MOSER-OLGA BAY SALMON MANAGEMENT PLAN

Need for a plan

The complexity of the several salmon producing systems in the Moser-Olga Bay area, and the involved fisheries on these stocks of fish necessitate a detailed overall management plan. This plan is being formulated on the basis of current knowledge, and it must be recognized that there will be changes made as the Frazer Lake sockeye run develops and as more information becomes available on all of the runs.

Description of fishery

Since traps were outlawed, purse seine and set gillnet gear have traditionally been used to fish Moser-Olga Bay stocks. These stocks are also intercepted to various degrees at several points around Kodiak Island. The Moser-Olga Bay area contains thirteen different salmon streams of both major and minor importance. All five species of salmon pass through this fishery, although cohos and kings are of relatively minor importance at the present time.

Two distinct gear types and fisheries (set gillnet and purse seine) operate on Moser-Olga Bay salmon stocks. The many stationary set gillnet sites are located primarily in Moser and outer Olga Bays. In recent years the largest number of set gillnet fishermen delivering fish on any one day was 41. Purse seine gear is fished largely along the beach in the vicinity of Cape Alitak. Up to 26 different vessels have made landings from this area in a single day.

Management problems

It is difficult to control the interception of salmon bound for Moser-Olga Bay systems which occurs at different points on Kodiak Island when fisheries on other strong runs are operating. The strength of a particular run of fish can best be assessed as it reaches terminal areas. This is the time when controls

on the fishery can best be applied and individual stocks managed. The immobility of some fisheries and gear, the interception of mixed stocks of salmon, the overlap in time of returns for various runs, and the differential rates of returns of each species and system make it extremely difficult to manage each stock on a maximum sustained yield basis.

The 1974 season provides an example of some of the aforementioned management problems in the Moser-Olga Bay area. A poor pink salmon escapement into the Dog Salmon River required a closure of the entire area. By the time it became apparent that there was a surplus of sockeye returning to Upper Station and most of the Dog Salmon River pinks had passed the fishery, it was too late to harvest the available surplus in the established fishing areas. A substantial number of sockeyes could have been harvested in inner Olga Bay had regulations allowed this.

With the exception of Frazer Lake, average sockeye runs to the Moser-Olga Bay areas have been considerably below historic averages in recent years, and the problems of rebuilding these runs is further complicated by the desirability of allowing at least some fishing time to a group of fishermen who are unable to move to other areas. In view of these constraints, it becomes necessary to identify the major systems and target species and manage the fisheries for these particular key runs, rather than by individual stocks.

Major Runs

Frazer Lake Sockeye Run

The Frazer Lake sockeye run has not yet reached a harvestable level, but it will soon be of major importance. Due to the early timing of the run, this fishery will be the first one of the season.

The Department first introduced sockeye salmon into the formerly barren 4,100 acre lake in 1951. Subsequently a fish ladder was built in order for the

returning adults to enter the lake which was blocked to fish passage by a 30-foot falls. Additional egg, fry and adult transplants combined with natural production has built the run to its present level. The average escapement for the last five years has been approximately 65,000. Although no figures are available on the number of these fish that have been intercepted in the fisheries it is considered to be fairly minor as there have been no significant June fisheries on Kodiak since 1970.

A research program was begun on Frazer Lake sockeye in 1964 for the evaluation of the success and development of this newly established run. The most recent research conducted by F.R.E.D. division indicates that there is an optimum rearing potential in Frazer Lake of approximately 60 million fry. It would require about 400,000 adult spawners to produce this amount of fry. An assessment of available spawning ground indicates a very similar optimum number of spawners:

Lake shore	- 141,000
Lateral tributaries	- 46,000
Lake outlet	- 13,000
Pinnel Creek	- 167,000
5% prespawning mortality	- 18,000
Total spawners	- 385,000

