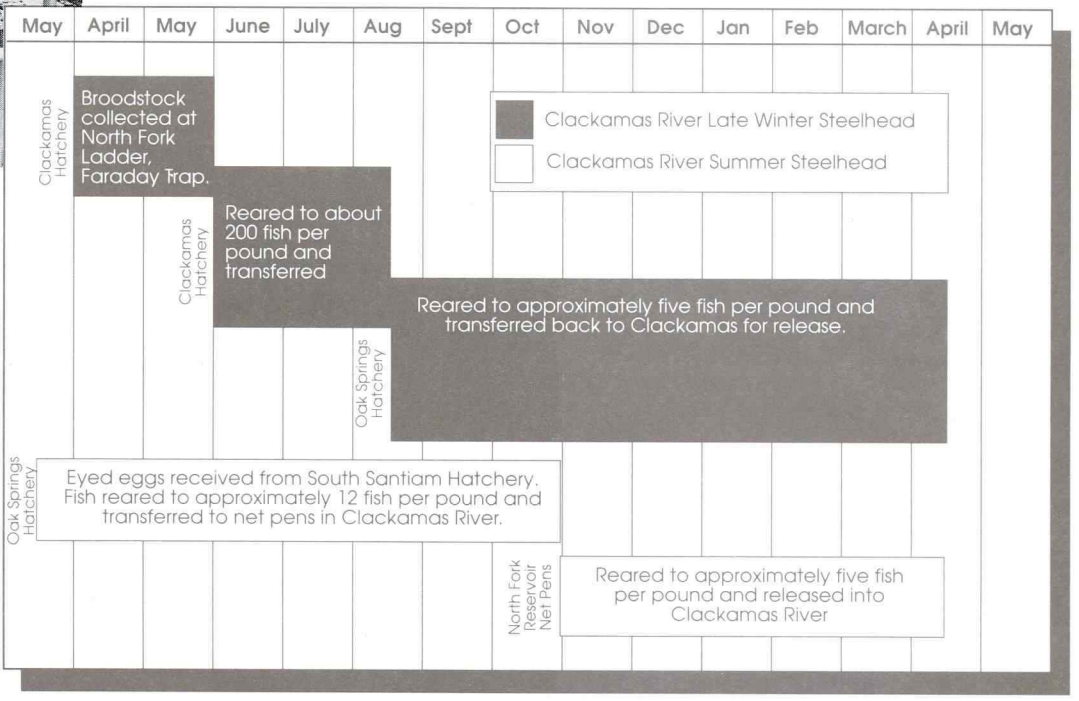
But like other rivers in the Willamette System, the Clackamas is low on winter steelhead — and getting lower. This year's run of wild winter steelhead was projected at 1,000 passing over North Fork Dam, but the actual count may be as few as 300. With a goal of increasing that run to 3,000, the Oregon Department of Fish and Wildlife has brought together several public and private interest groups to provide dollars and muscles toward the effort.

Concerned Groups Step Forward To Help

Rebuilding the run won't be easy or cheap. "We estimated the cost of



The North Fork fish ladder is 1.7 miles long and is the longest operating fish ladder in the world. The fish collection facility is in the foreground.



this project at $162,830," said steelhead program leader Mick Jennings. The state Fish Restoration and Enhancement Board has recommended a $50,000 grant for the project, but those funds will not be available until mid July, pending approval by the Fish and Wildlife Commission.

To get the project going, however, work needed to start this spring. That's when the Oregon Wildlife Heritage Foundation stepped in. "You've got to give credit to the Heritage Foundation," said Jennings. "They wanted to see the program implemented this year, so they said 'Okay, we'll help,' " said Jennings. The Heritage Foundation gave $38,270 to run the project until July 1.

The plan is designed to establish a wild, late-winter steelhead broodstock aimed at boosting the number of hatchery fish available to anglers while reducing pressure on wild stocks. A wild steelhead release regulation has been proposed by the department, and would allow anglers to take only marked hatchery fish.

Late-run winter steelhead aren't the only steelhead in the Clackamas system. In fact, 170,000 winter steelhead hatchery smolts from Big Creek stock and 150,000 winter steelhead from Eagle Creek stock are released each year. These fish offer a good early-winter fishery. But because the late-run wild stocks are reduced, biologists will use this plan to build the run, improve late-run fishing opportunities and protect the late-run wild stock at the same time.

Heritage Foundation funds will cover much of the cost of materials, personnel and equipment needed to trap and spawn wild winter steelhead broodstock and raise 40,000 smolts. Portland General Electric provided the brood collection facility, anesthetic and transportation to the Clackamas River hatchery.

Incubation and early rearing of the late-winter run hatchery stock will take place at Clackamas Hatchery, followed by accelerated rearing to release size at Oak Springs Hatchery on the Deschutes River. Lack of adequate facilities at Oak Springs required some juggling. The department plans to transfer 40,000 summer steelhead presmolts from Oak Springs to the net pens in North Fork Reservoir for the remainder of their rearing. This will make room for the winter steelhead.

Doug Cramer, a PGE fisheries biologist, worked the fish trap at the PGE North Fork Dam complex near Estacada. He made many trips to the trap in May, but the unexpectedly low run slowed collection efforts. "The run is past peak," he said. "We've got twelve pairs now. We need 20. It's a real skinny run."

