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A FIVE-YEAR PLAN  
FOR THE MANAGEMENT AND DEVELOPMENT  
OF THE ALASKA FISHERIES

In the planning of an over-all program of the magnitude of the Alaska Fisheries, it would be impracticable, if not outside the scope and experience of any one individual in the Fish and Wildlife Service, to outline the multitude of ideas and details necessary to carry out a practicable, successful working plan. The following plan for a 5-year management program of the Alaska fisheries is the combined ideas of the field men and administrators of the Division of Alaska Fisheries.

The present condition of the Alaska fisheries was predicted by an agent of the Treasury Department fifty-five years ago, when Joseph Murray wrote: "From the best information obtained in Alaska- and an earnest effort was made to gather it impartially- the salmon packing industry within the section embraced between Cape Fox and the Nushagak River has attained the limit beyond which it is dangerous to pass; and that if we would perpetuate the salmon industry and keep it up to its present grand proportions, measures of protection must be taken by which the streams and spawning grounds shall be kept open and undisturbed at all times, so that the fish may freely ascend and deposit their eggs in season".

The history of the Alaska salmon fisheries is replete with denudation and predacity by reason of the premise that regulations will never be self-imposed; the strong overcome the weak, and dissipation of capital, whether it be fish or dollars, makes for depletion. A combination of factors, within and outside the Service, have worked to too small a degree for good management. Our appeals to the appropriations committees have not been sufficiently justified or

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Anchorage, Alaska 99503



too weak to get results, and an economy-conscious government has not viewed our needs in the proper light. Recent hearings held in Alaska have brought to light shocking conditions that would never have been permitted to exist had the need been properly justified, and deserving and favorable action taken by Congress.

First, let us consider the resource; the fundamentals and justification for the perpetuation of the resource. Under proper management the Alaska fisheries will produce perpetually in excess of 750,000,000 pounds, at present market values, over \$100,000,000.00 annually. On an economic basis, any industry that has an annual value of \$100,000,000.00 is one that is to be cherished and fostered and deserving of a maintenance commensurate with its value. The Alaska fisheries have produced an average of over 500,000,000 pounds per year. This is the average of low and peak years and is mentioned here as a basis for the claim that the Alaska fisheries can produce consistently 750,000,000 pounds annually under proper management.

In the early days of commercial fishing in Alaska, especially for salmon, only the choice sockeye, or red salmon were canned. The canneries were located within, if not close by the red salmon streams and numerous lethal devices were invented for the capture of the salmon. Regardless of warnings to the contrary, unscrupulous fishing methods persisted until the runs of red salmon, especially in southeastern Alaska, were practically killed off. The cannerymen then embraced the idea of restoring the runs, and incidentally reducing the Federal tax on their pack, by operating hatcheries. The old Bureau of Fisheries operated two red salmon hatcheries in Alaska. None of these efforts, however sincere, were of any known value in restoring the runs; it was a trial and error method of trying artificial propagation of anadromous fishes which has

been successful with the salmonoids and other fishes of different age groups. As the industry has progressed in modern high-speed and sanitary canning methods, it has suffered a decline in capital investment in the resource. Never in the history of this country has an industry taken so much out and put so little back in. During the past 60 years on commercial fishing in Alaska, and we refer to the salmon specifically, there has been a magnificent opportunity to make studies of all the species of the Pacific salmon, and with a background of 60 years study, what a world of information we would have. In all these years no one has been possessed with the ability or the inclination to really present the needs of this problem, or if the problem has been properly presented, no one in authority has had the vision to fully appreciate the needs.

In the face of declining runs of salmon, we have groped about for new regulations, hoping that a new closed area here, or a short fishing season there, or perhaps a new length or depth of seine, might be the answer to the problem. The real answer to the problem would be to inaugurate a thorough study and carry it through to completion. We have highly trained ichthyologists and biologists capable of carrying out a study of any of our Alaska species of fishes if given the proper support. In all cases in the Alaska fisheries where a conscientious effort has been made to make a study of any species of fish, real results have been accomplished. Our great halibut fishery has been built up from what was considered a depleted fishery. A thorough study of the halibut fishery developed some surprising facts and the program developed on these facts has resulted in an enormous increase of the species. Halibuters now make a catch in a month's time far in excess of that formerly made in a whole year's fishing. The red salmon studies now being carried on in the Bristol Bay area are producing information

that is of real value, and if these studies are supported to completion we will have a working knowledge upon which to base constructive regulations. The herring fishery studies have resulted in findings of great regulatory value, and if permitted to continue, will provide us with a bulwark of data on this species.

Several attempts have been made in the past few years to inaugurate a salmon tagging program in southeastern Alaska. Either by reason of lack of funds or other reasons the program had no continuity and the effort spent has resulted in no factual value. We have attempted to regulate a shrimp fishery in southeastern Alaska, but from any visual evidence, especially during the 1947 season, our regulations had they been invoked would have worked a hardship on an infant industry far in excess of any conservation requirement. 1947 records show greater abundance of shrimp and heavier hauls per drag than heretofore recorded. We have established a closed season on commercial fishing for sablefish in southeastern Alaska, a fishery that is in a decline, but we have no way of knowing whether this closed season is a "shot in the dark" or biologically necessary. Our butter clam fishery in southeastern Alaska, although of no great magnitude is sorely in need of further studies. The dungeness crab fishery is another small fishery that may have potentialities if proper studies could be made, and the razor clam fishery should have more time spent on it. Our king salmon fishery of Alaska, probably one of the most difficult to study because the three most important spawning rivers are of Canadian origin, is in great need of immediate studies. An earlier theory was that the decline of king salmon was related to the decline in herring, but the herring are returning in numbers while the king salmon are still in the decline. King salmon studies would, in part, be international in character and a very tender situation because of the

fact that a large portion of the Alaska king salmon fishery is derived from Canadian spawning areas. A great deal of ground work would be necessary with considerable diplomacy involved.

