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Review of 1991 South Coast Salmon Troll Fisheries

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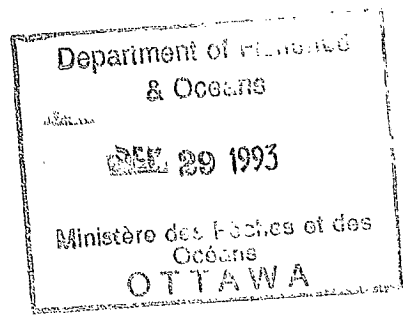
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REVIEW OF 1991 SOUTH COAST SALMON TROLL FISHERIES



by

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ABSTRACT

Ryall, P. J. 1993. Review of 1991 South Coast salmon troll fisheries. Can. Manuscr. Rep. Fish. Aquat. Sci. 2194: ix + 84 p.

This report documents the management actions, catch and effort that occurred in South Coast troll salmon fisheries in 1991. In-season management actions were designed to keep catches of each salmon species within prescribed limits while allowing each fishery to remain open for as much of the season as possible. Troll fisheries in the Strait of Georgia, on the West Coast of Vancouver Island and in Johnstone Strait were managed with combinations of partial and total area closures and periods of non-retention and non-possession for certain salmon species and fisheries. Salmon catches in the Strait of Georgia met or closely met allocations for all species except for chinook. The chinook catch for the Strait of Georgia in 1991 was 32,300 or 4.2% over the 31,000 catch ceiling. The sockeye catch was 216,000 or 3.5% of the TAC. This represents a surplus to inside trollers of 31,000 of their 185,000 (3.0%) allocation. The pink salmon catch was 373,300 or 5.1% of the TAC, which was also just over the inside troll pink allocation of 4.0%. Salmon catches were within the prescribed limits on the West Coast of Vancouver Island. Chinook catch for the West Coast was only 199,800. This shortfall was primarily due to a lack of abundance and partially due to implementation of total closures on the West Coast. These closures were implemented to prevent an enforcement problem when the sockeye season closed. The final coho catch was 1.877 million, which is within the 7.5% management range of the 1.8 million coho ceiling. Sockeye and pink salmon catches were 1.519 million and 2.025 million, respectively. The allocation of sockeye for the outside troll was 18.3% of Canadian TAC. They actually caught 24.4% of the TAC. The overage in outside troll allocation was primarily due to difficulties in estimating troll catches in-season. For southerly migrating pink salmon, outside trollers caught less than their allocation of 29% and actually obtained 27.7%.

Key words: Pacific salmon, troll fishery management, southern British Columbia.

RÉSUMÉ

Ryall, P. J. 1993. Review of 1991 South Coast salmon troll fisheries. Can. Manuscr. Rep. Fish. Aquat. Sci. 2194: ix + 84 p.

Ce rapport décrit les prises et les efforts de pêche ainsi que les mesures de gestion dans les pêches du saumon à la traîne sur la rive Sud en 1991. Les mesures de gestion adoptées en cours de saison visaient à garder les prises de chaque espèce à l'intérieur des limites établies et à permettre aussi à chaque pêche de rester ouverte le plus longtemps possible en saison. Pour les pêches à la traîne dans le détroit de Georgia, sur la côte ouest de l'île de Vancouver et dans le détroit Johnstone, on a combiné des fermetures partielles et complètes de régions avec des périodes de non rétention et de non possession de certaines espèces de saumon, selon les pêches. Dans le détroit de Georgia, les contingents ont été atteints ou presque dans tous les cas sauf celui du quinnat. En 1991, les prises de quinnat dans ce détroit étaient de 32,300 ou 4,2 % de plus que la limite de prises de 31 000. La prise de saumon rouge a été de 216,000 ou 3,5 % du TPA. Cela correspond à un surplus de 31,000 pour les pêcheurs à la traîne de la zone intérieure, par rapport à leur contingent de 3,0 %. La prise de saumon rose a été de 373,300, soit 5,1 % du TPA. Sur la côte ouest de l'île de Vancouver, la prise de saumons était à l'intérieur des limites fixées. La prise de quinnat n'a été que de 199,800. Ce déficit est principalement attribuable à la faible abondance du saumon et en partie attribuable à la mise en vigueur de fermetures complètes sur la côte ouest. Ces fermetures ont été imposées afin d'éviter un problème avec l'application de la réglementation lors de la fermeture de la saison au saumon rouge. La prise finale de coho a été de 1,877 million; ce total se situe à l'intérieur de la plage de gestion de 7,5 % appliquée à la limite fixée pour le coho, soit de 1,8 million. Les prises de saumon rouge et rose ont été de 1,519 millions et de 2,025 respectivement. Le contingent de saumon rouge attribué aux pêcheurs à la traîne de la zone extérieure correspondait à 18,3 % du TPA canadien. En réalité, ces pêcheurs ont capturé un nombre de poissons correspondant à 24,4 % du TPA. Ce surplus par rapport au contingent fixé pour la pêche à la traîne dans la zone extérieure est avant tout attribuable à des difficultés d'estimation des prises à la traîne en cours de saison. Dans le cas du saumon rose qui migre vers le sud, les pêcheurs à la traîne de la zone extérieure ont leur contingent de 29 % et ont obtenu 27,7 % des prises.

Mots-clés : saumon du Pacifique, gestion de la pêche à la traîne, sud de la Colombie-Britannique.

1.0 INTRODUCTION

As in previous years, troll fisheries in southern British Columbia were actively managed by the Department of Fisheries and Oceans (DFO). Active in-season management was primarily due to the continuation of salmon catch ceilings and allocations for the troll fishery (Table 1, Appendix 1). Catch ceilings for chinook and coho salmon were a requirement of the Pacific Salmon Treaty. Allocation for sockeye, pink and chum salmon for the 1991 through the 1994 fishing seasons was reached by a subcommittee from the Commercial Fishing Industry Council early in 1991 (Appendix 1). The allocation plan reflects cycle year averages in most respects. Modification to the sharing arrangement for Fraser River sockeye above a defined base catch has been instituted in order to assist a fair and equitable allocation among all commercial gear sectors.

Detailed fishing plans were developed in consultation between industry and DFO fishery managers (Appendices 2 and 3). Advisory committees consisting of fishermen, industry representatives and DFO personnel developed the initial fishing plans prior to the 1991 fishing season. This report documents the 1991 troll fishing plans for southern British Columbia (waters south of Cape Caution, Fig. 1), in-season management actions and resulting catches in pieces for three troll fisheries: Strait of Georgia (historically known as Gulf of Georgia, Statistical Areas 13 to 18 and 29), West Coast of Vancouver Island (Areas 21 to 27, 121 to 127 and 130-1) and Johnstone Strait (Areas 111, 11 and 12). Statistical Areas for southern British Columbia are shown in Figure 1.

1.1 SOURCES OF CATCH DATA

Catch data in this report are provided by two time frames: in-season and post-season.

(a) In-season

First, in-season catches are provided by the In-season Catch Monitoring Program (ISCMP) (Webb et al. 1983), on water hails and by a survey of west coast fish buyers. All three sources of information are used to make management decisions during the season. These catch figures are provided each week during the fishery, and are continually updated through the course of the season. These catch figures attempt to capture the actual catch date versus the date when the catch was landed.

(b) Post-season

The second catch data source is provided by sales slips (Wong, 1983). In this report, the sales slip estimates are catches as provided by sales slips received up to March 23, 1992.

1.2 ALLOCATION GOALS

Commercial salmon fishing plans in 1991 reflect the departmental goals of meeting escapement targets while harvesting available surpluses in a manner that ensures international and domestic allocations are achieved. Since sockeye and pink allocations were in percentages, the actual numbers of fish allocated to troll were adjusted during the season as run size estimates were updated.

2.0 STRAIT OF GEORGIA TROLL

2.1 BACKGROUND AND DEVELOPMENT OF FISHING PLANS

The 1991 Strait of Georgia troll fishing plans were drawn up in pre-season meetings with the Inside Troll Advisory Committee (ITAC) which consisted of members of the Gulf Trollers Association and United Fishermen and Allied Workers Union.

The 1991 season was scheduled from June 27 to September 30, with a chum only fishery during the fall. Management goals included achieving chinook allocation, maintaining harvest rates of coho, obtaining the allocation of sockeye salmon with minimum non-retention periods, and completing pink allocation primarily from Fraser River stocks. The 1991 salmon allocations to trollers in the Strait of Georgia as defined by the Minister of Fisheries are listed in Table 1.

2.1.1 Chinook

In 1991 the catch ceiling was set at 31,000 chinook for Gulf trollers (Table 1). The 1991 catch ceiling was based upon a continuation of the 20% harvest rate reduction over the 1987 level. This harvest rate reduction was first introduced in 1988. The size limit of 62 cm fork length, adopted in 1986 (Shardlow et al., 1988), was continued (the 1985 size limit was 54 cm fork length). Due to the forecasted low coho abundance, DFO biologists predicted that the chinook catch would occur at a faster pace than recent years and that the catch ceiling could be reached as early as the fourth week of July. To ensure incidental catch of chinook during the sockeye and pink fisheries; ITAC discussed possible contingency plans to pace the chinook fishery. After much discussion it was agreed that if 29,000 chinook were caught prior to the sockeye opening then non-retention, non-possession and barbless hooks would be implemented until the sockeye fishery started. If shaking of chinook salmon was above acceptable levels, then additional management measures would be implemented. These additional measures would be decided upon after consultation with the in-season advisory committee.

2.1.2 Coho

While there is no catch ceiling on coho for inside trollers, the goal is not to increase harvest rate levels from recent years. Therefore, in 1991 inside trollers were restricted to traditional effort levels. Coho catch was forecasted to be very low in 1991, with levels less than 45,000 pieces. The coho catch by the Strait of Georgia sport fishery from January until the end of May 1991 was 5,700 or only 4% of the recent 4 year average. Coho catch would be limited in 1991 by available abundance and amount of fishing time.

2.1.3 Chum

The chum allocation for Strait of Georgia trollers was 1% of the Total Allowable Catch (TAC) or about 7,000 pieces (pre-season). Troll fisheries were likely to occur after late September with equal fishing time to nets, but in different time periods each week following the net fisheries.

2.1.4 Sockeye

The pre-season run size for Fraser River sockeye was 14.5 million, with a predicted Canadian commercial catch of 7.845 million. The determination of inside trollers' allocation for sockeye salmon is based upon a percentage of the Canadian TAC. For a complete description of the Canadian and United States TAC determination see the report by the Fraser River Panel on the 1991 Fraser River sockeye and pink salmon fishery (Pacific Salmon Commission, 1992).

Sockeye allocation for 1991 was based upon a two-tiered process. For a base Canadian commercial catch of 3.2 million Fraser River sockeye the allocation for inside trollers was 2.2%. The allocation for any catch above 3.2 million was 3.0%. Furthermore, catch-up/make-up of Fraser River sockeye continued for the second year. Consequently, inside trollers would get an additional 24,000 sockeye in 1991 in order to compensate for a 1990 shortfall. There were a number of objectives governing the sockeye fishing plan for 1991 including:

1) Achieve the allocation target;

2) Provide sufficient and simultaneous fishing opportunities in Johnstone Strait and Strait of Georgia;

3) Pace the sockeye fishery so that pink salmon allocation is taken simultaneously with sockeye; and

4) In the event that an upgrade in run size or a revision of catch is made after sockeye has closed, inside troll fishing will resume to take the outstanding balance, provided there are a minimum of 10,000 pieces.

To meet these objectives the plan called for a maximum of 100,000 to 120,000 sockeye to be taken in the first two weeks following the opening for sockeye. If this catch number was reached then all areas where sockeye catch rate was significant were to be closed. These areas were to re-open in the third week of sockeye fishing.

When the sockeye fishery re-commenced, retention would be permitted 7 days per week in the areas that were opened June 27. Trolling in the net areas of Area 13 were to follow the gillnet fishery and end prior to the commencement of the seine fishery. This separation of gear types was to prevent any potential conflicts occurring among the user groups. Trolling in Area 12 was to start concurrent with the seine openings, but would receive one extra fishing day per week than the seine gear.

2.1.5 Pink

The catch allocation of pink salmon for inside trollers is a percentage of southerly migrating pink salmon, with the major component consisting of Fraser River stocks in 1991. The Strait of Georgia troll catch allocation for pink salmon was set at 4%. Based upon a predicted 6 million Canadian commercial catch the inside trollers would receive 240,000 pink salmon. If a proportion of the pink salmon allocation remained after the sockeye allocation was taken, fishing opportunities were to be provided in Johnstone Strait to harvest the balance.

No major problems were anticipated in obtaining the inside troll share of pink salmon in 1991.

2.2 CATCH AND IN-SEASON ACTIONS FOR STRAIT OF GEORGIA

2.2.1 Chinook

Trolling for chinook began as scheduled on June 27 and continued until August 1 when it was estimated that the early season catch ceiling of 29,000 had been reached (Table 2). On August 2 non-retention and non-possession of chinook salmon was put into effect; in addition a barbless hooks regulation was enforced. It was also announced that further action may be necessary if chinook shaking problems developed. Not since 1986 had similar actions been taken in-season to moderate chinook fishing.

Following an in-season meeting with ITAC members on August 7 it was decided that when the sockeye season commenced on August 10, barbed hooks would be approved, but chinook non-retention and non-possession would remain in effect. ITAC agreed not to re-open for chinook until later in August when it was estimated that the remainder of the ceiling (2,000 pieces) would last until late September. The reasons for this plan were:

1) the majority of the fleet would be fishing for sockeye initially and therefore would not create any shaking problems with regards to chinook salmon;

2) to allow incidental chinook retention during the pink fishery and the later part of the sockeye fishery; and

3) allow the inside troll season to continue until late September.

The Strait of Georgia re-opened for chinook retention on August 20. Unfortunately, the catch progressed at a faster rate than anticipated and consequently chinook non-retention/non-possession was reintroduced on September 17. The final catch of chinook salmon by inside trollers was 32,300 (Table 3).

2.2.2 Coho

Coho trolling opened on June 27 and continued uninterrupted until September 30 when the main Gulf fishery closed as scheduled (Table 2). The final catch was 16,200 pieces (Table 3) or about 7% of the recent four year average. The 1991 coho catch was the lowest recorded since 1950. As the 1991 season progressed, evidence showed the vast majority of Strait of Georgia coho had migrated from the Strait to outside waters. At the time, the Department of Fisheries and Oceans had concerns that coho escapement goals for Strait of Georgia stocks would not be met for 1991. Consequently, contingency plans were developed to ensure that conservation goals were met.

2.2.3 Sockeye

Sockeye concerns dominated the troll season from August 1 onwards. The troll fishing plan (Appendix 1) called for the sockeye opening to commence when:

1) the majority of the summer runs had entered the net fishing areas;

2) test fisheries off the west coast of Vancouver Island indicated that summer run sockeye abundance was declining and late run sockeye abundance was increasing; and

3) the late run sockeye abundance exceeded summer run abundance.

During pre-season, it was anticipated that the sockeye opening date would fall between August 3 and August 10. Accordingly, the fishery opened on August 10 with the goal of harvesting 100,000 - 120,000 pieces during the first two weeks of fishing. During this period, run indicators were suggesting a smaller run size. On August 16 the Pacific Salmon Commission (PSC) reduced the Fraser River sockeye run size from 14.5 million to 11 million, which reduced the allocation to 149,000. This resulted in a decision to close the fishery on the lower bound (100,000) of the in-season catch ceiling. By August 20, it became evident the catch ceiling was attained, consequently non-retention and non-possession was put into effect. On August 23 the PSC revised the Fraser River

sockeye run size to 12 million, which increased the inside troll allocation from 149,000 to 177,000. Fishing for sockeye re-opened on August 25 and by the end of the week the catch was estimated to be 162,500. The fishery continued the following week, when it was estimated on September 3 that the total sockeye allocation of 177,000 had been reached. As a result of reviewing the catch estimate and accounting for a total of 140,000, the Gulf was re-opened on September 12 to harvest the remaining sockeye allocation. Sockeye fishing closed for the final time on September 19 with a final catch estimate of 216,000.

2.2.4 Pink

The season opened June 27 in the Strait of Georgia with pink salmon retention, continuing throughout July and early August. The allocation of 4.0% of southerly migrating pink salmon allowed for a catch of 235,000. Catch rates were low until the second week of August when about 19,000 pinks were taken by inside trollers. Catches in the outside areas by net fisheries in late August suggested the Fraser River pink salmon run size would be larger than the pre-season estimate of 11 million. On August 30 the PSC announced that the run size projection was increased to 13 million. At the same time the escapement goal was adjusted upwards from 4.5 million to 6.0 million, which allowed for an inside troll catch of 249,000 southerly migrating pink salmon. Fishing for pink salmon continued until September 3 when it was estimated that the allocation had been reached.

On September 6 the run size was again increased, this time to 15.0 million. To ensure an effective spawning population of 6.0 million pink salmon for 1991, it was necessary to increase the escapement goal to 7.0 million to offset the decreased average pink salmon body size. The combination of increased run size and increased escapement resulted in a net increase to inside trollers of 50,000 pink salmon for a total allocation of 279,000. The catch was currently estimated at 253,000 therefore, plans were put into place to catch the remainding allocation. On September 13 the run size of Fraser River pink salmon was raised to 17 million, resulting in an allocation of 339,000. As the run was migrating through the fishing areas quite quickly, it was decided to open Area 29 to provide increased fishing opportunities (Table 2). By September 21 the troll catch was about 325,000. To catch the remaining 14,000 a fishery for chum and pink salmon was planned for the end of September. The fishery closed September 30 with a final catch estimate of 373,300 pinks.