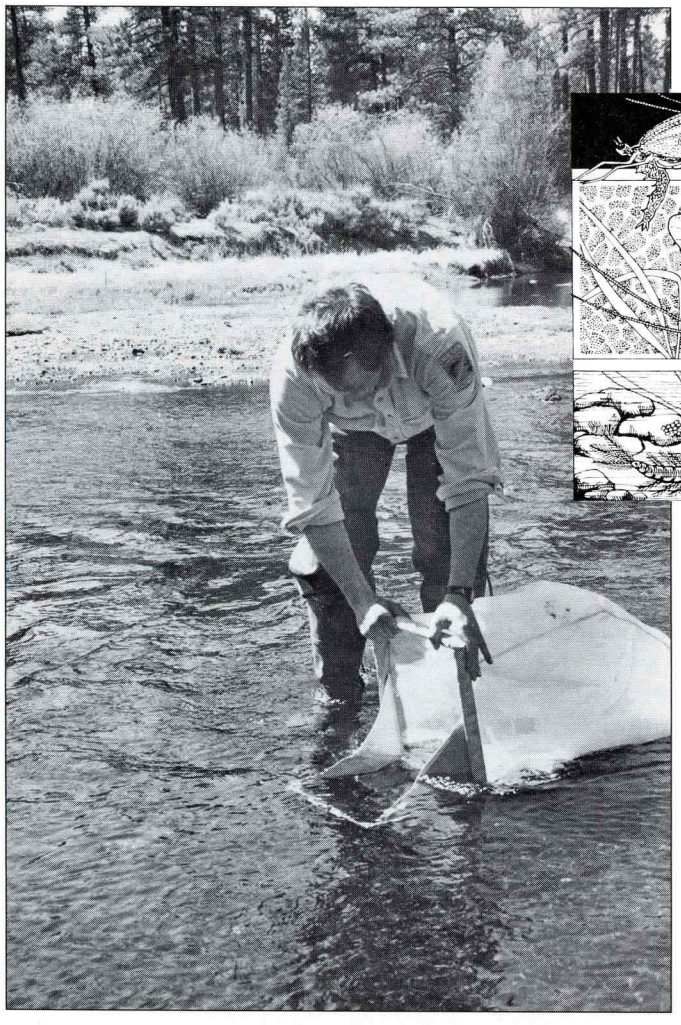
Department biologist Pat Keeley is concerned but optimistic. "We don't know what happened to the run. But if we don't reach our target, we don't reach it. We still feel we can give the run somewhat of a boost even if we don't meet the goal." Trapping was to continue into June, well past the peak run in early May.

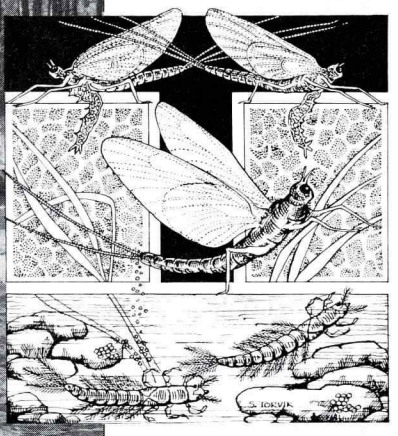
"We think we can turn this around," said Jennings, "and getting started early is important. Without assistance from the Heritage Foundation, PGE, Northwest Steelheaders and others, it would have been tough if not impossible to get this project going when we did," he added. "The ball is rolling now." □

INSECTS

A measure of stream health

Story and photos by Pat Wray





Aquatic insects are removed from the gravel within a standard, one foot square area. They are collected in the net extending downstream by biologist Roger Smith.

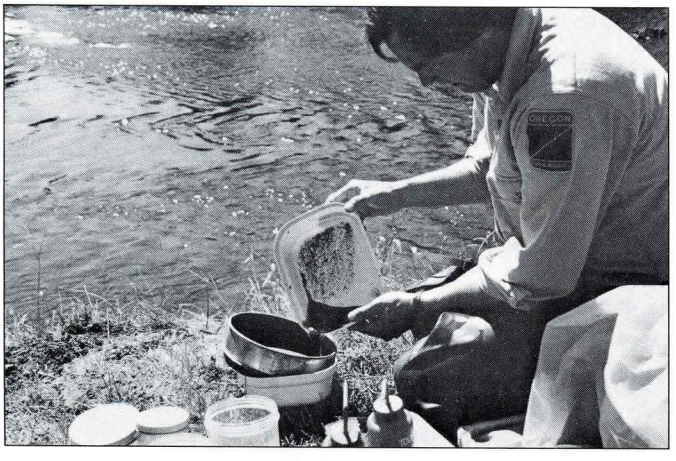
It's easy to tell if a stream is in trouble . . . sometimes. Spills, smells, and dying fish are often indicators of a stream gone bad. But biologists need to know about potential water quality problems long before fish begin to die. Some of their most effective tools in the analyses of streams are things that most of us would step on or spray if we saw them in our homes.

They are called insects. Oregon Department of Fish and Wildlife biologists know that the insect life along a stream is a very early indicator of the stream health, and not just because insects are a favorite fish food.