The mentioning of the foregoing mistakes on our part in the past is not meant as criticism to the honest efforts on the part of a number of sincere workers in the Division of Alaska Fisheries, but are enumerated with a view to the prevention of their reoccurrence and in the light of a united effort being made to improve the Alaska Fisheries through an intelligent and progressive management program.

As Alaska's number one industry, the fisheries of Alaska in the present static condition, is responsible for over one and one quarter million dollars in <sup>annual</sup> revenue to the Territory of Alaska and the United States. Yet from this enormous revenue, and in the face of declining returns, appropriations committees have never granted in excess of one-half of one percent <sup>of this income</sup> for the maintenance of the fisheries. It would be considered economic suicide for a business to hope to exist on such a miserly plow-back; yet the fisheries of Alaska is the big business of the Territory, and it is only through a number of fortunate biological conditions that the fisheries exist in their present magnitude.

It is only logical to assume that in the absence of any factual evidence on which to base new regulations, the promulgation of further regulations, unless a good guess is made, would have no conservation value. The first theory in any structure is cause and effect, and if we are to put the Alaska fisheries on a sound management basis we must, of necessity, learn about the causes and effects of the natural phenomenon effecting the life habits of the fishes, mollusca and crustaceans and factors effecting their migration and mortality. It is apparent, therefore, that a thorough study should be immediately instituted to

determine facts, beyond any reasonable doubt, as to the treatment indicated. Coincident with the development of factual data the necessity for personnel and facilities become apparent to carry on the scientific investigations, management programs and enforcement of constructive and conservative regulatory measures that will follow.

As the foundation of our program will be scientific investigations and studies we will first consider the necessity and justification, and offer an estimate of the cost over a progressive 5-year period from 1949 through 1953.

Our first consideration will be that of the red salmon fishery of the Bristol Bay area. Because of the predominant 5-year cycle, or maturity of this species, an off-year cycle or weak year occurs every five years. Studies are now being made to "bolster" this weak cycle which records show as recurring in 1925, 1930, 1935, 1940, 1945 and 1950 (expected). Records from this area also show the past 20-year average pack to be over 1,000,000 cases, but if we eliminate the off-cycle years during that 20-year period, we arrive at an average pack of nearly 1,250,000 cases. Our net loss, therefore, is 250,000 cases, which, under present market conditions represents a loss of \$4,250,000.00 every five years. This off-cycle year in Bristol Bay occurred first, according to records, in 1907, repeating in 1911 and 1919 and after a correspondingly light year in 1920 the off-cycle year leveled off to recurrent 5-year periods. If this condition is to continue for another 20-year period the red salmon fisheries of Bristol Bay will have suffered a loss of some \$20,000,000.00.

To a casual observer it would appear that an investment of say \$1,000,000.00 to insure the return of \$20,000,000.00 would be good business. It is estimated that the expenditure of \$1,000,000.00 for the facilities to carry on an intensive investigation and protect the

ground gained over five years of scientific study would be sufficient to insure a workable program for the restoration of this off-cycle year and develop factual data for improvement in the so-called normal runs of this district. Excellent work is now being done in this connection but lack of funds and equipment works an ever-present hardship on the field men and retards their progress. A tentative proposal for the improvement of the Bristol Bay fisheries is suggested in the necessary facilities outlined below:

4 Research stations and allied equipment	\$350,000
Additions to Naknek Base in the form of marine ways, shops, additional residences, central heating, hangar, etc.	200,000
6 Patrol vessels from 36 to 45 feet	95,000
1 Tender vessel (for Bristol Bay exclusively)	325,000
2 Seaplanes	<u>30,000</u>
	\$1,000,000

(The above are suggestions, and are to be supplemented by Messrs Kelez, Johnson and Erickson). The figure of \$1,000,000 is hypothetical and should be augmented if the necessity is justified).

While the Yukon-Kuskokwim District is somewhat remote and often overlooked, a great potential is being wasted in that area. For many years very little if any attention has been paid to this district. It has the largest rivers, most extensive watersheds and splendid spawning areas and nursery grounds.

The king salmon fishery of the Yukon and Kuskokwim has been reduced from its one-time enormous proportions to that of not being of sufficient magnitude to feed the natives and their dogs. A tremendous amount of work is needed in this section to restore the

fishery to a high level of production. Several years ago this Service had a resident agent in the Yukon district, but the position has long since been abandoned, and the only attention it has had has been the very few and special occasions when one of the Bristol Bay agents traveled there in a plane for a hurry-up call of but a few hours duration.

To arrive at an estimate of the amount of equipment and facilities needed to place this area on a good sound fishery management basis would require exploration work with an initial start of say \$400,000. This could comprise two river patrol vessels 50 feet long, \$60,000; two residences for agents, \$40,000; two research stations, \$300,000.

(Above figures are tentative and are to be amplified by Messrs Kalez, Johnson and Erickson).

In the Port Moller area of the Peninsula District our salmon fishery has produced a ten-year average of only 48,000 cases. The curve of the decline is reflected in the 1947 pack which is some 16,000, or say 60 percent less than the ten-year average. The South side of the Peninsula has produced well over 1,000,000 in one season, but for the last ten years the average is less than 350,000 per year. The Peninsula District is capable of producing 1,750,000 cases annually if properly implemented. Better control methods are needed in establishing stream populations at a high production level. A highly desirable improvement would be the acquisition of three patrol vessels, marine ways, aircraft facilities, etc. A suggested outline follows:

3 patrol vessels, 50-foot length	\$60,000
Marine ways and aircraft facility	15,000
1 4-place seaplane	<u>12,000</u>
	\$87,000

(The above is to be commented upon by Messrs Kelez, Petry and any others with intimate knowledge of the Peninsula District and its needs).

