

TULE LAKE, CLEAR LAKE, UPPER & LOWER KLAMATH

NARRATIVE REPORTS

JANUARY-DECEMBER 1948

ROUTING SLIP

BRANCH OF WILDLIFE REFUGES

DATE: 4/1 1949

MR. SALYER \_\_\_\_\_

MR. KRUMMES \_\_\_\_\_

MR. DUMONT \_\_\_\_\_

MISS BAUM \_\_\_\_\_

SECTION OF HABITAT IMPROVEMENT:

~~MR. GRIFFITH~~ REG 4-6

~~DR. BOURN~~ WSB 4-4

~~MISS COOK~~ \_\_\_\_\_

SECTION OF OPERATIONS:

~~MR. BALL~~ \_\_\_\_\_

~~MR. REGAN~~ \_\_\_\_\_

DR. MORLEY \_\_\_\_\_

SECTION OF LAND MANAGEMENT:

~~MR. KENT~~ WLC

~~MR. ACKERKNECHT~~ da

SECTION OF STRUCTURES:

MR. TAYLOR \_\_\_\_\_

MR. JOHNSTON \_\_\_\_\_

STENOGRAPHERS:

NARRATIVE REPORT

REFUGE: TULE LAKE, LOWER KLAMATH, UPPER KLAMATH & CLERR LAKE

PERIOD: SEPTEMBER - DECEMBER 1948





## NARRATIVE REPORT

OF THE TULE LAKE, LOWER KLAMATH, UPPER KLAMATH AND CLEAR LAKE

### NATIONAL WILDLIFE REFUGES

PERIOD OF SEPTEMBER 1 TO DECEMBER 31, 1948

### PERSONNEL

Sargeant, Howard J.	Refuge Manager
Branson, Jean F.	Refuge Manager
Groves, Frank W.	Refuge Manager
Russell, Robert F.	Refuge Manager
Arnold, Ward	Refuge Mechanic
Jacox, Frank B.	Clerk
Christensen, Henry	Maintenance Man
Fisher, James R.	Maintenance Man
Jensen, Glenn C.	Maintenance Man
Udovich, Joseph W.	Maintenance Man
James, Edward S.	Laborer-patrolman

Birch, James D. Enforcement Agent - To Game Management  
as of October 7.

Garratt, Thomas, Maint. Man - To Fort Peck  
as of October 11.

### Lower Klamath Construction Crew

Gray, Frank L.	Dragline Operator, WAE
Thomason, James W.	Dragline Operator, WAE
Irvine, Earl M.	Dragline Oiler, WAE
Provost, Perry O.	Dragline Oiler, WAE

# TULE LAKE REFUGE

## TABLE OF CONTENTS

	Page No.
I GENERAL	
Weather Conditions	1
Water Conditions	1
Fires	2
II WILDLIFE	
Migratory Birds	2
Upland Game Birds	5
Big Game Animals	6
Fur Animals, etc.	6
Predaceous Birds	6
Fish	7
III REFUGE DEVELOPMENT MAINTENANCE	
Physical Development	7
Plantings	10
Collections	11
Receipts of Seed and Nursery Stock	11
Tabulation - Banding Operations	8a
IV ECONOMIC USE OF REFUGE	
Grazing	11
Haying	11
Fur Harvest	11
Timber Removal	12
Other Uses	12
V FIELD INVESTIGATIONS OR APPLIED RESEARCH	12
VI PUBLIC RELATIONS	
Recreational Uses	12
Refuge Visitors	12
Refuge Participation	12
Hunting	13
Fishing	14
Violations	14
Tabulation - Violation Cases Prosecuted, 1948	14a
VII OTHER ITEMS	
Items of Interest	15
Tabulation - Herding Permits issued, 1948	15a

NR Forms 1, 1a, 2, 3, 5, 6, 7, 8, 8a, 9, 10, 11.

Weekly Estimates of Waterfowl Populations

Photographs



NARRATIVE REPORT  
TULE LAKE NATIONAL WILDLIFE REFUGE  
September, October, November and December 1948

I GENERAL

A. Weather Conditions.

1948	Precipitation	Snowfall	Max. Temp.	Min. Temp.
September	2.56"	-	90° F.	32° F.
October	.86	-	74	19
November	.81	1.00"	59	18
December	1.47	20.50"	46	-7
Totals	5.70"	21.50"		
Extremes			90°	-7°
1947				
September	.30	-	89	26
October	.69	-	81	27
November	1.10	4.00	59	14
December	.32	3.25	51	15
Totals	2.41"	7.25"		
Extremes			89° F.	14° F.

Data from Bureau of Reclamation - Tule Lake.

Precipitation during the period was the greatest since 1941. With almost half of it coming in September, harvesting operations were very much impeded, especially since crop maturity was delayed by late plantings resulting from heavy spring precipitation. The preceding two fall periods were relatively dry.

Heavy snow in late November and early December covered up much of the bird feeding area and combined with fairly cold weather put most of the waterfowl south quite early.

B. Water Conditions.

	1948 Elevations		1947	
	High	Low	High	Low
September	4033.93'	4033.30'	4033.91'	4033.64'
October	34.28	33.94	34.35	33.92
November	34.38	33.76	34.36	33.85
December	33.78	33.14	33.77	32.55
Extremes	4034.38'	4033.14'	4034.36'	4032.55'
Max. Diff.		1.14'		1.81'

### Water data from Bureau of Reclamation - Tule Lake.

The September 1948 low of 4033.30' was the level reached at the end of a straight line drop which began in early August and during which water levels were so low as to be conducive to botulism. This drop was occasioned by the necessity for making room for some additional water in Tule Lake to come in because of construction work on the Lost River diversion. This work program fell through and levels immediately came up until late in November, when levels dropped because of irrigation use of sump water.

Water levels were higher going into the winter than in 1947 and , in consequence, there should be less chance of winter kill of muskrats.

The Tule Lake Tunnel pumping plant closed down on September 13. Pumping was resumed from mid-November to mid-December to provide 9,000 acre-feet of irrigation water for lands on the east side of Lower Klamath.

In mid-December, work of enlarging the Tunnel Plant was begun by Reclamation, under contract. This work is to consist of adding two pumps to the plant and modifying the three already installed to handle 18' additional lift. This additional lift is necessary to provide sufficient head to force an additional 100 c.s.f. through the tunnel. Present capacity (3 pumps) is 150 c.s.f., which will be increased to 250 c.s.f. when work is completed.

#### C. Fires.

There were no fires (uncontrolled) on or near the refuge during the period.

Reclamation permitted Henzel Brothers, Winema Farms and a few others to burn stubble fields. Where refuge controlled lands were involved, refuge permission to burn was given. Lessees were reasonably cooperative in conducting burning operations at a time and in a manner least damaging to wildlife values.

It is understood that Reclamation cancelled three leases because the lessees disregarded Reclamation's burning regulations.

## II WILDLIFE

#### A. Migratory Birds.

##### 1. Populations and Behavior.

Canada geese were "short" on Tule Lake the entire period, for no apparent reason.

Other species of geese and the most abundant species of ducks tended to come through in waves. In consequence, peak concentrations of most species were down somewhat from 1947, but total use of the refuge was up.



Gadwall, Cinnamon teal, Canvas-back and Scaup use of the refuge was down a great deal from 1947. Pintail use was up substantially.

An abrupt change in the weather on November 28-29 caused a general exodus of waterfowl. Exceedingly severe (for California) weather during December froze nearly all water areas tight and reduced waterfowl population to almost nothing. This severe weather, combined with eagle predation and a minor amount of coyote predation prevented much if any recovery of crippled birds left over from the hunting season, during which crippling losses were quite heavy.

The Whistling swan flight was very light.

Grebes and Pelicans remained on the area in fairly large numbers until the freeze-up.

Shorebird (particularly Avocet) use was much reduced from 1947.