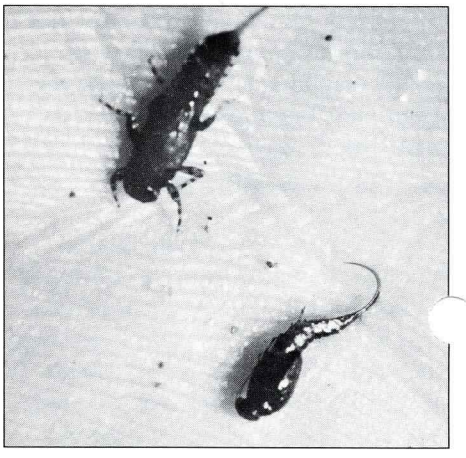
"Insects are like the proverbial canary in a coal mine," said assistan Klamath district fisheries biologist Roger Smith. "They respond to changes in water quality much more rapidly than do fish or other aquatic species."

The key to using aquatic insects, or macro-invertebrates, to evaluate stream health is that different species of bugs are found in different water conditions.

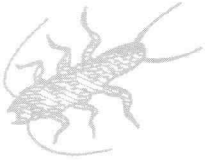
"Classic trout water of the western states is cold, clear and relatively clean. Insects indicative of such a



Material collected from the stream is screened and washed to separate organic and inorganic material. Biologist Roger Smith screens material collected from the Williamson River.



Insects of many shapes and sizes inhabit the screen. Insects and their cases are then sent to a lab to be weighed and identified.



system include the mayfly, the stonefly, some of your caddisflies and dragonflies," explained Smith. "But there are certain species of bugs, like the true fly or Diptera, that are adapted to living in nutrient-enriched systems. They are able to adapt and actually thrive in a degraded situation . . . almost a cesspool."

Nutrient enrichment is not the positive influence in a stream that it might be on your morning cereal. Nutrient enrichment in a stream or lake may result from human sewage overflow, livestock droppings either in the water or in the drainage feeding it, erosion or runoff. No matter what its cause, unnatural nutrient enrichment has a significant impact on a stream and rapidly affects the types of insects residing there.

Insects are also affected by the removal of streamside vegetation. Degradation of the riparian or streamside areas eliminates insect breeding grounds, removes fish cover and raises the temperature of the water by removing shade. Each change also affects the numbers and types of the insects living there.

"We can use insects to alert us to the early decline of a stream and to monitor it. We can also evaluate the process of reclaiming a stream. There are currently three habitat restoration projects for steelhead and resident trout projects going on in central Oregon which are using insects as a method of evaluating their effectiveness. "The steelhead projects are taking place in Fifteen Mile Creek in north central Oregon and in the Trout Creek Basin out of Madras. The resident trout project is going on in the upper Deschutes River near Bend. In all three cases, we have tried to promote the revegetation of riparian areas by excluding livestock from most of the stream bank. We have also added gravel and large woody debris to the river when those are limiting factors to reproduction of both insects and fish. In that way we hope to let willows and other native vegetation reestablish themselves and bring back the natural insect life," Smith said.

The process of stream evaluation using insects begins with collection.

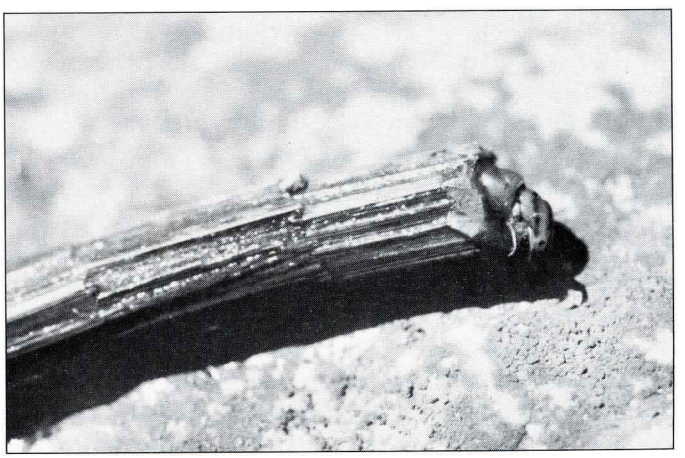
"We collect insects from among the rocks of a typical riffle in the stream with a net arrangement that covers exactly one foot square on the stream bottom," Smith explained. "We remove the insects, casings and other organic matter, including those attached to rocks, down to a depth of three or four inches. We segregate them and send them off to a U.S. Forest Service lab. The lab identifies the types of insects and measures their mass. We analyze water samples from the stream. A combination of the two findings can give us an accurate idea of the health and productivity of the stream.

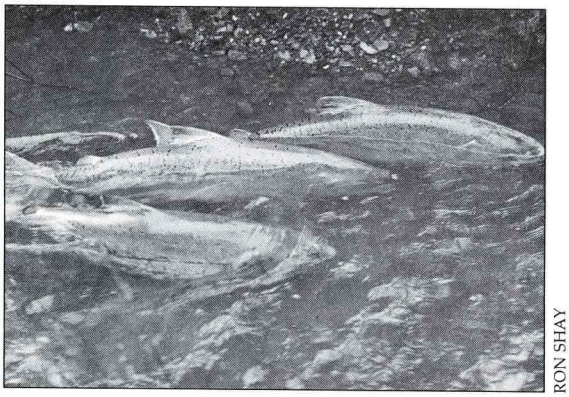
"In the event that a problem is developing, having the information early on helps us to plan ways to improve the situation. Remedial action may involve working with landowners to remove sources of pollution, protect riparian areas, add woody debris and a number of other techniques.

