

OREGON STATE

# GAME COMMISSION BULLETIN

MARCH, 1957



**NATIONAL WILDLIFE WEEK**  
**March 17-24, 1957**



The March 15 meeting of the Game Commission will be held in its Portland office as usual instead of at Corvallis as previously announced. Date for meeting at Oregon State College will be decided later.

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Approximately 2,625,500 pounds of fish food were fed at Game Commission hatcheries during 1956.

\* \* \*

Effect of Game Commission releases of chinook salmon in the Umpqua River system are beginning to show up in catches made by both commercial and sports fishermen.

The 1955 catch records (1956 records not complete) show that in the ocean troll fishery there were taken 714 Umpqua spring chinooks and 502 fall chinooks, marked when liberated by the game department. Commercial catches also included 1,081 marked silver salmon. Information gathered indicated that most of the spring chinooks range southward, going as far as San Francisco at least, while the fall chinooks migrate north up as far as central British Columbia. Seven of the latter, however, were reported taken in Alaska near Sitka. Most of the chinooks taken were 1951 brood fish although a number were 1952 brood chinooks.

In the sport catches, 65 marked spring chinooks were taken from the main Umpqua and 10 off Coos Bay. The fall sport fishery at Winchester and Coos Bay accounted for an additional 50 marked chinook, while 16 were reported in the sport fishery along the coast of Washington and Puget Sound.

Total count of 1955 spring chinooks passing the counting boards at Winchester on their way upstream to spawn was 7,644, of which almost 1,000 were marked hatchery fish.

## Sauvie Island Game Management Area Open to Panfishing

All waters within the Sauvie Island Game Management area are open to fishing except during the waterfowl season. Such species as bullhead, catfish, bluegill, crappie, perch, and bass may be found in most of the lakes and sloughs within the management area.

Most roads are opened to automobile travel when weather conditions permit. A permit is not needed to fish on the management area. Overnight camping is not allowed.

Anglers may reach lakes and sloughs in the management area through a number of access points. Oak Island off Reeder Road is centered in the Sturgeon lakes group and serves as an ideal boat launching site. A checking station road on the Columbia River side provides access to the lower dike, which is within

walking distance of the McNary lakes, Pete's Slough, and Big Sturgeon Lake. From a checking station located on the Multnomah Channel side, the angler can walk to such areas as the Grandstand on Sturgeon Lake, Big Eddy on the Gilbert River, and numerous small lakes. The McNary lakes and the mouth of the Gilbert River may also be reached by way of Collins Dike which intersects the island road on the Columbia River side about two miles below the checking station. Cunningham Slough is most easily reached by boat, launched either in Scappoose bay or St. Helens. Coon Point, a favorite fishing area, is located at a point where Reeder Road intersects the big dike.

See back cover for map showing location of the principal fishing sites.

### Oregon State Game Commission Bulletin

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### SOIL BANK—WILDLIFE

It occurs to us that many scattered acres throughout the state could profitably be retired from crop production and devoted to wildlife. We are referring to cultivated land which because of its low yield, eroding condition, difficult access or for other reasons should be returned to permanent cover. The Soil Bank now offers additional incentive to the landowner to set aside such acres. Or perhaps a duck pond built on some easily flooded, low-lying field sounds attractive. Or a pond to provide the young folks with some fishing right on the home place. These, too, may be accomplished with assistance from the Soil Bank. The program does not prohibit hunting or fishing.

Most sportsmen know of such areas where a modest habitat improvement effort—using trees, shrubs and grasses for cover, food patch planting and water developments—would be well rewarded by increasing game abundance. Perhaps there's an opportunity here for farmer-sportsmen cooperation whereby everyone profits.

Details of the program are available in every county from the A.S.C. The April 15 deadline for making application this year is drawing close. Why not inquire about it right away?

#### COVER

Shrub test plantings for browse revegetation on Northside Deer Winter Range, Grant county. (Photo by Frank Stanton)





Opening day at Diamond Lake—1956.

# Lake Rehabilitation Review

By JOHN B. DIMICK, Coordinating Biologist

ONE of the most significant developments in the field of fishery management since the advent of artificial propagation centuries ago is that of lake rehabilitation. Briefly described, it is the process of applying fish toxicants to lakes, reservoirs and streams in order to remove unwanted fish populations and restoring such waters to the exclusive production of game fish of the proper species.