The first California hunting season was October 15 through October 31. The first Oregon season was October 29 through November 14. Both ducks and geese tended to rest on refuge closed area and feed almost exclusively in Oregon during the California season. Use of stubble fields north and east of the refuge was very light (during the open season) in comparison with previous years. During the Oregon season birds tended to rest and feed on the refuge and in adjoining fields.

The goose flight between Tule Lake and Clear Lake was negligible.

The change in public hunting area (from the west side to the north end) changed behavior appreciably. Resting use of the Lower Sump during the season appeared to decrease slightly from previous years, while resting use of the south end of the Upper Sump was much heavier than use of the east side of the Upper Sump was in 1945, '46 or '47. It was rather startling to see heavy concentrations of resting birds actually crowding the public hunting area boundary, in contrast to relatively light use of the Upper Sump water and marsh area in the old public hunting area. In part, this was due to more readily visible posting of the boundary of the hunting area, easier patrol of the new boundary, and the fact that the hunting area was accessible without following routes and channels in closed area.

A few Mourning doves remained in the area throughout the period.

## 2. Food and Cover.

Aquatic growth (Sago pondweed) was less abundant than in 1947. The way the weather broke, the amount present was ample for feed and to assure a fair carry-over for natural restocking. Emergent vegetation seed was abundant.

Approximately 990 acres of grain were left unharvested. Estimated yield totaled 50,467 bushels, all of which was available to waterfowl. In

addition, there were approximately 18,000 acres of stubble field available within the refuge.

The unharvested grain was worked heavily and was very well cleaned up - not as closely as in 1947 because of early snows which remained on the ground - but closely enough to ensure complete utilization by the time the lands are farmed again. There appeared to be a tendency for waterfowl to use refuge standing grain heavily during harvesting with its attendant herding, then spread out to stubble fields and then return to the standing grain areas during and after the hunting season.

While geese generally are not inclined to feed in heavy standing grain, a large number of white-fronted and Cackling geese did so on refuge farmed areas, many feeding in fields in which they could not be seen until one was practically on top of them.

### 3. Botulism.

Approximately 26,000 ducks were lost on Tule Lake, all in the Lower Sump. They were apparently poisoned during the period September 3 - 10.

There was a rapid drop in water level in the Tule Lake Sumps starting early in August. During the latter part of August and the first part of September the rate of fall was slow and water levels might be considered as stabilized during this period. As a result, the east end of the Lower Sump was exposed mud flat. Early in September there were several days during which north and northwest winds were strong. Water was shoved out of the Upper Sump into the Lower Sump and much of the mud flat was temporarily flooded.

The outbreak on Tule Lake was sudden and severe. There were relatively few sick birds on the area until September 3, and few dead birds. By September 6 there was a large number of dead birds and still relatively few sick birds. Pick-up, which started on September 7, was almost entirely dead birds, with relatively few birds hospitalized. A running count was kept of the total number of birds picked up. An effort was made to keep count by species but after a few days of pickup work this proved impractical. On the basis of birds hospitalized and of check counts made from time to time it appears that losses were approximately as follows:

<u>Species</u>	<u>Percentage of Losses</u>	<u>Number Lost</u>
Pintails	50	13,000
Mallard	15	3,900
Baldpate	10	2,600
Green-winged teal	10	2,600
Shoveller	7	1,820
Gadwall	1	260
Redhead	1	260
Ruddy	1	260
Misc. Ducks	5	1,300
Totals	100%	26,000



A few Avocets, a few White-fronted geese, and a few Eared grebes were also lost on Tule Lake.

On September 13, Reclamation made a final determination that work on the Lost River by-pass or diversion would not be commenced, and ceased pumping from Tule Lake. Water levels rose quite rapidly, and in combination with heavy frosts apparently terminated the botulism hazard. Rising water levels floated some previously inaccessible carcasses to shore and necessitated continuance of pick up until about October 1.

#### 4. Lead Poisoning and other Diseases.

None observed.

### B. Upland Game Birds.

#### 1. Populations and Behavior.

Pheasant population was slightly greater than in 1947 in spite of an unfavorable nesting season. Birds were fairly numerous and evenly distributed along the entire west side. The heaviest concentration was in the south and southeast parts of the refuge. This concentration was enhanced by an influx of birds from the Peninsula - Liskey Siding area during the first waterfowl season. Most of these birds remained on the refuge during the balance of the period. There was another heavy concentration of pheasants in the northeast part of the refuge.

Valley quail status did not change materially.

Chukar partridge status did not change. Late in the period these birds came down the hill, affording an opportunity for a closer estimate than heretofore.

#### 2. Food and Cover.

Cover was as good or better than normal for all upland game birds. Food was more abundant than normal due to a heavier grass and weed growth and heavy fruit production by shrubs and junipers. Starting the last of November there were frequent snowstorms and a 4" to 10" blanket of snow over most of the area which, in combination with low temperatures, made conditions severe, especially for quail. A heavy feeding program was initiated early in December. Cleanings from clover seed were made available by the Pacific Supply Co-op in Tule Lake and these were distributed along the hill and in other concentration areas on the refuge. Some feed was put out in the north part of the Lava Beds and at other points near the refuge.

#### 3. Disease.

None observed.

C. Big Game Animals.

1. Population and Behavior.

Deer were appreciably less abundant than usual on the south end of the refuge.

D. Fur Animals, Predators, Rodents and Other Mammals.

Muskrats.

There were not many indications of muskrat activity early in the period. A plane census early in October disclosed fewer houses than in 1947 and a slight shift to the southward of the heaviest concentration on the Upper Sump. On the basis of early observations a trapping program was recommended. Further and frequent observations by boat during the hunting season and another check by plane early in November did not reveal any late season house building or other activity. However, late in November a few houses were found in areas where there were none seen during the earlier checks.

Water levels all during the period were slightly higher than in 1947 and therefore somewhat more favorable for muskrats.

No jackrabbits were observed on the refuge. There was a rather sharp decrease in the number of cottontails along the west side of the refuge.

Field mice continued to be rather scarce.

Very few weasels were observed.

There were not over 5 to 6 coyotes "on and off" the south end of the refuge, and none were reported elsewhere.

Housecats continued to be quite numerous in spite of continuing control operations. (It appears probable that an intensive campaign will be necessary to reduce this pest to reasonable numbers.)

E. Predaceous Birds, including Crows, Ravens and Magpies.

No Crows or Magpies were seen on the refuge.

A few Ravens were present along the south side of the Lower Sump for a few days about the middle of September.

A very few Turkey Vultures were in the lower end of the refuge about the same time - feeding on duck carcasses.

Two Bald eagles remained in the vicinity of Hospital Rock the entire period. During December, after the sumps froze over, the number of Bald



eagles on the refuge increased to 40 - 50, and at times there were as many as 20 Golden eagles on the area.

Red-tailed hawks were fairly abundant all through the period. Both American and Ferruginous rough-legged hawks were present late in the period.

Great horned owls were more numerous than usual along the west side hill. Short-eared owls were also more abundant than usual from about September 1 to November 30. Many moved out after the first heavy snows.

#### F. Fish.

Minnows only.

### III REFUGE DEVELOPMENT MAINTENANCE

#### A. Physical Development.

##### 1. Quarters and grounds.

Quarters No. 10 in the CCC camp was remodeled to provide a new bathroom. The floor had rotted out under a built-in shower and extensive repairs were required.

Work continued on the barn remodeling. Dormer was completed, partition studding placed and upstairs window openings cut.

Work of remodeling the bunk house started in November, when a brick and tile chimney was built and partitions were torn out to facilitate remodeling. Rotted out flooring under the shower room, badly worn flooring elsewhere and other difficulties made progress very slow. Single men were quartered in Qtrs. 10 during this work.

The "Shops" building in the CCC camp was cleaned out to provide better storage for materials and to make room for vehicles.