"Evaluation of stream health using insects gives us a head start on the situation. We still have to get out there and help take care of the problem," Smith said.

But that head start may be critical in maintaining a healthy, productive stream in years to come. □

Portrait of a stream. The nymphs of Mayflies, dragonflies, and Caddisflies are indicators of a relatively healthy stream.





RON SHAY

The draft chinook plan does not set fish production goals in terms of numerical targets. Rather the emphasis is on natural, long-term productivity of the river systems.

PLANNING FOR OREGON'S COASTAL

CHINOOK

A BLUEPRINT FOR SURVIVAL

By Jim Gladson

Considerable public attention has focused in recent months on the plight of wild salmon runs in the Columbia River. At the same time, Oregon's other chinook stocks, those produced in coastal basins, have also been under review of a different sort. A plan for management of coastal chinook populations is now in draft form and ready for public consideration and comment.

Department of Fish and Wildlife biologists and members of a public task force have been working on the document for nearly two years. The final product is the latest in a series of management plans prepared by the department covering major species groups, according to Ray Temple, department Freshwater Fish program manager. Existing species plans include documents covering trout, warmwater fish, coho salmon and steelhead.

Like other species plans before it, the coastal chinook plan will provide an umbrella of policy guidelines and strategic direction for on-the-ground management decision making. "The coastal chinook plan is another piece of the fabric that will give guidance to management programs within basins around the state," says Temple.

He describes this newest plan as one that takes "a conservative approach to long term management of chinook resources. The emphasis of the plan is to identify ways to protect endemic or native stocks while also allowing orderly management of diverse chinook populations."

That is an important, but not an easy, task. During the 1980s, the combined annual ocean harvest of chinook by sport and commercial fisheries averaged more than 300,000 fish. The 1984 season, following the devastation of the 1982-83 El Niño, was the decade's low at 81,330 chinook harvested.

Just three years later, in 1987, the catch rocketed to 588,471 fish. The bulk of these chinook were produced from streams and rivers along the central and southern Oregon coast and the Klamath and Sacramento rivers of California. A significant portion of that production comes from natural spawning.

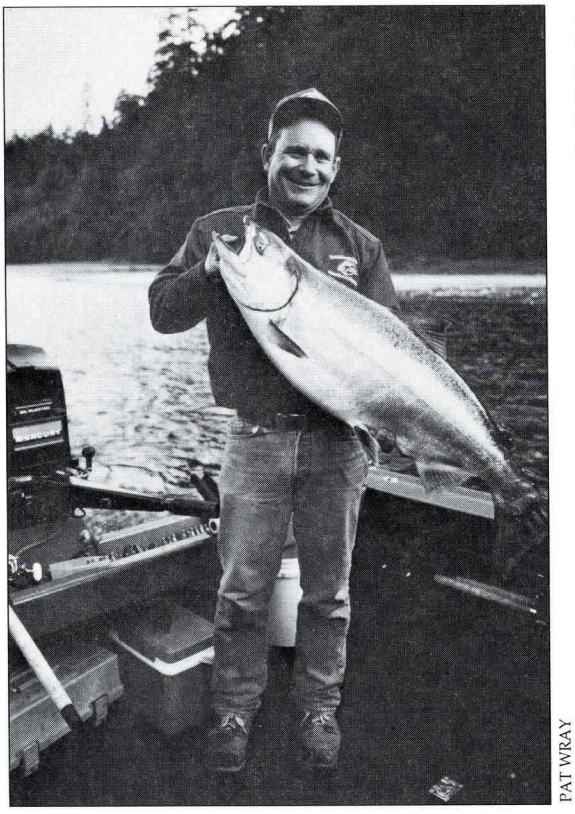
There are also the inland fisheries to consider. Fall chinook fishing at Tillamook Bay during October is becoming famous as anglers know the next bite may be a fish weighing in at more than 50 pounds. The Rogue River is already famous for its spring and fall chinook fisheries.

Troubled Times

The plan comes at a time when these treasured, and economically important stocks, face tough years ahead. Commercial ocean seasons of southern Oregon and northern California are all but closed for chinook this year to protect weak fall runs to the two major California rivers as well as the Rogue.

Biologists estimate that combined ocean harvest may be only 150,000 chinook for all Oregon waters this summer and fall. While much of the concern centers on the Klamath and Sacramento in California, Oregon coastal streams are not exempt from problems.

Rogue chinook runs have



PAT WRAY

Rogue River chinook have been a mainstay of ocean commercial fisheries as well as inland and offshore sports fishing. Recently, declining runs have played a role in reduced ocean fishing seasons.

dropped recently. Other south coast streams are suffering from degraded spawning habitats and reduced run sizes. Clearly, it is time to act. But how?

