

POTTER POINT STATE GAME REFUGE  
OPERATIONAL MANAGEMENT PLAN

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Prepared by the  
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## INTRODUCTION

The purpose of the Potter Point State Game Refuge Operational Management Plan is to provide a comprehensive outline of the projects and activities presently underway and/or envisioned within the next five years for Potter Point State Game Refuge. This plan outlines on-the-ground implementation of the Strategic Management Plan.

Potter Point State Game Refuge was established in 1971 for the protection of natural habitat and game populations, especially waterfowl. A Strategic Management Plan which identified the department's goals and objectives was completed in 1981. A public workshop held in March of 1983 identified issues of concern to the public. Subsequently, the Strategic Management Plan was revised by the Potter Marsh Task Force.

The tasks presented in the Operational Management Plan were discussed and reviewed by the Potter Marsh Task Force. The plan is a working document which will be updated and expanded upon as tasks are developed and completed.

GOALS

Projects and activities which the Department undertakes in Potter Point State Game Refuge will promote the following goals in accordance with the approved Strategic Management Plan:

1. MANAGE THE REFUGE FOR THE PROTECTION AND PRESERVATION OF THE NATURAL HABITAT AND FISH AND WILDLIFE POPULATIONS.
2. MAINTAIN AND ENHANCE PUBLIC COMMUNICATIONS REGARDING POTTER POINT STATE GAME REFUGE.
3. MAINTAIN AND ENCOURAGE A VARIETY OF RECREATIONAL, EDUCATION, AND SCIENTIFIC USES OF THE REFUGE FISH AND WILDLIFE RESOURCES.

## FISH AND WILDLIFE POPULATIONS AND HABITAT

A program of inventory and research aimed at determining diversity and abundance of major fish and wildlife populations will provide the basis on which refuge management decisions will be made. To date, a synthesis of available fish and wildlife information has been prepared. (Potter Marsh Strategic Plan Resource Inventory, Appendix A, 1982).

TASK #1: DIVERSITY AND ABUNDANCE OF WILDLIFE General distribution information is fairly well documented. However, with the possible exception of Potter Marsh, comparatively little site-specific information is available on the use of the refuge by fish and wildlife. Therefore, Department efforts will focus on documenting the diversity, abundance, and habitat use of major wildlife species in specific sections of the refuge. Transects will be selected and monitored on a monthly basis to determine diversity and abundance, including 1) approximate numbers of waterfowl and shorebird species utilizing the refuge, 2) numbers and location of breeding pairs of ducks and geese throughout the refuge, and 3) abundance and distribution of mammalian species utilizing the refuge. The study area will encompass Potter Point State Game Refuge between Potter Point and Pt.

Campbell between mean higher high water (MHHW) and the toe of the bluff excluding Potter Marsh.

Methods: Part One. Belt transects, running perpendicular to the tideline and extending to the alder fringe, will be established at one mile intervals or closer in areas of diverse habitat types, between the New Seward Highway and Pt. Woronzof. Data collected will include plant species present, the estimated percent cover of each species, and the surface soil type. Each survey of these transects will focus on observations of all avian species present, their relative abundance, and habitat use. Vegetation information will be collected for each transect. Wildlife surveys will be conducted once a month throughout the spring/summer months. Data will be gathered once during fall and winter. A special effort will be made to identify nesting areas within these transects. Observations of mammals associated with the wetlands will be made on an opportunistic basis concurrent with avian surveys. Information on the effects of weather, tides, and disturbance to birds will also be recorded.

Part Two. A breeding pair survey of the refuge will be conducted between the New Seward Highway and Point Woronzof on foot to locate and record nesting areas. Breeding pair information will be recorded by species

and correlated to habitat type. The survey will be conducted in May and the information will be mapped.

Part Three. To further document mammal use of Potter Point State Game Refuge, a mammal sighting report card has been prepared and distributed to residents who live adjacent to the refuge as well as wildlife watchers who regularly visit the refuge. The report cards will record location (where the animal was sighted); activity (what the animal was doing); direction of travel (was the animal moving down the bluff, along the bluff, or out on the tideflats); habitat (what kind of vegetation/water was the animal in); interactions (was the animal interacting with any other animal); and other associated information (sex, age, and condition of animal). We are asking these sighting report cards to be returned to the department when full, or at six month intervals (whichever comes first).

Results: This information will be written up in an annual report accompanied by appropriate mapped information.

TASK #2: DIVERSITY AND ABUNDANCE OF FISH A program to better document diversity and abundance of fish populations within the refuge will be undertaken. Timing and use patterns (i.e., spawning) of adult salmon in Rabbit Creek

will be monitored as well as distribution and abundance of salmon fry and smolt within Rabbit Creek/Potter Marsh throughout the year. Diversity and abundance of other species of fish utilizing Potter Marsh/Rabbit Creek will also be monitored.