The Chignik District, although one of the smaller districts, is capable of greater production and in need of new and improved facilities. The Chignik weir is a must in any program outlined for this district. The weir was in operation during the period 1931 through 1939 with the exception of being carried away in a flood in June, 1933, and not installed in 1938 because of extreme high water conditions. During the years of the Chignik weir the escapement-catch relation was properly balanced but during the years since that time we have had no control over the situation. To illustrate the potential of the Chignik District, the last ten-year average for Chignik has been 96,363 cases of salmon, exclusive of 1947, which was an exceptional pack of 175,361 cases, of which over 146,000 cases were red salmon. If Chignik will produce over 175,000 cases in one year under present conditions, it is only reasonable to assume that at least a 25 percent increase could be expected under a more efficient management program, which would give us some 218,000 cases annually. It is evident from the foregoing that the industry is the loser by over 120,000 cases, or a yearly loss of over \$2,000,000, by not having the area producing at a higher level.

In addition to the necessity for a new and improved weir, Chignik is badly in need of a new patrol vessel to take the place of the Ibis, now obsolete and worn out. Other facilities, some of which are listed below, are needed for this district.

New steel weir	\$15,000 (?)
One new patrol vessel, 50-ft.	20,000

(The above relative to Chignik should be supplemented by Messrs Kelez, Petry, Smith and others familiar with this area and its requirements).

In the Kodiak area we have another enormous potential that can be achieved through a properly implemented program. This area, although predominantly a pink salmon producers, has produced 200,000 cases of red salmon in a year (1926 and 1936). Aside from the very poor year for all species in the Kodiak area in 1930, the 1946 pack of 66,141 cases of red salmon was the all-time low for the past twenty years.

This district, in addition to the benefits to be given pink salmon, is sorely in need of a study program in the form of biological stations, weirs, etc., for red salmon, and equipment for herring studies.

A suggested outline follows:

A biological station to be erected at Karluk	\$125,000
1 4-place seaplane	15,000
1 seaplane hangar	5,000
3 patrol vessels, 50-foot long	60,000
1 Scientific vessel, 50-foot long	25,000
Marine ways and cover	10,000
Weir cabins and new weir material (3 weirs)	20,000
1 truck	1,500
	<u>\$261,500</u>

(Comments by Messrs Kelez and Meyer to be inserted here).

Cook Inlet District has produced the equivalent of over 400,000 cases of canned salmon in one year. With a normal 25 percent increase that would follow after the inauguration of a properly implemented program, this district would support a fishery, perpetually, of over 425,000 cases annually. The average pack over a 20-year period is around 228,000 cases per year; thus it is apparent that the yearly average is only a little above one-half of the potential.

Additional patrol equipment, marine and aircraft facilities are needed. Many of the spawning streams in the Cook Inlet area are a natural habitat for beaver, and in most cases their dams have created

a definite menace to the migrations of salmon. Some beaver control work has been carried on in this area, but a more extensive program is needed.

Immediate requirements for Cook Inlet follow:

3 patrol vessels, 50-feet long	\$60,000
Marine ways and covered boat storage	15,000
1 4-place seaplane	12,000
3 aircraft and 4 patrol vessel facilities (floats, etc.)	<u>6,000</u>
	\$93,000

(Comments here by Capt. Cole, George Black and others).

In the Prince William Sound area, including Resurrection Bay, Copper River and Bering River-Icy Bay, we have a potential of over 1,000,000 cases of salmon a year. During the past twenty years the annual average has been but a little over 500,000 cases. Here again, we have a production of about one-half of what it should be. The razor clam and herring fisheries are two other important fisheries of this area in need of assistance. If additional studies of these species could be undertaken and carried out over a five-year period, a constructive program could be outlined that would perpetuate these fisheries at a high level of production.

The Prince William Sound, or Central District, is very extensive geographically, and considerable floating equipment is needed to give proper coverage. To facilitate a long range program for this area the following is suggested:

1 biological station	\$100,000
2 50-foot patrol vessels	40,000
1 35-foot patrol vessel	12,500
1 50-foot scientific vessel	25,000
1 4-place seaplane	12,000
1 marine ways and warehouse	15,000
1 seaplane hangar	5,000
1 truck	1,500
(Speedboats?)	

(The above to be amplified and commented on by Messrs Kelez, Kolloen and Koppen)

In the consideration of southeastern Alaska, we will include the Yakutat district, and our first comments will be on that area. The Yakutat district has developed into an area extremely difficult to manage and keep abreast with because of the increase in exportation of salmon. In former years practically all the salmon taken in this area were canned in the one cannery in Yakutat. Lately, especially the last three seasons, the higher price for fresh salmon has induced buyers to invade this area in their floating buying stations. Because of the reluctance of these buyers to divulge the source of their purchases, it is believed that a true picture of the actual number of salmon taken from this area the past few years will never be known.

With the exception of 1941, the case pack record of Yakutat shows a sharp decline, with the all-time low of 10,364 cases of salmon in 1946, and only 11,185 cases in 1947. A salmon counting weir has been in operation in this area (Situk River) for several years, but the increase in export of fresh salmon without record destroys the catch-escapement ratio, thereby nullifying the value of the weir.

A more intensive management program is needed in the Yakutat district to bring about a more equitable relationship between commercial take and escapement, and to restore the runs to their former magnitude, especially the reds and silvers, the predominant species of this area.