Temple says the plan goes back to the basics. "Implementation of the Wild Fish Management Policy is a central focus of the plan. It is the naturally-producing stocks that are the backbone of our coastal chinook resources, and assuring long term productivity from these populations is the key to the future."

The draft chinook plan lists 55 specific, proposed actions organized under eight objectives.

MANAGEMENT OBJECTIVES

Objective 1
Maintain healthy populations of wild chinook salmon in coastal river basins.

Objective 2
Produce hatchery chinook salmon for specific fishery contribution purposes.

Objective 3
Develop comprehensive management programs to protect coastal river chinook habitat.

Objective 4
Describe and manage gene resources represented in coastal chinook hatchery populations.

Objective 5
Develop a genetic resource inventory database for wild populations of coastal chinook.

Objective 6
Protect wild coastal chinook populations from detrimental genetic interactions with hatchery populations.

Objective 7
Minimize detrimental genetic impacts of harvest on coastal chinook salmon populations.

Objective 8
Minimize detrimental genetic changes in coastal chinook populations that may be caused by habitat alteration projects.

These objectives translate into several concepts that can be broken down into categories that include production, habitat management and harvest management.

Production

1. A strategic procedure will be developed to establish goals for run-size and spawning escapement for individual coastal chinook populations.
2. The department will review and classify the status of all wild chinook populations in coastal river basins on a bi-annual basis. These classifications will help set priorities of population conservation efforts.
3. Management programs will be developed to attempt to restore several sensitive and depressed stocks of chinook salmon to a higher level of production.
4. The department will strive to minimize reliance on artificial propagation of chinook in coastal river basins for supporting fisheries, mitigating habitat loss, or rehabilitating depressed populations.
5. Stock transfer is recognized as a substantial threat to the fitness of locally adapted fish. Therefore, transfer of chinook stocks from one river basin to another will be

JIM GLADSON

Elk River Hatchery on the south coast raises more than 800,000 fall chinook annually for release into coastal rivers. The draft chinook plan proposes that the role of such hatcheries in coastal chinook management be carefully evaluated.

terminated, except under precisely defined circumstances.

6. Hatchery chinook will not be stocked into populations that are not currently being stocked without authorization in a basin plan approved by the Fish and Wildlife Commission; unless the population is exempted from wild fish management by the commission.
7. Harvest-based fishery contribution objectives will be defined for all current and proposed artificial propagation programs in coastal river basins.
8. Written operational plans will be developed and implemented to guide broodstock selection, breeding, husbandry, record-keeping, incubation, rearing, marking, and release practices, for each location where chinook are produced by artificial methods.
9. Existing and proposed artificial propagation programs will be reviewed and modified, if judged necessary, to ensure that they add-to, rather than replace, natural production.

Habitat Management

1. The department will review the adequacy of existing legal standards and administrative programs affecting protection of coastal chinook habitat, and will advocate needed improvements.
2. A system for assessing current condition and monitoring future condition of fish rearing habitats in coastal river basins will be developed.
3. Criteria will be developed to provide a high level of protection to sensitive habitats crucial to natural production of chinook salmon.
4. ODFW will actively promote and support assessment of cumulative impacts of watershed uses on fish production habitat and the use of land and water management techniques that minimize those impacts.
5. Priorities will be defined for all current and proposed habitat rehabilitation programs in coastal river basins.

Harvest Management

1. This plan recognizes the existing multi-jurisdictional nature of ocean harvest management systems and the varying exploitation rates on Oregon coastal chinook stock groups intercepted by these fisheries. It addresses the need to manage harvest exploitation on major coastal chinook stock groups or aggregates in "general" ocean fisheries while managing for individual basin stocks in targeted nearshore (state waters) ocean fisheries and in-river recreational fisheries.
2. Monitoring the status of stocks and the fisheries in river basins and ocean management areas will be a high priority.
3. The department will make recommendations to the Oregon Fish and Wildlife Commission and regional fishery management forums specifying ocean and in-river exploitation rates that are compatible with conserving wild stocks of chinook salmon and providing in-river fisheries in coastal basins.
4. In order to provide optimum ocean harvest benefits to regional ocean fisheries from major southern Oregon and California chinook stocks such as the Rogue, Central Valley and Klamath River basin chinook populations, biologically appropriate stock-conservation measures (i.e., in-river harvest restrictions, habitat improvement, artificial propagation) will be undertaken to aid conservation of several depressed chinook stocks. □

SEA LIONS AND SEALS

As Populations Change, Interest Grows

By Randy Henry

Sitting in the cabin of a research boat on a calm Columbia River, Oregon Department of Fish and Wildlife project leader Jim Brennan peers through binoculars at a dark object near a gillnet float. He takes note of his observations and talks about seals, sea lions and the Marine Mammal Observer Program.

"The observer program is a federally funded project involving Oregon, Washington and the National Marine Fisheries Service," says Brennan. "It's being conducted during the commercial winter salmon season to determine how seals and sea lions interact with the gillnet fisheries in the Columbia River. Aside from that data, we'll gather large amounts of information on all seals and sea lions in the Columbia.