Study Area: The study area will encompass that portion of the refuge known as Potter Marsh.

Methodology: Diversity and abundance of adult salmon will be established by spring through fall river bank observations between the New Seward Highway culverts upstream to a point approximately three miles above the Old Seward Highway. Timing of arrival and spawning will also be accomplished by stream bank observation.

Abundance and distribution of fry, smolt, and other species utilizing Rabbit Creek/Potter Marsh waters will be accomplished via minnow trap and fyke net sampling. Minnow traps will be utilized twice monthly during the ice free months and twice during the winter months. Fyke nets will be used once each spring and fall.

TASK #3: INSTREAM FLOW RESERVATION An instream flow reservation for Rabbit Creek, Little Rabbit Creek, and Little Survival Creek will be prepared and submitted to

Department of Natural Resources. The instream flow applications will be justified with information collected by USGS and DGGS during 1983-1984 hydrological investigations of Potter Marsh, Rabbit Creek, Little Rabbit Creek, and Little Survival Creek, and studies conducted by ADF&G, USFWS, and Woodward Clyde Consultants July through September 1983. Methods used to determine instream flow required to maintain fish and wildlife populations in Potter Marsh will include stream discharge information, stream hydraulic characteristics and habitat requirements of fish and wildlife.



## MANAGEMENT OF THE PHYSICAL ENVIRONMENT

TASK #4: WATER QUALITY The Department will establish a program for monitoring the physical parameters which are basic indicators of the environmental health of the refuge. This will include periodic sampling of water quality within Potter Marsh and annual sampling of both fresh and marine waters within the refuge.

The USGS has recently collected water samples at the gaging stations located at the Rabbit Creek outlet to Potter Marsh and at Rabbit Creek and Little Rabbit Creek just above the marsh. These samples were collected monthly and were analyzed for major dissolved chemical constituents, nutrients, selected trace metals, and suspended sediment. These data will provide a basis from which to measure any significant changes in the water quality of Potter Marsh. Similar base line data needs to be collected for Little Survival Creek.

TASK #5: LEAD SHOT INGESTION The Department will update its data on the extent of lead shot ingestion and tissue assimilation by waterfowl which are taken on the refuge during hunting season. Although lead poisoning was previously determined to not be a biological problem on Potter Point State Game Refuge, new criteria have been

implemented and a re-evaluation with standardized techniques will be done.

TASK #6: BOUNDARY SURVEY AND ACQUISITION OF PRIVATE LANDS

The landward boundaries of the refuge will be surveyed as funding permits, beginning at the southern end of refuge. A prioritized listing of zones to be surveyed consists of the following: Potter Creek to the Rabbit Creek rifle range; the rifle range to a point approximately one-half mile south of the end of Klatt Road; this same location to a point two miles north of Campbell Creek; and two miles north of Campbell Creek to Point Campbell.

There remains 230.6 acres of privately owned wetlands within the boundaries of the refuge. A purchase priority indicating the last known owners and acreage is: German Club (5.5), Bayshore West (60), Thomas Carey (41.9), R.J. Rhodes (24), Ethyl Kyzer (17), Robert Huff (8.6), Walter Hickel (17), Jack White (55), and Gordon Wold (2.5).

PUBLIC INFORMATION

TASK #7: INTERPRETIVE SIGNS At least six wildlife interpretive signs will be placed on the boardwalk. Information signs will be erected at Potter Marsh parking areas to inform the public of refuge regulations and wildlife values, including prohibitions against walking in the marsh (during spring, summer, and fall) and feeding wildlife.

TASK #8: PAMPHLETS The Potter Marsh pamphlet will be made available at the Department of Fish and Game Regional Office. It will be reprinted as necessary. Regulations pertaining to the refuge and information about permits required for activities conducted in the refuge will be made available at the Department of Fish and Game Regional Office as well.

TASK #9: NEWS RELEASES News releases will be used to provide information regarding ongoing and future projects and activities affecting the refuge including: 1) wildlife week, 2) status of refuge studies (e.g., hydrology, water quality, wildlife distribution and abundance), 3) rifle range schedules and activities, 4) hunting regulations, and 5) the completion of a management plan.

PUBLIC INVOLVEMENT

TASK #10: CITIZEN'S ADVISORY COMMITTEE The Department will establish a citizen's advisory committee to advise the Department on issues relating to the protection and management of the refuge. The committee will be composed of conservation interests, adjacent community councils, hunting interests and development interests.

The committee will meet at least three times per year. Appropriate organizations will be contacted and requested to nominate an individual for committee membership.

## PUBLIC USE AND ACCESS

TASK #11: POTTER MARSH PULLOUTS The two paved turnouts at the south end and mid-marsh will be curbed and the edges revegetated as funding allows. The two existing gravel turnouts adjacent to Rabbit Creek along the Seward Highway will be upgraded for wildlife viewer use. Parking will eventually be prohibited on turnouts at Rabbit Creek and they will be reserved solely for viewer use when a northern parking area is constructed.