2.2.5 Chum

The first directed chum fishery occurred from September 26 to September 30 when the Area 13 net areas were opened. The fishery was planned to obtain a proportion of the chum allocation of 7,000 and the remaining pink salmon allocation of 14,000. The catch rate proceeded at a much faster rate than anticipated and total catch after 4 days of fishing was 48,400 chum. The inside trollers had exceeded their 1% allocation of TAC of inside chum stocks by a substantial amount.

2.2.6 Summary

The Strait of Georgia troll season started June 27 and continued until September 30. Final 1991 troll catches are compared to post-season sockeye and pink allocations and chinook catch ceilings in Table 1. The chinook catch was slightly greater than the ceiling of 31,000 with 32,300 landed. Pink and sockeye allocations were altered several times throughout the season responding to changes in estimated run sizes. Post-season catch estimates show that the inside trollers landed 3.5% of the Canadian Fraser River sockeye TAC, just over their allocation of 3.0%. Similarly the goal for pink salmon was 4.0% of the Canadian TAC and they actually landed 5.1%. Coho catch totalled 16,200 which was the lowest recorded catch in the last 40 years by inside trollers. Conversely, chum catch of 48,400 pieces was the highest recorded catch since the 1950's.

2.3 STRAIT OF GEORGIA TROLL GEAR COUNTS

Aerial counts of trollers fishing in the Strait of Georgia were made throughout the 1991 season to enable timely catch estimation (Table 4). As in previous years, troll counts were conducted in conjunction with the Georgia Strait creel survey flights (Shardlow and Collicutt, 1990). The flights covered a distance from Sheringham Point off Victoria to Granite Point north of Campbell River (Figure 2). All troll gear sighted was recorded by statistical area. There were 27 such flights during the 1991 troll season from June 27 to September 30. There were a number of peaks in the 1991 effort profile which correspond to fisheries directed upon chinook, sockeye or pink salmon. During the first three weeks of July the bulk of the effort was directed at chinook fisheries in Areas 13 and 14. Later peaks in August and September were respectively, sockeye and pink directed fisheries.

3.0 WEST COAST VANCOUVER ISLAND TROLL

3.1 BACKGROUND

The 1991 West Coast Vancouver Island (WCVI) troll fishing plans were drawn up in pre-season meetings with the Outside Troll Advisory Committee (OTAC). OTAC was formed in 1986 to represent the concerns of WCVI trollers and consisted of representatives from the Pacific Trollers Association, Native Brotherhood, Northern Trollers Association, United Fishermen and Allied Workers Union, Pacific Seafood Council and Fisheries Council of B.C.

WCVI management goals for 1991 were directed towards keeping troll harvest of chinook and coho within the catch ceilings specified by the Pacific

Salmon Treaty (see Table 1). Other goals included obtaining domestic allocation targets for Fraser River sockeye and southern bound pink, while maintaining undisrupted fisheries and maintaining or increasing the economic benefits to the troll fleet and coastal communities. The chinook and coho catch ceilings are 360,000 and 1.8 million pieces, respectively. The sockeye allocation was 18.4% of Canadian TAC or 1,442,000 pieces pre-season. The pink allocation was 29%, or 1,705,000 pieces estimated pre-season. Achievement of the catch ceilings and allocations was to be done with a minimum number of non-retention fisheries during the season. The season would be extended to mid-September and was to be managed by Red and Green Line catches in the case of chinook and coho.

3.2 DEVELOPMENT OF FISHING PLANS

OTAC met two times in 1991 to discuss fishing plan development for the up-coming season. Catch ceilings coupled with the understanding that the troll season and fishing areas were to remain similar to recent years, provided a framework for WCVI fishing plan discussions. Also considered was DFO's desire to avoid, where possible, non-retention fisheries due to the disruptive effect of high shaker catches on fish stocks. A further condition to be considered in developing troll fishing plans was to maintain chinook harvest rates at the average level for the years 1985-87. This requirement was implemented by Canada because of a desire to rebuild the Harrison River chinook stock.

At the first OTAC meeting a great deal of discussion centred around the season opening date. The majority of OTAC members were in favour of late June or early July opening date. Due to conservation needs the concern for reducing harvest on Johnstone Strait pink salmon was put forward at the meeting as well. The last main discussion point was the formulation of a sockeye fishing plan. The main points to be included in the sockeye fishing plan as identified by DFO were:

1) Total closure prior to sockeye opening to promote enforcement;

2) A biological trigger that would commence the sockeye fishery after the passage of the majority of the summer run stocks and on the building phase of the late run Fraser River sockeye stocks (Appendix 3); and

3) If abundance of sockeye was low after attaining their sockeye allocation there would be a non-retention and non-possession fishery. If abundance was high, then a total closure for one or two days would be considered.

The second OTAC meeting finalized some of the details that were discussed at the first meeting. The resultant fishing plan consisted of the following points.

(1) An opening date for chinook, coho, pink and chum on June 28 and fishing to continue to mid-September unless the catch ceilings/allocations were achieved prior to this time.

(2) The sockeye opening date was expected to occur between August 3 and August 10. The precise opening date for sockeye would occur when:

a) the majority of the summer runs had entered the net fishing areas;

b) test fisheries off the west coast of Vancouver Island indicated that summer run sockeye abundance was declining and late run sockeye abundance was increasing; and

c) sockeye stock identification indicated that late run sockeye abundance exceeded summer run abundance.

(3) Pink salmon non-retention in effect in the areas of north-west Vancouver Island (126-4, 127, 130-1, 11 and 111) and all sub-areas inside and outside the surf line south of Chads Point (142-1, 130-3 and 130-2) until the sockeye opening date. After the sockeye opening date these areas would open to the retention of pink salmon.

(4) Coastwide troll closure 4 days immediately prior to the sockeye fishery. A two day closure at the end of the fishery was also possible if sockeye were still abundant. The objective was to stop illegal trolling for sockeye.

(5) Catch-up/make-up for Fraser River sockeye was to continue for a second year. Outside trollers would receive 237,000 extra sockeye in 1991 to compensate for a 1990 shortfall.

(6) Minimum size limit of troll-caught chinook remained at 67 cm fork length, or 56 cm for the "head off" length.

(7) Management of chinook and coho fisheries was to be conducted by maximum catch guidelines called Red Line catches. The season would commence with Areas A to E and F2 open (Figure 3). Areas S, G and F1 would be closed. Area F1 would open July 14 if coho catch was below the Green Line and there were no major conservation concerns.

Further details of the 1991 WCVI troll plan are available in the Salmon Troll Fishing Plan (Appendix 3).

3.3 CATCH AND IN-SEASON ACTIONS FOR WCVI

3.3.1 Chinook

Trolling for chinook began as scheduled on June 28. Chinook catch rates were below the green line throughout the duration of the 1991 fishing season (Figure 4). However, nothing could be done to increase the catch rate as all Conservation Areas were open. The west coast of Vancouver Island stayed open for chinook retention until season closure on September 18, at which time the estimated chinook catch was 199,800. The total number of days open for chinook off the west coast of Vancouver Island was 76 days, while the average number of

days fishing during the years 1985 - 1987 was 77. The total amount of effort that occurred in 1991 was down by 11% from the 1985-1987 average. This preliminary analysis would indicate that the WCVI troll fishery met the objectives of not exceeding the 1985-87 average harvest rate and in a manner consistent with the intent of the Canada/U.S. Treaty.

3.3.2 Coho

Fishing for coho salmon started June 28 with all areas open except for areas F1, S, and G (Fig. 5). Area F1 was closed to moderate the coho catch rate in order to extend the total troll season. In addition, by delaying the catch, the average body weight of coho should be greater. On July 6 it was decided to open Area F1 July 13 as the catch of coho was projected to be below the Green Line. This action was taken in compliance with the troll plan's protocol. Monitoring of Catch Per Effort's (CPE's) during the troll season indicated that the pool of coho residing off the west of Vancouver Island was increasing. In the north-west of Vancouver Island (NWVI) coho CPE continued to increase until late July (Fig. 6). In the NWVI the normal pattern are for CPE's to start at a high level and decrease throughout the season. In the south-west of Vancouver Island (SWVI) CPE's began at a high level and started to decrease in the first week and a half; thereafter they increased coinciding with the opening of Area F1. However, they stayed at a relatively high level until late July and then started to decrease. Consequently, the catch proceeded at a fast rate and by early August was approaching the Red Line (Fig. 7). The start of the sockeye season on August 11 shifted a lot of effort from coho onto sockeye. This was enough to slow the coho catch rate until the end of the sockeye season on August 20. At a meeting with the in-season OTAC committee it was decided that further action would be required to moderate coho catch rate if the outside troll season was to reach the middle of September. The Committee recommended to keep Areas F1, S, G and waters adjacent to Cape Beale closed (Fig. 8) following the reopening August 24 (Table 5). These area closures did succeed in slowing the coho catch rate and by September 6 it was estimated the catch ceiling of 1.8 million had been reached. From September 7 until season closure on September 18 non-retention and non-possession of coho salmon was in effect. In addition, the above area closures remained in effect (Fig. 8). This action and the closure of Area F2 to all trolling was taken to prevent coho shaking problems.

3.3.3 Sockeye

Due to slightly later timing than expected, the WCVI sockeye fishery did not commence until August 11 (Table 5). The start of the fishery was preceded by a coast wide closure to all outside troll licence holders in order to prevent illegal fishing for sockeye. When the fishery started all Conservation Areas A to G were open with the exception of Area S. The fishery continued uninterrupted for 10 days at which time it was estimated the sockeye allocation of 1.05 million had been reached. The in-season sockeye catch was estimated to be 1.2 million Fraser River sockeye for outside trollers at a 12 million run size. No further sockeye fishing was anticipated unless the sockeye run size increased to at least 13.5 million.

Total commercial catch in Canada was 6.226 million Fraser River sockeye in 1991. The outside troll catch comprised 1.388 million from the west coast of Vancouver Island (including Area 12) and a further 131,000 from the North Coast for a total outside troll catch of 1.519 million Fraser River sockeye. This represents 24.4% of the Canadian TAC.

3.3.4 Pink

Pink salmon fishing plans were driven by two major concerns in 1991. First, to minimize the catch of South Coast Study Area pink salmon stocks for conservation reasons and second, to obtain the outside troll share of other southerly migrating pink stocks. As Study Area pink salmon are generally an earlier timed stock it was decided to enforce non-retention and non-possession in the main migration pathways until Study Area pink stocks had passed through the area. Consequently, Areas 142-1, 2W, 130, 127, 126-4, 111, and 11 were closed to pink salmon retention and possession from June 28 until August 1. In the remaining areas open to pink salmon retention, catch of pink salmon until the second week of August was incidental. As the run of Fraser River pink salmon started to build in the later part of August the catch rates of pink salmon off the west coast of Vancouver Island increased greatly. No management actions other than the one described above were required in 1991 to moderate the pink salmon catch. Pink salmon retention continued until the end of the outside troll season on September 18.

3.3.5 Summary

In 1991, the WCVI troll fishery opened June 28, and experienced two total closures and a number of large area closures. Table 5 provides a summary of actions taken in the troll fishery. Table 6 contains weekly salmon catch and Figures 5 and 8 depict the major area closures during the 1991 troll fishery. Actions at the start of the season were taken to slow coho catch rate so as to extend the troll season to mid-September. The next sequence of management actions taken were prior to and after the sockeye season when closure of WCVI to all trolling was enforced for a total of 7 days. These actions were enacted in order to prevent illegal fishing for sockeye salmon. The final set of major regulatory actions taken during the 1991 trolling season was to implement further measures to lessen the coho catch rate. This was accomplished by closing Areas F1, F2, S, G, and waters adjacent to Cape Beale. On September 6 with the coho catch ceiling attained, non-retention and non-possession was mandated. The post-season estimate for the WCVI coho catch is 1,877,400 (Table 1).

The sockeye run size underwent two major revisions during the season. On August 16 the run was downgraded to 11.0 million from 14.5 million, then on August 23 it was upgraded to 12.0 million. The sockeye fishery was open for a total of 10 days in 1991. The fast pace of the sockeye catch and change in run size made it difficult to manage the fishery so as to obtain the outside troll allocation. The final sockeye catch was estimated to be 1,519,000 which was 24.4% of the TAC. This was slightly over their allocation of 18.3% (Table 1).

No actions were taken during the course of the chinook fishery to moderate the catch rate. After the west coast was closed to coho on September 6 trolling continued for another 12 days. At this time effort was directed almost exclusively towards chinook salmon. However, effort levels at this time were very low with about 100 boats fishing per day. The west coast was closed on September 18 in order to prevent coho shaking problems and also to maintain chinook harvest rates similar to the average level of the years 1985 -1987. The WCVI troll was open for the harvest of chinook salmon for a total of 76 days in 1991. The final catch figure for chinook salmon in 1991 was 199,800 (Table 1).

3.4 WCVI TROLL GEAR COUNTS

Aerial counts of trollers fishing the WCVI were made throughout the 1991 season to help provide more timely estimates of troll effort. These effort estimates were then used in conjunction with CPE estimates obtained by dockside samplers and/or on-water "hails" to generate in-season estimates of troll catch. In 1991 troll counts were from Department of National Defence regularly scheduled tracker flights. Aerial overflights counts for the southwest of Vancouver Island were augmented by radar counts. Vessel counts from aerial overflights only are presented in Table 7.

4.0 JOHNSTONE STRAIT TROLL

4.1 SUMMARY

Fishing in Johnstone Strait is mainly by net gear. Therefore, troll management actions in 1991 were historically dictated by concerns for net species and net fleet activities. Consequently, Johnstone Strait trollers were not assigned catch ceilings, but rather had their Johnstone Strait catches assigned to other fishing area catch ceilings or allocations. For example, chinook caught in Areas 111 and 11 were assigned to the North Coast catch ceiling, chinook caught in Area 12 to the WCVI catch ceiling, and chinook caught in Area 13 to the Strait of Georgia catch ceiling. Assignment of species to catch ceilings or allocations were as follows:

STATISTICAL AREA	CHINOOK	COHO	PINK	SOCKEYE	CHUM
111,11	North Coast	No Ceiling	Outside troll	Outside troll	NA[1]
12	WCVI	No Ceiling	By troll licence	By troll licence	By troll licence
13	Strait of Georgia	No Ceiling	Strait of Georgia	Strait of Georgia	Strait of Georgia

[1]NA = Not applicable

Table 8 summarizes the management actions taken in the 1991 Johnstone Strait troll fishery. Trolling was permitted from June 28 to September 30, as per the pre-season plan. Catch results from sales slip records (Table 9) are as follows: pink salmon accounted for the largest catch by season-end at 118,700; followed by coho at 35,400; sockeye at 28,000; chinook at 5,300; and chum at 1,200.

4.2 AREA 10 AND 11 CHINOOK CONSERVATION ACTIONS FOR LOWER GEORGIA STRAIT

In 1988 DFO initiated, at the Minister's request, a conservation plan for the lower Strait of Georgia chinook (LGS) stocks. The plan involved all major fisheries impacting on LGS chinook and called for a 20% reduction in harvest rate. The harvest rate reduction was translated into a 20% reduction in catch, assuming that abundance and mortalities associated with fishing remain the same as in a base period. For upper Johnstone Strait and Lower Central Coast the base period chosen was 1985 to 1987. The average catch during this period for Areas 10, 11, 111 and 110 was 24,102. A 20% reduction in this catch would produce a catch of about 19,000. In 1991 a separate ceiling of 21,000 chinooks was established. The increase from the 1990 catch allocation of 19,000 was in keeping with the 1991 increased North Coast allocation. This catch ceiling plus the closure of parts of Area 10 and 11 (Appendix 3; Fig 2) addressed the Minister's conservation directive to reduce the harvest rate of LGS chinook stocks by 20% in the lower central coast troll fishery.

5.0 LITERATURE CITED

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TABLES

Table 1. Summary of catch ceilings and allocations for 1991 south coast troll fisheries.

STRAIT OF GEORGIA				
SPECIES	ALLOCATED % of TAC	ALLOCATION/ CEILING	ACTUAL CATCH	
			Pieces	% of TAC
Sockeye[1]	3.0%	185,000	216,000	3.5%
Coho	NA[2]	NA	16,200	NA
Pink[3]	4%	293,000	373,300	5.1%
Chum	1%	7,000	48,400	6.9%
Chinook	ceiling	31,000	32,300	NA

[1] Sockeye allocations are a two tiered process in 1991. For a base Canadian commercial catch of 3.2 million the allocation for inside trollers is 2.2%. The allocation for any catch above 3.2 million is 3.0%. The allocation also includes a payback to compensate for the shortfall from the 1990 allocation.

[2] NA = not applicable

[3] Pink salmon allocation is 4.0% of southerly migrating pinks.

WEST COAST VANCOUVER ISLAND				
SPECIES	ALLOCATED % of TAC	ALLOCATION/CEILING	ACTUAL CATCH	
			PIECES	% of TAC
Sockeye[1]	18.3%	1,142,000	1,519,000	24.4%
Coho	Ceiling	1,800,000	1,877,400	NA
Pink[2]	29.0%	2,122,000	2,025,000	27.7%
Chum	NA	NA	12,800	NA
Chinook	Ceiling	360,000	199,800	NA

[1] Sockeye numbers are for outside troll and not just for the west coast of Vancouver Island. Sockeye allocations are a two tiered process in 1991. For a base commercial catch of 3.2 million the allocation for outside trollers is 10.8%. The allocation for any catch above 3.2 million is 18.5%. The sockeye allocation also includes a payback in compensation for the 1990 shortfall.