The water pump at the CCC camp required major repair during the period. The water system at Peninsula Cabin also required considerable work.

During December much difficulty was experienced in keeping water pipes in some of the CCC camp buildings thawed out.

##### 2. Equipment.

The International TD-9 tractor received a complete motor overhaul (Cylinder liners, pistons, rings, bearings, etc.), considerable repair of transmission, repair of steering clutches and overhaul of 'dozer frame. Also a paint job.

The Caterpillar RD-7 required a major job on the motor. All bearings were replaced. (Two rod and the rear main bearings were in very poor condition.) A top was constructed for this tractor.

The Speeder dragline was brought up from Sacramento (Forest Service haul). It required work on the boom control, center pin and traveller gear. The shovel bucket and boom were cleaned up and partially repaired.

An air brake system for the International truck-tractor was purchased and installed in a commercial shop. Electric brake system on the small trailer was overhauled.

A Mud-king boat was borrowed (subsequently transferred) from Malheur. This required motor repairs.

Grain drills received the previous period were partially assembled.

An elevating grader was transferred from Camas for temporary use on Lower Klamath, enroute to Stillwater, Nevada. The trip required twenty-seven man-days because of breakdowns, etc. On arrival at Tule Lake, weather conditions prevented its use. Motor was put in running condition, all gear and control housings were drained, flushed and refilled, defective parts were replaced and essential supplies and special tools were procured.

A new Ford Sedan was received on September 23. Delivery was taken at Richmond, Calif., and Jacox and Sargeant went down to get the Tule Lake and Bison Range vehicles.

A Chevrolet dump truck was received from Bowdoin for use on Lower Klamath.

### 3. Other Work.

#### Banding.

A raft-type duck trap was completed and placed in operation during the period. California Fish and Game biologist worked on banding, and with refuge personnel built two stationary traps with refuge salvage and materials furnished by the state. M. E. Foster is the State biologist (P-R funds) in this area. Banding commenced in September and continued into December, except for a lay-off during the first hunting season. Hospitalized birds which recovered from botulism were banded prior to release, in addition to those trapped. One and sometimes two refuge personnel were on this work.

The raft trap, after some experimentation, proved to be quite effective in taking divers - especially Redheads.

A summary of banding operations follows this page.



## BANDING OPERATIONS

TULE LAKE NAT'L WILDLIFE REFUGE  
September - December 1948

<u>Species Banded</u>	<u>Total Number Banded</u>	<u>Number of these which were Botulism victims *</u>
Common Mallard	504	90
Gadwall	2	-
Green-winged teal	21	5
Cinnamon teal	3	0
Shoveller	1	0
American pintail	1462	339
Redhead	323	0
Canvas-back	2	0
Lesser scaup	12	0
Ring-necked duck	1	0
Ruddy duck	2	0
Canada goose	1	1
Baldpate	<u>76</u>	<u>0</u>
TOTALS	2410	435

\* Birds banded upon recovery from sickness, just before release.

Banding done by: R. F. Russell, Tule Lake Refuge  
M. E. Foster, Calif. Div. F&G

All banding done on Upper Sump, Tule Lake Refuge.

### Botulism.

From September 7 to October 12, from three to seven personnel worked full time picking up botulism birds. A total of 130 - 140 man-days were devoted to this task - both on Tule Lake and Lower Klamath.

Carcasses were hauled and piled for later disposal. The Tule Lake pile could not be burned but was treated with lime. The Lower Klamath pile was treated with oil and partially burned.

### Posting.

Refuge boundary posting was checked. "Public Hunting Area" boundary was posted. The new east and west line was heavily posted and the old line cleaned up. Considerably better posting was accomplished than for several years past but posting - as usual - did not satisfy everyone.

### Water Controls.

The 36" culvert and slide gate for putting irrigation water on Lot 61A was put in. Culvert and gate were purchased on bid. Redwood lumber for the headwall was obtained (on 1080) from Reclamation. Additional culvert to complete the job to Reclamation specifications was received and part of the preliminary work done.

### Grain Harvest and Shipments.

The time of one man for the better part of a month was required to check on share crops, stake out refuge shares to be left unharvested, check on harvesting operations, keep permittees supplied with sacks, arrange for cars, supervise loading and haul grain to make up full car loads when permittees shares did not fill cars. Extra help was assigned for grain hauling and to help load out two semi-trailer loads from the field. Five car loads were shipped by rail and almost a small car load by truck.

### Patrol.

Considerable time, mostly after hours by a few personnel, was devoted to checking on herding operations. It is probable that a few birds were killed but on the whole, herding operations on and in the vicinity the refuge were conducted in a satisfactory manner.

The California waterfowl season opened October 15 at noon and extended through October 31. The Oregon season was October 29 through November 14. During the California season and the first part of the Oregon season practically the entire time of all personnel except the mechanic was devoted to patrol. The Refuge Clerk's time was almost entirely taken up with maintaining a supply of maps and time-tables, and explaining regulations,



limits, etc., to a steady stream of hunters. It may be of interest to note here that hunters started coming to the refuge office on October 8; that there were over 140 hunters in the office on October 14, and that through October 27th there were over 540 callers (hunters) in the office. The record on which these figures are based is probably incomplete.

Patrol during the latter part of the first Oregon season and the entire second season (December 23 - January 8) was handled by a few personnel, since hunting pressure was light.

Patrol during the California pheasant season (November 19-28) was devoted mainly to preventing trespass on the refuges. Nearly all personnel participated weekends and a skeleton force the rest of the season.

In this connection, Refuge Enforcement Agent Birch transferred to the Branch of Game Management on October 7, and Maintenance Man Thomas Garratt transferred to Fort Peck on October 11, leaving the refuge staff short two men. Dr. Norton from Sheldon helped out through October 20, and State Biologist M. E. Foster aided materially in checking on kill and hunter success.

Other work, primarily on or for Lower Klamath, is covered by the Lower Klamath report.

#### B. Plantings.

- |                               |       |
|-------------------------------|-------|
| 1. Aquatics and Marsh Plants. | None. |
| 2. Trees and Shrubs.          | None. |
| 3. Upland Herbaceous Plants.  | None. |

The matter of seeding dikes on Tule Lake rebuilt by Reclamation was discussed with that agency and verbal agreement reached whereby the Service would undertake to seed dikes and ditch banks in return for greater jurisdiction in control of weeds thereon.

#### 4. Cultivated Crops.

There were eight Cooperative Agreements in effect on Tule Lake, with an aggregate of approximately 2,058 acres. The refuge share was taken harvested on four of these, aggregating 204.75 acres, and from which the refuge share was 9,811 bushels. The refuge share was taken unharvested on four tracts (5 including a combination harvested and unharvested deal with C. C. Spears), on which the yield was estimated at 16,922 bushels. One of these tracts was in the public hunting area. The feed thereon was almost entirely cleaned up before the season opened and did not serve to "bait" birds, although hunters had better cover on the unharvested area.

Refuge farming aggregated 587 acres, on which the yield was estimated to total 33,545 bushels. None of this was harvested. Much of the

feed on refuge farmed lands was utilized during August. The balance was almost completely utilized by December 1, when heavy snows forced the birds out of the region.

All told, an estimated 50,467 bushels of grain, practically all barley, were left unharvested for waterfowl.

Roughly 50% of the stubble was burned and plowed or simply plowed prior to heavy snows. For the first time in four years, most of the southwest part of the refuge was burned off (reclamation approval and refuge advance knowledge) prior to fall plowing. All fields burned had heavy waterfowl use immediately after burning and until the readily available grain was cleaned up. *In 1946-47 Sargeant advised that burning stubble destroyed much of the feed; see earlier reports*

Harvesting continued until October 20 on portions of Tule Lake. *and his memos protesting early burning of stubble*  
The bulk of the operations were concluded between October 1 and 15, all operations being repeatedly delayed by September rains. *REC*

#### C. Collections.

1. Seed and other Propagules.                      None.
2. Specimens.    None.

#### D. Receipts of Seed and Nursery Stock.

300 lbs. Blue grass seed	received on 11/18	from Arrowwood.
1486 lbs. Brome grass	" 9/3	from Slade.
800 lbs. Bulrush seed	" in Dec.	from Bowdoin.
301 lbs. Crested wheat grass	" 12/9	from Medicine Lake.