Although many different physical features present themselves in the area we refer to as "southeastern" Alaska, for purposes of discussion, we will take the area as a whole. The 1947 case pack of all southeastern Alaska reached the all-time low of but a little over 1,000,000 cases. Excepting the years of 1909 with only 19 canneries operating, and 1921 with only 30 canneries operating, the 1947 pack

is the smallest in 40 years. This is not only the "hand-writing on the wall"; it is the final bell. With over 40 canneries operating and with improved fishing methods, appliances and an increase in mobile gear, to come up with only a little over a million cases of salmon for all southeastern Alaska, is indeed a deplorable condition. This condition is not peculiar to 1947 - aside from the freak run of pink salmon in 1941, there has been a steady and persistent decline in the pink salmon population for the past five cycles. The pink salmon, our predominant specie, has had its ups and downs during the past 50 years in southeastern Alaska, but this is the first time the decline has followed a definite pattern for so many cycles.

If time permitted and all the data were available, it is believed the diminishing returns of pink salmon may be charged, in part, to the elimination of streamguards. The increase in fishing effort has had its effect, no doubt, and a series of unfortunate biological factors has contributed to this decline. In any event, the decline has manifested itself and no epitaph could be more impressive than the description in our records - "the run was a failure; it even looks worse for next year and we have no hopes for the future unless some drastic action is taken".

The actions indicated need not only be drastic, it is now necessary that the condition be thoroughly studied, and during the progress of these studies sufficient streamguards and patrol agents be employed to hold what ground we gain. The erection of salmon counting weirs, construction of biological stations, shore stations and patrol boat and aircraft facilities to accommodate the necessary increase in aircraft and vessels will be required.

One of the most important requirements of our planned program for the improvement and management of not only the fisheries of southeastern Alaska, but for all of Alaska, will be the acquisition of young men possessed of the qualifications necessary to our Service and a background in fishery biology - men that are scientifically trained and capable of recognizing an erroneous application or biological error; to ferret out causes and effects, determine stream populations necessary for maximum returns and a multitude of other related problems encountered in working with fishes and shellfish.

Another part of our program will be that of in-service training of field men. Heretofore and presently we have the problem of rushing the appointment of a field man and getting him on the job at the earliest possible moment. Our prime consideration has been to get the man accepted by the Civil Service Commission, assign him to a district, hand him a copy of the Field Manual and the Regulations with the fatherly advice "just follow these and you will be alright". This practice is not only most unjust to the employee; it is malfeasance. When the Congress of the United States delegated the authority and charged the Secretary of the Interior with the responsibility of the fisheries of Alaska, it was no idle gesture. It placed the welfare of a tremendous industry in the hands of a few people (Division of Alaska Fisheries). Notwithstanding the sincere efforts put forth by our field men, many of them were untrained for this responsibility. The majority of our agents were primarily enforcement officers, and did not have the benefit of a fishery biology background; they were not experienced in the collection of data that would lend itself to constructive measures and were unable to correlate apparent information.

In addition to possessing the basic requirements, our future field men, or agents, should be picked for their aptitude. The administration of a fishery district in Alaska requires finesse, diplomacy, and the courage of one's well founded convictions. In order to demonstrate the probationer's aptitude, our deputy agents should be employed on a probation basis, he should first be assigned to an experienced agent as an assistant for a minimum of one full season's work. The enforcement of our regulations is distressing to certain temperaments; the ability to meet the industry on a competitive basis and to possess the faculty of being able to say "no" in the face of some very persuasive arguments does not come natural to some men. The probationer's aptitude would be demonstrated during his indoctrination and he would not be placed in the position of having to make decisions that might be embarrassing to the Service and himself before being given the responsibility of a district.

Although this subject is being brought up under the requirements of southeastern Alaska, it is to be construed as applicable to all of Alaska, and the requirements for in-service training of deputy agents are suggested in the following:

It is proposed that an appointee be assigned to each of the 12 regulatory districts in Alaska as assistants to the agents in charge of the districts. Considering the limited personnel we have been operating under in the past, this might at first seem to be a heavy requirement, but after considering the minimum requirements for the efficient management of a district, it is found that a two-fold purpose will have been accomplished.

In all the years of fishery activity in Alaska, we do not have one record, except Little Port Walter, of any downstream migrations. It is not assumed that we should have had an accurate count of all the downstream migrants during the past years, but if we had any idea as to the estimated amount, we might be able to explain some of the irregularities in the salmon runs. The reason this information has never been obtained is because the one man in a district never has the time during that part of the season to carry on routine, and make these time-consuming field trips. The services of the additional man are needed during the commercial fishing season to assist with the multitude of problems of a district, and furnish the extra man hours necessary if we are to have any knowledge of our stream populations. Our practice in the past has been to go forth on our annual stream survey sometime after the close of the commercial fishing season. This procedure results in having seen what streams we visit once during the whole year. It is submitted that no man, scientist or layman, can tell what has happened in a stream by seeing that stream for one or two hours of one day in the year. Some streams are early, while others are late, and unless these streams are visited frequently we have no way of knowing what the population has been. We cannot defend ourselves in establishing fishing dates unless we have the facts, and the facts can be had in no other way than by having our own men in the field. In the absence of salmon counting weirs there is no other way of maintaining the proper relationship between commercial pack and escapement, one of the important responsibilities we are charged with. The services of the additional man are also needed during the winter months in making surveys of spawning beds.

Again, aside from Little Port Walter, we have no record of any spawning beds in Alaska during the incubation period. Data of this nature is very important to the Service, and if we had some of it for past years we would not be so much in the dark at the present time. In addition to assisting in gathering invaluable information for the district, the appointee would be getting experience in his future work.