Many of our lakes and reservoirs, which only a short time ago produced but few desirable game fish, are now providing a maximum of recreational use to the angler. Before chemical treatment, such waters were supporting populations of trash fish, often of staggering numbers, although biological history showed that these areas were capable of producing desirable varieties which would provide great recreational benefit for a large number of people.

Unfortunately, the existence of the undesirable fish populations has all been caused by man, either directly or indirectly. One of the major causes has been the use of live fish for bait in angling for the larger varieties of trout, and roach or chub have become widely distributed by this practice. Unintentional mismanagement through the introduction of exotic fishes before the fishery agencies had the benefit of adequate research has also contributed.

The construction of impoundments for irrigation, power, and flood prevention has altered the natural habitat of our native fishes and created waters ideally

suited to the growth and development of certain forms of undesirable native and non-native fish. Among these are carp, suckers, squawfish, roach, and even species of warm-water game fish when the latter are found to inhabit waters better adapted to other sport fish. Usually such species have a much greater reproductive capacity than trout and soon after establishment outnumber and compete with the more desirable fish for food and living space.

Although often limited by the scarcity of funds, Oregon's participation in the control of undesirable fishes has been extensive. Forty lakes and reservoirs, ranging in size from 2 to 3,000 acres, have been made attractive and useful by rehabilitation thus far. Others will be restored as funds become available. Projects to date have involved the treatment and restocking of 8,447 surface acres using 578,286 pounds of fish toxicant at a total cost of \$315,000.

The most outstanding example of lake rehabilitation in Oregon is that of 3,000-acre Diamond Lake—believed to be the biggest project of this nature ever attempted and successfully accomplished in the United States. The lake was treated in September 1954, in order to eradicate an excessive roach population, and restocked in June 1955 with rainbow trout from British Columbia. These fish were selected because a pure strain was desired. The initial planting consisted of 146,000 which averaged 4.9 inches in length. The lake was reopened to angling on May 26, 1956, after only

one year of closure and fishing success now is claimed to rival that of the 1920's.

During the 1956 season from May 26 to October 7, a total of 34,706 anglers caught 61,430 trout with an average weight of just less than one pound for a yield of 20.3 pounds per surface acre. This is far in excess of the 2.8 pounds per surface acre recorded in 1953, the next to last season before treatment. Productivity in lakes has been known to exceed 50 pounds per acre and at Diamond, this could well be achieved.

The catch, at a value of 90 cents per pound in the creel, has, in just one year's time, given a return of more than one-third of the total project cost of \$137,000. In poundage, the 1957 season can be expected to produce an even greater yield.

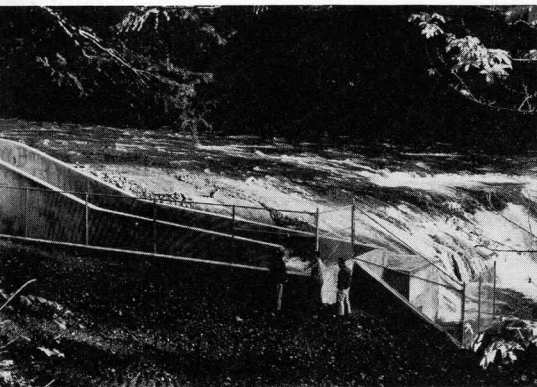
The bottom food production in Diamond Lake is also showing a consistent recovery. From a low of 2.6 pounds per acre in 1953, it increased to 92.8 pounds in just one year after treatment. Although less than the record 292 pounds per acre measured in 1946, the bottom food content reached 145.2 pounds per acre in October 1956. The once abundant aquatic plant life, which is of value in harboring aquatic food organisms and as cover for small fish, is also recovering even to the extent of interfering with certain methods of angling.