### IV ECONOMIC USE OF REFUGE

#### A. Grazing.

Several bands of sheep were grazed for a short time in stubble fields in the southwest part of the refuge. Fewer sheep than usual were grazed in the northeast part of the refuge and for a shorter time than usual. The relatively short grazing period was due to late harvest and to fall farming operations on much of the area. All things considered, it is probable that at least on those tracts which were burned off waterfowl got more feed than usual. While geese and ducks will feed with and after sheep, the sheep are very much in competition with both ducks and geese for the feed available in a stubble field; with geese for the aftermath, with ducks for aftermath and grain on the ground.

#### B. Haying.    None.

#### C. Fur Harvest.

After consultation with Reclamation and with the "regular" trappers,



it was decided that from the refuge and the trappers' viewpoints it would be inadvisable to trap muskrats on Tule Lake during the 1948-49 season, except to prevent damage to dikes and drains. This decision was reached after repeated checks by refuge personnel and some of the more experienced trappers indicated that there were fewer houses on the refuge, poorer distribution of houses, and less activity than usual.

D. Timber Removal. Not applicable.

E. Other Uses. None.

#### V FIELD INVESTIGATIONS OR APPLIED RESEARCH

None.

#### VI PUBLIC RELATIONS

##### A. Recreational Uses.

There was some ice skating in the Hotel Rock area of the Upper Sump during December. Repeated snow storms prevented good skating ice.

There was some camping by hunters along the west side of the public hunting area during the first season.

##### B. Refuge Visitors.

A list of refuge visitors follows this page.

Mr. C. C. Sperry of Research spent considerable time on Tule Lake and Lower Klamath investigating the botulism outbreak.

Dr. Arnold Boldt Jorgensen's visit on November 3, and Mr. Peter Scott's visit on November 10 and 11 may be worthy of special note, since both were from faraway places.

##### C. Refuge Participation.

Sargeant accompanied C. C. Sperry to a Kiwanis Club meeting in Tule Lake, at which Mr. Sperry spoke on botulism.

Sargeant talked briefly at a dinner meeting of the Tule Lake 20-30 Club, on regulations, ect., and answered questions for two hours thereafter.

Sperry and Sargeant discussed botulism and Lower Klamath development with a select (sic) group of sportsmen and newspaper men at Tule Lake Refuge on October 27, and to a large group of Sportsmen, conservationists and the press at a meeting in San Francisco on November 9, at which Director Day was present, also Regional Director Laythe, Asst. Regional Director Quick, et al.

## REFUGE VISITORS

SEPTEMBER - DECEMBER 1948

<u>Date</u>		
9/14	Messrs. Cloyd & Reynolds, Calif. Div. F&G	Duck sickness
15	Jerry Vistercil, Sheldon Refuge	Equipment
22 &		
29	Vernon Ekedahl, Refuge Mgr., Sacramento. D. Woodward, Lands	Feed transfer L.K. Matters
10/4	Messrs. Taylor, Willis and Jacoby, (RO) & CO	Tule Lake & L.K. constr.
10/7	Mr. Williams, formerly State Game Comm.	Visit.
11	K. F. MacDonald, RO	Duck sickness.
	John Schwartz, Sheldon Refuge	Heater
12	Mr. Henry Clineschmidt, West. States Fed. Sportsmen, and Mr. E. Neal, S.F. News	Duck sickness.
14	Messrs. Bach, Boomhower and Savage, GMA	Hunting season
on	Mr. J. Cox, Capt. Calif. Div. F&G	" "
19	Mr. S. G. Jewett, Flyway Biologist	" "
on		
21	Mr. William Tirre, GMA	Visit.
22	Mr. Harry Willis, RO	Ady Canal matters.
23-27	Mr. Charles Sperry, Research	Duck sickness.
26-27	Messrs. Leo Laythe, Paul Quick and K. F. MacDonald, RO	Duck sickness
	Mr. Hugh Worcester, GMA	discussion.
	Mr. Henry Clineschmidt, WSFS	
	Mr. E. Neal, S. F. News	
	Mr. M. Epley, K. F. Herald & News	
25	Mr. Elam, Free Lance writer, Sacramento	Story material.
10/29 &	Dr. Ira Gabrielson, Wildlife Inst.	Waterfowl
11/1	Mr. Ross Leonard, West. States Mgr.	"
	Mr. S. G. Jewett, Reg. Biologist	"
3	Dr. Fleming Bolt Jorgensen, Soc. Danish Nature School	Wildlife
11	Peter Scott, esq. Dir. Severn Wildfowl Trust, England	Wildlife
13	Ross Hanson, Pilot Biologist	Muskrat census
	Mr. Gib Fleet, Calif.Ore. Power Co.	L.K. Power line.
24	E. L. Stephens, Reclamation	Water matters.
30	Mr. Gene Albert, P&R	Trapping
12/2	Mr. Harry Willis, RO	L. K. Matters



#### D. Hunting.

The first California hunting season was Noon on October 15 through October 31. All except the last three days were clear weather. Marsh (boat) hunting was good to excellent throughout the season. Stubble field shooting was fair at best until the last three days of the season when it was excellent.

The first Oregon season was October 29 - November 14 and had no effect on Tule Lake. The second season in both states was December 23 - January 8. Weather was very severe with considerable snow on the ground, and few birds were in the region. Hunting was poor.

The public hunting area was changed from the west side of the refuge to the north end. Water and marsh hunting conditions were somewhat different in that the area of open water was reduced and the area of heavier emergent vegetation was increased. Some complaint was received that it was not possible to recover downed birds in the heavy marsh. This is true, but the solution reverts to the question of whether the hunter is a sportsman or a sport; that is, whether he shoots at everything or only at what he has a reasonable chance of recovering. The objectives aimed at in making the change in public hunting area are believed to have been substantially achieved. The problem of educating the hunters as to good practice or sportsmanship still remains and is not more serious than heretofore.

The California Division of Fish and Game assigned biologist M. E. Foster to the Klamath Basin for the hunting season. He cooperated fully with refuge personnel in checking hunter success, kill by species, etc. On the basis of his records, supplemented by observations and checks by Service personnel to an extent comparable to that of previous years, the following estimates of hunter success and kill by species are submitted for the Tule Lake Public Hunting Area and area immediately adjacent to the refuge: (Both seasons)

Number of hunters opening day - PM of Oct. 15		900
Number of hunters on October 16-17 weekend		2,000
Number of man-days hunting - 1st season		25,000
Hunter success:	Ducks - 2.03/man-day	
	Geese - .86/man-day	
Total take:	Ducks	52,454
	Geese	21,000
Crippling loss:	Ducks	10,000
	Geese	2,500

## Hunting Kill by Species:

	<u>Percent of Total</u>	<u>Number</u>
Geese:		
Canada	1	210
Cackling	18	3,780
White-fronted	48	10,080
Snow	<u>33</u>	<u>6,930</u>
Totals	100%	21,000
Ducks:		
Mallard	11	5,715
Gadwall	4	2,078
Baldpate	12	6,235
Pintail	50	25,980
Green-winged teal	3	1,558
Blue-winged teal	-	100
Cinnamon teal	2	1,039
Shoveller	4	2,078
Wood duck	-	72
Redhead	5	2,598
Ring-necked duck	-	326
Canvas-back	2	1,039
Scaup	1	519
Bufflehead	1	519
Ruddy	<u>5</u>	<u>2,598</u>
Totals	100%	52,454

Crippling loss by species would run about the same as hunters' kill, percentage-wise.