[2] Pink allocation is 29% of the total commercial catch of southerly stocks.

DATA SOURCES:

(1) Coho, chum and chinook salmon catch database accessed March 23, 1992.

(2) Sockeye for the north and south coast Statistical Areas from salmon catch database; Fraser River sockeye catch estimate from Pacific Salmon Commission (1992).

(3) Estimates of southerly migrating pink salmon catch from Pacific Salmon Commission (1992).

Table 2. Summary of management actions for the 1991 Strait of Georgia troll fishery.

PERIOD	MANAGEMENT ACTIONS			MANAGEMENT AREAS OPEN
	Species Open	Action	Purpose	
June 27 to August 1	Coho Pink Chum Chinook	Season opens with 62cm chinook size limit. trolling permitted 7 days per week. Use of barbed hooks permitted.	Commence season.	Non-net areas*. All Area 18 except 18-1, 18-8 and 18-11. Area 29-5.
August 2 to August 9	Coho Pink Chum	Non-retention and non-possession of chinook when early season ceiling of 29,000 reached. Barbless hooks regulation in force.	Closed to chinook so as to allow for incidental catch of chinook during the pink and sockeye fisheries in August and September.	Non-net areas*. All Area 18 except 18-1, 18-8 and 18-11. Area 29-5.
August 10 to August 11	Sockeye Coho Pink Chum	Sockeye opens to trolling.	Commence sockeye troll fishery.	Non-net areas*. Area 13-7 to 13-10 and 13-27 to 13-32. All Area 18 except S/A -1, -8 and -11. Area 29-5.
August 12 to August 15	Sockeye Coho Pink Chum	Close net areas of Area 13.	Pace sockeye fishery.	Non-net areas*. Area 18 except S/A -1, -8, and -11. Area 29-5.
August 16 to August 18	Sockeye Coho Pink Chum	Open net areas of Area 13.	Increase opportunity for sockeye salmon.	Non-net Areas*. Area 13-7 to 13-10 and 13-27 to 13-32. All Area 18 except S/A -1, -8 and -11. Area 29-5.
August 19 to August 19	Sockeye Coho Pink Chum	Close net areas of Area 13.	Pace sockeye fishery.	Non-net Areas*. All Area 18 except S/A -1, -8 and -11. Area 29-5.
August 20 to August 20	Sockeye Coho Pink Chum Chinook	Re-open for chinook retention.	Allow for incidental catch of chinook during the remainder of sockeye and pink salmon fishery.	Non-net Areas*. All Area 18 except S/A -1, -8 and -11. Area 29-5.
August 21 to August 24	Coho Pink Chum Chinook	Non-retention and non-possession of sockeye salmon goes into effect.	Sockeye catch estimated to be 120,000. Pace sockeye fishery per troll fishing plan.	Non-net Areas* with the exception Area 13-3 is closed. All Area 18 except S/A -1, -4, -8 and -11. Area 29-5.

Table 2 (contd.). Summary of management actions for the 1991 Strait of Georgia troll fishery.

PERIOD	MANAGEMENT ACTIONS			MANAGEMENT AREAS OPEN
	Species Open	Action	Purpose	
August 25 to August 25	Sockeye Coho Pink Chum Chinook	Re-open for sockeye and open net areas of Area 13 from 0001 hrs to 1700 hrs August 25. Open 18-4.	Increase opportunity for sockeye and pink salmon fishery.	non-net Areas*. Area 13-7 to 13-10 and 13-27 to 13-32. All Area 18 except S/A -1, -8 and -11. Area 29-5.
August 26 to August 27	Sockeye Coho Pink Chum Chinook	Close net areas of Area 13.	Pace sockeye and pink salmon fishery.	Non-net areas*. All Area 18 except S/A -1, -8 and -11. Area 29-5.
August 28 to August 28	Sockeye Coho Pink Chum Chinook	Close Area 29-5 to all trolling at 2359 hrs August 27.	Pace sockeye and pink salmon fishery.	Non-net areas*. All Area 18 except S/A -1, -8 and -11.
August 29 to August 31	Coho Pink Chum Chinook	Close to sockeye retention and possessionall areas 2359 hrs August 28. Close Area 13-3 and 18-4 at 2359 hrs August 28.	Pace sockeye and pink fishery.	Non-net areas* with the exception of Area 13-3. All Area 18 except S/A -1, -4, -8 and -11.
September 1 to September 2	Sockeye Coho Pink Chum Chinook	Re-open for sockeye retention, including the net areas of Area 13 until 1700 hr September 1.	Increase opportunity for sockeye and pink salmon.	Non-net Areas*. Area 13-7 to 13-10 and 13-27 to 13-32. All Area 18 except S/A -1, -8 and -11. Area 29-5.
September 3 to September 6	Coho Chum Chinook	Close for sockeye and pink salmon retention and possession.	Allocation of sockeye and pink salmon for inside trollers has been met.	Non-net Areas* with the exception S/A 13-3 is closed. All Area 18 except S/A -1, -4, -8 and -11.
September 7 to September 8	Coho Pink Chum Chinook	Reopen for pink retention.	Fraser River pink salmon run size upgraded to 15 million. Therefore estimated 26,000 pink salmon remaining in allocation.	Non-net Areas*. Area 13-7 to 13-10 and 13-27 to 13-32. All Area 18 except S/A -1, -4, -8 and -11.
September 9 to September 11	Coho Pink Chum Chinook	Close net areas of Area 13 to trolling.	Pace pink fishery.	Non-net Areas*. All Area 18 except S/A -1, -4, -8 and -11.

Table 2 (contd.). Summary of management actions for the 1991 Strait of Georgia troll fishery.

PERIOD	MANAGEMENT ACTIONS			MANAGEMENT AREAS OPEN
	Species Open	Action	Purpose	
September 12 to September 15	Sockeye Coho Pink Chum	Non-retention and non-possession of chinook salmon goes into effect. Open net areas in Area 13.	Chinook ceiling of 31,000 has been reached. Sockeye catch reviewed and found to be under allocation consequently sockeye fishery re-opened.	Non-net Areas*. Area 13-7 to 13-10 and 13-27 to 13-32. All Area 18 except S/A -1, ,-8 and -11.
September 16 to September 16	Sockeye Coho Pink Chum	Open Area 29-1 to 29-6.	Increase opportunity for pink and sockeye fishery.	Non-net areas*. Area 13-7 to 13-10 and 13-27 to 13-32. All Area 18 except S/A -1, -8 and -11. Area 29-1 to 29-6.
September 17 to September 18	Sockeye Coho Pink Chum	Closed area 29-1 to 29-4 and 29-6.	Pace sockeye fishery.	Non-net areas*. Area 13-7 to 13-10 and 13-27 to 13-32. All Area 18 except S/A -1, -8 and -11. Area 29-5.
September 19 to September 22	Coho Pink Chum	Close to sockeye retention and possessionall areas 2359 hrs September 18. Close Area 29-5.	Inside troll allocation of Fraser River sockeye reached.	Non-net areas*. Area 13-7 to 13-10 and 13-27 to 13-32. All Area 18 except S/A -1, -8 and -11.
September 23 to September 25	Coho Pink Chum	Close net areas of Area 13.	Pace pink salmon fishery.	Non-net Areas*. All Area 18 except S/A -1, -8 and -11.
September 26 to September 30	Coho Pink Chum	Open net area of Area 13.	Increase opportunity for pink salmon.	Non-net Areas*. Area 13-6 to 13-10 and 13-27 to 13-32. All Area 18 except S/A -1, ,-8 and -11.
October 1	Closed	All areas closed 2359 hrs September 30 to inside licensed trollers.	As per troll fishing plan.	Closed.

*Non-net areas area 13-1 to 13-3, 13-14 to 13-20 and 13-23; all Area 14 except 14-4 and 14-11; All Area 15 except 15-6; all Area 16; All Area 17 except 17-7 and 17-14.

Table 3. Weekly 1991 troll catch and days fishing for the Strait of Georgia troll fishery.

Statistical Week	Sockeye		Coho		Pink		Chum		Chinook		Troll Days
	Catch	Cumul. Total	Catch	Cumul. Total	Catch	Cumul. Total	Catch	Cumul. Total	Catch	Cumul. Total	
6/4	0	0	950	950	14	14	0	0	3,286	3,286	189
7/1	0	0	1,496	2,446	21	35	0	0	8,805	12,091	564
7/2	54	54	2,068	4,514	61	96	0	0	5,307	17,398	500
7/3	0	54	1,872	6,386	80	176	1	1	5,145	22,543	488
7/4	78	132	2,727	9,113	249	425	4	5	3,647	26,190	471
7/5	0	132	1,889	11,002	362	787	860	865	2,555	28,745	401
8/1	3,466	3,598	1,181	12,183	3,911	4,698	8	873	382	29,127	126
8/2	45,640	49,238	491	12,675	83,603	88,301	132	1,005	26	29,153	711
8/3	53,298	102,536	472	13,147	63,355	151,656	44	1,049	633	29,786	767
8/4	49,298	151,834	207	13,354	70,953	222,609	1,476	2,525	357	30,143	636
9/1	27,487	179,321	808	14,162	57,568	280,177	231	2,756	981	31,124	610
9/2	3,146	182,467	1,097	15,259	57,660	337,837	433	3,189	1,136	32,260	414
9/3	31,973	214,440	217	15,476	28,588	366,425	781	3,970	2	32,262	285
9/4	775	215,215	409	15,885	5,361	371,786	12,098	16,068	0	32,262	244
10/1	762	215,977	321	16,206	1,492	373,278	31,652	47,720	0	32,262	363
10/2	0	215,977	0	16,206	0	373,278	693	48,413	0	32,262	19
10/3	0	215,977	0	16,206	0	373,278	0	48,413	0	32,262	0

Notes:
1). Data source Salmon Catch Database, March 23, 1992.
2). Catch estimates are for statistical Areas 13-18, 29 and Area 12 catch by Inside Trollers, except for chinook salmon which is comprised of Statistical Areas 13-18 and 29.
3). Troll days is the number of boat days for Statistical Areas 13-18 and 29.

Table 4. Strait of Georgia troll gear count in 1991 by overflights.

Stat Week	Date	Statistical Area							Daily Total
		13	14	15	16	17	18	29	
6/4	29-Jun	21	103	2	0	13	1	0	140
7/1	02-Jul	15	43	1	1	6	1	1	68
	05-Jul	18	22	2	1	7	2	0	52
7/2	07-Jul	35	45	4	1	10	2	0	97
	11-Jul	17	40	2	4	5	0	0	68
	13-Jul	12	39	3	4	2	0	0	60
7/3	15-Jul	6	7	2	2	4	0	0	21
	17-Jul	1	89	7	0	13	4	0	114
	20-Jul	5	57	1	1	6	1	0	71
7/4	21-Jul	6	9	2	0	6	2	1	26
	27-Jul	7	46	2	2	10	2	0	69
7/5	30-Jul	10	49	0	1	8	0	0	68
8/1	04-Aug	1	13	0	0	0	2	3	19
	07-Aug	1	2	0	0	1	0	0	4
	10-Aug	0	0	0	22	1	42	0	65
8/2	13-Aug	2	2	0	11	1	61	0	77
	17-Aug	0	0	0	12	1	42	0	55
8/3	22-Aug	0	10	0	1	1	1	0	13
8/4	25-Aug	0	0	1	11	21	118	0	151
	29-Aug	0	1	0	0	0	0	0	1
9/1	01-Sep	2	0	0	1	122	18	0	143
	05-Sep	3	11	1	4	0	0	2	21
9/2	13-Sep	4	1	0	0	0	10	0	15
9/3	15-Sep	4	1	0	0	0	10	0	4
	21-Sep	8	3	0	2	0	0	0	13
9/4	23-Sep	2	14	0	5	9	1	1	32
	25-Sep	0	8	0	4	12	0	0	24

Table 5. Summary of management actions for the 1991 west coast Vancouver Island troll fishery.

PERIOD	MANAGEMENT ACTIONS			MANAGEMENT AREAS OPEN
	Species Open	Action	Purpose	
June 28 to July 13	Coho Pink Chum Chinook	Fishery opens with conservation areas A to E and F2 open. Areas F1, S and G closed. Retention of pink salmon is prohibited in Areas 130-1, 127, 26-11, 126-4, 111 and 11.	Commence season. Area F1 closed to prevent an enforcement problem on the seaward boundary of Area S and to minimize coho shaking problems. Pink non-retention in place for NWVI to minimize retention of Study Area pink salmon.	Outside Surfline: Area 121 to 127, 111, and 130-1. Inside Surfline: Area 23 all sub-areas except 23-1 and 23-2. Area 24 all sub-areas. Area 26 sub-area 26-11. Area 27 all sub-areas except 27-7 to 27-11. Area 11 portion of Area 11.
July 14 to August 1	Coho Pink Chum Chinook	Area F1 opens. Inside surfline closures go into effect August 1.	As coho catch is below the Green Line Area F1 opens to provide increased coho fishing opportunity.	Outside Surfline: Area 121 to 127, 111, and 130-1. Inside Surfline: Area 23 all sub-areas except 23-1 and 23-2. Area 24 sub-areas 24-2, 24-6 and 24-8. Area 26 sub-area 26-11. Area 11 portion of Area 11.
August 2 to August 6	Coho Pink Chum Chinook	Fishing for pink salmon in Areas 130-1, 127, 26-11, 126-4, 111 and 11 open.	The majority of Study Area pink salmon have moved through the fishing area. Consequently, no longer a conservation problem.	Outside Surfline: Area 121 to 127, 111, and 130-1. Inside Surfline: Area 23 all sub-areas except 23-1 and 23-2. Area 24 sub-areas 24-2, 24-6 and 24-8. Area 26 sub-area 26-11. Area 11 portion of Area 11.
August 7 to August 10	CLOSED.	Coastwide closure for outside troll licence holders.	The objective: to stop illegal fishing for sockeye and to give all trollers an equal opportunity when the sockeye fishery starts.	CLOSED.
August 11 to August 20	Sockeye Coho Pink Chum Chinook	Open all South Coast areas. Conservation areas A to G open. Area S closed.	Commence sockeye season.	Outside Surfline: Area 121 to 127, 111, and 130-1. Inside Surfline: Area 23 all sub-areas except 23-1 and 23-2. Area 24 sub-areas 24-2, 24-6 and 24-8. Area 26 sub-area 26-11. Area 11 portion of Area 11.

Table 5 (contd). Summary of management actions for the 1991 west coast of Vancouver Island troll fishery.

PERIOD	MANAGEMENT ACTION			MANAGEMENT AREAS OPEN
	Species Open	Action	Purpose	
August 21 to August 23	**CLOSED.**	Sockeye allocation reached. South coast closure to outside troll licence holders as of 2359 August 20.	Prevent an enforcement problem with illegal retention of sockeye.	**CLOSED.**
August 24 to September 6	Coho Pink Chum Chinook	WCVI re-opens for trolling 0001 hrs August 24. Non-retention and non-possession of sockeye in place. In addition, Areas F1, S, and G and waters adjacent to Cape Beale closed, that is, the area easterly of Loran C line 5990-Z-14740 (Fig. 8).	Resume fishing for salmon species other than sockeye as per troll fishing plan. The closure of F1 and easterly of Loran C 5990-Z-14740 were implemented to slow the coho catch. This action was taken to extend the time for combined coho and chinook fishing.	Outside Surfline: Area 121 to 127, 111, and 130-1. Inside Surfline: Area 23 all sub-areas except 23-1 and 23-2. Area 24 sub-areas 24-2, 24-6 and 24-8. Area 26 sub-area 26-11. Area 11 portion of Area 11.
September 7 to September 18	Pink Chum Chinook	Non-retention and non-possession of coho salmon goes into effect September 7. Areas F1, S, G and waters easterly of the 5990-Z-14640 line remains closed to all trolling and as well area F2 closes to all trolling.	WCVI coho catch ceiling has been reached. The conservation areas were kept closed to prevent a coho shaking problem.	Outside Surfline: Area 121 to 127, 111, and 130-1. Inside Surfline: Area 23 all sub-areas except 23-1 and 23-2. Area 24 sub-areas 24-2, 24-6 and 24-8. Area 26 sub-area 26-11. Area 11 portion of Area 11.
September 19	Closed	All WCVI areas closed to all trolling at 2359 hrs september 18.	As per troll fishing plan.	Closed.

Table 6. Weekly 1991 troll catch and days fished for west coast Vancouver Island.