### TASK #12: UPGRADE OF NORTHERN POTTER MARSH VIEWING COMPLEX

The northern viewing complex is planned for completion by late summer of 1987. This complex will include: construction of an access road from the New Seward Highway to a new parking pad, including paving and curbing; revegetation of the road and pad shoulders; an elevated wooden walkway from the northern parking area to the Rabbit Creek viewing area, where it will connect with the recently completed boardwalk; and a viewing tower near Rabbit Creek. As plans and specifications are prepared for this project, they will be reviewed by the Citizen's Advisory Committee.

TASK #12: RABBIT CREEK RIFLE RANGE The Rabbit Creek Rifle Range will continue to be maintained and operated for public use. Upgrading of the facility will be accomplished as

funding allows including shooting sheds with sound baffling, a field archery/hunter safety course, and indoor shooting facility.

TASK #13: ATV PROBLEM The department will work with adjacent landowners, the Citizen's Advisory Committee, and the Municipality of Anchorage, to eliminate ATV use on the refuge including construction of access barriers at Oceanview Bluff Park.

# POTTER POINT STATE GAME REFUGE MANAGEMENT PLAN

## I. STRATEGIC PLAN

### A. LOCATION

The Potter Point State Game Refuge, as described in Alaska Statutes 16.20.030, is in Game Management Subunit 14C, on the northeast side of Cook Inlet, adjacent to Anchorage.

### B. OBJECTIVES

To protect, maintain and enhance the Potter Point Refuge fish and wildlife populations in concert with other components of the ecosystem and thereby assure their capability of providing sustained opportunities for public recreational uses.

### C. MANAGEMENT GUIDELINES

1. Consider the ecological relationships and the human benefits derived from fish and wildlife on the Refuge in the formulation and implementation of management programs.

This area supports many plant and animal species which are dependent upon each other and on nonliving components of their environment for their life requirements. These interrelationships are complex and incompletely understood.

All human use of the area has some effect upon the biotic components of the Refuge. However, to a considerable degree the biotic components are dynamic and adaptable to change. This inherent resiliency allows for the temporary alterations of ecosystems that most human use of wildlife represents, without causing permanent changes. Nevertheless, management of the Refuge should be designed to minimize disruptive effects on Refuge ecosystems while providing for optimum human benefits from all resources.

Because many species of wildlife in the area provide benefits to man, and because management of any species may affect other species, management programs must consider probable effects on all species and their use by man and should be designed to yield the optimum mix of uses which constitutes the greatest public benefit.

2. Maintain and encourage nonconsumptive uses of Refuge fish and wildlife resources.

Viewing and photography of waterfowl and other marsh birds, mammals, and fish, together with educational instruction, are the primary uses of the Refuge. Opportunities to participate in these activities exist throughout the Refuge, although they are most available within the southern portion between the Old and New Seward Highways.



Enhancement of nonconsumptive wildlife use opportunities will be undertaken on a limited scale so as not to compromise the natural qualities of the marsh or alter the diversity of habitat types. Enhancement projects may include an interpretive center, highway pullouts, viewing platforms, pathways and instructional signs. Waterfowl nesting and loafing sites having a natural appearance, as well as artificial baiting, may also be utilized provided existing wildlife use patterns are not altered. The majority of these projects would be of greatest benefit on the most southerly portion of the Refuge between the Old and New Seward Highways.

All activities which affect fish or wildlife and their habitats, or primary nonconsumptive uses of the Refuge may be regulated. Included herein are such things as dog training, use of boats (including kayaks and canoes) and simple trespass into major waterfowl use-viewing areas. Recreational activities which are not fish or wildlife oriented, may be permitted so long as they are not detrimental to Refuge habitat, do not adversely affect Refuge fish and wildlife, or do not conflict with the primary uses of the Refuge.

3. Maintain opportunities to hunt waterfowl and other small game on the Refuge.

Potter Point Refuge provides a unique opportunity to hunt within easy access of Anchorage. The perpetuation of this

opportunity is desirable in view of the substantial loss of public hunting lands over large portions of southcentral Alaska, the relative inaccessibility of wetlands for hunting, and because of the need to foster energy saving recreational opportunity near Alaska's major metropolitan area. Hunting should be restricted to waterfowl with shotgun and shotshells and small game with a bow only, and confined to the portion of the Refuge north and west of the New Seward Highway. Special hunting opportunities for persons 16 years of age or less, may be made available. Under existing regulation trapping is prohibited throughout the Refuge.