Since the Frazer Lake run is a newly established man made run, no historical patterns of returns or spawning habitat utilization exist. Therefore, estimates of optimum escapement are necessarily based on total utilization of spawning areas. In the last five years the peak of the run through the ladder has varied from mid-June to late July. Even though there has been some fluctuation in the timing, the run is still basically an early spawning population,

and the peak will probably stabilize as the size of the run increases. Lake spawning populations are normally late spawners, and since timing and spawning characteristics are at least partially controlled by genetics, it is very possible that a substantial lake spawning population may never be established from the present stock. Regardless of whether a lake spawning run will establish itself or not, it is safe to say that the tributary population, which makes up probably over 90% of the current total run, will expand most rapidly. It cannot be assumed that any escess to the tributary escapement needs will automatically drop back into the lake and spawn there. Tagging is needed in the fishery and at the ladder to determine timing and spawning ground utilization. We need to know if it is possible to separate and manage discrete spawning populations. Until more is known about timing and distribution of the run, an escapement within the range of 175-250,000 sockeye is the inital goal.

Management of this run will depend on aerial and boat surveys as well as escapement counts through the ladder. A weir on lower Dog Salmon river may be necessary. It is hoped that as the timing of the run stabilizes it will be possible to pro-rate fishing time so that it occurs only on those spawning segments that are surplus to the escapement needs.

Upper Station (Olga Lakes) Sockeye Runs

After the mid-1950's when escapements of sockeye salmon into this system dropped below 200,000, the production dropped considerably. Extensive research into the optimum escapement level of this and other systems is lacking, but based on historic production levels, the optimum escapement figure at this time appears to be near 180,000 fish. Based on average run timing, the escapement rate goal would be 30,000, 130,000 and 20,000 fish in July, August and September, respectively. The accumulative August escapement by week would be 15,000, 50,000

100,000 and 130,000 fish. It is realized that the optimum figure of 180,000 will not likely be achieved in the next few years, but an attempt will be made to reach a minimum escapement of 100,000 fish.

The F.R.E.D. division is planning to continue rehabiliation of the Akalura Lake sockeye run by transplanting adult fish from Upper Station once the minimum requirements into Upper Station are assured. A maximum of 5,000 fish would probably be transplanted annually until the Upper Station escapement reaches 180,000 at which point as many as 20,000 may be transplanted.

Dog Salmon River Pink Run

Although extensive studies of Dog Salmon River are needed to more accurately determine an optimum pink salmon escapement goal, it is readily apparent that escapements in recent years have been far below the carrying capacity of this large river. Escapements of 150,000 to 300,000 have produced large returns in the 1950's and early 1960's. The average escapement since 1952 is approximately 65,000 for the odd numbered years and 85,000 for the even numbered years. These figures should be considered the absolute minimum escapement goals for the system. Not since 1962 and 1963 have these minimum goals been exceeded.

The timing of the pink salmon run in Dog Salmon River varies considerably between odd and even numbered years. The peak escapement count occurs the last week of July on the odd numbered years and the last week of August on the even years. On odd years the timing of the pink salmon run will overlap with the sockeye run, and it will become increasingly difficult to manage these two runs as Frazer Lake runs continue to increase.

Minor Runs

There are several relatively minor runs of salmon in this area which on some years collectively amount to a substantial number of fish. Because of

the relatively small size of these runs, they generally cannot be managed individually and harvests from these runs are therefore mostly incidental to other fisheries. The more important of these so-called minor runs would be:

Pink Salmon:	Olga Creek, Akalura Creek, Horse Marine Narrows Creek, Chip Cove.
Sockeye Salmon:	Horse Marine, Akalura.
Chum Salmon:	Dog Salmon, Horse Marine, Narrows Creek.
Coho Salmon:	All systems.
King Salmon:	Dog Salmon.

Management Strategy

The Department intends to manage the Moser-Olga Bay fishery with emphasis on the aforementioned major runs. For reasons stated earlier, it must be recognized that the rebuilding of the runs will have to be achieved on a gradual basis. In some instances portions of some runs may have to be sacrified in order to harvest others. Conversely, it may be necessary to allow more than optimum escapement into one stream while protecting a weak run.

The lack of precise forecasting methods for pink salmon and the absence of a forecast for sockeye salmon runs in Moser-Olga Bay, complicates the management problems. Aerial surveys, weir counts and catch figures will be used in assessing actual returns, management of fisheries will be based on the strength of the three major runs previously decribed, taking into account the factors of intermixing stocks, overlap of timing and differential rates of returns.