In addition to the initial restocking, 440,000 Canadian rainbow trout fry were released in August of 1955, and 500,000 fry in August of 1956. Fish

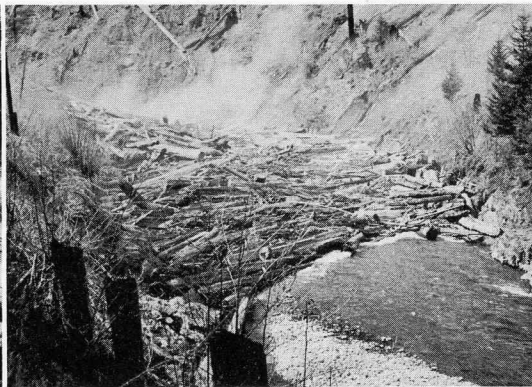
(Continued on page 6)



*Chemical treatment of Diamond Lake provides a better home for rainbow trout.*



*Fish ladder permits salmon and steelhead to reach spawning beds on upper South Umpqua River.*



*Impassable log jams must be removed to allow free passage for migratory fish.*



*Boy Scouts erect and inspect wood duck nesting boxes, Sauvie Island Management Area.*



*Grass reseeding on elk winter range, Wenaha Management Area, Wallowa county.*





*Homes for Wildlife*

# **NATIONAL WILDLIFE WEEK**

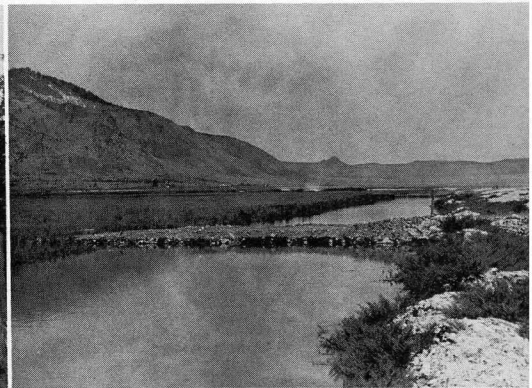
## **March 17-24, 1957**



*Quail roost for upland bird cover, Columbia Basin, Umatilla county.*



*Four-year-old multiflora rose fence row planted for upland bird cover, Linn county.*



*Water controls and marsh provide homes for muskrats, nesting sites and rest areas for waterfowl, Summer Lake Management Area.*



## LAKE REHABILITATION REVIEW

(Continued from page 3)

planted as fry in 1955 had grown to 10 inches by October of the next year and will be about 12 inches long on opening day of 1957. At the end of the 1956 season, many trout of the original plant were approaching three pounds in weight and will probably be in the four to five-pound class in 1957.

Thirteen-hundred-acre Lake-of-the-Woods, rehabilitated in 1955 and restocked with 50,000 rainbows in the spring of 1956, also showed high angler success. Checks of 563 creels indicated a take of 2,503 fish for an average of 4.4 fish varying in size from 10 to 12 inches. In the early history of this high mountain lake, four-pound trout were common but since the stocking of warm-water fish in 1922, trout production had almost ceased until 1956.

Malheur Reservoir, treated in October of 1955 and restocked with rainbow fingerlings in February of last year, was yielding rainbows up to 12 inches in length by July. It is estimated that during the four months that Malheur was being fished, 2,000 anglers each removed an average of 5.25 fish. This is a big improvement over the 0.63 fish per angler recorded in the season before chemical treatment.

Another instance of exceptional growth of trout in reclaimed waters is at Beulah Reservoir which was rehabilitated in 1955 and restocked in March 1956 with five-inch rainbows. At the end of October 1956, the fish were averaging 15.2 inches. Warm Springs Reservoir, also treated in 1955 and restocked with two-inch rainbow fingerlings, produced fish 8.65 inches long in five months for an average growth rate of 1.4 inches per month.

Although the goal of any rehabilitation project is to remove all fish and to restock with the most desirable species, escapement has sometimes occurred. Migration through inlet or outlet streams, fish eggs spawned before treatment and hatched after the water has become nontoxic, unauthorized introductions, or the illegal practice of using live minnows for bait have all been causes of reinfestation. A few fish can form the nucleus of a population that continues to increase and eventually makes retreatment necessary. Even so, it has been clearly demonstrated that, through proper management, the immediate benefits will more than pay for the project cost. For example, in

Big Lava Lake, treated in 1949, small numbers of roach were found to have re-entered the lake the next year through an outlet connection. The roach population appeared to build up quite rapidly, but through proper management and stocking, an excellent eastern brook trout fishery has been maintained, as attested to by the thousands of anglers known to fish there each season. Retreatment in the near future appears inevitable. Cost of the project approximated \$10,000, but the value of the fish taken has exceeded that figure many times over.