E. Fishing.

None.

F. Violations.

Cases made and/or prosecuted by refuge personnel are summarized in the table following this page. These are both California and Oregon cases and cover the entire waterfowl season.

Prosecutions in one of the Justice Courts were not altogether successful from an enforcement standpoint in that minimum fine was generally assessed and most of that was suspended.

A number of violations are believed and/or known to have occurred on Tule Lake for which offenders could not be apprehended due to circumstances beyond the control of refuge personnel. Many of these violations were only suspected by refuge personnel at the time but have since been more or less confirmed by delayed reports from third parties, and in some cases by loose talk by the parties concerned. Specific recommendations on this will be submitted by correspondence.

Agents Bach, Boomhower, Savage and Birch worked in the vicinity of Tule Lake for a very few days at the opening of the 1st California season.



# VIOLETIONS

CASES PROSECUTED 1948  
By Refuge Personnel

<u>Offense</u>	<u>Number of Violations</u>		<u>Where Violation Committed</u>		
	<u>1st Count</u>	<u>2nd Count</u>	<u>Tule Lake Refuge</u>	<u>Lower Klamath</u>	<u>Outside Refuges</u>
Hunting in Closed Area	13	4	4	13	
Overlimit	6	0	3	3	
Improperly plugged gun	9	0	2	3	4
Late Shooting	16	1	6		11
Early Shooting	3	0			3
No License	5	6		6	5
Protected species	1	0	1		
Closed season	6	1	1	2	4
TOTALS	59	12	17	27	27

<u>State</u>	<u>Number of Cases</u>	<u>Fines Collected</u>	<u>Suspended</u>	<u>Costs Imposed</u>
California	42	\$935.00	\$400.00	-
Oregon	17	315.00	135.00	\$81.00
TOTALS	59	\$1250.00	\$535.00	\$81.00

Six to eight State Wardens were in the general area the first week and three or four the balance of the season.

Refuge personnel conducted open patrol almost exclusively and insofar as possible, the hunting public was kept from committing violations.

## VII OTHER ITEMS

### A. Items of Interest.

#### 1. Personnel.

James D. Birch was transferred from his position as Refuge Enforcement Agent at Tule Lake to the branch of Game Management, effective October 7th.

Thomas Garratt was transferred from his position as Maintenance Man at Tule Lake to Fort Peck, effective October 11th.

Frank W. Groves was transferred from the Desert Game Range to Tule Lake effective November 22, as Refuge Manager.

Refuge Manager Jean F. Branson took over the duties of the refuge enforcement agent.

#### 2. Depredations.

A list of herding permits issued during the year by the Tule Lake Refuge follows this page.

Generally speaking, depredations were less serious than in 1947, in spite of a late harvest. Herding by the large operators was more efficiently conducted, with greater reliance on lights and planes.



## TABULATION

## PERMITS TO PROTECT CROPS

## REFUGE LEASE LAND &amp; PERMIT AREAS

<u>Permit No.</u>	<u>Issued to:</u>	<u>For Ducks &amp; Geese</u>	<u>Date</u>
42	William Kandra & Don Deidrich		5/13/48
43	Henzel Brothers		6/8/48
44	Henzel Brothers		8/4/48
45	Winema Farms		8/4/48
46	M. A. Long		8/6/48
47	Claude Cross, et al.		8/7/48
48	J. Z. Smith		8/10/48
49	C. C. Spears		8/10/48
50	John Urbach		8/10/48
51	M. E. McFall		8/12/48
52	Don Fugate		8/12/48
53	Henry T. Cole		8/12/48
54	T. E. Watters		8/12/48
55	James C. Ball		8/13/48
56	Walter H. Stastny		8/13/48
57	J. A. Lidell		8/13/48
58	T. W. Chatburn, Jr. & Bruce Owans		8/18/48
59	Messrs. Grove and Kelley		8/18/48
60	John Liskey		8/19/48
61	Max Hooper		8/20/48
62	Harry B. Rose		8/20/48
63	Paul Kuhnel		8/20/48
64	Theodore Fish		8/21/48
65	Robert E. Steward		8/23/48
66	A. H. Patterson		8/23/48
67	Anton Suty		8/23/48
68	Robert L. Baker		8/24/48
69	C. L. Blumenthal		8/25/48
70	Jack H. Fensler		8/25/48
71	Messrs. Laird and Dayton		8/30/48
72	J. L. Haskins		8/30/48
73	Donald F. Deidrich		9/1/48
74	Charles Roberts		9/2/48
75	Cox Brothers		9/3/48
76	J. R. Branthoover		9/27/48

## TABULATION

## PERMITS TO PROTECT CROPS - OFF REFUGES

<u>Permit No.</u>	<u>Issued to:</u>	<u>For Ducks &amp; Geese</u>	<u>Date</u>
TL- 1 (48)	C. H. Moore & Sons		3/10/48
2	Mary Porterfield		4/19/48
3	William Kandra & Don Deidrich		5/13/48
4	C. Callendine		5/15/48
5	Winema Farms		5/26/48
6	Jack Crawford		5/28/48
7	F. M. Flowers		8/2/48
8	Winema Farms		8/4/48
9	M. A. Long		8/6/48
10	Harold J. Westerhold		8/14/48
11	Dave Carman		8/14/48
12	Mary Porterfield		8/18/48
13	Russell McFall		8/20/48
14	Russell Smith		8/23/48
15	Burris Short		8/26/48
16	Verne Jensen		8/26/48
17	Clifford D. Morris		8/27/48
18	Harry Mauch		8/30/48
19	Shuck Bros.		8/30/48
20	J. L. Haskins		8/30/48
21	F. Lourenco		9/7/48
22	Jack Crawford		9/7/48
23	Edward Johnson		9/9/48
24	John J. Singleton		9/9/48
25	James D. Woodman		9/26/48
26	Bernhard Reimer		9/27/48



The following NR Forms are omitted  
from the Tule Lake Refuge report this  
period, not being applicable:

NR 10 - Haying and Grazing  
NR 11 - Timber Removal



1. Refuge grown barley on "Frog Pond"  
buffer strip -  $S\frac{1}{2}NW\frac{1}{4}$  Sec. 6-46-5,  
looking east.



2. Convalescing botulism birds in  
Headquarters hospital pen.





3. Botulism birds in holding pen.



4. Ducks in flight across south dike to feed on Lot 61A.



5. Ducks in flight north from Lower Sump  
to "Frog Pond". (Jensen)



6. Ducks and geese settling on Lot 61A  
to feed.





7. Snow and White-fronted geese feeding  
on recently burned Henzel lease.



8. Snow and White-fronted geese feeding  
on Henzel lease. — *not burned*



9. Snow and White-fronted geese on Tule Lake,  
SE of Hotel Rock. (Jensen)



10. Snow and White-fronted geese on Tule  
Lake farmland.



LOWER KLAMATH REFUGE

TABLE OF CONTENTS

	Page No.
I GENERAL	
Weather Conditions	1
Water Conditions	1
Fires	1
II WILDLIFE	
Migratory Birds	2
Upland Game Birds	4
Big Game Animals	4
Fur Animals, Predators, Rodents, etc.	4
Predaceous Birds	4
Fish	5
III REFUGE DEVELOPMENT MAINTENANCE	
Physical Development	5
Plantings	6
Collections	7
Receipts of Seed and Nursery Stock	7
IV ECONOMIC USE OF REFUGE	7
V FIELD INVESTIGATIONS OR APPLIED RESEARCH	7
VI PUBLIC RELATIONS	
Recreational Uses	7
Refuge Visitors	7
Refuge Participation	7
Hunting	7
Fishing	9
Violations	9
VII OTHER ITEMS	9
NR Forms 1, 1a, 2, 3, 5, 6, 7, 8, 9, 10, 11	
Weekly Estimates of Waterfowl Populations	
Photographs	

NARRATIVE REPORT  
 LOWER KLAMATH NATIONAL WILDLIFE REFUGE  
 September, October, November and December 1948

I GENERAL

A. Weather Conditions.

Refer to Tule Lake report.