4. Selected habitats on the Refuge should be enhanced to increase their productivity and use by wildlife.

The environmental integrity and quality of the marsh should be maintained at its present level or improved by supporting actions that maintain present water flows, levels and quality and with habitat management that encourages species diversity. The existing hydrologic regime, including the uninhibited flow of Rabbit and Little Rabbit Creek, discharge through five culverts under the Old Seward Highway, and subsurface water flow will be monitored and perpetuated. Sewage, industrial wastes, storm runoff and channeling of surface runoff into any portion of the Refuge will be prohibited whenever possible. Artificial ponds with a natural appearance should be excavated during the winter months with the use of heavy equipment

within the poorly drained portion of the Refuge "viewing area," between the Old and New Seward Highways. Nest and loafing mounds of dirt or dirt-lumber construction, seeded with native vegetation, may be placed over ice within both the "viewing area" portion of the Refuge and the area between John's Park and the rifle range. Well planned activities of this type should significantly enhance Refuge productivity and use by wildlife.

5. Refuge fishing resources will be designated and enhanced where appropriate,

All fishing on Rabbit Creek within the Refuge should be prohibited from early May through mid-August. This prohibition is desirable because the presence of fishermen along lower Rabbit Creek during the summer months is extremely disruptive to Canada geese and to people viewing these birds.

An area to view salmon spawning should be designated along Rabbit Creek near the New Seward Highway. Informational signs and a viewing platform should be erected.

6. Maintain inventory and assessment programs which provide data necessary to manage Refuge fish and wildlife populations, their habitat and various public uses of the Refuge.

Various fish and wildlife population surveys have been periodically conducted on the Refuge. These include estimates of salmon run size, goose and duck breeding pairs and brood production surveys and muskrat pushup inventories. These surveys provide valuable information on the abundance and distribution of some wildlife on the Refuge, and are useful in identifying those areas which warrant special attention when human activities are considered in Refuge management. Survey and inventory activities will likely increase as human use puts more demand on Refuge resources. Hunting pressure and the harvest level of various species will also require increased scrutiny, as will habitat assessment programs.

7. Maintain informed public involvement in Potter Refuge management issues and land use.

Governmental, commercial or private interests may advocate alternative management strategies or land uses which could significantly alter the benefits derived from the Refuge. In all cases, the public should be advised of potential conflicts between fish, wildlife and recreational uses, versus other proposed uses of the Refuge. This can best be accomplished through public review of management plans, during the annual regulatory process, and by holding public meetings divergent public meetings or major Refuge oriented issues. Alternative plans which could adversely impact the Refuge, but which do provide a significant public need, would require a public

hearing. With these actions divergent public interests will be represented in management decisions.

8. Obtain public access easements on privately owned access corridors and acquire marshland acreage for incorporation into the Refuge.

Six strategically located access corridors traverse private lands and extend to existing Refuge boundaries. Public access easements through these corridors should be purchased to insure continued public access to Refuge lands, and to prevent conflicts with private landowners in the vicinity of the Refuge. Additionally, 600 acres of marsh habitat, under private ownership and immediately adjacent to the Refuge, extends in a broken pattern from the north boundary of the rifle range nearly to Point Campbell. These lands contain some of the better drained land and highest quality wildlife habitat adjacent to or within the Refuge. Efforts to purchase these lands and incorporate them in the Refuge should be pursued. Funds could be obtained by appropriation from the State Legislature.

9. Discourage commercial development and public utility and transportation corridors within the Refuge and adjacent privately owned marshland.

Commercial or residential projects involving fill or dredge work will be opposed through both the Army Corps of Engineers 404 regulations and the Department's refuge use permit criteria. In order to maintain the integrity of the entire marsh, the Department will attempt to follow a similar policy on all public and privately owned or leased wetlands within or adjacent to the Refuge. An identical policy will apply regarding all proposed or transportation corridors are not available. The Department will recommend, however, that an expanded four lane New Seward Highway be rerouted to the Turnagain Arm side of the railroad right-of-way. The existing New Seward Highway could then be utilized exclusively for access and wildlife observation. Proposed pipeline or power transmission corridors will be rerouted, placed on existing corridors, or discouraged outright if they degrade visually, pose a potential adverse impact or actually bill waterfowl and other wildlife. Mining and mineral extraction are incompatible with the primary objectives of the Refuge and should be discouraged. A particular project may be allowed only after submission of full plans including maps and a time schedule. Permit stipulations will require complete restoration of disturbed areas or mitigation in the form of habitat enhancement elsewhere in the marsh.

The Rabbit Creek Rifle Range, located on the Refuge, is the only public outdoor shooting facility within the Anchorage

bow. The Range is important for local recreational shooters and is used for the Department's Hunter Safety program. The noise associated with the Range is apparently not detrimental to waterfowl. The Department will continue to maintain and operate the Range. Modifications on the Range to better accommodate increasing demand by the shooting public and hunter safety instruction will be accomplished with a minimum of alteration to adjacent marshland.