The most recent project where an escapement of undesirable fish occurred is at the 600-acre Devils Lake on the coast. Carp spawn hatching after the water became nontoxic resulted in a repopulation of the species. Possibly a limited number of adult carp survived also. From past experience, the duration of toxicity was known to extend from a few weeks to as long as two months, depending upon such factors as alkalinity, vegetation, organic matter and dilution from tributary streams. At Devils Lake, the toxic period was found to have been less than seven days. The conditions at the time of treatment were apparently ideal for an early dissipation of the chemical. Of the fishes eradicated for the benefit of the restocked native trout, salmon, and steelhead, the carp made up the heaviest portion. Approximately 15 tons or 30,000 pounds of carp were destroyed, representing a yield of 50 pounds per surface acre. With this productivity potential and the substitution of the most desirable game species, an excellent sport fishery could well exist. Even though carp have survived, the planted rainbow and cutthroat trout

have made exceptional growth with increases in size up to five inches in the four months since restocking. If conditions are comparable to other waters that have become repopulated with unwanted species, game fish production in Devils Lake can be expected to be favorable for the next several years.

Many factors must be reviewed and evaluated before chemical treatment of any water can become a reality. The past, present, and future productivity is of prime importance. Kinds and abundance of undesirable fish, their predatory habits, the presence of anadromous fish runs and how such migratory fish populations can best be perpetuated, and fish stocking requirements must all be determined. Physical aspects of the lake such as the size, depth, location, and accessibility must be considered. The potential recreational use, public opinion, and the economic value to the state as a whole must also be thoroughly analyzed.

Until now, rehabilitation efforts have been confined to lakes and reservoirs and their tributary streams. There now appears to be a growing need, especially in the upper Columbia Basin area, for the eradication of undesirable fish in entire stream systems or watersheds. Test treatments of certain portions of the Powder River in eastern Oregon have shown the entire population to be trash fish. These sections have since been restocked with the rainbow trout.

The control of undesirable fish populations appears to offer one of the greatest challenges in fishery management today. Rehabilitation was developed in the late 1930's and experiments in the work were carried on before World War II with results that indicated the need for expansion and perfection. Soon after the war, the method came into widespread use as a fishery management technique.

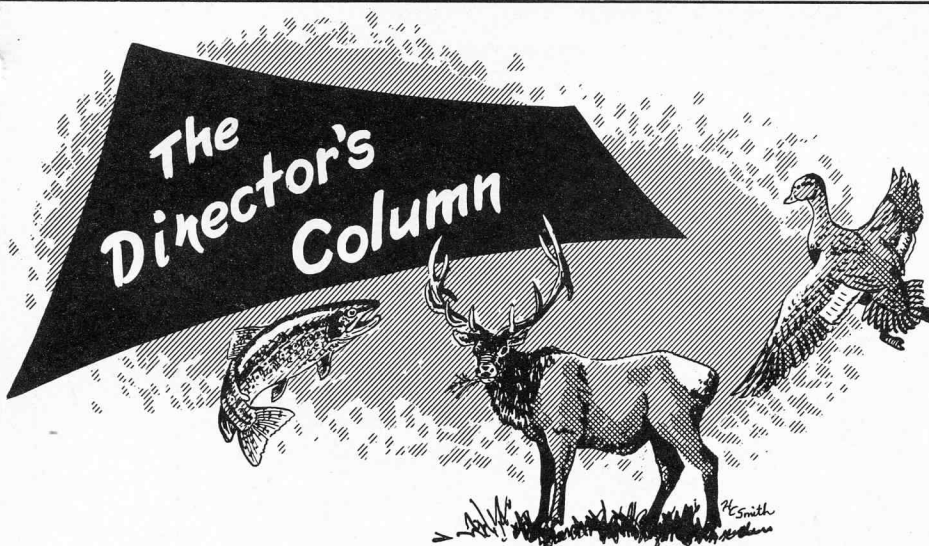
More economical and effective chemicals and methods of application than those now in use are in the experimental stage of development. A selective toxicant, for the removal of only the unwanted varieties of fish, may one day be a reality.

Great strides in chemical rehabilitation have been made in the past 10 years. The inevitable early setbacks and disappointments have been far outweighed by the accomplishments. It is now recognized by the public and fishery administrators alike as one of the most successful and useful methods of restoring unproductive waters.