Gordon Jensen, Chairman
Alaska Board of Fisheries

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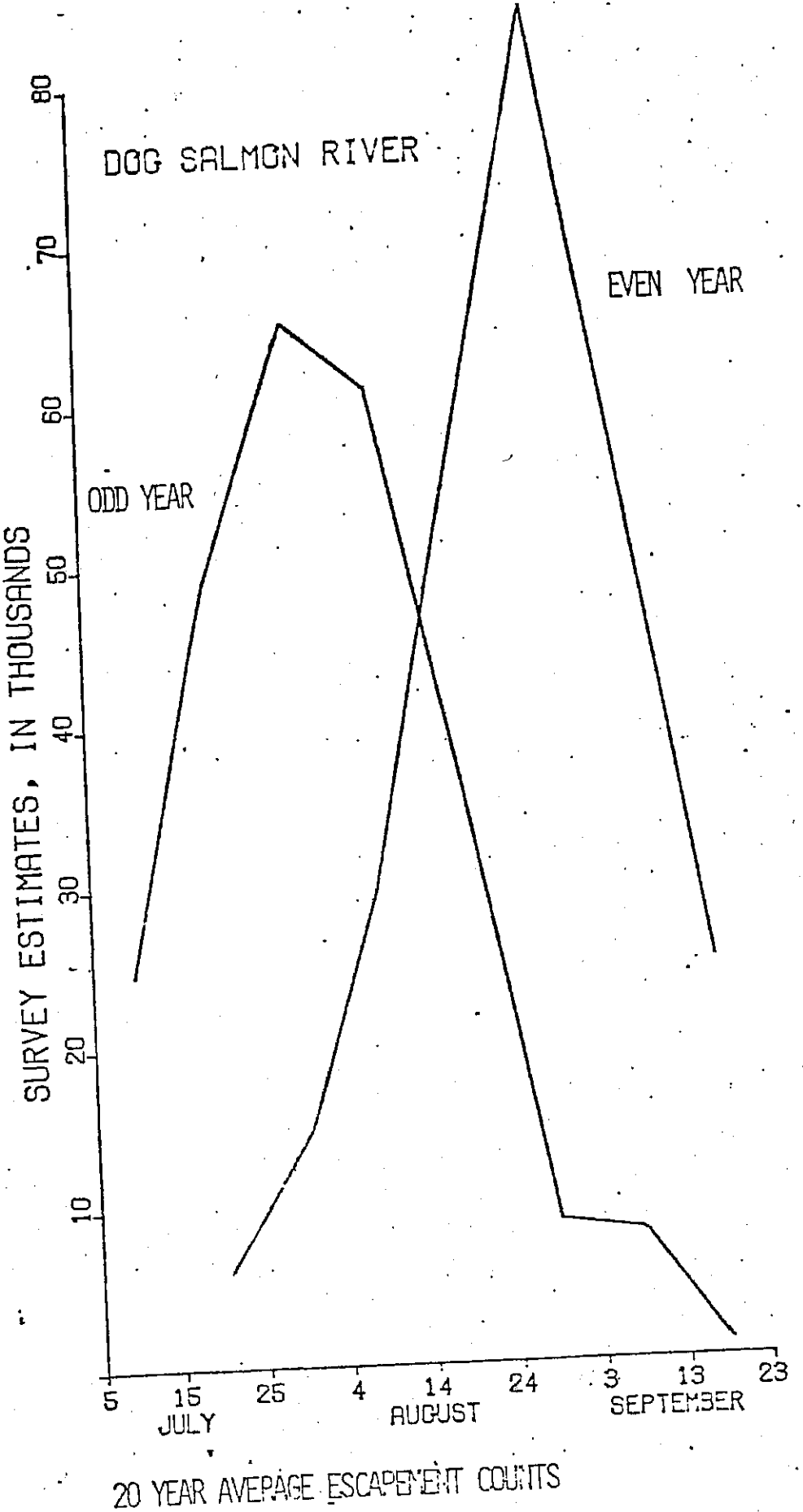
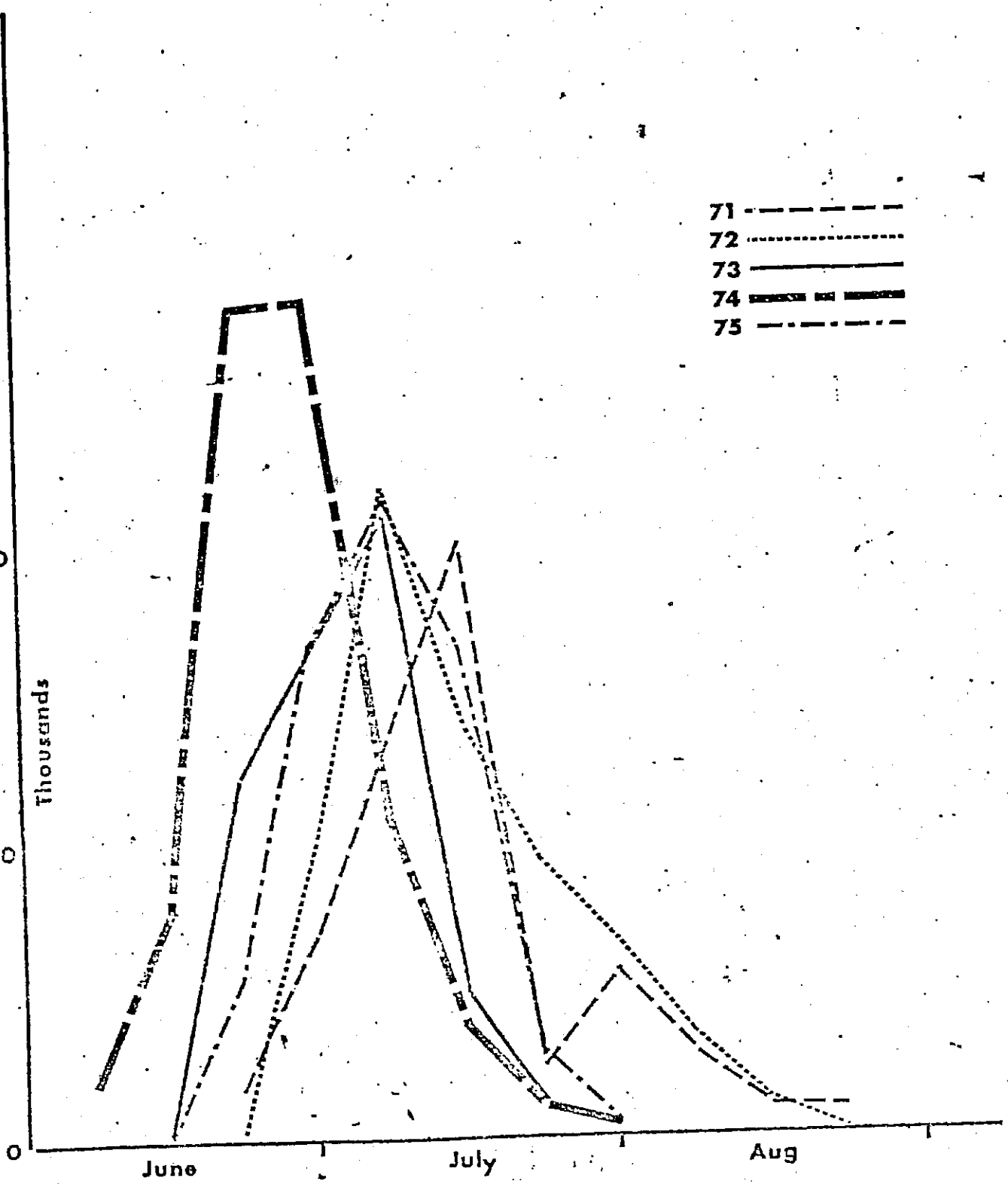

DOG SALMON RIVER
EVEN YEAR
ODD YEAR
SURVEY ESTIMATES, IN THOUSANDS
80
70
60
50
40
30
20
10
5
15
25
4
14
24
3
13
23
JULY
AUGUST
SEPTEMBER
20 YEAR AVERAGE ESCAPEMENT COUNTS

Frazer Lake sockeye escapement

1971 — 1975



Dog Salmon River Peak Pink Salmon Escapement Counts