Frosts were more frequent and more severe than on Tule Lake.

B. Water Conditions.

Elevations

1948	Unit 2		Unit 3		Unit 4	
	High	Low	High	Low	High	Low
September	-	-	77.30'	75.20'	-	-
October	-	-	75.06	73.18	74.70	74.60
November	78.31'	-	74.20	-	-	-
December	79.04	78.92	75.73	-	-	-
Extremes	79.04'	78.31'	77.30'	73.18'	74.70'	74.60'
1947						
September			-	-	-	-
October	No readings		76.30'	-	-	-
November			77.30	77.20	77.20	76.25
December			76.60	-	-	-
Extremes			77.30'	-	77.20'	76.25'

The temporary control structure in the north end of Sheepy Lake (Unit 2) went out early in the period and was not replaced until November. Levels dropped about 18" during the time the control was out. Drop was not uniform over the entire lake since a bar in the north part held water back.

Unit 4 was kept low to facilitate dike construction.

Unit 3 was held high as long as water was coming in. Tule Lake pumping was ended on September 13. Unit 3 was drained down starting September 20, primarily to enable additional water to be removed through the Unit from Units 5, 6, 7, 8, 9 and 12 to permit construction on the Unit 9 dike.

C. Fires.

The peat fire in Sec. 22-47-2 continued to smolder but did not spread.



## II WILDLIFE

### A. Migratory Birds.

#### 1. Populations and Behavior.

Arrivals, departures and periods of peak concentration followed closely the pattern on Tule Lake. Total waterfowl use on Lower Klamath during the period was somewhat greater than in 1947 but there were important differences in the amount of use by different species. Goose use decreased by about 11%, but Canada goose use decreased 1/3. Cackling goose use decreased 25% and White-fronted goose use increased 20% (from 1947).

Duck use (total) increased by about 12% over 1947, with appreciably less use by Gadwalls, Blue-winged teal, Shovellers and Buffleheads; a very great increase in Pintail use and substantial increase in use by Green-winged teal, Canvas-backs and Scaup.

Whistling swans were much less numerous than for several years, due mainly to extremely severe weather from December 1 on.

Water levels were low on Lower Klamath and conditions were definitely not as favorable as they might have been for waterfowl use.

The extremely severe late November - December weather caused almost all waterfowl to leave by the end of December. There was no open water in Sheepy Lake, part of which near the mouth of Sheepy Creek usually remains open.

During the October 15-31 open hunting season in California, waterfowl rested on refuge closed area and flew out into Oregon without paying much attention to the time of day. When the Oregon season opened on October 29, there was no outstanding increase in the refuge population or use but birds tended to remain on the area until closing time before flying out for feed.

#### 2. Food and Cover.

Cereal grain food, due to refuge farming, delay in harvesting, wind, frost and hail damage which prevented harvesting some areas, was plentiful. It was fairly well cleaned up before the birds went south.

Conditions were not favorable to the growth of aquatics but the supply was fair in Units 2 and 12.

Emergent vegetation was abundant only in Unit 2, and produced a good seed crop.

#### 3. Botulism.

Approximately 40,000 waterfowl, mostly ducks, died of botulism on Lower Klamath, the most severe outbreak occurring between September 3 - 10.

Estimate of total is based on a 90% cleanup, during which slightly over 36,000 carcasses were picked up, piled and later burned.

Water levels were fairly high in Sheepy Lake (Unit 2) and no loss occurred in this area. Levels were maintained high in Unit 3 (all the Tule Lake water being passed through this unit) but losses were high in the Unit; approximately 20% of the total loss.

Unit 4 was practically dry and no losses occurred in this unit.

Water levels were low in Units 5, 6, 7, 8, 9 and 12, and a great deal of mud flat was exposed and much of the water area was extremely shallow. Due to washed out dikes these units were practically one big unit with no water control by units being possible and, because of the extent of the water and mud flat, no possibility of effecting rapid changes in the general level. The extent of the area also resulted in water shifting with every windstorm, mudflats on one side or the other being reflooded to a depth of more than 6" on occasions. Botulism losses were heavy in the south end of Unit 9, the south and east parts of Unit 12 and in spots in Units 6, 7 and 8 (mud flat islands and stretches of shoreline). Many birds apparently died out in the water area and drifted in to shore in Units 7 and 8 on south or southwest winds, and into shore along the east side of Unit 12 on northwest winds.

Pickup was extremely difficult because of shallow water and lack of suitable boats for the work. Pickup ran into more than normal work because of the necessity for removing carcasses entirely away from the dikes rather than just getting the carcasses above high water lines.

Losses by species were approximately as follows:

<u>Species</u>	<u>%</u>	<u>Number lost</u>
Pintail	35	14,000
Mallard	12	4,800
Baldpate	20	8,000
Green-winged teal	20	8,000
Shoveller	5	2,000
Readhead	1	400
Ruddy	2	800
Miscellaneous ducks	4	1,600
Canada geese	.6	240
White-fronted geese	.4	160
Totals	100%	40,000

A few Coots, quite a few Dowitchers and a few each of Gulls, Sandpipers and Avocets were lost.

#### 4. Lead poisoning and other Diseases.

None observed.



## B. Upland Game Birds.

### 1. Population and Behavior.

No sagehens were observed on the refuge.

Pheasants were concentrated mainly in Units 3, 4 and 9, with a few along the north part of Unit 2.

There were several coveys of Valley Quail observed between the Chalk Banks and Coyote Butte, that is, along the SE, South and SW edge of the refuge.

### 2. Food and Cover.

Food and cover conditions were better than usual up to December 1. Heavy snows from then on necessitated fairly heavy feeding of pheasants which concentrated along dikes, ditch banks and roads.

### 3. Disease.

None observed.

## C. Big Game Animals.

A few deer were on and off the south end of the refuge during this period.

## D. Fur Animals, Predators, Rodents and other Mammals.

Muskrats were limited almost entirely to Sheepy Lake. The number of houses in Sheepy Lake was down somewhat from 1947 on the basis of an early October and an early November check by plane. Early in the period, water levels were down in Sheepy Lake and some houses were almost out of water. Levels were brought back up during November before severe weather set in.

Field mice were scarce.

Very few weasels were observed.

The population of jackrabbits in the vicinity of the refuge was up slightly over previous years.

Cottontails were scarcer. There were few of either on the refuge.

Coyotes were less abundant than in several years.

## E. Predaceous Birds, including Crows, Ravens and Magpies.

Half a dozen Golden and four to six Bald eagles were on the refuge during November and December.

Turkey vultures remained on the south end into November.

There were as many as 50 Ravens on the north and east parts of the refuge during October.

No Crows or Magpies were seen on the refuge.

The Short-eared owl population was slightly greater than in 1947.

Marsh hawk status was about the same. There was a slight increase over 1947 in the number of Red-tailed hawks and a pronounced increase in the numbers of American and Ferruginous rough-legs.

Refuge Manager Russell shot a Gyrfalcon a few miles south of the refuge in December, to establish (according to Mr. Jewett) a California record.

#### F. Fish.

Minnows only. Somewhat fewer than in 1947, due to low water.