10. Regulate use of motorized vehicles to protect Refuge fish and wildlife and their habitats.

Use of motorized vehicles should be limited to the use of snowmobiles during the winter only in the portion of the Refuge south and west of the Old Seward Highway. However, permits may be issued to persons wishing to use various motorized vehicles, such as snowmachines, motorized hang gliders and hovercraft, for limited activity during the winter months, provided these vehicles utilize areas of the extensive ice or snow cover where such use is not detrimental to marsh values.

11. Control domestic animals which frequent or inhibit Refuge lands.

Dogs, cats, and other domestic animals will not be allowed to wander freely on the Refuge. Efforts will be made to

apprehend or identify specific animals. However, if these animals cannot be captured or if their owners cannot be located, the animals will be destroyed.



## Background Information

### 1. Establishment of the Refuge

The coastal marsh habitat which was later to become Potter Point State Game Refuge has long been recognized as a valued portion of the Anchorage Community. With this in mind the Alaska Legislature established Potter Point State Game Refuge in 1971 primarily to preserve waterfowl nesting, feeding and migration areas and to provide and maintain an easily accessible recreation area for Anchorage residents.

### 2. General Description

The 1796 acre coastal refuge is located on Turnagain Arm near Anchorage south and west of the toe of the bluff which extends from Campbell Point south-easterly for approximately 11 miles to Potter Creek. An additional 197 acres of municipal and Federal land and 262 acres of private land lies linearly adjacent to the northern two-thirds of the refuge.

Throughout the refuge area the marsh consists of a glacial silt base deposited as a result of tidal action in Turnagain Arm. In general, the marsh area slopes gently downward from its northeastern boundary to its southwestern boundary at sea level.

The climate is nearly identical to that of Anchorage since the marsh directly abuts the city and surrounding suburbs. The average summer monthly temperature is 56°F, while the average winter monthly temperature is 16°F. The average annual precipitation in the area is approximately 15 inches. Average snow depth during the mid-winter months is 11 inches, although it may vary as much as from 3 to 30+ inches depending on the severity of the winter. Waters in Potter Refuge generally freeze in late October and remain frozen until late April.

The portion of the Refuge between the Old and New Seward Highways from Potter to Rabbit Creek, commonly known as "Potter Marsh", maintains its identity as a natural undisturbed marsh and contains a large variety of waterfowl and aquatic plant communities. Waterfowl production, hunting and viewing have been the past high uses of this area. Due to good access and visibility of large numbers of waterfowl, regulations on the area were changed to provide for increased public education and viewing opportunities following the closure of waterfowl hunting in 1972. Little privately owned land exists in this area.

The area on the west side of the New Seward Highway from Rabbit Creek North to the abandoned Oceanview Sewer outflow channel contains extensive ponds and a variety of aquatic plants on which numerous waterfowl feed. The Rabbit Creek Rifle Range is situated on the south end of this area. The range and a majority of the marsh used by waterfowl and hunters in this area was until recently in private ownership.

With State acquisition of these lands extensive improvements in range facilities have occurred. Present use levels of 20-25,000 shooter days per year are expected to increase several fold in future years.

The area north of the Oceanview sewer outflow channel to a point near where Klatt Road ends is typical natural coastal marsh, except that plant succession has advanced to the point where significant waterfowl utilization has been eliminated. Public access to this area is gained through Municipal land south of Oceanview Subdivision and through John's Park. The Lesser Canada goose is establishing itself here as a resident nester. This area lends itself ideally to habitat improvement projects for increasing waterfowl production. Very little privately owned marsh exists in this area.

North of Klatt Road to Point Campbell extensive natural and artificial ponds, mixed with sedge stands and other aquatic plant foods, provide a variety of shore bird and waterfowl habitat. Public access to this part of the marsh is restricted by private property. Public use has been primarily waterfowl hunting and viewing. Approximately 157 acres of privately owned marsh lands exists in this unit.

### 3. Vegetation

At various locations within the refuge vegetative types include cottonwood, black spruce, willow and alder, in addition to extensive grass, sedge and submergent areas. Several species of excellent

waterfowl food are commonly found including arrow weed, sedge, bulrush, pondweed, (several spp.) dock and wigeon grass.

#### 4. Wildlife and Fisheries Resources

The average annual breeding duck population of the "Potter Marsh" portion is estimated to be 200 birds, of which over 95% are dabblers, and the total fall flight, after production, is estimated to be 400 ducks. The 200 breeding ducks per square mile far exceeds the average square mile densities of 61 ducks in other coastal marshes in Upper Cook Inlet. Up to 20 pairs of Lesser Canada geese nest and raise their goslings within the northerly portion of the marsh providing the major wildlife viewing attraction during late spring and early summer. Other portions of the refuge have minimum brood production only along the bluff area of refuge. A series of ponds and berms created in 1973 near the mouth of Campbell Creek, as mitigation for a sewer line put through part of the refuge, improved feeding habitat but did little to enhance production.