*These rainbow trout over 12 inches in length are typical of fish caught opening day at Diamond Lake following treatment of the lake.*





**W**ATERFOWL biologists and game management agents of the federal government and the several states, provinces and territories embracing the Pacific Flyway have recently completed the annual winter waterfowl inventory. This coordinated and progressively improved technique represents one of the several management tools employed under the general leadership of the U.S. Fish and Wildlife Service to provide a basis for sustained maximum use of the migratory waterfowl resource.

Each year, usually during the first week in January, waterfowl throughout the Pacific Flyway are simultaneously inventoried. Essentially the same individuals, areas and methods are used and the data thus developed is consolidated by the U. S. Fish and Wildlife Service into a figure which represents the status of the wintering population of birds by species. These birds comprise the breeding stock for next year's population of harvestable birds.

The 1957 wintering population of birds, consisting of over 711,000 found in Oregon, revealed a rather surprising increase over the 485,000 plus population found in the 1956 inventory. This represents only Oregon, however, as figures for the entire flyway are not available yet. Publication of these figures has engendered a considerable amount of inquiry about the season dates prevailing in Oregon this year. Since there are so many phases of waterfowl management, upon which much can be and is written, the following comments will be confined for purposes of brevity to the shooting dates for Oregon.

As every waterfowl hunter knows, it has been difficult for the Commission to adopt a uniformly satisfactory open-

ing and closing date under the framework of the seasons allowed because of the widely different conditions in eastern and western Oregon, plus the wide differences in the origin of birds passing through our state. Last year, for example, the Commission had, between the period of October 1 and January 15, an option of 80 consecutive full days or two periods totaling 72 full days. In an effort to select dates most uniformly applicable to both eastern and western Oregon conditions, an 80-day season from October 13 through December 31 was chosen. Although within the hunting period there are variations in the peak build-up of birds and their departure dates in different areas of the state, there is generally an average period which can be forecast with reasonable accuracy with respect to waterfowl flight patterns. Every interested waterfowl hunter is familiar with these factors.

Since the close of the season on December 31, we have had called to our attention the substantial incidence of birds, particularly in western Oregon, during the first part of January. This seems to be well confirmed by inventory figures developed from January 2 to 9. The same point can be made with respect to the incidence of birds at the beginning of the season in many of our key waterfowl areas east of the Cascades. Therefore, the date of opening of the season for some of these key areas in the early autumn likewise becomes important. It is felt that the dates selected were those in which as equitable a distribution of hunting opportunity prevailed as the normal flight patterns of birds permitted. A week later opening would have permitted a greater opportunity of hunting in western Ore-

gon but would have at the same time sacrificed to this extent waterfowl hunting in eastern Oregon during a time when birds were present in large numbers. However, a season of 80 days covering essentially the periods allowed this year does a pretty good job of embracing the major hunting period. The addition of one week in January would present an optimum season. This problem will continue to be a difficult one for the Commission to meet under the present framework of allowable days of hunting.

In the final analysis, however, the capacity or status of the resource to permit a given level of harvest must be dominant in season considerations. No season should be set which would in any way jeopardize the basic breeding stock of this important international resource. It is becoming more and more apparent, however, as factual information develops, that in all probability a greater degree of harvest can be authorized than is currently being taken out of our present waterfowl stock. Also, eventually it may be possible through regulatory adjustment to meet more satisfactorily the problem of the need for early shooting in eastern Oregon and somewhat later shooting in western Oregon than has heretofore been possible. Certainly to this end a great amount of thought and study is being made.

P. W. Schneider

## WATERFOWL CENSUS

The 711,800 waterfowl found wintering in Oregon during the annual January inventory were composed of the following species: ducks, 616,029; geese, 66,734; coot, 23,559; whistling swan, 3,979; black brant, 1,493; and trumpeter swan, 17. For the ducks, mallards were the highest in number, 373,000, followed by baldpates, 107,147; pintails, 86,980; green winged teal, 11,051; scaup, 9,700; canvasback, 2,841; and on down to a mere 10 for wood ducks. Geese were divided up as follows: Canadas, 64,211; cacklers, 1,493; white fronted, 687; and snows, 182.