### III REFUGE DEVELOPMENT MAINTENANCE

#### A. Physical Development.

##### 1. Dikes and Structures.

Dragline work on the Unit 4 dike was completed during the period. Work on the extreme south end of this dike was accomplished under extremely poor working conditions. The dike between Units 4 and 9 was refinished and the lower end of the P-1A lateral was cleaned out. Work was started on the upper (north) end of the Unit 9 dike. This portion of the dike had washed out completely and a channel had cut through the dike site. Two sets of dragline mats were built in order that the Northwest could work this stretch on double (pyramided) mats. Even so, there were a couple of times when the situation of the machine was somewhat precarious. Dragline work on Unit 9 dike was practically at a standstill during December, although efforts were made to continue in order to get across two more complete wash-outs in the dike while the mud was partially frozen.

A new  $1\frac{1}{4}$  yard dragline bucket was put on the Northwest.

The Speeder dragline was operated on an Ady Canal structure which was completed by Mr. Jacoby and a small crew of laborers. This completes the obligations of the Service to the Klamath Drainage District, except for the enlargement of the north borrow pit of the State Line Dike.

Mr. Jacoby and his crew initiated work on the State Line Dike Structure (313). Excavation was partially completed, some materials were hauled, and detour was partially completed. The coffer dam protecting the



site from irrigation water on the north washed out late in December and had to be rebuilt. This was not completed at the end of the period.

Refuge personnel installed a two-gate (24") and culvert structure in the old dike across the north end of Sheepy Lake. A timber headwall was put in.

## 2. Other Work.

Considerable time was required to check and divide share-crops; to arrange for harvesting, loading and shipping (or storage) of refuge shares. Considerable more time was required in negotiating with prospective permittees.

The refuge boundary corners west of Sheepy Lake (set by Tousey early in the year) had to be relocated. Steel posts protected by piles of lava rock were placed at the corners.

Boundary posting was completely checked prior to the hunting season and the public hunting area boundary was completely posted. "No Upland Game Bird Hunting" signs were made and put up at entrances and other strategic points.

Pick up of botulism bird carcasses was made by a 3-6 man crew almost continuously from September 9 through October 14.

Patrol by one to six men was necessary from October 15 through November 14, from November 19 through November 28 (California pheasant season) and from December 23 through December 31.

## B. Plantings.

- |                               |       |
|-------------------------------|-------|
| 1. Aquatics and Marsh Plants. | None. |
| 2. Trees and Shrubs.          | None. |
| 3. Upland Herbaceous Plants.  | None. |
| 4. Cultivated Crops.          |       |

868 acres were farmed by refuge personnel on which an estimated yield of 11,628 bushels of barley, oats, rye and wheat was obtained. All of this was left standing.

4,280 acres were farmed under cooperative agreements, on which refuge shares taken harvested aggregated 190.75 acres, and 9,070 bushels of grain. Refuge shares taken unharvested, plus unharvestable portions of various permit areas aggregated 1,650 acres, and an estimated 38,034 bushels of grain.

Yield was poorer in quality and harvest was more difficult than in several years.

C. Collections. None.

D. Receipts of Seed and Nursery Stock.

See Tule Lake report.

#### IV ECONOMIC USE OF REFUGE

A. Grazing.

No grazing permits were issued. Stock trespass was almost negligible.

B. Haying. None.

C. Fur Harvest. None.

D. Timber Removal. Not applicable.

E. Other Uses. None.

#### V FIELD INVESTIGATION OR APPLIED RESEARCH

Mr. C. C. Sperry investigated the botulism outbreak on Lower Klamath and Tule Lake during October.

#### VI PUBLIC RELATIONS

A. Recreational Uses. None.

B. Refuge Visitors.

See Tule Lake report.

C. Refuge Participation.

See Tule Lake report.

D. Hunting.

Units 4, 7, 8 and 9 made up the refuge public hunting area. Unit 4 was dry and afforded very little duck shooting. Units 4 and 9 contained considerable grain field, and goose hunting was good at times. Units 7 and 8 were open water or mud flat with some weedy areas on higher portions. Very little hunting was furnished by these areas, except for pass shooting from the dike remains between Units 6 and 7.

Hunting pressure was relatively light on the refuge.

During the first Oregon season, hunting was only fair since both resting and feeding areas were available in California. This held true



in reverse to some extent during the first California season, since water-fowl could fly high out of the refuge to feeding areas in Oregon.

There were very few birds in the area during the second season.

The following estimates apply to the 1948-49 season on and in the immediate vicinity of the refuge:

Number of hunters opening day:			
California	-	Afternoon of Oct. 15	400
Oregon	-	" of Oct. 29	350
Number of hunters - Oct. 16-17 weekend (Calif.)			
"	"	Oct. 30-31 weekend (Ore.)	750
Number of Man-days hunting - first season			
(incl. both Calif. and Oregon)			5500
Hunter Success:			
Ducks	-	2.3/man-day	
Geese	-	1.1/man-day	
Total take:			
Ducks			13675
Geese			6400
Crippling loss:			
Ducks			6800
Geese			1100
Total Man-days hunting - December 23 to Jan 8			
			200

#### Hunting Kill by Species:

<u>Geese</u>	<u>Percent of total</u>	<u>Number</u>
Canada	15	960
Cackling	25	1600
White-fronted	35	2240
Snow	25	1600
Totals	100%	6400

#### Ducks

Mallards	15	2050
Gadwall	2	275
Baldpate	20	2735
Pintail	25	3420
Green-winged teal	6	820
Blue-winged teal		25
Cinnamon teal	1	130
Shoveller	10	1360
Wood duck		-
Redhead	5	680

<u>Ducks (Cont'd)</u>	<u>Percent of Total</u>	<u>Number</u>
Ring-necked duck		-
Canvas-back	5	680
Scaup	3	410
Bufflehead	3	410
Ruddy	<u>5</u>	<u>680</u>
Totals	100%	13675

Crippling losses by species were in proportion to the above.

E. Fishing. None.

F. Violations.

See Tule Lake report for summary.

About half the "closed area" violations were by Oregon hunters getting across the State Line into California.

All the "late shooting" cases were off the refuge, and north of the State Line in an area where the practice has always been fairly common.

## VII OTHER ITEMS

A. Items of Interest.

1. Depredations.

Waterfowl damage to crops in Lower Klamath was very "spotty". In the refuge the crop on State Line Lot #1 was hit hard by frost and then by waterfowl.

In Units 4 and 9, rains during September materially delayed harvest on some areas and waterfowl damage was heavier as a result of prolonged exposure of the crops.



The following NR Forms are omitted  
from the Lower Klamath Refuge report this  
period, not being applicable:

NR 10 - Haying and Grazing  
NR 11 - Timber Removal



1. Hunters' cars parked at NE Corner  
Lower Klamath Refuge.



2. Hunters and straw blinds along  
Oregon line, west side of Lower  
Klamath Refuge.





3. Hunters coming in from area north  
of Lower Klamath Refuge - west side.



4. Posting along State Line Highway.  
NW Corner Unit 3. Mostly Cackling  
geese in weeds. Mt. Dome in back-  
ground.



5. Ducks and geese in flight - north  
central part of Unit 3.



6. Geese over upper east side of  
Unit 2. (Jensen)





7. Geese in stubble on State Line Lots -  
NE part of Lower Klamath.



8. Resting waterfowl - south end of Unit 12,  
Lower Klamath. Fair recovery of bulrush  
in background.



9. Pastured off Cattail and Spikerush.  
NE part of Unit 2. New (1st year)  
growth of Cattail.



NARRATIVE REPORT  
CLEAR LAKE NATIONAL WILDLIFE REFUGE  
September, October, November and December 1948

I GENERAL

A. Weather Conditions.

<u>1948</u>	<u>Precipitation</u>	<u>Snowfall</u>	<u>Max Temp.</u>	<u>Min. Temp.</u>
September	2.00	-	-	-
October	1.29	-	74° F.	19° F.
November	1.08	3"	60	14
December	2.00	29"	43	-10
Totals	6.37"	32"		
Extremes			74°	-10°

1947

September	.37"	No Data
October	1.79	
November	1.47	
December	.66	
Total	4.29"	

B. Water Conditions.

	<u>Elevations.</u>			
	1948		1947	
	High	Low	High	Low
September	4526.98'	4526.52'	4527.45'	4526.85'
October	26.53	26.35	26.84	26.71
November	26.37	26.28	26.72	26.66
December	26.45	26.28	26.68	26.64
Extremes	26.98'	26.28'	27.45'	26.64'
Max. Diff.		.70'		.81'

C. Fires.

There were no fires on the refuge during the period.