In 1974, 33 ducks were banded on the refuge. Two pintail recoveries came from the immediate Anchorage area, one bird was shot on the Lower Klamath NWR in California and one occurred near Nacotta, Washington.

In 1981 an aerial survey showed 80 Canada geese (30 adults, 150 goslings) on the refuge. These birds represented 7 percent of the total Canada geese seen by aerial survey in upper and central Cook Inlet.

(Observations in 1982 indicated that the population was similar to 1981). This population of geese in Cook Inlet has become established since the 1964 Earthquake and is growing rapidly. Sixty-one recoveries from 413 geese banded on Potter Refuge between 1974-1978 indicate the Willamette Valley in Oregon and the Columbia River near Sauvie Island to be the birds' wintering area.

Sandhill cranes also nest on the refuge in low densities. More abundant are snipe, terns, other shorebirds, gulls, hawks and passerines.

Peak waterfowl concentrations occur from about April 25-May 12 and September 10-October 5. However, birds in migration can be found in good numbers several weeks outside of these dates. Shorebird concentrations occur from early August through early September, but snipe numbers peak in mid-September.

Numerous aerial surveys have been flown over the refuge during the spring and fall to ascertain waterfowl use. The number of migrating birds present depend to a large degree on weather in southcentral Alaska which influences bird migration. Numbers of ducks at any given time during peak spring and fall migration periods are estimated to average 1,000-1,500 in the spring and 500-800 in the fall. Numbers of geese in the spring possibly average: Canada - 300; white-fronted - 75; and snow - 75 and in the fall: Canada - 50 and white-fronted - 25. Snow geese rarely occur during the fall. Peak populations of both ducks and geese are many times the above estimates.

Trumpeter swans and a few whistling swans are common on parts of the refuge during the spring, but uncommon during the fall except as overhead migrants.

Shorebird concentrations estimated to be 10,000+ birds are not uncommon during spring and fall peak migration periods.

During winters of heavy snow in the surrounding foothills and mountains Willow ptarmigan are occasionally found on the refuge. Appendix I provides a complete list of birds recorded on the refuge.

#### Mammals

Numbers of mammals on the refuge have not been well quantified, but hare, red fox, coyote and red squirrel are the most abundant. Since hares are a cyclical species, their numbers vary markedly from abundant (1971-1972) to very scarce (1974-1975-1976) to moderately abundant (1980, 1981). See Appendix II.

#### Fisheries

Only two streams in the refuge have significant fish populations - Rabbit Creek and Campbell Creek. The estimated numbers and species of fish in each are:

<u>Species</u>	<u>Rabbit Creek</u>	<u>Campbell Creek</u>
Pink Salmon	100	300
Silver Salmon	30	300
King Salmon	10	300
Red Salmon	0	less than 5
Dolly Varden	500	300+
Whitefish	100	-

Potter Creek and a few other small streams also have minimum numbers of stunted dolly varden.

##### 5. Public Use

A Department visitor use survey conducted at Potter Marsh during the spring and summer of 1981 revealed visitors expended a minimum of 13,405 visitor-days or 5,932 hours of use during a four-week period. A two-week spring survey, conducted during bird migration, indicated an average minimum of 2,082 visitor-days per week (1,090 on weekdays; 992 on weekends). The two-week summer survey, conducted once goslings could be easily observed from the highway, revealed a minimum average of 5,622 visitor-days per week (2,488 on weekdays; 2,134 on weekends) and was more than twice the spring survey results. Intensity of use in spring and summer produced weekly averages of 1,412 hours and 1,555 hours, respectively.

The average visit to the marsh was longer during the spring (weekdays - 56 minutes; weekends - 35 minutes) than during the summer (weekdays - 19 minutes; weekends - 22 minutes). Intensity of visitor use during weekends was greater than use during weekdays.

Interviews with 3,577 people indicated that Potter Marsh was the primary destination for 76% of the groups in spring and 66% of the groups in summer. Those groups indicating that Potter Marsh was their primary destination accounted for 88% and 82% of the total time recorded at the marsh during spring and summer, respectively. Spring survey interviews revealed that 92% of the user groups were from Anchorage. More tourists were present during the summer interview periods and comprised 22% of the user groups. Ninety-one percent of the user groups contacted arrived at Potter Marsh by automobile.

Seventy percent of the groups interviewed were there to view the wildlife and scenery or watch birds through binoculars. Photography was recorded as a use in 16% of the groups contacted. A variety of other pursuits including jogging, bicycling, education, picnics, kite-flying and sketching were also recorded.

Although only permitted in approximately 65% of the refuge waterfowl hunting is the second highest user category. The Department of Fish and Game has periodically conducted a random mail survey of 10 percent of all licensed hunters in Alaska to measure waterfowl hunter success and activity. Four year average statistics for Potter Refuge are:



hunter days - 800; duck harvest (over 95 percent dabbling) - 1,040; and goose harvest (Canada) - 25. Juvenile hunters also account for several hundred additional hunter days and ducks harvested.