Our past method of concentrating our limited personnel in the field during the commercial fishing season only is not a method to be countenanced in the future. Instead of adopting a management program for the benefit of the fisheries, we have adapted ourselves to the needs of the industry. When industry starts canning fish, we send our men out in the field; when the industry closes down for the season, we close down our field work. Paradoxical as it may be, the wagon has been pushing the horse. There is a great need for pre-seasonal and post-seasonal work in all our districts that cannot be accomplished unless we have the men in the field. In southeastern Alaska, enforcement problems alone require men in the field from April to December, but we have never been able to comply with this one requirement because of lack of personnel.

It is proposed that each district agent in Alaska be furnished with clerical help for as many months of the year as is found expedient. Our management agents are managers in every sense of the word; managers of industrial plants of high potential - our smallest district in Alaska produces in the neighborhood of \$4,000,000 worth of merchandise in a year. It is quite difficult to imagine the manager of a \$4,000,000 industry doing his own bookkeeping, purchasing, vouchering, winter overhaul of his equipment, payrolls, reports to his board of directors, etc., yet we have been expecting our district managers to do just that. One of the astonishing things is that our men take the time to do any clerical

work when they are faced with so much field work that should be done. Twenty-four years ago Congress enacted a law, the intent of which we have not fully complied with because sufficient help has never been given the project - the marking of stream mouths. There are without a doubt hundreds of salmon streams in Alaska without benefit of markers. A number of them were marked years ago but the rapid growth of trees and bushes has long since obscured most of them. It requires anywhere from a half to a full day to properly mark, re-establish old markers or brush out around markers that are still intact. This work alone, if properly done, would require one man a full two months out of the year in any of our southeastern Alaska districts. The process of determining the stream mouth, with reference to the shore line at mean low tide, is one of time and study and cannot be passed over lightly or hurriedly.

The determination of proper stream populations and the erection and maintenance of counting weirs is a problem closely related to district management, and will be one of the requirements of our program. Many of our management agents are well qualified to carry on this work and should be given the opportunity to do so. The employment, distribution and supervision of streamguards will also be a function of the district agent and this work will be greatly facilitated in having an in-service training deputy to assist with the work.

In the over-all program for Alaska it is proposed that 143 streamguards be employed for the 1949 season, and additional guards thereafter as the program manifests the need. The distribution of the 143 streamguards is suggested in the following outline:

Ketchikan District: 17.

Boca de Quadra (5); Smeaton Bay (4); Chickamin River, Humpy Creek, Yes Bay, Naha River, Karta Bay, Thorne River, Chomondely Sound, Very Inlet, a total of 17 streanguards. These streams have a spawning capacity of over 30,000,000.

All the other districts in Alaska have comparative potentialities, but the lists following will give only the streams and the number of streanguards needed. Each district agent will list his streams, the number of men required, and a justification for them.

South Prince of Wales District: 11.

Token Bay, Edna Bay, Staney Creek, Nossuk Bay, Big Salt Lake, Klawak Creek, Trocadero Bay, Portage Bay, Nutkwa, Klakas Inlet and Hunter Bay, a total of 11 streanguards.

Wrangell-Petersburg District: 13.

Bradfield Canal; Snake Creek, Anita Bay, Thomas Creek; Salmon Bay, Red Bay, Lake Bay, Whale Passage; Stikine River, Crittenden and Mill Creeks; Calber Bay, El Capitan Pass; Trout Creek, Shipley Bay; Port Beauclere; west side Keku Strait from Seclusion Harbor to Jackson Hole; Totem Bay streams; Kasheets Bay and Duncan Canal; Petersburg Creek and Blind River; Rocky Bay, Burnett Inlet and McHenry Inlet, a total of 13 streanguards.

Sitka District: 18.

Redfish Bay, Whale Bay, Necker Bay, Redoubt Bay, Silver Bay, Katlian Bay, Nakwasina Passage, Fish Bay, Deep Cover Waterfall Cove, Ford Arm, Slocum Arm, Klag Bay, Black Bay, Goulding Harbor, Takinas Bay, Hoktaheen, and Lisianski Inlet, a total of 18 streanguards.

Juneau District: 21.

Port Frederick, Chilkat River, Wheeler Creek (Game Cove), Fishery Creek, Tenakee Inlet, Peril Strait, Kootznahoo, Hood Bay, Chiak Bay, White Water Bay, Wilson Cove, Taku River, Windham Bay, Port Houghton, Gambier Bay, Pybus Bay, Kadak Bay, Saginaw Bay, Security Bay, Pillar Bay, Tobenkof Bay. A total of 21 streamguards.

Yakutat District: 4.

Situk River, Ahrnklin River, Alset River, Italic and Dangerous Rivers. A total of 4 streamguards.

Central District: 16.

Copper River, Bering River, Martin River, Port Gravina, Port Fidalgo, Port Wells (Coghill), Eshmay, Valdez Arm, Jack Bay, Galena Bay, Sawmill Bay, Port Chalmers, Port Etches, Hawkins Cutoff and Anderson Bay, Jackpot Bay and Chanega Island, Resurrection Island. A total of 16 streamguards.

Cook Inlet District: 13.

Fish Creek, Beluga River and Susitna Flats, McNeill and Chenik Creek, Kasilof River, Deep Creek and Anchor Point, Glacier Spit, English Bay, Koyutalik (Dogfish) Bay, Windy Bay, Rocky Bay, Port Dick, Port Graham, and Seldovia. A total of 13 streamguards.

Kodiak District: 15.

Perenosa Bay (2), Afognak Bay, Paramanof Bay (4), Uganik Bay (2), Terror Bay (2), Uyak Bay (3), and Zachar Bay. A total of 15 streamguards.

Chignik District: 1.

Aniakchak River. 1 streamguard.

Alaska Peninsula District: 6.

Port Moller (3), and Ivanoff and Stepevak Bays (3). A total of 6 streamguards and/or patrol agents.