Statistical Week	Sockeye		Coho		Pink		Chum		Chinook		Troll Days
	Catch	Cumul. Total	Catch	Cumul. Total	Catch	Cumul. Total	Catch	Cumul. Total	Catch	Cumul. Total	
6/4	0	0	8,053	8,053	6	6	201	201	2,971	2,971	215
7/1	0	0	157,134	165,187	990	996	1,112	1,313	34,267	37,238	3,405
7/2	13	13	167,493	332,680	1,453	2,449	1,402	2,715	18,332	55,570	3,077
7/3	959	972	291,833	624,513	12,634	15,083	896	3,611	24,105	79,675	4,503
7/4	598	1,570	308,416	932,929	26,080	41,163	434	4,045	24,872	104,547	4,348
7/5	2,686	4,256	230,214	1,163,143	33,753	74,916	367	4,412	18,270	122,817	3,679
8/1	3,108	7,364	263,720	1,426,863	62,029	136,945	1,047	5,459	21,332	144,149	4,539
8/2	363,025	370,389	47,888	1,474,751	150,713	287,658	927	6,386	6,695	150,844	3,046
8/3	995,364	1,365,753	109,170	1,583,921	614,411	902,069	4,213	10,599	14,472	165,316	8,038
8/4	19,814	1,385,567	54,119	1,638,040	91,001	993,070	537	11,136	7,114	172,430	1,907
9/1	123	1,385,690	153,374	1,791,414	183,650	1,176,720	715	11,851	15,278	187,708	4,685
9/2	11	1,385,701	81,169	1,872,583	143,993	1,320,713	567	12,418	7,015	194,723	2,769
9/3	0	1,385,701	3,021	1,875,604	23,406	1,344,119	304	12,722	4,097	198,820	946
9/4	1,901	1,387,602	1,747	1,877,351	5,260	1,349,379	29	12,751	773	199,593	160
10/1	0	1,387,602	0	1,877,351	0	1,349,379	0	12,751	51	199,644	0
10/2	0	1,387,602	0	1,877,351	0	1,349,379	0	12,751	122	199,766	0
10/3	0	1,387,602	0	1,877,351	0	1,349,379	0	12,751	21	199,787	0

Notes: 1) Data source Salmon Catch Database, March 23, 1992.
2). Sockeye, Pink, Coho, and Chum salmon catch is for Statistical Areas 21-27, 121-127 and 130-1.
3). Chinook catch is for Statistical Area 12, 21-27, 121-127 and 130-1.
4). Troll days is the number of boat days for Statistical Areas 21-27, 121-127.

Table 7. West coast Vancouver Island troll gear counts in 1991 by overflight.

Stat Week	Date	Statistical Area						SWVI TOTAL	NWVI TOTAL	WCVI TOTAL
		21	23	24	25	26	27			
7/1	01-Jul	8	48	4	3	10	0	60	13	73
7/2	09-Jul	NA	NA	NA	NA	51	38	NA	89	89
	12-Jul	4	86	83	28	108	NA	173	136	309
7/3	18-Jul	141	121	141	52	112	70	403	234	637
7/5	29-Jul	76	66	132	23	171	76	274	270	544
	01-Aug	77	71	53	27	84	43	201	154	355
	03-Aug	NA	NA	NA	57	73	60	NA	190	190
8/1	05-Aug	34	24	38	13	40	38	96	91	187
8/2	12-Aug	49	51	85	72	25	146	185	243	428
	14-Aug	53	52	79	139	44	198	184	381	565
	16-Aug	NA	NA	34	126	76	195	34	397	431
8/3	20-Aug	14	16	83	309	4	106	113	419	532
8/4	28-Aug	3	62	11	14	15	70	76	99	175
9/1	02-Sep	14	170	23	11	105	94	207	210	417
	05-Sep	3	237	31	26	111	138	271	275	546
	06-Sep	9	140	28	22	39	138	177	199	376
9/2	12-Sep	1	52	23	5	0	0	76	5	81
9/3	16-Sep	NA	11	19	6	16	22	30	44	74
	17-Sep	2	17	16	5	18	25	35	48	83

Note: NA = overflight count not available

Table 8. Summary of management actions for the 1991 Johnstone Strait troll fishery.

PERIOD	MANAGEMENT ACTIONS				MANAGEMENT AREA OPEN
	STAT AREA	SPECIES OPEN	ACTION	PURPOSE	
June 28 to August 1	11	Coho Chum Chinook	Fishery opens.	Commence troll season in concert with WCVI and Gulf.	Portion of 11-1 and 11-2; 7 days per week.
	12	Coho Chinook	Fishery opens.	Commence troll season in concert with WCVI and Gulf.	12-10 and 12-13; 7 days per week.
August 2 to August 6	11	Coho Pink Chum Chinook	Opens to the retention of pink salmon.	Majority of Study Area pink salmon have moved through the fishing area. Consequently, no longer a conservation problem.	Portion of 11-1 and 11-2; 7 days per week.
	12	Coho chinook	No change.		12-10 and 12-13; 7 days per week (chinook and coho only.
August 7 to August 10	11	None.	Closed to all fishing.	Obtain sockeye troll allocation.	Portion of 11-1 and 11-2; 7 days per week.
	12	Coho Chinook	Non change.	Pink salmon allocation reached.	12-10 and 12-13; 7 days per week.
Aug 11 to Aug 13	11	All species	Commence sockeye season.	Obtain sockeye troll allocation	Portion of 11-1 and 11-2; 7 days per week.
	12	All species	Open net areas for sockeye and pink retention.	Obtain sockeye and pink allocation.	12-10 and 12-13; 7 days per week. Area 12-1, 12-3 & 12-4 portion of 12-5, 12-8 to 12-11 and a portion of 12-12.
Aug 14 to Aug 17	11	All species	No change.		Portion of 11-1 and 11-2; 7 days per week.
	12	Coho Chinook	Close net areas of Area 12.		12-10 and 12-13; 7 days per week (chinook and coho only).
Aug 18 to Aug 20	11	All species	No change.		Portion of 11-1 and 11-2; 7 days per week.
	12	All species	Open net areas of Area 12.	Provide opportunity to obtain sockeye and pink salmon allocation.	12-10 and 12-13; 7 days per week (chinook and coho only). Area 12-1, 12-3 & 12-4 portion of 12-5, 12-8 to 12-11 and a portion of 12-12.

Table 8 (contd). Summary of management actions for the 1991 Johnstone Strait troll fishery.

PERIOD	MANAGEMENT ACTIONS				MANAGEMENT AREA OPEN
	STAT AREA	SPECIES OPEN	ACTION	PURPOSE	
August 21 to August 23	11	None	Closed to all fishing for outside licensed trollers.	Prevent enforcement problem with illegal retention of sockeye.	Closed.
	12	coho chinook	Close net areas of Area 12. Open to inside licensed trollers only.	Pace sockeye and pink fishery.	12-10 and 12-13; 7 days per week (chinook and coho only).
August 24 to August 24	11	Coho Pink Chum Chinook	Reopen outside troll areas.	Catch remaining allocations and ceilings. Outside troll sockeye allocation reached.	Portion of 11-1 and 11-2; 7 days per week.
	12	Coho Chinook	Continue fishing in Deserters Group.		12-10 and 12-13; 7 days per week (chinook and coho only).
August 25 to August 28	11	Coho Pink Chum Chinook	No change.	Catch remaining allocations and ceilings.	Portion of 11-1 and 11-2; 7 days per week.
	12	Sockeye Coho Pink Chum Chinook	Open seine net areas of Area 12 for inside licensed trollers only.	Obtain sockeye and pink salmon allocation for inside licensed trollers. Outside trollers have achieved their sockeye allocation, therefore net areas close per fishing plan.	12-10 and 12-13; 7 days per week (chinook and coho only). Area 12-1 to 12-4 portion of 12-5, 12-8 to 12-11 and a portion of 12-12.
August 29 to August 31	11	Coho Pink Chum Chinook	No change.	Catch remaining allocations and ceilings.	Portion of 11-1 and 11-2; 7 days per week.
	12	Coho Chinook	Close net areas.	Pace sockeye and pink salmon fishery.	12-10 and 12-13; 7 days per week.
Sept. 1 to Sept. 2	11	Coho Pink Chum Chinook	No change.	Catch remaining allocations and ceilings.	Portion of 11-1 and 11-2; 7 days per week.
	12	Sockeye Coho Pink Chum Chinook	Closed to outside licensed trollers except Deserters Group.	Catch remaining allocations of sockeye and pink salmon.	12-10 and 12-13; 7 days per week. Area 12-1 to 12-4 portion of 12-5, 12-8 to 12-11 and a portion of 12-12.
Sept. 3 to Sept. 7	11	Coho Pink Chum	Non-retention and non-possession chinook.	North coast troll chinook allocation met.	Portion of 11-1 and 11-2; 7 days per week.
	12	Coho Chinook	Closed net areas of Area 12.	Sockeye allocation met.	12-10 and 12-13; 7 days per week.

Table 8 (contd). Summary of management actions for the 1991 Johnstone Strait troll fishery.

PERIOD	MANAGEMENT ACTIONS				MANAGEMENT AREA OPEN
	STAT AREA	SPECIES OPEN	ACTION	PURPOSE	
Sept. 8 to Sept. 10	11	Coho Pink Chum	No change.	Catch remaining allocations.	Portion of 11-1 and 11-2; 7 days per week.
	12	Coho Pink Chum Chinook	Reopen for the retention of pink salmon in net areas.	Catch remaining allocation of pink salmon. Fraser River pink salmon run size upgraded to 15 million.	12-10 and 12-13; 7 days per week (chinook and coho only). Area 12-1 to 12-6, 12-8 to 12-12 and a portion of 12-8.
Sept. 11 to Sept. 11	11	Coho Pink Chum	No change.	Catch remaining allocation of pink salmon.	Portion of 11-1 and 11-2; 7 days per week.
	12	Coho Pink Chum	Net areas remain open for the possession of coho, pink and chum. Deserters Group remains open to inside trollers for coho only and outside trollers chinook and coho.	Chinook allocation reached by inside trollers.	12-10 and 12-13; 7 days per week (chinook and coho only). Area 12-1 to 12-6, 12-8 to 12-12 and a portion of 12-8.
Sept. 12 to Sept. 13	11	Coho Pink Chum	No change.	Catch remaining allocations and ceilings.	Portion of 11-1 and 11-2; 7 days per week.
	12	Sockeye Coho Pink Chum Chinook	Net areas remain open for the possession of sockeye, coho, pink and chum for inside trollers.	Obtain remaining allocations and ceilings.	12-10 and 12-13; 7 days per week (chinook and coho only). Area 12-1 to 12-6, 12-8 to 12-12 and a portion of 12-8.
Sept. 14 to Sept. 18	11	Coho Pink Chum	No change.	Catch remaining allocations and ceilings.	Portion of 11-1 and 11-2; 7 days per week.
	12	Sockeye Coho Pink Chum Chinook	Net areas remain open to inside trollers for the possession of sockeye, coho, pink and chum. Outside trollers net areas open for pink salmon retention only.		12-10 and 12-13; 7 days per week (chinook and coho only. Area 12-1 to 12-6, 12-8 to 12-12 and a portion of 12-8.
Sept. 19	11	NONE	Closed all outside troll areas.	Outside troll season finished.	CLOSED.
	12	NONE	Closed to outside and inside licensed trollers.	No further fishing opportunity for the 1991 season.	CLOSED.

Table 9. Weekly 1991 troll catch and days fished for Johnstone Strait.

Statistical Week	Sockeye		Coho		Pink		Chum		Chinook		Troll Days
	Catch	Cumul. Total	Catch	Cumul. Total	Catch	Cumul. Total	Catch	Cumul. Total	Catch	Cumul. Total	
6/4	0	0	61	61	4	4	4	4	24	24	24
7/1	0	0	2,883	2,944	66	70	72	76	1,119	1,143	324
7/2	12	12	2,337	5,281	68	138	59	135	790	1,933	210
7/3	181	193	4,055	9,336	17	155	121	256	969	2,902	204
7/4	3	196	3,982	13,318	83	238	73	329	295	3,197	107
7/5	152	348	4,903	18,221	79	317	54	383	613	3,810	180
8/1	0	348	4,074	22,295	5,287	5,604	55	438	548	4,358	227
8/2	10,142	10,490	481	22,776	33,352	38,956	33	471	26	4,384	205
8/3	12,721	23,211	993	23,769	38,740	77,696	135	606	106	4,490	246
8/4	3,026	26,237	3,618	27,387	16,789	94,485	270	876	137	4,627	208
9/1	1,510	27,747	3,538	30,925	7,899	102,384	146	1,022	317	4,944	258
9/2	225	27,972	2,456	33,381	6,627	109,011	76	1,098	341	5,285	192
9/3	27	27,999	1,682	35,063	9,121	118,132	86	1,184	23	5,308	293
9/4	0	27,999	291	35,354	579	118,711	8	1,192	2	5,310	22
10/1	0	27,999	0	35,354	0	118,711	0	1,192	0	5,310	0
10/2	0	27,999	0	35,354	0	118,711	0	1,192	0	5,310	0
10/3	0	27,999	0	35,354	0	118,711	0	1,192	0	5,310	0

Notes: 1) Data source Salmon Catch Database, March 23, 1992.
2). Catch estimates are for Statistical Areas 11, 12 and 111.
3). Troll days is the number of boat days for Statistical Areas 11 and 12.

FIGURES

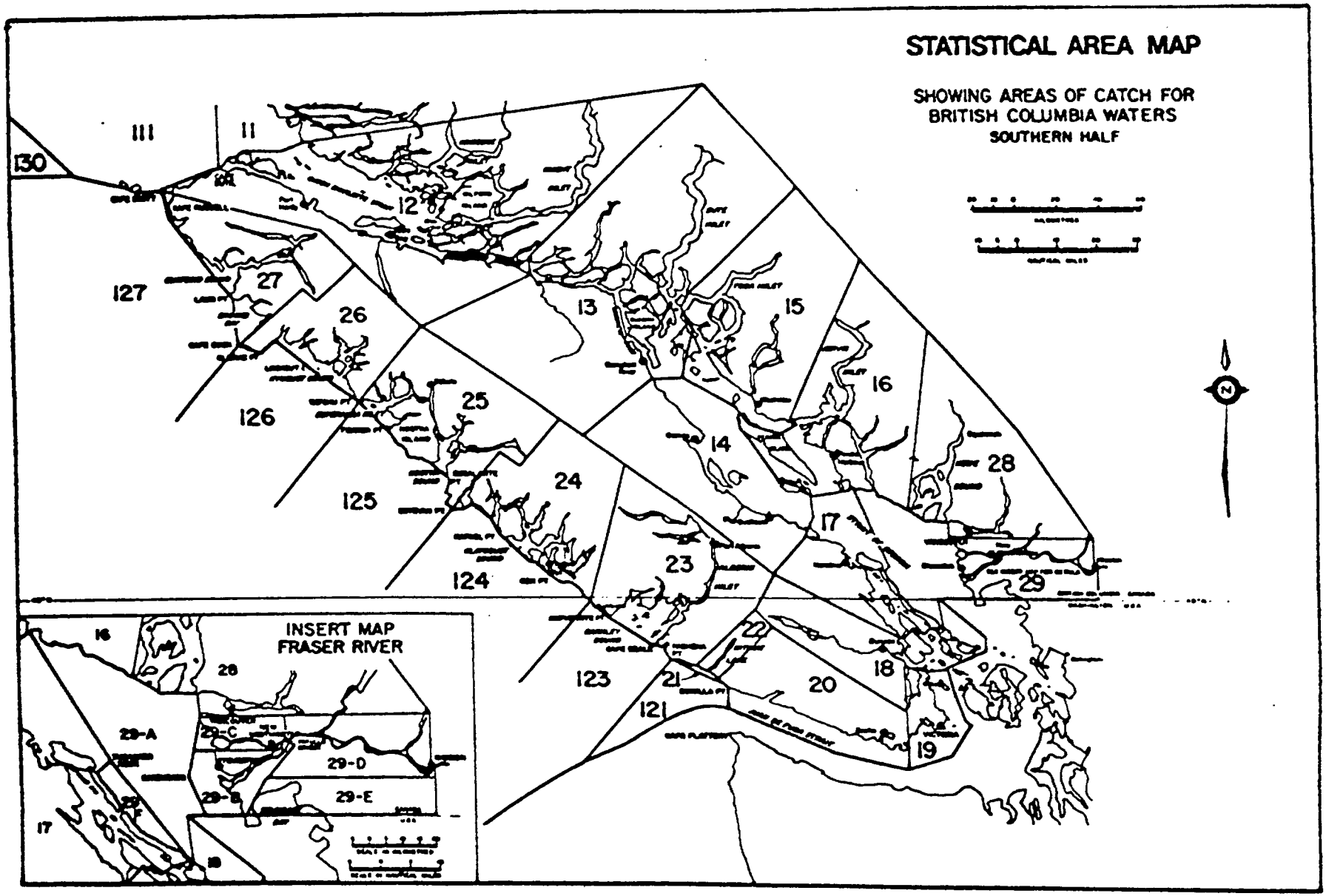


Figure 1. Statistical area map for Southern British Columbia.