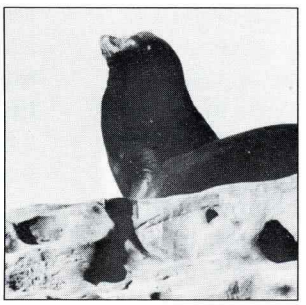
"That's a California sea lion," he says of the object near the gillnet. It's distinguishable by the sharp crest of its forehead, its dark fir and medium size — about 500 or 600 pounds. The harbor seal is about 200 pounds. At the mouth of the river, we see Steller sea lions, too. The Steller has a smooth forehead, golden-tan color and is larger — up to a ton. The Californias are juvenile males just passing through, but Stellers are residents.

"This study," continues Brennan, "will be used by the National Marine Fisheries Service to make recommendations in the management of marine mammals when the United States government reviews the Marine Mammal Protection Act in 1993."

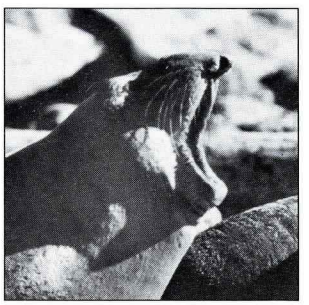
A preliminary report released in May illustrates some of the interaction between seals and sea lions and commercial fishermen. Observers were on hand when 766 of the 13,223 salmon were caught in the 1991 Columbia River winter commercial salmon season. Of those 766 salmon, seals and sea lions damaged 30. Seven of those fish were unsalable. These figures don't include salmon pulled from the nets by seals and sea lions, or salmon eaten at sea. The economic loss from damage to fishing gear has not yet been calculated.

California Sea Lions

Harbor Seals



Steller Sea Lions



Elephant Seals

During the season, one California sea lion and nine harbor seals died after becoming entangled in the gill nets. Stomach contents of the seals and sea lions are being examined to determine diet. Of all seals and sea lions observed in the Columbia during the study, 51 percent were Californias, 41 percent were harbor seals, and one-half percent were Steller sea lions. The remaining 7.5 percent were unidentified.

Trying to determine the effect seals and sea lions have on salmon and steelhead stocks and fisheries is "like trying to count the stars in the sky," says Robin Brown, Marine Region nongame wildlife biologist for the Oregon Department of Fish and Wildlife and Oregon coordinator for the Marine Mammal Observer Program study.

"There's no way to extrapolate what happens in the Columbia by looking at studies done in other river systems," he says. But one study by the Washington Department of Wildlife on seals and sea lions in the Columbia indicated a three percent economic impact on commercial fisheries. "We don't expect to see a whole lot different with this study," said Brown.

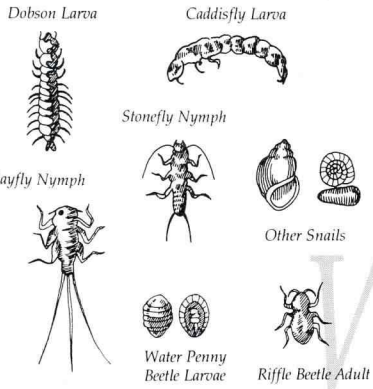
One difference now is the changing populations. "The number of Californias has increased overall about six pecent a year since the federal Marine Mammal Protection Act was passed in 1972. We estimate there are 3,000 Californias in Oregon waters now," says Brown.

Oregon's resident population of Steller sea lions is stable — about 3,000, located mostly on the southern Oregon coast. They aren't doing so well elsewhere, says Brown. "We're watching our population carefully because the population of Stellers in the Gulf of Alaska has decreased markedly." Counts from the Gulf of Alaska west to the central Aleutian Islands show a decline from 140,000 in 1958 to 68,000 in 1985 and only 25,000 in 1989. The animal is now listed as "threatened" under the federal Endangered Species Act because of its fast decline, explains Brown.

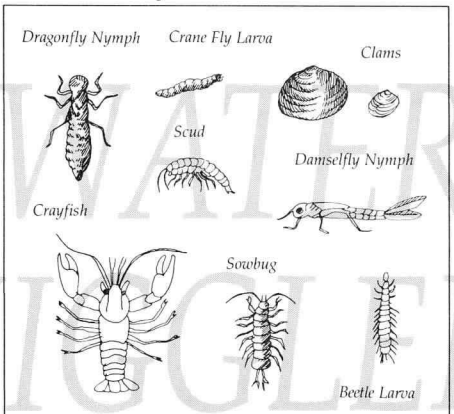
Research into the cause of the decline seems to point at the burgeoning pollock fishery in the Gulf area. Large trollers bringing in "40 metric tons at a shot," may deplete food supplies around Steller breeding grounds, affecting pup survival, says Brown. Accidental take of Stellers by trollers — though small on a yearly basis — may contribute to the decline, says Brown.