Bristol Bay District: 11.

Kvichak River (2), Naknek River (2), Kushagak River (3), Egegik River (2), and Ugashik River (2). A total of 11 streamguards and/or patrol agents.

In the last two named districts either streamguards or patrol agents may be employed, depending upon conditions. This may also apply to the other districts - it may be more advantageous in some cases to have a patrol agent in his own or Service boat patrol several streams in one bay or inlet,

In addition to the streamguards and/or patrol agents specified above, numerous patrol agents will be required. It is desired that each district agent treat this requirement individually, and in their justifications set up the location or area, need, and how the patrol agents are to be mobilize - by use of their own boat or aboard a Service boat or vessel. In a recent budget estimate the following number of patrol agents were requested:

<u>Area</u>	<u>Patrol Agents</u>
Bristol Bay	12
Alaska Peninsula	6
Kodiak	14
Cook Inlet	8
Cordova	10
Juneau (incl. Sitka)	18
Wrangell	8
Ketchikan	14
Craig	10

Obviously, with this many patrol agents, fewer streamguards would be required, and it is suggested that the district agents state

their preference as to which category would best suit the needs of their districts.

The situation that has been created by the increase in fresh fish handling in southeastern Alaska cold storage plants is the parent of numerous violations. These violations consist of landing illegal halibut and salmon, and disproportionate halibut-sablefish ratios. Complaints of these violations have been so persistent, especially this past season, we can no longer defend our lack of attention to this matter. The situation is primarily one of enforcement, yet requires the full time of a Service employee.

The presence of a Service employee on the premises would discourage these violations, but to make an effective over-all plan it will be necessary to have a man stationed at each cold storage plant. This assignment would fall within the scope of the duties of a Deputy Management Agent, and the requirements and necessity for this assignment is in addition to any deputy assigned to the district in which the cold storage plant operates.

In addition to the necessity for having a Deputy detailed to each cold storage plant in an enforcement capacity, a great fund of information could be accumulated during the season that is needed in our program - size-weight ratios in king salmon, where taken, and other pertinent data. Numerous halibut vessels are reported as having illegal seines aboard; a function of this employee would be to inspect all fishing craft. The regulations require that either an officer of the U. S. Customs or of the Fish & Wildlife Service inspect each cargo of halibut or permit-fish taken in Alaskan waters. The Customs takes the attitude that it is a fishery matter, and they will not ask for

funds to employ men for this purpose, and circumvent the requirements by having the captain of the vessel report to the Customs office and make his declaration. It is therefore a paramount duty of the Fish and Wildlife Service to have an officer available to inspect each cargo of halibut or permit-taken fish, as well as landings of other fishes, immediately upon hailing.

It is proposed that an employee, preferably a deputy fishery management agent, will be stationed at each cold storage plant in Alaska for the entire fishing season. This will include the initial employment of a man in Ketchikan, Wrangell, Petersburg, Tyee, Port Alexander, Sitka, Pelican City, Elfin Cove, Juneau, Cordova and Kodiak. These employees would perform other duties in addition to their principal assignment to the cold storage plants.

In southeastern Alaska the necessity for a marine ways suitable for handling small vessels of the speedboat type during winter storage, and for emergency repairs to our larger vessels, has been apparent for some time. Each year in the past we have been confronted with the problem of finding a suitable and convenient winter storage for our speedboats, and facilities for overhauling and repairing. In the past, even with the limited number of four speedboats, a great deal of effort and planning has gone into obtaining a place where they could be hauled out for the winter. First we used a commercial facility in Wrangell, greatly in need of repairs, and it was found unsatisfactory. Following that we hauled them out on the Juneau rock dump, through the courtesy of the U. S. Army and the U. S. E. D. This location proved unsatisfactory because of the necessity for building temporary sheds for them each winter, only to have them carried away during the winter

winds. Our third and last use has been that offered by the Navy, and later in the Office of Indian Affairs, on Japonski Island, Sitka. The Sitka operation has been found unsatisfactory in many ways, regardless of the cooperation furnished us by the various agencies. Japonski Island is now the locale of the principal school and hospital for Alaska native children, and the presence of a great number of children (400 to 1,000) on the Island, is in itself a problem. Boats have been an especial attraction for youngsters and it takes constant policing to keep them away from the boats. Last year considerable damage was done to paint, glass, and loss of tools and minor equipment.

The City of Juneau is now working with the Corps of Engineers for an addition to its present Small Boat Harbor. Plans call for dredging the area immediately north of the Northern Commercial Co.'s marine facility, reclaiming shore lands that will be suitable for marine ways, shops and boat sheds. Suitable floats will be installed for the mooring of typical craft. We are informed by the City of Juneau that it is their desire that our needs be incorporated with their requirements to enhance the justification for the boat harbor construction by the Corps of Engineers, and that the only cost to this Service would be our own expense for shore installations upon the reclaimed shorelands. The occupancy of the shorelands would be rental free.

It is therefore proposed that funds be made available for the construction of a suitable marine railway in the Juneau Small Boat Harbor area for the hauling out and repair of vessels of the Brent class, construction and equipment of a machine shop, and the construction of a lateral skid and sheds for winter storage of small craft.

It is further proposed that the position of Marine Superintendent, or a similar title, be created, to superintend the operation of the ways, shop, and the overhaul and repairs to the vessels. Crew members could be used for the major portion of the actual work of repairing and overhauling. Regardless of the number of aircraft, or the efficiency at which they operate, the nature of our work will always require the use of both large and small vessels, and it is improvident, costly, inefficient and unsatisfactory in not having a suitable marine ways at our full-time disposal. We have experienced delays of from ten days to two weeks in securing the use of a marine ways both in Juneau and Ketchikan, the only two available commercial ways in southeastern Alaska. When the use of one of our larger vessels is delayed that length of time, it is immediately apparent that we are considerably the loser in both time and money.