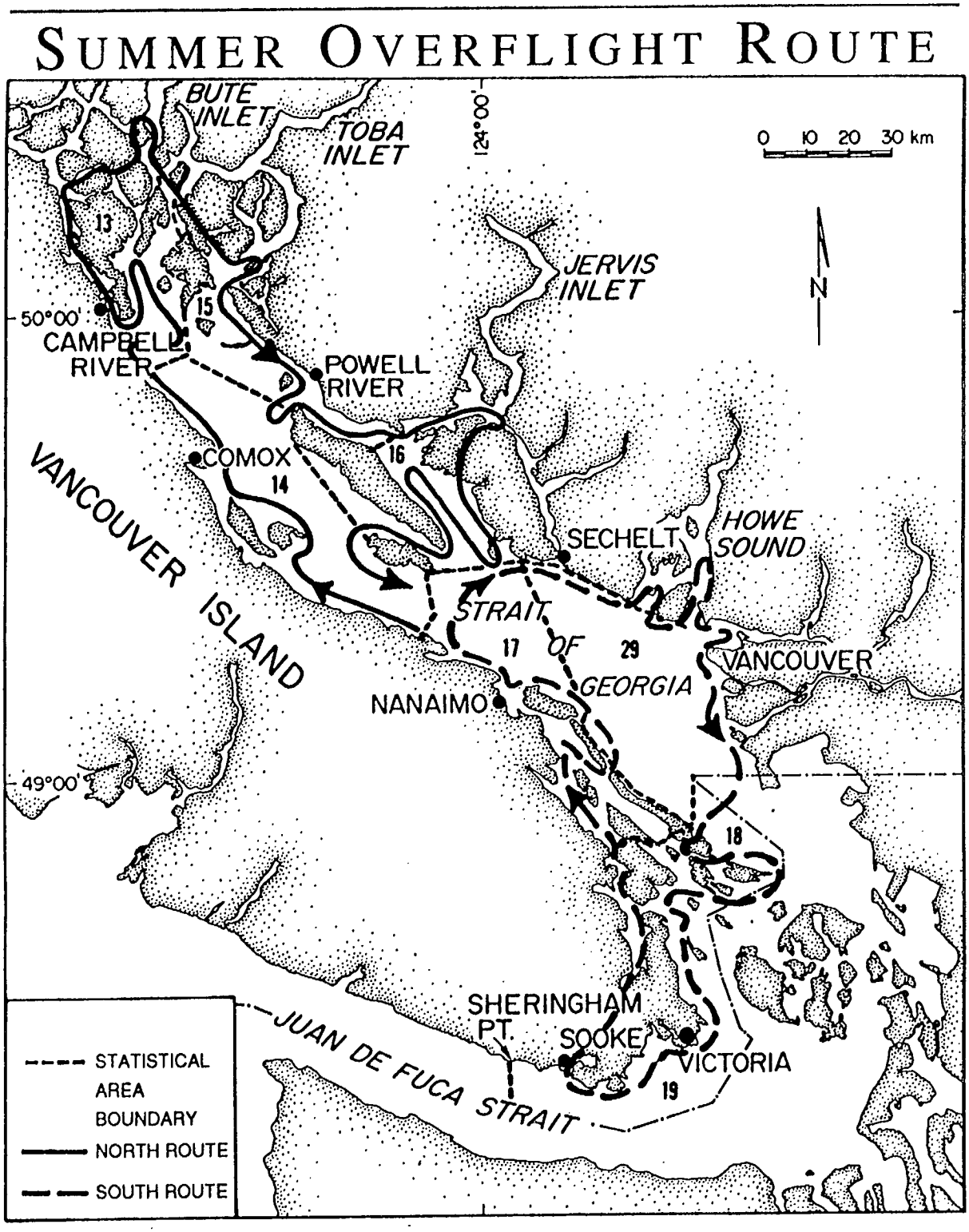


Figure 2. Strait of Georgia overflight route.

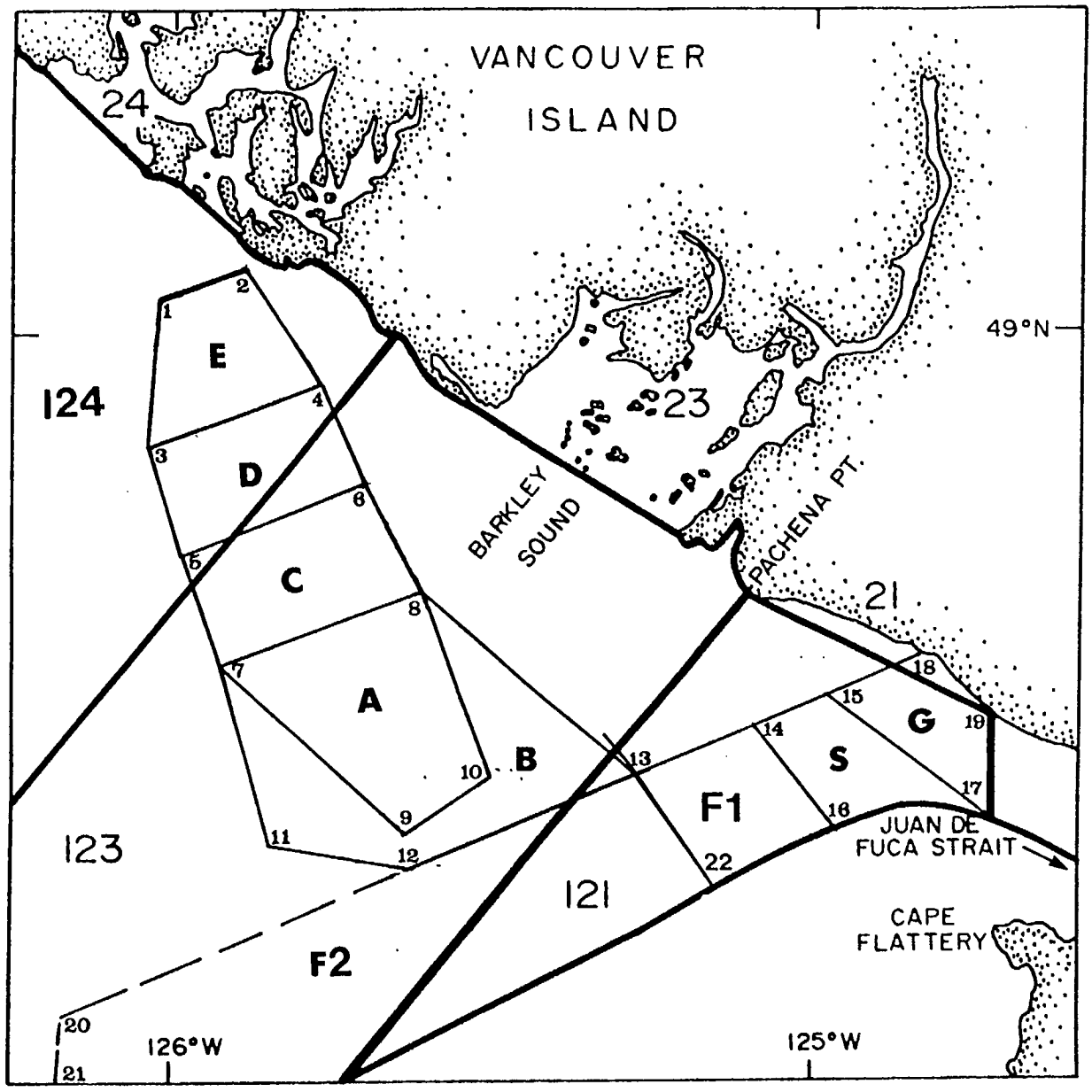


Figure 3. WCVI conservation areas for 1991.

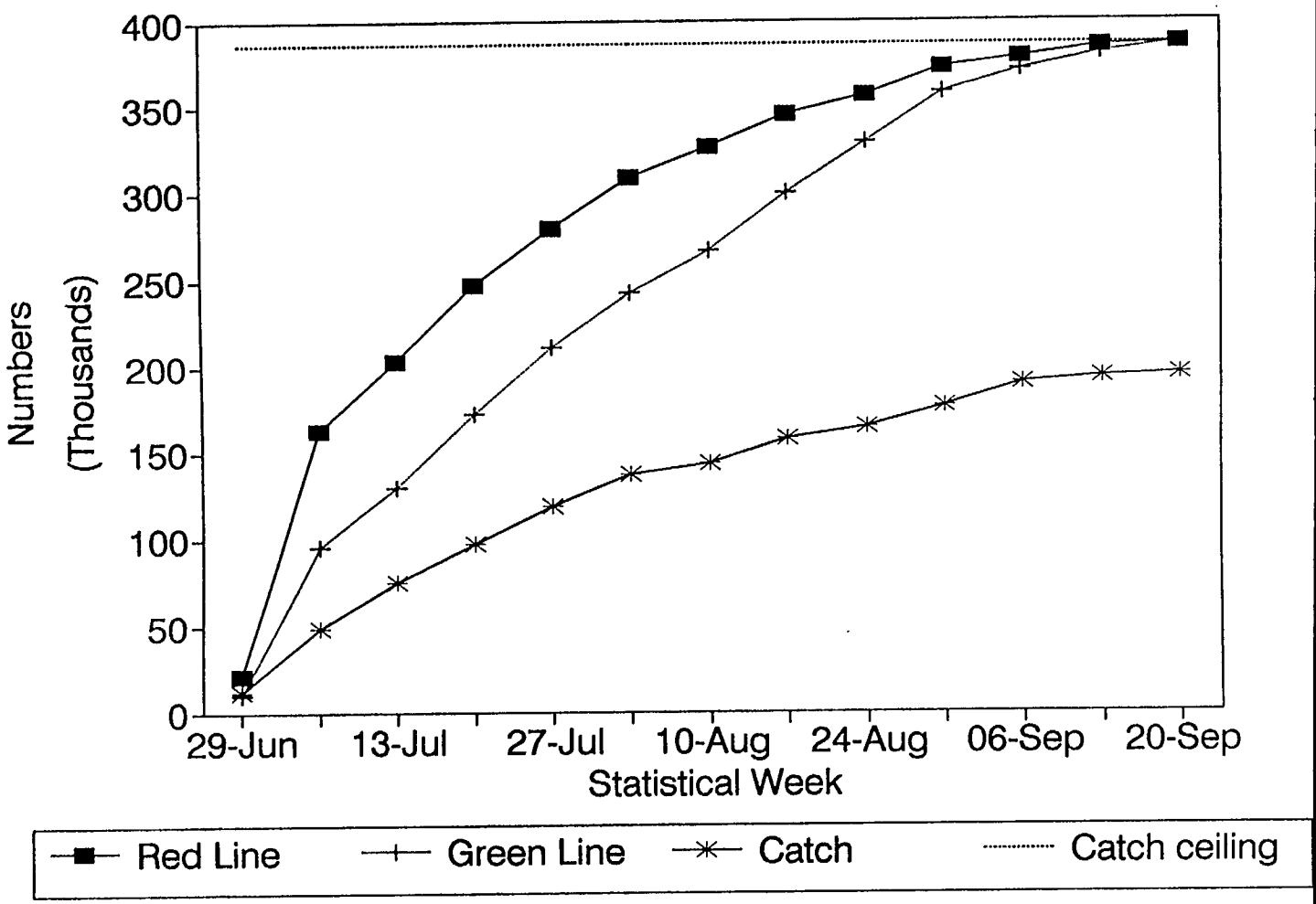


Figure 4. WCVI chinook troll catch estimates compared to red and green lines.

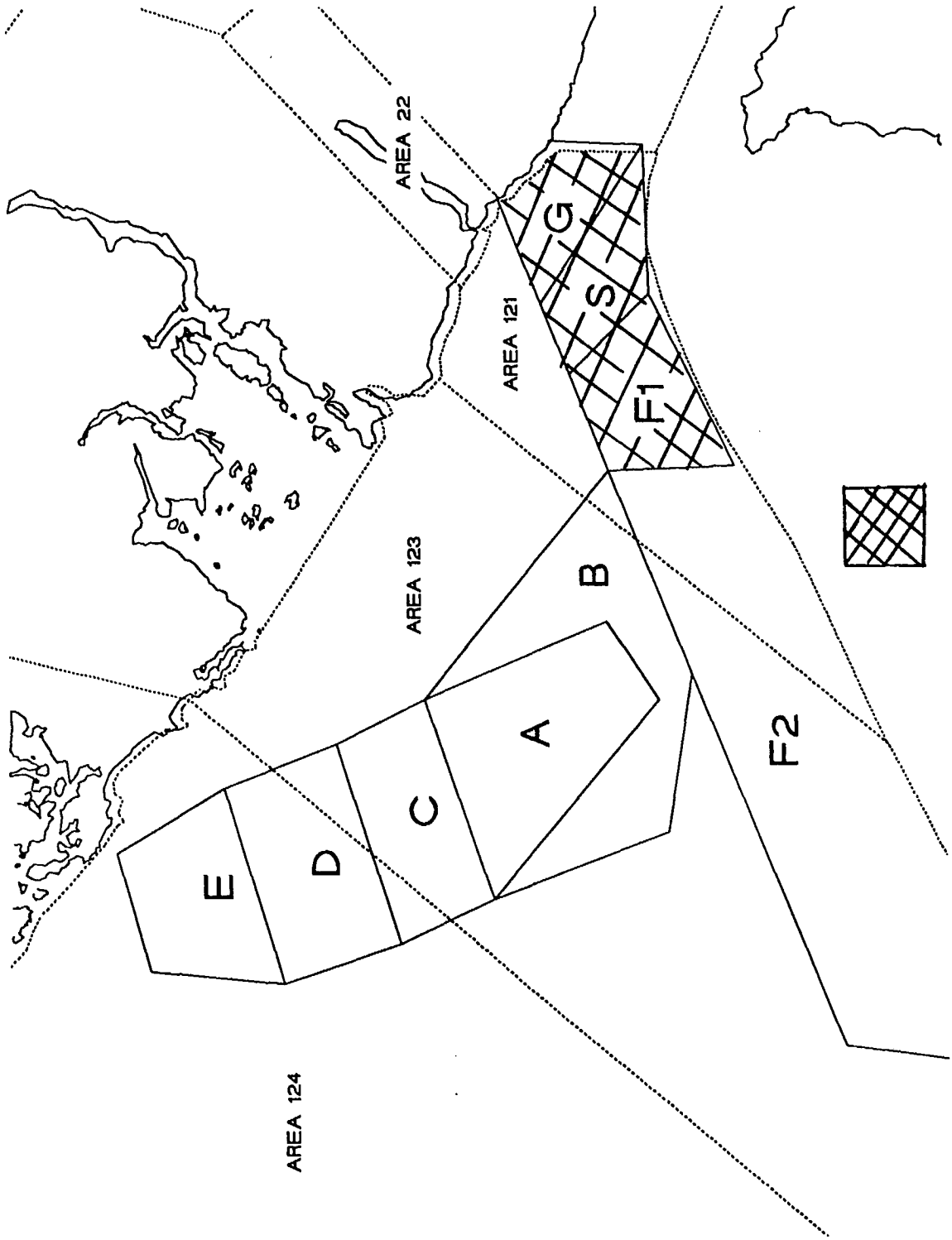


Figure 5. WCVI troll area closures from June 28 to July 13.

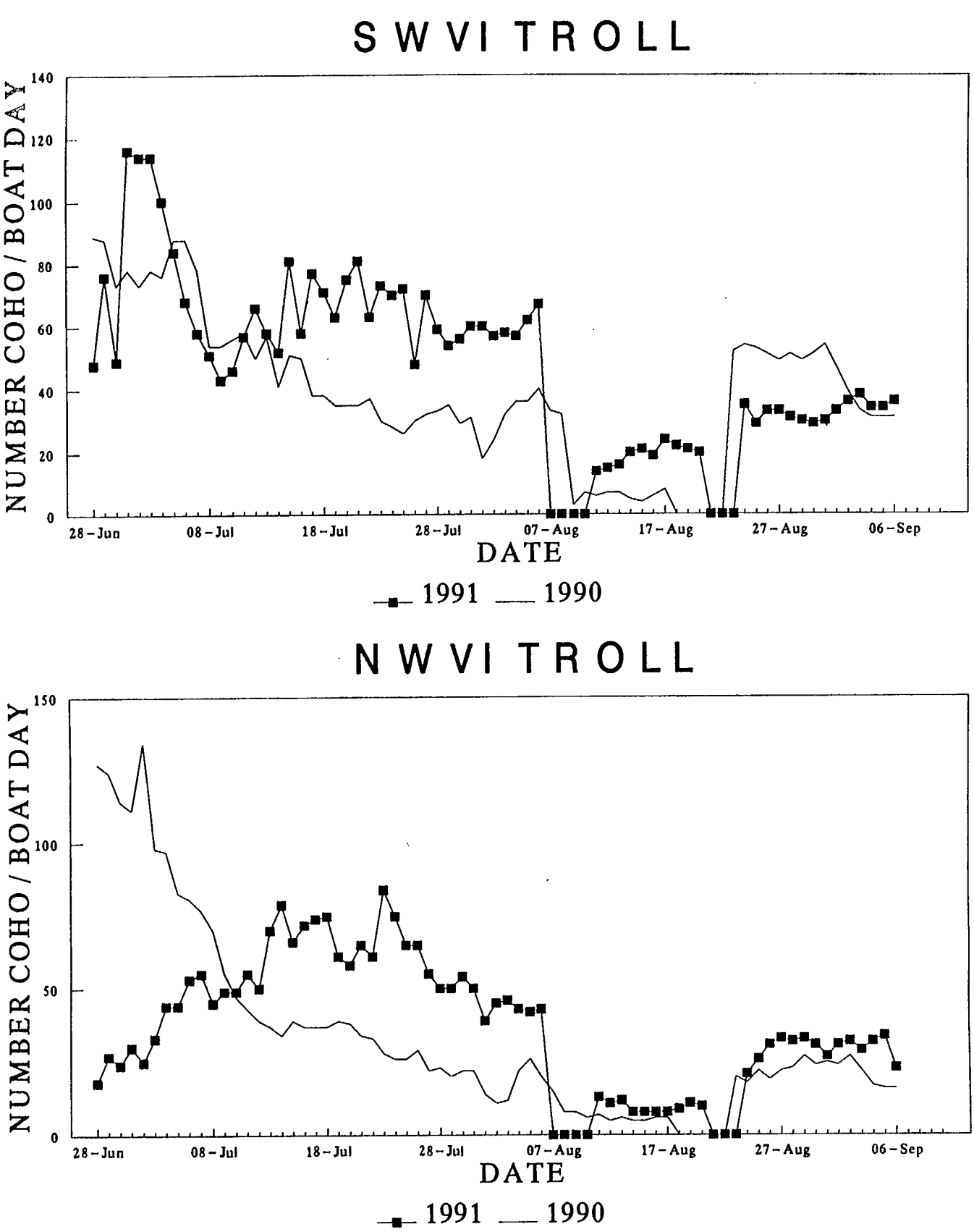


Figure 6. Catch per effort for coho from the west coast Vancouver Island troll fishery. Data source ISCMP.