An estimated 25 percent of the hunting effort occurs opening day and probably over 60 percent occurs during the first week of the season. However, until freeze-up generally one or more parties of hunters can be found on the area at any given time. More hunters are present on days when high tides of over 30 feet concentrate ducks near shore and make the hunting better.

Several good access points are available to hunters between Klatt Road and the Rabbit Creek range. Access from the Klatt Road fill area north is limited by private property.

Other human uses which occur on the refuge are: formal (school associated) and informal nature study; photography; fishing (mostly illegal along Rabbit and Campbell Creeks); dog training; berry picking; cross-country skiing, snow machine use; picnicing; and horse riding. The heaviest uses are skiing and nature study (which includes hikes). Trapping is prohibited throughout the refuge. Aircraft and

#### Future Use Assessment

The Alaska Department of Fish and Game is keenly aware of the increased recreational need of the Alaskan public resulting from more

leisure time, improved transportation facilities, and higher living standards. While the primary purposes of all State Wildlife Refuges are the safeguarding of wildlife habitat and the perpetuation of wildlife hunting, the Potter Point State Game Refuge is uniquely attractive to people who enjoy getting out in marshes, woods, fields, and streams where a variety of wildlife can be seen.

Within the refuge migrating waterfowl, shorebirds and songbirds find the food, water and rest areas necessary in the springtime while waiting for the northern nesting grounds to thaw. It is one of their last stops in Alaska during the fall prior to reaching their lower Pacific Coast wintering areas. Returns from banded birds indicate that the hundreds of geese that visit the area in the spring are enroute to breeding grounds in Russia, the Yukon-Kuskokwim River Delta and other Arctic regions of Alaska.

With this in mind the Department has in the recent past actively pursued several use enhancement projects within the "Potter Marsh" portion of the refuge. These projects represent all projects envisioned by this Department and consist of, among others, two pullout - viewing areas partially installed during the fall of 1982 and scheduled for completion during the spring of 1983. These areas will each provide safe off shoulder parking for 13 vehicles (including 2 buses). Both turnouts will be paved and vegetated when funds are available. Each site will also have several informational signs depicting local wildlife, fisheries and vegetation. Both turnouts will be available for

use prior to paving and improvements. In addition to the excellent viewing opportunities they provide each will serve as assembly points for tourists and school groups planning to visit other areas of the marsh. These activities will be aided by several elevated wooden walkways as shown on the accompanying illustration. From the south end turnout a walkway will extend approximately 600' north along the highway shoulder terminating in a widened portion which will serve as a small viewing platform. From the north end turnout an identical walkway will extend to the existing gravel pads at Rabbit Creek and then parallel to the Seward Highway for 200' until angling across to the planned parking pad in the adjacent wooded area. This walkway will greatly enhance viewing opportunity, provide access to Rabbit Creek, and allow convenient, safe access between the two northerly parking areas. All walkways will be constructed so that screening to shield viewers from waterfowl can be easily accomplished if necessary. The proposed roadway - pad will not be entirely functional until this connecting walkway is installed. We will make every effort to accomplish this task at the earliest possible date. After completion the pad will accommodate up to 30 vehicles (including 4 buses). From its southerly end an additional elevated walkway will extend approximately 250' to a wooden viewing tower where with binoculars people will have excellent waterfowl viewing opportunities 300-500 ft. distant. The main function however of this roadway and pad will be to provide safe, convenient parking and access to the extremely popular core viewing area closer to Rabbit Creek. In view of present and projected visitor use, coupled with the closure of unsafe parking areas,

there is little doubt that this proposed parking area is essential to the proper utilization of this prime wildlife area.

An additional development project, the Rabbit Creek Rifle Range, is located west of the New Seward Highway approximately  $\frac{1}{2}$  mile north of Rabbit Creek. Entrance to the range is directly opposite the proposed access road-pad entrance which is the subject of this application. Although not within "Potter Marsh" the facility location is shown on our comprehensive site plan. The area occupies slightly more than 57 acres and contains 4 separate ranges, a shooting shed, a headquarters building, and parking areas. It is the only public outdoor shooting facility within the Anchorage bowl and is open 10 months of the year under supervision of a full time range master. Including adjacent land acquisition the Department has invested approximately \$885,000 in the range over the past 3 years. All major fill and construction activity are complete. Fencing and landscaping work will be completed within the next two years.

Although our Department has no additional development plans for Potter Marsh we are aware of several projects envisioned by the Department of Transportation (D.O.T.), the Anchorage Municipality, and Viewpoint Ventures. D.O.T. has a concept plan for expanding to four lanes the Seward Highway south to Rabbit Creek and in future years, contingent on traffic volume, south to Potter Creek. The Anchorage Municipality has noted in preliminary plans a coastal trail (bike route) extending from the most northerly portion of Potter Marsh along the existing

east side highway shoulder to the vicinity of the weigh station. A small visitor center at the trail terminus has also been mentioned. Viewpoint Ventures development plans call for a subdivision access road adjacent to the south easterly fringe of the marsh. The project is presently embroiled in a funding controversy.