In addition to Stellers and Californias, Oregon has about 8,000 harbor seals and an occasional elephant seal. "Harbor seals like shallow waters along beaches and in bays, and have increased at about seven percent per year since 1977. We've also seen an increasing number of juvenile elephant seals on our beaches," says Brown. □

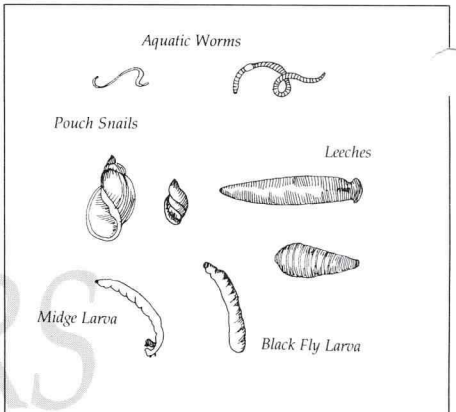
By Bill Hastie



GROUP 1 (These organisms are generally pollution-intolerant. Their dominance generally signifies GOOD WATER QUALITY.)



GROUP 2 (These organisms can exist in a wide range of water quality conditions)



GROUP 3 (These organisms are generally tolerant of pollution. Their dominance usually signifies POOR WATER QUALITY.)

If you have a cough, a fever or a stomach ache, your mother usually figures that you are sick. After she determines that you're not faking it and trying to take a vacation from school, she usually lets you stay home for the day. The cough, fever, or stomach ache are indicators of something wrong in your body.

Streams get sick too. Poor land use practices and pollution in a stream's watershed (the area the stream drains) can lead to a stream health problem. How do biologists know when the stream starts to get sick? What are the indicators of poor stream health?

A stream that does not support as many fish as it once did is a prime suspect. But even before changes in fish populations are noticed, biologists can tell if a stream is healthy or not by looking at the aquatic (water-living) insects in the stream.

A stream with a diversity (many different kinds) of insects living in it is usually considered healthy. But much can be learned about the stream by also looking at the kinds of insects living there. In general, stream insects can be placed in three groups:

Group 1 insects generally can't tolerate pollution, so good numbers of these indicate good water quality

Caddisflies, Stoneflies
Mayflies

Group 2 insects can live in a very wide range of water quality, and can tolerate both good and poor water quality

Dragonflies, Damselflies
Beetles, Crane Flies

Group 3 insects can live in polluted water, and good numbers of these insects indicate poor water quality.

Midges, Black Flies

Explore your favorite stream to find out how healthy it is. Collect aquatic insects by kicking up the bottom material on and under the rocks and letting the current carry it into a fine mesh insect or aquarium net. This should be done in a riffle area where there is a good current. Place the material you have collected in a light colored container (a white, enameled pan works best). You will be able to see many insects crawling on the bottom of the container. Place the insects into one of the three groups mentioned above by transferring them to a plastic ice cube tray filled with stream water. A small tweezers or an artist's paint brush work well for this. Use the key below to help you identify the insect.

Count the number of insects in each group. How would you rate your stream's health? Hike or drive the stream above your sampling area. You may be able to see reasons for the quality of the water you found. These could include a pollution source, riparian (the area near the stream) disturbance caused by natural events or people, or a combination of these reasons.

Remember that this is only one part of determining stream health. The entire watershed needs to be examined before a complete picture of the stream's health is possible. □

SIMPLE KEY TO AQUATIC INSECTS

- Builds a portable "house" or case to live in (case can be made of wood, leaves, rocks, or sand grains) ..... Caddisfly
- Has two tails, without abdominal gills ..... Stonefly
- Has three tails (sometime two), with abdominal gills .... Mayfly
- Worm-like, without true legs
  - Less than 1 cm long, gills at end of abdomen ..... Midge
  - More than 1.5 cm long, head small, usually found in leaf litter ..... Cranefly
  - Antennae look like tiny fans ..... Blackfly
- Large, 3 pairs of legs, gills at end of abdomen ..... Dragonfly Damselfly

(key adapted from Stream Scene: Watersheds, Wildlife and People, secondary level curriculum materials developed by ODFW)

ETHICS

A matter of attitude

By Pat Wray

Lyle pulled his pickup into the roadside park and cut the engine. He got out, slammed the door and pulled a beer from the cooler in back. He sauntered over to a picnic table, sat back and began to review the day that was drawing to a close.

"It hadn't been much fun," he thought to himself. "Certainly not relaxing and enjoyable like a day of fishing is supposed to be. People are just getting harder and harder to get along with," he decided.

It had started out first thing that morning. He'd been on the river at dawn, at a spot where the fish keg up below a set of rapids. He'd only been fishing for 10 minutes or so when the fellow that owned the land came out on his porch and yelled down to Lyle, "Somebody give you permission to fish here?"

"No, but . . . I know you let everyone else fish," Lyle said.

"That's right," the old codger had yelled. "But everyone else asks."

So Lyle had had to leave. The old man was adamant. And to make matters worse, as Lyle walked past the house, two other people were stopping by the house to ask permission to fish. "Sure," said the old man, and his words made Lyle's blood boil. "Glad to have you. Thanks for asking."

It was not fair, Lyle knew. If the old man was going to let them fish anyway, why did he care if people asked?

So Lyle had gone back downriver. He knew a spot where the hatchery truck dumped trout on a regular basis. There tended to be a lot of families there early in the trout season, but Lyle knew how to fish the good water anyway.