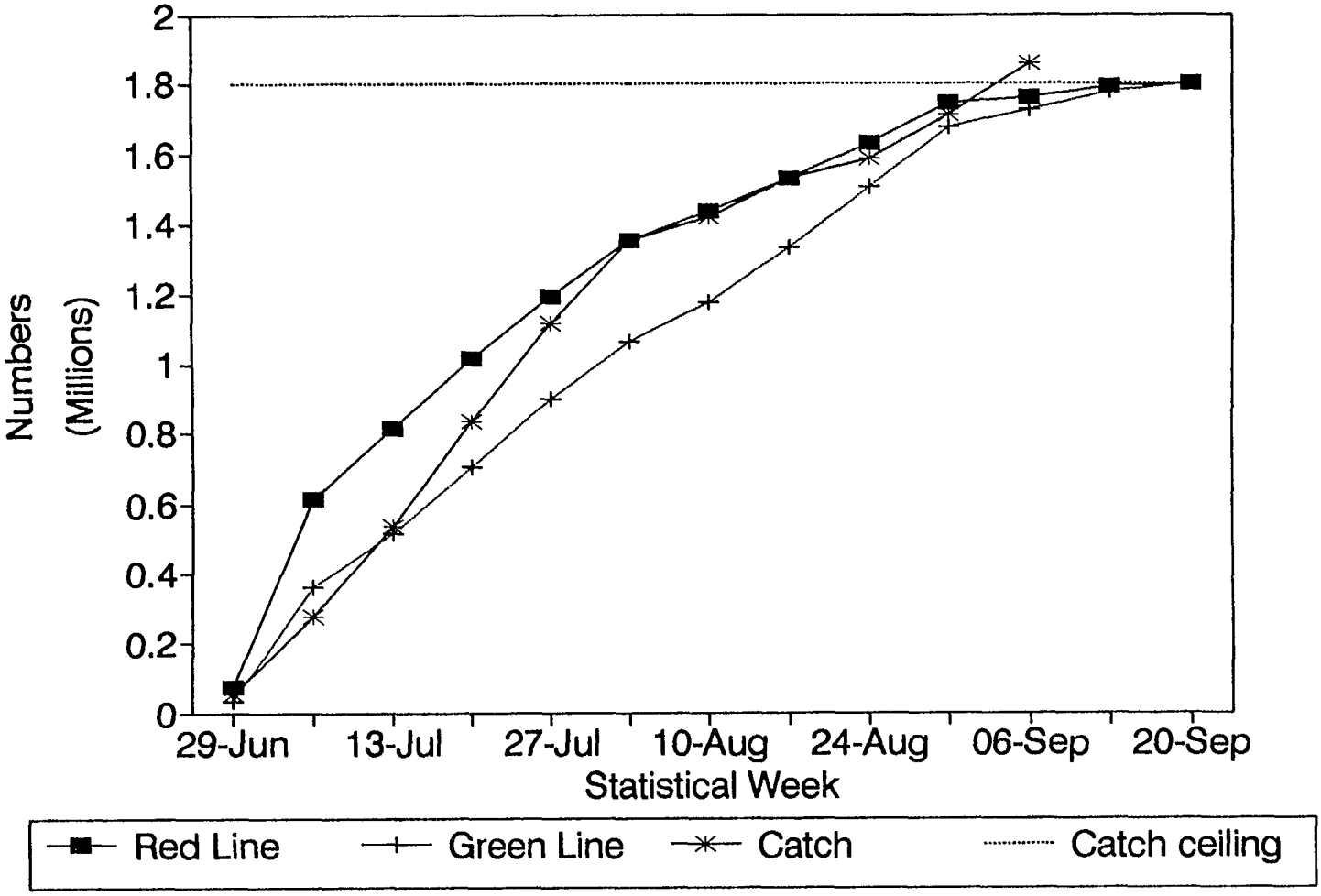


Figure 7. WCVI coho troll catch estimates compared to red and green lines.

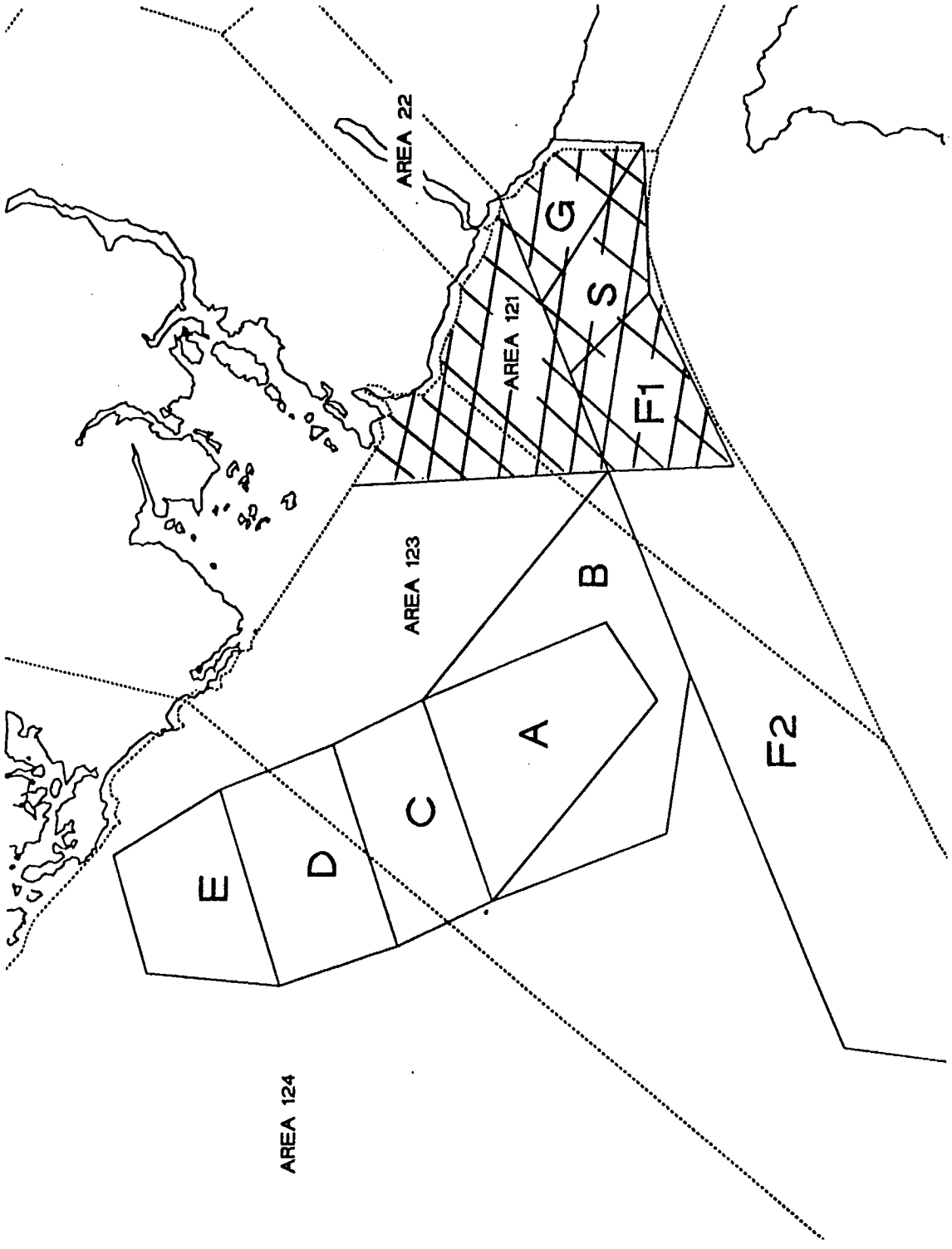


Figure 8. WCVI troll area closures from August 24 to September 18.

APPENDICES

APPENDIX 1

NEWS RELEASES AND COMMUNICATIONS REGARDING 1991 SALMON ALLOCATIONS

BACKGROUNDER
FICHE d'INFORMATION

MAY 31, 1991

COMMERCIAL SALMON ALLOCATION PLAN

Salmon allocations for the 1991 through 1994 fishing seasons have been developed for the Pacific commercial salmon fleet based on the principles of conservation, a fair and equitable sharing of the resource, minimized uncertainty and conflict, respect for traditional fishing patterns, and consistency with Canada's obligations under the Pacific Salmon Treaty.

The desirability to adopt a long term allocation plan in the salmon fishery has received unanimous support from the Commercial Fishing Industry Council (CFIC). The allocation plan has been developed based on recommendations of the CFIC allocation subcommittee, made up of representatives from each of the gear sectors, the Native Brotherhood of B.C., and the United Fishermen and Allied Workers Union. While lacking unanimity on all aspects of the four-year plan, CFIC reached an unprecedented degree of consensus among representatives of the three commercial gear types on the allocation of salmon.

The allocation plan for 1991 through 1994 is summarized in the attached table. In most respects, allocations reflect cycle year averages. Modifications to the sharing arrangement for Fraser River sockeye above a defined base catch have been instituted in order to assist a fair and equitable allocation among gillnet, seine, and troll fishermen.

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LONG TERM SALMON ALLOCATION PLAN

YEAR		1991	1992	1993	1994
NORTH COAST					
PINKS	TROLL				
	Area 1	Fishery will be managed in accordance with the Pacific Salmon Treaty. The Area 1 Pink troll catch for the four year period 1990–1993 will be limited to a total of 5.125 million. The maximum harvest in Area 1 in any one year is 1.95 million, of which no more than 300,000 can be taken in the A–B line sub–areas.			
	Areas 2 – 10	Troll catch ceiling of 4% of the all gear catch in Areas 2–10, excluding Fraser River Pinks.			
	NET				
	Areas 1,3,4 & 5	GN 28% of net SN 72% of net	GN 22% of net SN 78% of net	GN 28% of net SN 72% of net	GN 22% of net SN 78% of net
	Areas 6 to 10	Maintain traditional fishing patterns with the primary objective to harvest available surpluses and ensure that escapement goals are met.			
SOCKEYE	TROLL				
	Areas 1,3,4 & 5	Troll catch to remain incidental and not to exceed 5% of the total catch.			
	Areas 6 to 10	The troll fishery on sockeye in these areas should not escalate.			
	NET				
	Areas 1,3,4 & 5	GN 75% of net SN 25% of net	GN 75% of net SN 25% of net	GN 76% of net SN 24% of net	GN 73% of net SN 27% of net
	Areas 6,7 & 8	Traditional fishing patterns to be maintained with an incidental catch of sockeye expected.			

	Areas 9 & 10	Net fishing restricted to gillnets only.
CHUM	TROLL	
	Areas 1 to 10	Troll fisheries on this species should not escalate.
	NET	
	Areas 1 to 10	Traditional fishing patterns to be continued.
CHINOOK	Areas 1 to 11	The commercial share of the Pacific Salmon treaty chinook ceiling (not including terminal exclusions) will be allocated 15.7% to net fisheries and 84.3% to troll (as in 1990).

		1991	1992	1993	1994
SOUTH COAST					
PINK	Southern Bound	GN 9% SN 58% OUTSIDE TR 29% INSIDE TR 4%	GN 9% SN 73% OUTSIDE TR 9% INSIDE TR 9%	GN 9% SN 58% OUTSIDE TR 29% INSIDE TR 4%	GN 9% SN 73% OUTSIDE TR 9% INSIDE TR 9%
SOCKEYE	AREA 23	GN 40% of net SN 60% of net	GN 40% of net SN 60% of net	GN 40% of net SN 60% of net	GN 40% of net SN 60% of net

		1991	1992	1993	1994
SOCKEYE	FRASER BOUND				

Fraser bound sockeye are allocated by a two part formula with: 1) base catches allocated according to the Minister's allocations for the previous cycle; and 2) any incremental catch above that base allocated as shown below.*

1	BASE CATCH OF:	3.2 MILLION	2.9 MILLION	8.3 MILLION	8.8 MILLION
	ALLOCATED	GN 35% SN 52% OUTSIDE TR 10.8% INSIDE TR 2.2%	GN 38.4% SN 52.8% OUTSIDE TR 4.8% INSIDE TR 4%	GN 33% SN 55% OUTSIDE TR 10% INSIDE TR 2%	GN 28% SN 45.5% OUTSIDE TR 22.7% INSIDE TR 3.8%
2	INCREMENTAL CATCH ALLOCATED	GN 31.5% SN 47% OUTSIDE TR 18.5% INSIDE TR 3%	GN 19% SN 66.5% OUTSIDE TR 12.5% INSIDE TR 2%	GN 23% SN 42% OUTSIDE TR 30% INSIDE TR 5%	GN 30% SN 44.5% OUTSIDE TR 22% INSIDE TR 3.5%

*Allocations of catch incremental to the base will be reviewed after 1992 to ensure consistency with the principles of allocation outlined by the Minister.

The following are estimated combined allocations of Fraser sockeye using current catch expectations for the next four years. These predictions will be updated every January for that calendar year using up to date biological information and projected catches by other harvesters in Canada and the United States.

EST CATCH	8 MILLION	4 MILLION	12 MILLION	17 MILLION
ESTIMATED CATCH SHARES	GN 33% SN 49% OUTSIDE TR 15.4% INSIDE TR 2.6%	GN 33% SN 56.5% OUTSIDE TR 6.9% INSIDE TR 3.6%	GN 30% SN 51% OUTSIDE TR 16.2% INSIDE TR 2.8%	GN 29% SN 46% OUTSIDE TR 22.4% INSIDE TR 3.6%

		1991	1992	1993	1994
CHUM	TROLL				
	OUTSIDE	The outside troll fishery on this species should not escalate.			
	INSIDE	The troll fishery for fall chums will be limited, with a catch ceiling not to exceed 1% of the total commercial catch of inside stocks after Sept 1.			
CHUM	NET				
	INSIDE	GN 35% SN 65%	GN 35% SN 65%	GN 35% SN 65%	GN 35% SN 65%
	OUTSIDE	An initial early season allocation of 50% gillnet and 50% seine. The South Coast Advisory Committee will set the pre-cleanup catch ceiling in early fall to which the 50:50 catch split will apply. Fishing times on subsequent fisheries will be determined by the West Coast Sub-committee of the South Coast Advisory Committee in conjunction with DFO.			
CHINOOK	TROLL				
	OUTSIDE	The outside troll fishery will be managed in accordance with the Pacific Salmon Treaty.			
	INSIDE	The inside troll allocation will continue to be subject to the Pacific Salmon Treaty and conservation requirements.			
COHO	TROLL	The outside troll fishery will be managed in accordance with the Pacific Salmon Treaty.			

NEWS RELEASE

COMMUNIQUÉ

NR-PR-91-07

FOR IMMEDIATE RELEASE
May 31, 1991

FOUR-YEAR ALLOCATION PLAN ADDS STABILITY TO COMMERCIAL SALMON FISHERY IN BRITISH COLUMBIA

VANCOUVER --- Minister of Fisheries and Oceans John C. Crosbie today announced a four-year allocation plan for the commercial harvest of salmon from British Columbia waters. "This move towards long term allocations will provide an added degree of stability to the industry and help ensure a fair and equitable sharing of the resource among salmon gillnet, troll, and seine fishermen", the Minister said.

Development of the commercial allocation plan for all five species of Pacific salmon was guided by a subcommittee of the Commercial Fishing Industry Council (CFIC). Mr. Crosbie said, "I am pleased by the high degree of consensus reached by the Council concerning both the need for long-term allocations and the actual catch sharing arrangements among gear types."

In addition to recognizing the paramount importance of resource conservation, the plan will ensure that allocations are fair, that they minimize uncertainty and conflict, and that they reflect historic and traditional fishing patterns. Commercial allocations are expressed as percentage shares of the catch by each gear type. For the next four years allocations are based on 1987 - 1990 cycle year allocations for all species and runs other than Fraser River sockeye. (See attached table for specific allocation figures).

An innovative formula, introduced during the allocation process, will assist in stabilizing catches per vessel at levels that reflect traditional shares of the resource. Increased returns of Fraser River sockeye, resulting from ratification of the Pacific Salmon Treaty and effective resource management, provide an incremental catch within which catch ratios will be modified to redress imbalances between gear types. The modified sharing arrangement of Fraser River sockeye will apply to fish over and above a predetermined base catch, and will accommodate the differing value of salmon species in commercial markets as well as the difference in species targeted by the net and troll fleets.

-more-

Coastwide catches of salmon this season - estimated at 80,000 metric tonnes or 32.3 million fish - will be highlighted by the largest sub-dominant year return of sockeye salmon to the Adams River system since the turn of the century. Chilko and Stellako stocks are also expected to make a significant contribution to the sockeye harvest. The expected catch of Fraser River sockeye in 1991 is eight million fish.

Also a highlight in 1991 is the expected large Canadian catch of some 10 million pink salmon in northern British Columbia waters. Pink catch in southern areas is forecast at a modest four million pieces. While brood year escapements where good, severe flooding two years ago has reduced the numbers of fish returning as adults this season.

Detailed fishing plans are in preparation and will be available soon.