Given the substantial uncertainties of each of these projects in terms of both funding and public approval, we felt it inappropriate to include

them in our comprehensive development plan. By the same token we hope that these embryonic plans do not deter further our efforts to enhance the resource values of Potter Marsh.

APPENDIX I. Avian Species and Species Groups Recorded on Potter  
Point State Game Refuge<sup>1</sup>.

Loons and Grebes:

\*Arctic Loon  
\*Red-necked Grebe  
\*Horned Grebe

Hérons:

Great Blue Heron

Swans:

Whistling Swan  
Trumpeter Swan

Geese:

\*Canada Goose  
White-fronted Goose  
Snow Goose

Dabblers:

\*Mallard  
\*Gadwall  
\*Pintail  
\*Green-winged Teal  
Garganey  
Blue-winged Teal  
\*Northern Shoveler  
European Wigeon  
\*American Wigeon

Divers and Seaducks:

\*Canvasback  
Redhead  
Ring-necked Duck  
\*Greater Scaup  
Lesser Scaup  
Common Goldeneye  
Barrow's Goldeneye  
Bufflehead  
Oldsquaw  
Harlequin Duck  
White-winged Scoter  
Red-breasted Merganser

Raptors:

Goshawk  
Red-tailed Hawk  
Swainson's Hawk  
Golden Eagle  
Bald Eagle  
Northern Harrier  
Osprey  
Gyr Falcon  
Peregrine Falcon  
Merlin  
American Kestrel

Ptarmigans:

Willow Ptarmigan

Cranes:

\*Sandhill Crane

Coots:

American Coot

Shorebirds:

\*Simpalmated Plover  
\*Killdeer  
American Golden Plover  
Black-bellied Plover  
Hudsonian Godwit  
Whimbrel  
\*Greater Yellowlegs  
\*Lesser Yellowlegs  
Solitary Sandpiper  
Wandering Tattler  
Ruddy Turnstone  
Black Turnstone  
\*Northern Phalarope  
\*Common Snipe  
\*Short-billed Dowitcher  
Long-billed Dowitcher  
Surfbird

Shorebirds: (cont'd)

Sanderling  
Semipalmated Sandpiper  
Western Sandpiper  
Rufous-necked Sandpiper  
\*Least Sandpiper  
Baird's Sandpiper  
Pectoral Sandpiper  
Dunlin

Jaegers:

Parasitic Jaeger

Gulls:

Glaucous Gull  
\*Glaucous-winged Gull  
Herring Gull  
\*Mew Gull  
Bonaparte's Gull  
Ivory Gull  
\*Arctic Tern

Doves:

Rock Dove

Owls:

\*Great Horned Owl  
\*Hawk Owl  
Short-eared Owl  
Boreal Owl

Kingfishers:

Belted Kingfisher

Woodpeckers:

\*Common Flicker

Flycatchers:

Say's Phoebe  
\*Alder Flycatcher  
Olive-sided Flycatcher

Swallows:

\*Violet-green Swallow  
\*Tree Swallow  
Bank Swallow  
Barn Swallow  
\*Cliff Swallow

Jays, Magpies, and Crows:

Gray Jay  
Black-billed Magpie  
\*Common Raven

Chickadees:

Black-capped Chickadee

Thrushes:

American Robin  
Varied Thrush  
Hermit Thrush  
\*Swainson's Thrush  
Gray-cheeked Thrush

Kinglets:

Golden-crowned Kinglet  
Ruby-crowned Kinglet

Pipits:

Water Pipit

Shrikes:

Northern Shrike

Wood Warblers:

Orange-crowned Warbler  
Yellow Warbler  
\*Yellow-rumped Warbler  
\*Northern Waterthrush  
\*Wilson's Warbler

Blackbirds:

Yellow-headed Blackbird  
Red-winged Blackbird  
\*Rusty Blackbird  
Brown-headed Cowbird

Grosbeaks, Finches, and Sparrows:

\*Common Redpoll  
Pine Siskin  
\*Savannah Sparrow  
Dark-eyed Junco  
Tree Sparrow  
\*White-crowned Sparrow  
Golden-crowned Sparrow  
Fox Sparrow  
\*Lincoln's Sparrow  
Swamp Sparrow  
\*Song Sparrow  
Lapland Longspur  
Snow Bunting

APPENDIX II. Mammalian Species Recorded on Potter Point State Game  
Refuge

Black Bear

Lynx

River Otter

Red Fox

Moose

Coyote

Beaver

Snowshoe Hare

Red Squirrel

Least Weasel

Mink

Muskrat