In the planning of the proposed small boat harbor, the City of Juneau will make provisions for aircraft hangars and facilities as required by our Service. Our plans should include, in addition to the accommodations for small boats and a marine ways, one floating hangar of sufficient size to accommodate one Grumman and two smaller seaplanes with a connecting shop for emergency repairs.

(The foregoing to be commented upon and amplified by Messrs Bright and Rhode. It is estimated that the minimum requirements for southeastern Alaska will be 20 speedboats of the 40-50 foot class, and the aircraft requirements for the Juneau area will be one large and two medium seaplanes).

The growth of our communications requirements has far exceeded the original necessity for inter-vessel contact of former years. Our

vessels of the Scoter class and above were originally equipped with radio for inter-vessel communication only, but with the acquisition of numerous surplus radio transreceivers we now have the equipment for a network of stations in Alaska, and steps have been taken to institute an Alaska network for the Fish and Wildlife Service.

Through the efforts of Mr. Marcus W. Meyer, our Kodiak Agent, an assortment of valuable radio equipment has been acquired from surplus, without cost to this Service. Our Administrative Officer, Mr. H. J. Furness has devoted his time and energies to establishing shore stations in Juneau and Ketchikan; Mr. Meyer established a shore station in Naknek. During the past season, 1947, we had our first initiation in the value of direct communications between vessels and shore stations of this Service.

The success of our past season's work with radio has demonstrated its value to this Service if the radio network were enlarged to include shore stations in each administrative district in Alaska. The accomplishment of a program of this nature requires the services of a radio technician in the capacity of supervisor of installations, repairs, and as a full-time operator at Station KWZF, the Regional Headquarters control station. Under our present arrangement a member of the Regional Office personnel is required to operate Station KWZF, and this has been undertaken by our Administrative Officer. Obviously, his routine duties are such that the devotion of his time to radio-telephone schedules either interferes with those duties or requires him to donate his own time after hours.

We now have sufficient major equipment to install shore stations in Ketchikan, Wrangell, Craig, Sitka and Cordova. With the stations

now in operation in Juneau, Kodiak and Bristol Bay, and vessel stations in Cook Inlet and the Peninsula District, we would have an Alaska network that would greatly expedite our administrative and management program. Daily contact with our agents and vessels would be effected, and immediate problems could be discussed and clarified. The evaluation of salmon runs and escapement can best be accomplished by daily reports from the field, and radio-telephone is the most satisfactory medium. To those responsible for the adjustment in fishing seasons, the radio-telephone is an essential tool, and in no other way can the necessary data be collected and evaluated for decisions in time to be of value both to this Service and the industry.

It is proposed that the position of Radio-Technician be created, and filled immediately funds are available. The radio equipment now at our disposal has a high commercial value, and would cost this Service several thousand dollars to replace. It is imperative that the distribution and installation of this equipment be made under the direction of a competent technician. The local U.S. Signal Corps has been most cooperative in making the Juneau installation of Station K2ZF, but it is impractical, if not impossible, for the Signal Corps to make installations at outlying stations.

The need for a statistician in the Regional Office can no longer be ignored. The increased number of calls made upon this office for statistics has placed us in the position of not being able to disseminate information correctly, or in an orderly manner. We have many requests for information on our fisheries in one or more statistical forms or categories other than the stylized form of our Statistical Digest. Our relationship with the industry, and with the public, can best be served through the services of a statistician.

There is a wealth of information in our old files of historical and educational value, and records that have never been analyzed in connection with our management problems. The amount of statistics we currently collect could be expanded, and the collection of these statistics should be by the direction of one experienced in this type of work. The meager statistics we do collect are poorly handled; our weekly salmon pack reports are usually in error, and many of our important reports are so late in reaching the Regional Office their usefulness is lost before we get them. A regular statistician, on top of the job, and knowing what is needed and when, and seeing to it that the information is on hand when needed, will be a necessary part of our program. We now occupy an inexcusable position in being unable to furnish the public, industry, and other Government agencies with information on fishery matters they have a right to expect.

We have had many requests lately for information on many phases of the industry, and our attempts to meet these requests have been disappointing. In some cases we have been obliged to tell the inquirer we would be unable to furnish the desired information; in other cases, we have found it necessary to tell them the time necessary for us to compile the information would carry its completion beyond usefulness.

In the Alaska districts other than southeastern Alaska, we suggested equipment needed by district; in southeastern Alaska we will suggest needed equipment and facilities collectively. The additional personnel required to carry out our program will follow the conclusion of this discussion. It is estimated that the minimum requirements for southeastern Alaska are as follows:

4 Biological stations	\$300,000.
1 Research vessel, 90-feet	150,000.
1 Research vessel, 60-feet	75,000.
3 Seaplanes, 6-place	45,000.
4 Seaplanes, 4-place	40,000.
20 Patrol vessels, 42-feet	300,000.
1 Marine ways, machine and carpenter-shop, and covered storage for 20 vessels	125,000.
5 trucks	6,000.
4 seaplane hangars	15,000.
	<u>\$1,056,000.</u>

In the over-all plan for Alaska we will include the reconditioning of our present fleet of vessels. In the absence of sufficient funds to rehabilitate our older floating equipment, many of the vessels are in disrepair. The use of larger vessels is necessary in the open and exposed waters of Alaska, and while some of these vessels used for this purpose are old, through reconversion and repairs, they can be made to render several more years of satisfactory service.