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APPENDIX 2

INFORMATION BULLETIN:

1991 SALMON TROLL FISHING PLANS

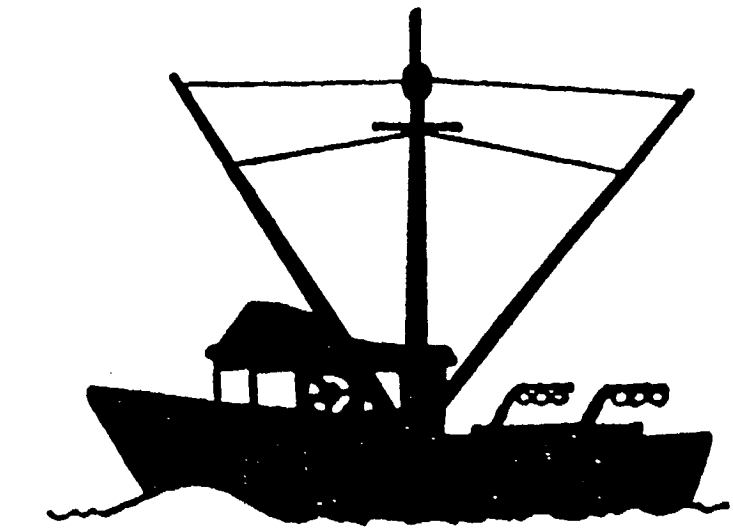
STRAIT OF GEORGIA

Scientific Excellence • Resource Protection & Conservation • Benefits for Canadians
Excellence scientifique • Protection et conservation des ressources • Bénéfices aux Canadiens

1991 SALMON TROLL FISHING PLANS

Strait of Georgia and Johnstone Strait

June 14, 1991



Fisheries and Oceans Pêches et Océans

Canada

1.0 INTRODUCTION

This fishing plan was developed after consultation with the Inside Troll Advisory Committee which has fishing industry representatives from the Gulf Trollers Association and the United Fishermen and Allied Workers Union.

Catches are limited by Pacific Salmon Treaty quotas, domestic allocations, and stock abundance.

2.0 MANAGEMENT OBJECTIVES

The troll fishing plan for 1991 was developed with consideration of the following objectives.

1. Minimize non-retention fisheries and the impacts of associated mortalities.
2. Minimize the foregone catch of other species while conserving another one.
3. Maintain or increase the economic benefits to the troll fleet under the current limitation.
4. Contribute to the Lower Strait of Georgia chinook conservation program.
5. Manage Northern and Southern areas as a coordinated unit.
6. Maintain manageability and enforceability of the plan.
7. Manage in a manner that fosters a positive relationship with other gear types, and meets long term Pacific Salmon Treaty objectives.
8. Minimize the catch of summer run sockeye so that gillnetters and Indian food fishers who are more dependent on these stocks, can obtain their shares of Fraser River sockeye.

3.0 HIGHLIGHTS

1. Trolling for salmon except sockeye will start June 27. The sockeye opening will occur when:
   a) The majority of the summer runs have entered the net Fishing areas.
   b) Test fisheries off the west coast of Vancouver Island indicate that summer run sockeye abundance is declining and late run sockeye abundance is increasing.
   c) Sockeye scale samples (stock identification) indicate that the late run sockeye abundance exceeds summer run abundance.

   It is anticipated that the sockeye opening date will be between August 3 to August 10. Prior to this opening sockeye non-retention and non-possession will be in effect.
2. There are no size limit changes in 1991.
3. Catch-up/make-up for Fraser River sockeye is continuing for a second year. Inside trollers get 24,000 extra sockeye in 1991 to compensate for a 1990 shortfall. Allocation overages and underages in 1991 will be addressed in 1992 and/or later years.
4. Proposed management actions and catch information for the Inside troll fleet will be broadcast on B.C. Telephone marine band frequencies on Tuesdays of each week at 1500 hours (July 2 - September 30, 1990) and additionally on Fridays when sockeye retention commences on the following channels:

Port Hardy	CH24	Nanaimo	CH87
Sayward	CH28	Powell River	CH85
Campbell River	CH64	Ganges	CH27
Courtenay	CH23	Vancouver	CH24

Disagreement with management actions or information should be directed to fishermen representatives on the Inside Troll Advisory Committee.

5. Recorded phone service for troll information is provided at the following locations.

Vancouver	666-1506
Nanaimo	754-0281
Campbell River	287-2151

4.0 STRAIT OF GEORGIA AND JOHNSTONE STRAIT TROLL FISHING PLAN

4.1 ALLOCATIONS AND LIMITATIONS

CHINOOK

The chinook catch allocation for 1991 is 31,000. If 29,000 of the 31,000 chinook ceiling is reached prior to the sockeye opening then non-retention, non-possession and single barbless hooks will be implemented until the sockeye fishery starts. The objective of this action is to allow an incidental catch of chinooks during sockeye and pink fisheries. If shaking of chinook salmon is above acceptable levels than additional conservation measures will be implemented. These additional measures will be decided after consultation with the in-season advisory committee. Barbed hooks however, will be permitted during directed sockeye or pink fisheries.

The minimum size limit for troll caught chinook is 62 cm nose-fork length for Areas 13 to 18 and 29. The minimum size limit for troll caught chinook is 67 cm nose-fork length in the Deserters Group (12-10 and 12-13). This is the same size limit in effect during the 1988, 1989 and 1990 seasons.

There will be a chinook NON RETENTION restriction in effect in the "Banana" Area of Area 29.

COHO

There is no quota or allocation for coho and catch will be determined by abundance.

SOCKEYE

Sockeye allocations are two tiered in 1991. For a base Canadian commercial catch of 3.2 million the allocation for Inside Trollers is 2.2%. The allocation for any catch above 3.2 million is 3.0%. Therefore at the present catch prediction, the Inside Troll share is 234,000 which includes 24,000 to compensate for the shortfall from the 1990 allocation.

PINK

The Ministerial allocation of southern bound pink salmon for Inside Trollers is 4.0%. Based on a predicted 6 million Canadian commercial catch this allows for a troll catch of 240,000.

CHUM

Chum allocation is not to exceed 1% of the total commercial catch of inside stocks. The pre-season run size prediction for chum salmon is 3.325 million and the commercial catch is about 700,000 with approximately 7,000 for Inside Trollers.

4.2 ASSUMPTIONS REGARDING ABUNDANCE

CHINOOK

Similar abundance to 1990 is expected.

COHO

Coho abundance is expected to be much less than 19990.

SOCKEYE

The Canadian commercial catch for 1991 is predicted to be 7.845 million pieces with a total run size of 14.5 million.

PINK

A catch of 6 million Southern bound pink salmon is expected for Canadian fishermen including about 4.3 million Fraser River pinks from a predicted run size of 11 million.

CHUM

The predicted run size is 3.325 million chums, and the total harvestable surplus is about 700,000.

4.3 PLAN DETAILS

This Troll Fishing Plan is for Statistical Areas 12 to 18 and 29. The season is scheduled from June 27, 1990 to September 30 with a chum only fishery in October. If all allocations and ceilings are reached prior to September 30 or severe conservation problems develop, the fishery may close earlier than anticipated.

CHINOOK, COHO, PINK AND CHUM OPENINGS

The openings will commence at 0001 (PDT) hours June 27 and will be for seven days per week in the following areas:

Area 13 - Sub-areas 13-1 to 13-3 and 13-14 to 13-20 and 13-23 open. Sub-areas 13-7 to 13-10 and 13-27 to 13-32 will remain closed until the sockeye opening date.

Area 14 - All sub-areas open except 14-14 and 14-11 (Comox Harbour) which are closed.

Area 15 - All sub-areas open except 15-6 (Toba Inlet).

Area 16 - All sub-areas open.

Area 17 - All sub-areas open except 17-7 (Ladysmith Harbour) and 17-14 (Nanaimo Harbour). On July 15, 1991, sub-area 17-15 (Nanaimo Harbour) and a portion of 17-9 (Chemainus River Mouth) will close.

Area 18 - All sub-areas open except 18-1, 18-8 (Cowichan Bay), and 18-11.

Area 29 - Sub-area 29-5 open. Sub-areas 29-1 to 29-4 and 29-6 remain closed until the sockeye opening date.

Sport fishing spot closures in the above areas are also closed to commercial trolling.

SOCKEYE OPENINGS

There are a number of objectives governing the sockeye fishing plan. One is to achieve the allocation target, another is to provide sufficient and simultaneous fishing opportunities in Johnstone Strait and lower Strait of Georgia and another is to pace the sockeye catch so that the pink allocation is taken simultaneously with sockeye if possible. If part of the pink

allocation is left after the sockeye allocation is taken, fishing opportunities will be provided in Johnstone Strait to harvest the balance.

For the first two weeks of sockeye trolling there will be a cumulative catch ceiling in the range of 100,000 to 120,000 sockeye. When this catch is taken all sub-areas where sockeye catches are significant will close in order to pace the fishery. These sub-areas will re-open again the third week.

When the sockeye fishery starts, retention will be permitted seven days per week in those areas that opened June 27 for chinook, coho, pink and chum, with the following additions and exceptions:

> Area 13 - Subject to the cumulative catch ceiling in all areas for Inside trollers during the first two weeks of the fishery and the total allocation thereafter, troll openings in sub-areas 13-7 to 13-10 and 13-27 to 13-32 will follow the gillnet fishery and will start on Friday of each week and end no later than 1700 hours Sundays if a seine fishery is starting at 1800 hours. A three day troll fishery would begin at 0001 (PDT) hours Friday and end at 1700 (PDT) hours Sunday.

In the event that the sockeye run size is upgraded or a revision in catch is made after sockeye has closed, the inside sockeye troll fishery will resume to take any outstanding balance, providing the balance is 10,000 pieces or greater.

AREAS 18 AND 29

Sub-areas 18-1, 18-4, 18-11, 29-1 to 29-4 and 29-6 will be under control of the Fraser River Panel for sockeye and pink fisheries. For the first two weeks of sockeye trolling the Department will request that the Panel opens 18-4 (Pender Bluffs) seven days per week, or until the catch to date by Inside trollers in all areas is in the range of 100,000 to 120,000 sockeye, whichever comes first. Sockeye fishing opportunities in other Panel controlled sub-areas are anticipated in the third and fourth weeks of sockeye trolling, following the net fishery. In the "Banana" area of Area 29, there will be non-retention of chinooks for both commercial and sport fisheries.

GREY AREA - AREA 12 OPENINGS

As of 0001 hours June 28, trolling for chinook and coho only is permitted in sub-areas 12-10 and 12-13 (Deserters Group) seven days per week for both Inside and Outside licensed vessels. Trolling in sub-areas 12-10 and 12-13 will close if the chinook troll catch exceeds 5,000. In all other sub-areas trolling is tied to seine net fishing days and areas. The ribbon boundary is closed to net and troll gear.

Outside licensed trollers may fish the same areas and same days as seiners with non retention of chinook. Inside licensed trollers will start in the same areas with chinook non-retention but will get one extra fishing day per week (the daay after the last seine opening). Fishing time will be less than scheduled in the second week of the sockeye season if the total catch to date in all areas by Inside trollers is in the range of 100,000 to 120,000 sockeye before the week is over. The fishery would close at this catch level, and then resume the following week. When the Outside troll fleet or Inside troll fleet has taken its sockeye allocation there will be no further trolling for that fleet during Area 12 seine openings. Trolling for chinook and coho will still be permitted for both fleets seven days per week in sub-areas 12-10 and 12-13 (Deserters Group) subjeect to allocation and conservation objectives being met.

5.0 ENFORCEMENT

OBSERVE, RECORD AND REPORT 1-800-663-WILD (1-800-663-9453)

Users of the resource have a responsibility to report violators. Anny suspected or actual violations can be quickly and discretely passed on to the appropriate Enforcement Officer by telephoning the toll-free Observe, Record and Report (ORP) number for reporting fisheries, wildlife and pollution violations. Confidentiality is assured.

June 15 - November 30:	24 hour coverage
December 1 - June 14 :	7am - 11pm coverage
	11pm - 7am leave a messaage

APPENDIX 3

INFORMATION BULLETIN:

1991 SALMON TROLL FISHING PLANS

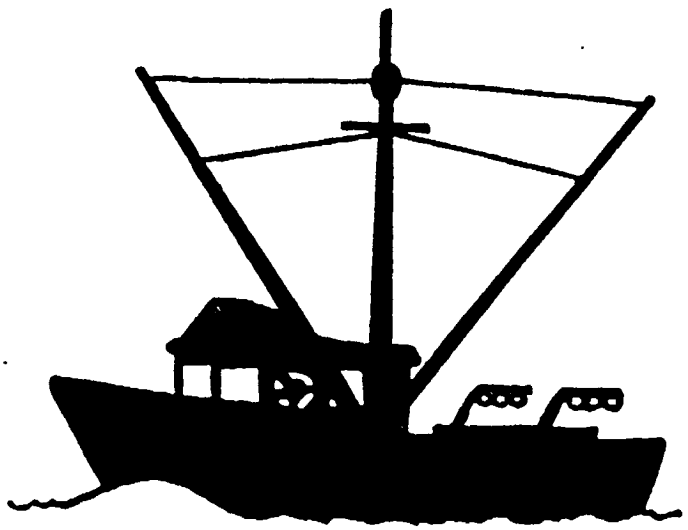
WCVI AND NORTH COAST

Scientific Excellence • Resource Protection & Conservation • Benefits for Canadians
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1991 SALMON TROLL FISHING PLANS

West Coast Vancouver Island and North Coast

June 17, 1991



Fisheries and Oceans Pêches et Océans

Canada

1.0 INTRODUCTION

These fishing plans have been developed through a series of meetings with the Outside Troll Advisory Committee which is composed of representatives of the Northern Trollers Association, the Pacific Trollers Association, the United Fishermen and Allied Workers Union, the Native Brotherhood, Nuu-chah-nulth Tribal Council, and the processing industry.

Catches are limited by Pacific Salmon Treaty quotas, domestic allocations, and stock abundance.

2.0 MANAGEMENT OBJECTIVES

The troll fishing plan for 1991 was developed with consideration of the following objectives.

1. Minimize non-retention fisheries and the impacts of associated mortalities.
2. Minimize the foregone catch of other species while conserving another one.
3. Maintain or increase the economic benefits to the troll fleet under the current limitation.
4. Minimize the disruption of coastal communities, or a specific segment of the fleet.
5. Contribute to the Lower Strait of Georgia chinook conservation program.
6. Manage Northern and Southern areas as a coordinated unit.
7. Maintain manageability and enforceability of the plan.
8. Manage in a manner that fosters a positive relationship with other gear types, and meets long term Pacific Salmon Treaty objectives.
9. Minimize the catch of summer run sockeye so that gillnetters and Indian food fishers who are more dependent on these stocks, can obtain their shares of Fraser River sockeye.

3.0 COASTWIDE HIGHLIGHTS

1. Trolling for chinook, coho, pink and chum will start June 28.
2. Pink salmon non-retention will be in effect in Areas 126-4, 127, 11, 111, 130-1, 130-2, 130-3 and 142-1 and associated inshore areas of 2W (i.e. all sub-areas inside and outside the surf line south of Chads Point) until sockeye opening date. After the sockeye opening date these areas will open to the retention of pink salmon.
3. The coastwide Fraser River sockeye opening will occur when:
   a. The majority of the summer runs have entered the net fishing areas.

   b. Test fisheries off the west coast of Vancouver Island indicate that summer run sockeye abundance is declining and late run sockeye abundance is increasing.

c. Sockeye scale samples (stock identification) indicate that the late run sockeye abundance exceeds summer run abundance.

It is anticipated that the sockeye opening date will be between August 3 to August 10.

4. There will be a coastwide troll closure for Outside troll licence holders for four days immediately prior to the sockeye fishery. The objective is to stop illegal trolling for sockeye. A two day closure at the end of the fishery is also possible if sockeye are still abundant when the troll allocation is reached.
5. Catch-up/make-up for Fraser River sockeye is continuing for a second year. Outside trollers get 237,000 extra sockeye in 1991 to compensate for a 1990 shortfall. Allocation overages and underages in 1991 will be addressed in 1992 and/or later years.
6. Conservation Areas A to E and F2 on the West Coast of Vancouver Island (WCVI) will all open on June 28. Swiftsure Areas S, F1 and G will be closed, but G will open on the sockeye opening date. Area F1 will open after the end of statistical week 7/2 (July 13) if coho catch is below the green line, and there are no major conservation concerns.
7. The chinook size limit is unchanged in 1991, remaining at 67cm measured from the nose to the fork of the tail.
8. Skeena coho returns are a major concern and conservation measures implemented in 1989 and 1990 will be repeated in 1991.
9. The Pacific Salmon Commission negotiated new ceilings this year for North Coast chinook. There are no changes to WCVI chinook and coho ceilings. (See Allocation and Limitations for details).
10. Proposed management actions and catch information will be broadcast to the troll fleet every Thursday with additional reports as required.
11. Recorded phone service for troll information is provided at the following locations.

Vancouver	**666-1506**
Prince Rupert	**627-7447**
Tofino	**725-3245 and 725-3398**

4.0 WEST COAST VANCOUVER ISLAND TROLL FISHING PLAN

4.1 ALLOCATIONS AND LIMITATIONS

CHINOOK

As provided for in the Pacific Salmon Treaty, the 1991 troll ceiling for the West Coast of Vancouver Island is 360,000 chinook (with a 7.5 percent management range) in statistical Areas 21, 23, 24, 25, 26, 27, 121, 123, 124, 125, 126, 127, and 130-1. Troll caught chinook from Area 12 (not to exceed 5,000 fish) will be accounted for within the W.C.V.I. chinook allocation.

The troll management plan has been developed to minimize, where possible, non-retention fisheries and to allow the retention of chinook to about September 21. The management strategy that has been adopted to achieve these goals is the same as that used in 1990 and includes a Red Line, Green Line cumulative catch concept. Red Line and Green Line catch levels (Table 1) signal the need for management interventions to slow down the catch when the Red Line is exceeded and to increase the catch when the Green Line is not reached. Hence, when Red Line catches are exceeded closures will be implemented and when Green Line catches are not achieved any area closures that are in place will be reopened. Boundaries for Conservation Areas A to G and Swiftsure (Area S) remain the same as in 1990 and are shown in Figure 1. The order of opening closed areas in response to the Red Line is as suggested below unless information in-season indicates otherwise.