The Forest Service undertook controlled burning of an extensive area south and west of the refuge preparatory to range reseeding.

II WILDLIFE

A. Migratory Birds.

1. Populations and Behavior.

Waterfowl use was light during the early part of the period. From about October 15 through November there was sporadic resting use

of the water area by White-fronted geese and Snow geese to a lesser extent. Flocks observed in the course of several patrol trips and flights over the area ranged from 500 to 2500 birds, with peak concentration estimated at 7500 White-fronted and 2500 Snow geese.

Duck use was very light and limited mostly to Pintails, with peak numbers not over 500. There were a few Mallards and Gadwalls on the area at times.

Pelicans started leaving early in the period. By October 1, there were not over 750 birds on the refuge. By the end of October 24, there were not over 50 to 60 and all were gone shortly thereafter.

A very few Treganza's herons were on the area until late in October. No other water birds were seen.

## 2. Food and Cover.

Food was very scarce, with practically no aquatics and no emergent vegetation present. Cover on the peninsula and along the east side was better than in several years but was not particularly good.

3. Botulism. No indications.

4. Lead Poisoning and other Diseases. None.

## B. Upland Game Birds.

There were a few sagehens on the refuge, mostly on the peninsula, but not as many as in 1947. Food and cover conditions were as good or better than in 1947.

## C. Big Game Animals.

No deer were seen on the refuge during the period, although there were large numbers of deer in the area south and west of the refuge from mid-November on.

Peak population of antelope was estimated at about 45 animals late in September and early in October, on the basis of a comprehensive plane check.

## D. Fur Animals, Predators, Rodents and other Mammals.

There were very few coyotes on or near the refuge.

Rabbits continued scarce.

## E. Predaceous Birds, including Crows, Ravens and Magpies.

No Crows or Magpies were seen on the area.

A few Ravens moved through during September.

Three or four Marsh hawks were observed.

F. Fish.

No change in status.

III REFUGE DEVELOPMENT MAINTENANCE

None.

IV ECONOMIC USE OF REFUGE

None by the Service.

Grazing under Reclamation leases and Forest Service permits was considerably lighter on the peninsula and south end than for several years.

V FIELD INVESTIGATIONS OR APPLIED RESEARCH

None.

VI PUBLIC RELATIONS

"Pass shooting" between Tule Lake and Clear Lake was not good during the open season because of generally fair weather. Late in the first half of the season a few local hunters are reported to have had fair success on geese. The refuge boundary posting was well observed by hunters and no violations were encountered.

VII OTHER ITEMS

A. Items of Interest.

During the period, the Bureau of Reclamation tentatively proposed a "Separation" project for Clear Lake. This has been covered by specific correspondence. Briefly the plan under consideration calls for construction of a north and south (roughly) dike across the present water area, the use of the eastern part of the reservoir for irrigation storage, and the drainage and development of the western part for pasture and possibly cereal crops. The western part would be reserved for emergency flood control use.



Insufficient data available for  
the preparation of NR Forms for the  
Clear Lake Refuge.

NARRATIVE REPORT  
UPPER KLAMATH NATIONAL WILDLIFE REFUGE  
September, October, November and December 1948

I GENERAL

A. Weather Conditions.

<u>1948</u>	<u>Precipitation</u>	<u>Snowfall</u>	<u>Max. Temp.</u>	<u>Min. Temp.</u>
September	-	-	-	-
October	.98"	-	74° F.	20° F.
November	1.82	2"	66	18
December	<u>3.31</u>	<u>12.5</u>	<u>45</u>	<u>1</u>
Totals	6.11"	14.5"		
Extremes			74°	1°
<u>1947</u>				
September	.53"	-	90	33
October	-	-	-	-
November	.72	-	58	16
December	<u>.94</u>	-	<u>51</u>	<u>16</u>
Total	2.19"			
Extremes			90°	16°

Data from the Bureau of Reclamation, Klamath Falls, Oregon.

Although both sets of records are incomplete, they clearly indicate that 1948 was much wetter and colder than 1947.

B. Water Conditions.

	<u>Elevations</u>			
	1948		1947	
	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>
September	4140.43'	4139.88'	4139.15'	4138.40'
October	39.88	39.67	38.38	38.21
November	39.87	39.70	38.41	38.28
December	<u>40.29</u>	<u>39.67</u>	<u>38.79</u>	<u>38.43</u>
Extremes	4140.43'	4139.67'	4139.15'	4138.21'
Max Diff.		.76'		.94'

Data from Bureau of Reclamation, Klamath Falls, Oregon.

Upper Klamath Lake remained on the average almost 1.5' higher than in 1947. Levels were, in general, higher than during the same period for several years past.

Very little of the refuge area which is normally exposed mud flat during late August through October was out of water at any time during the period.

### C. Fires.

There were no fires on or near the refuge during the period.

## II WILDLIFE

### A. Migratory Waterfowl.

Waterfowl use of Upper Klamath Lake (and the refuge) varies considerably from year to year for corresponding periods. This period was one of light use. No particularly heavy concentrations of birds were noted anywhere on the lake during the period. Higher water levels appeared to have resulted in somewhat greater use of the extreme southwest and northwest parts of the refuge by ducks, chiefly Pintails, Mallards and Redheads, but prevented exposure of mud flats and resultant late growth of Spike rushes and other green feed for geese. In consequence, Canada goose use of the refuge was down somewhat.

Backwater areas began to freeze over late in November. By the end of the period, much of the refuge, except the creeks, was frozen over.

### B. Upland Game Birds.

None on refuge.

### C. Big Game Animals.

None observed on refuge.

### D. Fur Animals, Predators, Rodents and other Mammals.

Muskrats continued very scarce on the entire lake. No houses or other signs of activity were observed on the refuge.

There were beaver in the Pelican Cut-Odessa Creek portion (south end) of the refuge. Most of the activity was off the refuge.

### E. Predaceous Birds, including Crows, Ravens, Magpies.

Magpies were relatively numerous on areas adjacent to the refuge. No Crows and only a few Ravens were observed on or near the refuge.

There were several Bald and 3 or 4 Golden eagles on or near the refuge at various times during the period, as well as a few Rough-legs and Marsh Hawks.

### F. Fish.

Rainbow trout were fairly abundant in the larger creeks on the refuge.



### III REFUGE DEVELOPMENT MAINTENANCE

#### A. Physical Development.

Two men were detailed to the area to repair and rebuild washed-out fence in the vicinity of Harriman Lodge. This was done on a cooperative basis; the refuge supplying materials and 27 man-days of labor, and the adjoining landowner approximately the same amount of labor. On the completion of the repair job it was understood that the adjoining landowner would undertake future maintenance, since the fence is primarily of benefit to him.

### IV ECONOMIC USE OF REFUGE

There was some grazing of cattle in the northwest part of the refuge and some cattle grazing and farming activity in the southwest part, all under Reclamation leases. High water levels considerably reduced the amount of grazing available.

Reclamation issued a number of muskrat trapping permits as usual but early reports indicated a negligible catch.

### V FIELD INVESTIGATIONS OR APPLIED RESEARCH

None.

### VI PUBLIC RELATIONS

See Tule Lake Report.

### VII OTHER ITEMS

None.

Insufficient data available for  
the preparation of NR Forms for the  
Upper Klamath Refuge.

Report submitted by:

*Howard J. Sargeant*

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Refuge Manager

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3/28/69*

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