He'd just stood up on the bridge and let his bait drift downstream through all the good holes. The problem, of course, was that anglers lined the sides of the stream and his hook and sinker had tangled more than once with those peoples' tackle. Each time, they'd pulled his line in, untangled his from theirs and just let them come apart. The last time, though, when he'd tangled lines with a four-year-old boy who'd cried when he'd realized that he wasn't catching a fish, his father had reeled the tangle up and cut Lyle's line without hesitation. Then he'd gathered up Lyle's spinner and line and thrown it in the dirt by his own feet.

The father hadn't said anything, but he'd stared hard at Lyle, and his stare was unfriendly enough that Lyle decided not to go down to the stream to retrieve his lure. In fact, it was unfriendly enough that Lyle decided not to fish there anymore. He'd packed up and departed, thinking to himself that kids shouldn't be allowed to fish until they were old enough to untie knots.

Now, as he sipped his beer, the memory made Lyle even madder than ever. "Fishing is not supposed to be stressful," he said to himself. "Why do people have to get upset?"

It had been the same thing the previous weekend, when Lyle had taken his jetboat up the river. He'd gotten a late start that day and it seemed like there were a couple bank anglers at every hole when he got there. Well, Lyle had waited years to get a jet sled so that he could cover all the good water and that's exactly what he did. But were the bank anglers willing to let him share their fishing spots? Of course not. They acted like they owned the holes. A couple of them yelled at him and one guy actually cast a lure at him. Hard. Lyle shivered to think what that treble hook might have done to his face if it had hit him. That guy was definitely mad.

"It's not like I was going to stay there very long," thought Lyle. "I just wanted a couple casts in those drifts. You just can't please everyone, he thought. Most of the time, people are griping 'cause I go too fast, he thought, remembering the dressing down he'd gotten from a man and his wife in a canoe who had almost been swamped when Lyle zoomed by on the sled.

"Just because they want to go at a snail's pace doesn't mean I have to," thought Lyle. "If they want to be in this river with the power boats, they should be prepared to deal with the power boats. I'm not going to slow down to their speed just because they're a little uncomfortable."

It just doesn't make sense, the way people act these days, thought Lyle, as he finished the beer.

"With just a couple hours of daylight, I could head on home or . . . no, I think I'll go over to Fisher Falls. There should be some salmon holed up there in the deep water. They're not biting, but if I rig up with a weighted spinner I can snag a couple of them and still look like I'm fishing for trout. As long as there aren't any cops around I should be OK."

Lyle smiled and finished his beer. At least the day won't be a total loss, he thought. I'll get some good fishing in after all.

Lyle tossed his beer can into some nearby bushes, started the truck and headed off. □

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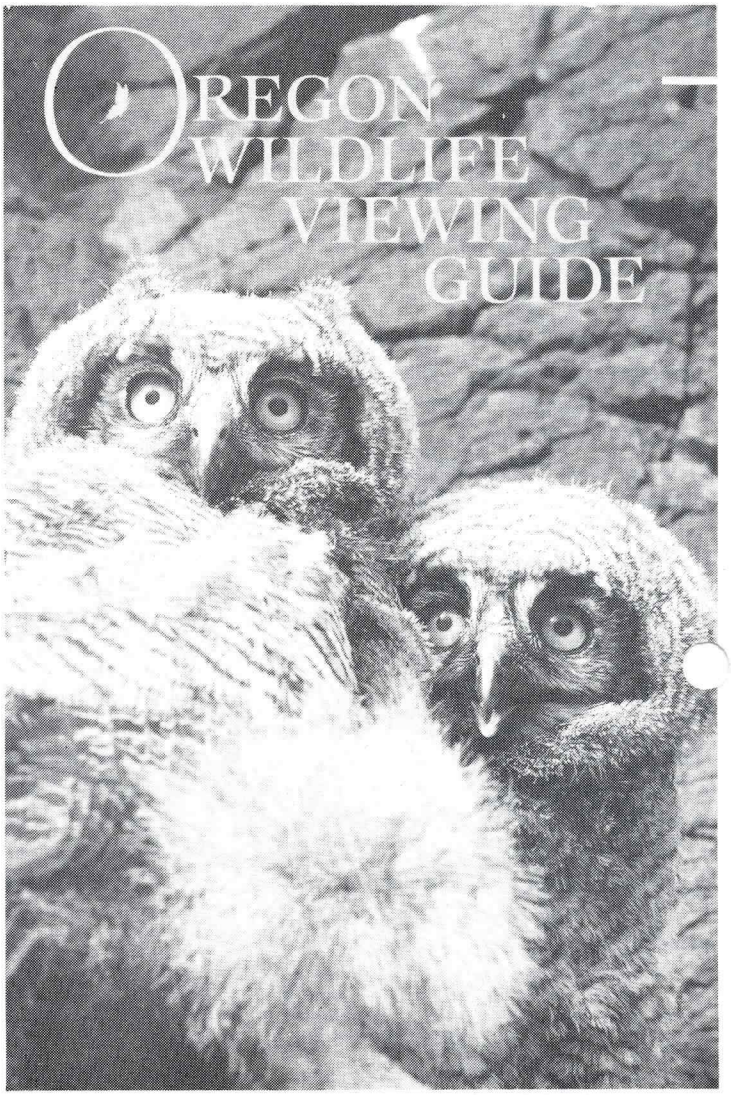

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