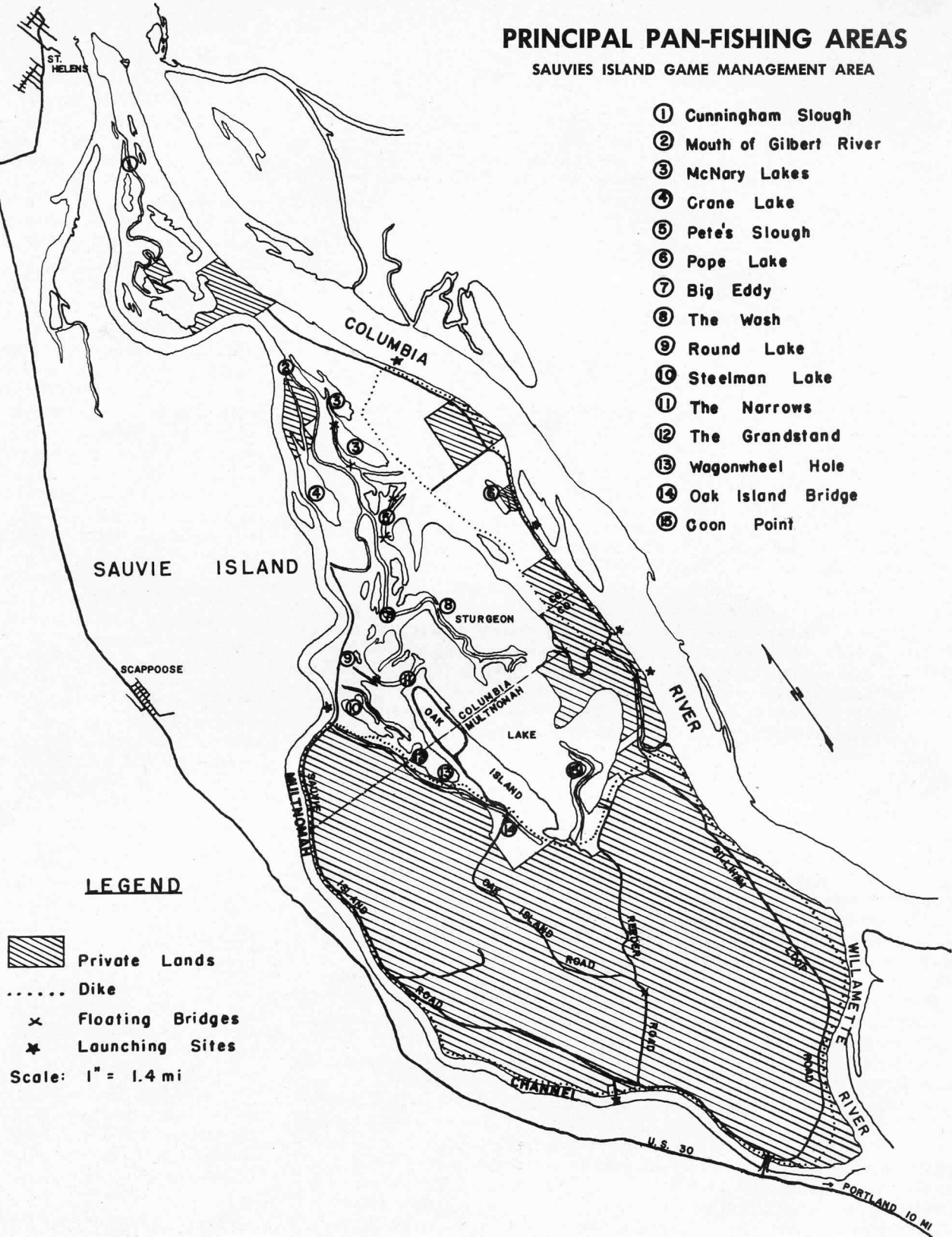
## NORTH AMERICAN MEETS

The 22nd North American Wildlife Conference is scheduled for March 4-6 in Washington D.C. Conservation leaders, technicians, sportsmen and outdoor writers from United States, Canada and Mexico are expected to be in attendance.

# PRINCIPAL PAN-FISHING AREAS

SAUVIES ISLAND GAME MANAGEMENT AREA

- ① Cunningham Slough
- ② Mouth of Gilbert River
- ③ McNary Lakes
- ④ Crane Lake
- ⑤ Pete's Slough
- ⑥ Pope Lake
- ⑦ Big Eddy
- ⑧ The Wash
- ⑨ Round Lake
- ⑩ Steelman Lake
- ⑪ The Narrows
- ⑫ The Grandstand
- ⑬ Wagonwheel Hole
- ⑭ Oak Island Bridge
- ⑮ Goon Point



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