The distribution and servicing of 143 streanguards required in our program will necessitate the use of some of the larger vessels, and it is proposed that some of the older, less seaworthy vessels, be used for this purpose throughout the inside waters. Immediate liaison will be maintained with the streanguards by the district agents through the patrol agents, but the delivery of equipment and supplies for this number of men will require the use of larger vessels than those ordinarily assigned to a district, and will require a great deal of time that cannot be spared by regular district vessels.

The importance of keeping close contact with our streanguards was demonstrated to us this past season. We had a man stationed at one of the outlying streams, who showed signs of a progressive illness during the summer. During the interval when we had not sent a boat in to see him, he became very ill, and it was only by a fortunate circum-

stance, he was able to be brought into Juneau for hospitalization. The man died later on, and although we are not morally responsible for his death, we most certainly could have contributed to his well-being and comfort had he been visited more often while on the job.

(Mr. Bright, Capt. Cole and others to comment and supplement above in connection with vessel requirements).

The installation and maintenance of salmon counting weirs in numerous streams will be a part of our five-year program. The operation of counting weirs is the most practicable and accurate method of establishing proper catch-escapement ratios, and through their use we will be making a great contribution to the restoration of the declining runs. In comparison to the value derived, the cost of constructing and maintaining weirs in many of the Alaska streams will be small. The nomination of 30 weirs as a starter for our most representative streams may appear startling at first, but in the understanding of their conservation value and in the analysis of their justification, we will see their necessity. In full comprehension of these requirements, the number of 30 will appear as a minimum.

We have many streams in Alaska where the construction and maintenance of fish ways will be of immeasurable assistance to salmon in negotiating turbulent waters. The belief that it is hard to improve on nature may spring from good logic, but the fact has been demonstrated that in many streams the erection of fish ways has helped more salmon to reach the spawning grounds than would have had the fish ways not been there. Some of our streams have spawning areas that can accommodate greater populations but the maximum is impossible to achieve because of natural barriers. Any observer that has seen salmon trying

to negotiate turbulent waters has seen a few get through, but the majority of them just keep trying until they are completely spent and die unspawned. It will be a part of our program, therefore, to plan the improvement of salmon streams by the erection of fish ways where the necessity for them is justified.

We will also include in our plan provisions for the clearance of unnatural barriers in salmon streams. Ground work has already been started on this project in southeastern Alaska, but the work is deserving of greater assistance by means of a program of wider scope and better facilities. It would take an army of men to fully improve all our salmon streams in Alaska during a five-year period, but a great amount of work can be accomplished in that length of time and there appears to be no good reason why this work may not be carried on permanently.

The proposed exploitation of the natural reservoirs of our watersheds through pulp-timber operations, and the increase in commercial logging in and near our salmon streams, is a problem that can no longer be met by round-table discussions. The possibility of stream pollution by pulp effluent is also a related problem. These fundamentals are a challenge to our resourcefulness and an opportunity to be prepared to meet the problem before the damage is done. It is therefore proposed that a Division of Physiological Ecology, or of some other suitable name, be established within the Alaska Fisheries for the purpose of meeting the present logging problem, and to cope with the pulp problems as they arise.

There is a possibility that some of our estuaries are facilitated with sufficient tidal currents to keep salinity and oxygen content at normal levels even with the injection of some of the less harmful

effluents, but unless pre-operative studies are made we will be in no position to determine what elements were present in the waters prior to the pulp operations. It is frequently the practice of the uninitiated to point the finger of scorn at any operation, other than their own, as the cause of declining salmon runs, and unless we are fortified with knowledge ahead of the advent of the operation, we will be in no position to defend ourselves against the hosts, nor will we be in any position to recommend constructive regulatory measures until such time as studies can be made.

Apparently, some recent logging operations in and near salmon streams have done no damage to the streams; yet in the absence of any physiological data, we have no way of knowing what the damage has been and we might get the knowledge too late. Our action in the past has been to make an observation of the area to be logged, or after the operation has been completed to go over the stream bed to determine whether or not we think any damage has been done. This is contrary to logical processes and we must determine, scientifically, the extent of the damage, and be in possession of facts that will guide us in determining ahead of the operation whether it should be permitted.

(Messrs Kelez, Hutchinson and others to comment upon and amplify the above with reference to pollution, obstructions, plans for stream improvement, and logging operations in streams).

A summary of our requirements for the proposed five-year plan for the improvement and management of the Alaska Fisheries follows. (It is suggested that Messrs Kelez and Hutchinson submit personnel requirements for all proposed research work, including stream pollution and logging operations in salmon streams and stream improvement).

12 Biological and Research stations  
4 Research vessels  
12 Seaplanes  
1 Tender vessel for Bristol Bay  
37 Patrol vessels

Construction of marine ways, aircraft hangars, shops and facilities for storage and repairs to vessels and aircraft.

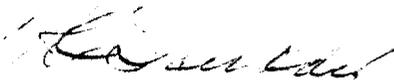
Construction and operation of salmon counting weirs, fish ways, stream clearance and stream improvement.

Additional personnel for Biological and Research stations, Research vessels, aircraft, patrol and other vessels; in-service training of deputy agents, agents stationed at cold storage plants, streamguards and patrol agents, and for pollution and watershed duties.

An estimate of the cost of a five-year plan as outlined above is approximately \$3,000,000.00. Beginning in the fiscal year 1949, and pro-rated over the five-year period, the cost will be \$600,000.00 per year. Upon completion of the five-year program, it is estimated the annual operations and maintenance costs will approximate \$1,000,000.00, a justifiable expense for the administration of an industry that will give an annual revenue in tax returns alone of \$2,000,000.00. These figures are tentative, however, and are subject to revision upon receipt of requirements and justifications from Alaska Fisheries project leaders and other personnel interested in this program.

Juneau, Alaska

January 8, 1948

  
H. C. Scudder  
Asst. Fishery Supervisor