OPENING SEQUENCE CHINOOK
CONSERVATION ZONES

(1) Area E
(2) Area D
(3) Area C
(4) Area A and B

Notice for area closures will be a minimum of 48 hours while openings may be announced for midnight of the same day.

In 1991 a separate ceiling of 21,000 chinooks is established for Areas 111, 110, 11 and 10. The increase from the 1990 catch ceiling of 19,000 is in keeping with the 1991 increased North Coast allocation. The catch ceiling plus the closure of parts of Areas 10 and 11 shown in Figure 2 addresses the Minister's conservation directive to reduce the harvest rate of Lower Georgia Strait chinook stocks by 20% in the Lower Central Coast Troll Fishery. It should be noted, however, that the ceiling for Areas 111, 110, 11 and 10 is still part of the overall ceiling in the North Coast (Areas 1 to 11). If the catch ceiling is achieved prior to other

allocations being obtained, chinook non-possession and non-retention will be imposed.

COHO

The catch ceiling set for coho caught on the West Coast of Vancouver Island (same statistical Areas as given for chinook above) by the Pacific Salmon Treaty is 1.8 million pieces. Conservation Area F1 (Figure 1) will be closed at the start of the season to prevent an enforcement problem around the seaward boundary of Swiftsure Area S. In addition, this closure helps to eliminate a problem of shaking undersized chinook salmon in this area early in the season. Area F1 will open after Statistical week 7/2 (July 13) if the coho catch is below the Green Line and there are no major conservation concerns. Boundaries for Conservation Areas F1 and F2 remain the same as in 1990.

The Red Line / Green Line management strategy described above for chinook will also be employed for coho to extend the fishing season and to minimize non-retention fisheries and shaker mortality. Conservation Area F2 (Figure 1) and possibly others could be closed should catch proceed at a faster rate than the Red Line. Red and Green Line catch levels specific for coho are shown in Table 2.

The notification time for coho area openings and closures are the same as described above for chinook. Non-retention and non-possession will be implemented if the ceiling is reached.

SOCKEYE

Sockeye allocations are two tiered in 1991. For a base commercial catch of 3.2 million the allocation for Outside Trollers is 10.8%. The allocation for any catch above 3.2 million is 18.5%. Therefore, on the present catch prediction of 7,845,000 sockeye, the Outside Troll share is 1,442,000. This includes a payback of 237,000 in compensation for the 1990 shortfall.

PINK

The pink allocation is 29% of the total commercial catch of southerly migrating stocks. The expected Outside Troll catch is 1,740,000 pieces.

If it appears that the Outside Troll allocation will not be reached, DFO will consider openings in Areas 12 and 20 in order to achieve the allocation.

CHUM

The fishery will be managed to avoid an escalation of chum troll catch.

4.2 ASSUMPTIONS REGARDING ABUNDANCE

CHINOOK

A slight increase in chinook stock abundance over 1990 is anticipated.

COHO

Coho abundance is expected to be less than in 1990.

SOCKEYE

The Canadian commercial catch is predicted to be 7.845 million with a total run size of 14.5 million.

PINK

A run of 11.0 million Fraser River pink salmon is predicted for 1991 and the expected Canadian commercial catch of Fraser River pink salmon is 4.3 million. In addition, there is a significant commerical catch of other stocks and a 6 million total catch of Southern-bound pinks is anticipated.

CHUM

A small surplus return to Nitinat is expected, but most WCVI stocks are not expected to reach escapement goals.

4.3 PLAN DETAILS

CHINOOK, COHO, AND CHUM

OUTSIDE SURFLINE (Areas 121 to 127, 130-1 and 111)

On June 28, 1991 at 0001 (PDT) hours, the following management areas will be open until further notice to commercial salmon trolling for chinook, coho, and chum:

> **Areas 121 to 127 inclusive, 130-1, and 111. In addition, Conservation Areas A through E and F2 will be open at the start of the season, but Swiftsure Areas S, F1 and G will be closed (See Figure 1.) Conservation Areas are defined as being the area within the position coordinates denoted below.**

COORDINATE NUMBER	LORAN-C		LATITUDE (Degrees, Minutes)	LONGITUDE
Conservation Area B (Swiftsure)				
14	5990-Y-28960	5990-Z-41780	48°34.34'N	125°05.90'W
15	5990-Y-28960	5990-Z-41810	48°36.13'N	124°58.98'W
16	5990-Y-28904	5990-Z-41810	48°29.30'N	124°58.00'W
17	5990-Y-28875	5990-Z-41870	48°29.62'N	124°43.40'W
(Intersection of Bonilla-Tatoosh Line and Canada-U.S. Boundary)				
Conservation Area G (Swiftsure)				
15	5990-Y-28960	5990-Z-41810	48°36.13'N	124°58.98'W
18	Loran-C Line	5990-Y-28960 and Dare Point		
17	5990-Y-28875	5990-Z-41870	48°29.62'N	124°43.40'W
19	Bonilla Point Navigation Light			

In the event that catches exceed Red Line levels (Table 1), closures of one or more of the following Chinook Conservation Areas will be implemented (See Figure 1).

COORDINATE NUMBER	LORAN-C		LATITUDE (Degrees,	LONGITUDE Minutes)
Conservation Area A				
7	5990-Y-29090	5990-Z-41570	48°39.25'N	125°57.20'W
8	5990-Y-29090	5990-Z-41650	48°43.68'N	125°37.62'W
9	5990-Y-28980	5990-Z-41650	48°28.70'N	125°37.72'W
10	5990-Y-28990	5990-Z-41680	48°32.00'N	125°30.10'W
Conservation Area B				
7	5990-Y-29090	5990-Z-41570	48°39.25'N	125°57.20'W
8	5990-Y-29090	5990-Z-41650	48°43.68'N	125°37.62'W
11	5990-Y-29000	5990-Z-41600	48°28.13'N	125°50.65'W
12	5990-Y-28960	5990-Z-41660	48°26.62'N	125°35.20'W
13	5990-Y-28960	5990-Z-41740	48°31.85'N	125°15.30'W
Conservation Area C				
5	5990-Y-29140	5990-Z-41550	48°45.30'N	126°01.50'W
6	5990-Y-29140	5990-Z-41630	48°49.43'N	125°41.90'W
7	5990-Y-29090	5990-Z-41570	48°39.25'N	125°57.20'W
8	5990-Y-29090	5990-Z-41650	48°43.68'N	125°37.62'W
Conservation Area D				
3	5990-Y-29200	5990-Z-41530	48°52.85'N	126°05.30'W

4	5990-Y-29200	5990-Z-41610	48°56.60'N	125°46.22'W
5	5990-Y-29140	5990-Z-41550	48°45.30'N	126°01.50'W
6	5990-Y-29140	5990-Z-41630	48°49.43'N	125°41.90'W

Conservation Area E

1	5990-Y-29260	5990-Z-41530	49°01.34'N	126°04.05'W
2	5990-Y-29260	5990-Z-41580	49°03.39'N	125°52.55'W
3	5990-Y-29200	5990-Z-41530	48°52.85'N	126°05.30'W
4	5990-Y-29200	5990-Z-41610	48°56.60'N	125°46.22'W

The area below what is known as the "960 Line" is divided into two Conservation Areas, F1 and F2 (See Figure 1). F1 and F2 are defined as:

COORDINATE NUMBER	LORAN-C		LATITUDE (Degrees, Minutes)	LONGITUDE

Conservation Area F1

13	5990-Y-28960	5990-Z-41740	48°31.85'N	125°15.30'W
14	5990-Y-28960	5990-Z-41780	48°34.34'N	125°05.90'W
16	5990-Y-28904	5990-Z-41810	48°29.30'N	124°58.00'W
22	5990-Y-28899	5990-Z-41740	48°23.88'N	125°14.85'W

NOTE: Area F1 will be closed at the beginning of the season.

Conservation Area F2

Defined as that area to the SE of Loran-C line 5990-Y-28960.

13	5990-Y-28960	5990-Z-41740	48°31.85'N	125°15.30'W
20	5990-Y-28960	5990-Z-41530	48°16.75'N	126°11.55'W
21	5990-Y-28868	5990-Z-41530	48°01.62'N	126°14.60'W
22	5990-Y-28899	5990-Z-41740	48°23.88'N	125°14.85'W

NOTE: Area F2 will be open at the beginning of the season.

INSIDE SURFLINE (Areas 21 and 23 to 27, Area 11 and 12)

On June 28, 1991 at 0001 hours, the following areas will open to trolling for chinook, coho,pink and chum salmon, with some exceptions, as follows:

Area 21 - Remains closed to trolling.

Area 23 - All sub-areas open, except 23-1 and 23-2 which remain closed until further notice.

Area 24 - All sub-areas open until August 1 when only 24-2, 24-6 and 24-8 will remain open.

Area 25 - Remains closed to trolling.

Area 26 - All sub-areas closed to trolling, except 26-11 (season starts with non-retention of pinks in effect).

Area 27 - Open with non-retention of pinks in effect, except for sub-areas 27-7, 27-8, 27-9, 27-10, and 27-11 that are closed. Effective August 1, all of Area 27 closed to trolling.

Area 11 - The following portions of Area 10 and 11 will be open to trolling for chinook, coho, pink and chum (see Figure 2):

(a) Those portions of sub-areas 10-1 and 10-2 lying north of a line due west from Bay Point to the surf line.

(b) Sub-area 11-1 and the portion of 11-2 lying west of a line from the northwest corner of sub-area 11-2 to Pine Island then to Bright Island in the Buckle Group, then to the mainland following the Area 11 and 12 boundaries.

GREY AREA (Area 12)

Area 12 - As of June 28, 0001 (PDT) hours:

1. (a) Trolling for chinook and coho only is permitted in sub-areas 12-10 and 12-13 (Deserters group) 7 days/week for both inside and outside licensed vessels. Trolling in these sub-areas will close if the chinook troll catch exceeds 5,000.

   (b) In all other sub-areas trolling by Outside licence holders is tied to seine fishing days and areas with non retention of chinook salmon. The ribbon boundary is closed to net and troll gear.

2. When the outside troll fleet has taken its sockeye allocation, there will be no further trolling during Area 12 seine openings. However, if pink catches are low with respect to allocation, Area 12 may open to attain the remainder of the pink allocation. Trolling for chinook and coho will still be permitted in the Deserters group, subject to allocation and conservation objectives being met.

SOCKEYE

The coastwide Fraser River sockeye opening will occur when:

a) The majority of the summer runs have entered the net fishing areas.
b) Test fisheries off the west coast of Vancouver Island indicate that summer run sockeye abundance is declining and late run sockeye abundance is increasing.
c) Sockeye scale samples (stock identification) indicate that the late run sockeye abundance exceeds summer run abundance.

It is anticipated that the sockeye opening date will be between August 3 and August 10. Prior to this opening sockeye non-retention and non-possession will be in effect. There will be a coastwide troll closure for Outside troll licence holders for four days immediately prior to the sockeye fishery. The objective is to stop illegal trolling for sockeye.

Once the sockeye allocation has been achieved a non-retention and non-possession fishery will be implemented if the abundance of sockeye is low. If abundance is high extensive area closures and/or a two day coastwide troll closure are possibilities. Final decisions will be made following in-season consultation with Outside Troll Advisors.

In the event that the sockeye run size is upgraded after sockeye trolling is closed, the outside troll fishery will reopen for sockeye to attain the adjusted troll allocation by the following procedure:

(1) When a catch estimate revision or an upgrade in run size results in a 5% (72,000 sockeye) or greater increase to the outside troll allowable catch, retention of sockeye will resume to attain the outstanding balance.
(2) Retention and possession of sockeye will be permitted within all outside areas.
(3) Management Areas 12, and Area G will open if required. Area 12 would open 7 days per week and D.F.O. would request the Fraser River Panel to open Areas 20-1, 20-3 and 20-4 to trolling at separate times from purse seine times.
(4) An Area 13 opening will be considered outside of net fishing times.
(5) Openings will be given a minimum of 24 hours notice and closures could be as early as midnight of the same day.

PINK

On June 28, 1991 at 0001 (PDT) hours, areas 121 to 125 inclusive and Area 126-1, 126-2 and 126-3 will open until further notice to commercial salmon trolling for pink salmon. The majority of South

Coast Study Area pink salmon stocks are not predicted to return in sufficient strength to support a fishery. Therefore, the following actions will be taken for the conservation of these stocks:

Areas 142-1, and associated inshore areas (This closes all 2W subareas to the retention of pinks inside and outside the Surf line south of Chads Point); 130 (all subareas), 127 (all subareas), 26-11, 126-4, 111 and 11 will be closed to the retention of pink salmon until the troll fishery for Fraser River sockeye starts.

During and after the troll fishery for sockeye there will be no prohibitions on pink retention, and if it appears that the troll allocation cannot be caught in outside waters, D.F.O. will consider openings in Area 20 (subject to Fraser River Panel approval), and in Area 12, in order to achieve the allocation.

TABLE 1. CHINOOK TROLL RED AND GREEN LINE CATCHES FOR WCVI IN 1991

STATISTICAL WEEK	RED LINE CATCHES	GREEN LINE CATCHES
6/4	21,816	10,504
7/1	162,868	95,653
7/2	203,378	130,028
7/3	247,887	172,261
7/4	280,275	211,435
7/5	308,920	242,723
8/1	326,575	267,197
8/2	345,402	300,209
8/3	356,375	328,962
8/4	373,254	358,617
9/1	378,520	371,025
9/2	384,748	380,920
9/3	387,000	387,000

TABLE 2. COHO TROLL RED AND GREEN LINE CATCHES FOR WCVI IN 1991

STATISTICAL WEEK	RED LINE CATCHES	GREEN LINE CATCHES
6/4	72,623	34,967
7/1	616,010	361,784
7/2	812,085	519,202
7/3	1,013,998	704,643
7/4	1,189,562	897,389
7/5	1,354,229	1,064,037
8/1	1,437,872	1,176,441
8/2	1,531,668	1,331,263
8/3	1,631,648	1,506,137
8/4	1,742,621	1,674,283
9/1	1,760,425	1,725,565
9/2	1,793,085	1,775,244
9/3	1,800,000	1,800,000

5.0 NORTH COAST TROLL FISHING PLAN

5.1 ALLOCATIONS AND LIMITATIONS

SOCKEYE

The Outside troll catch ceiling is 5% of the Areas 1, 3, 4 and 5 all-gear, non-Fraser sockeye catch.

The North Coast troll catch of Fraser sockeye is included as part of the coastwide outside troll allocation. For 1991 this is calculated as 10.8% of the base catch of 3.2 million, and 18.5% of the incremental catch above the base level. The estimated commercial catch is expected to be 7,845,000, of which the estimated catch share for the outside troll sector is 1,442,000.

COHO

There is no Pacific Salmon Treaty limit in the North Coast.

The Skeena coho conservation actions implemented in 1989 and 1990 are again required in 1991.

PINK

The North Coast, Area 2 through 10 troll pink catch allocation will be 4% of the Area 2 through 10 all gear pink catch.

A four year, Area 1 pink troll arrangement has been negotiated for the period 1990-1993 as part of the Pacific Salmon Treaty.

The treaty arrangements are as follows:

A) In any one year the A-B line strip will close to pink trolling when the catch in that area reaches 300,000 or by July 22 whichever comes first.

B) The total four year Area 1 pink troll catch shall not exceed 5.125 million.

C) In any one year the Area 1 pink troll catch shall not exceed 1.95 million.

D) At the end of the four year period any underages up to a maximum of 1.025 million, and any overages will be made up in the subsequent four year period.

CHUM

No escalation of harvest rates by the troll fleet.

CHINOOK

The 1991 Pacific Salmon Treaty limits the North Coast all gear catch of chinook to 263,000, plus an additional allocation of 10,000 negotiated for 1991, plus the underage of 7,300 carried forward from 1990, for a total of 280,300. The 1991 troll catch ceiling is a combination of the 186,000 base ceiling, plus the underage of 7,300 from 1990, plus the 10,000 additional fish for a total 203,300 chinook.

The Area 10, 11, 110 and 111 total chinook troll catch is limited to 21,000 as part of lower Georgia Strait chinook conservation measures (the 21,000 is part of the North Coast troll ceiling of 203,300).

5.2 ASSUMPTIONS REGARDING ABUNDANCE

SOCKEYE

Areas 1, 3, 4 & 5 all gear catch is expected to be 1.2 million.

COHO

Skeena coho returns are expected to be extremely low. The 1988 brood year escapement was very poor.

PINK

The Skeena and Nass pink returns are expected to be very strong, based on the very large 1989 escapements.

The total Area 2 through 10 all gear catch of pink is projected to be 6.5 million with about 75% of this expected to be taken in the Skeena/Nass area.

CHUM

Chum abundance is expected to be average.

CHINOOK

Chinook abundance is projected to be similar to the past four years (1987 through 1990).

5.3 PLAN DETAILS

The following management areas will open to commercial trolling for coho, pink, chum and chinook salmon 0001 hrs, June 28, 1991. (The times and areas of the sockeye openings are outlined in the section titled EARLY SOCKEYE OPENINGS):

OUTSIDE SURFLINE - Areas 101 to 110, 130-2, 130-3 and 142

INSIDE SURFLINE

Area	Sub-areas open
1	1-1, 1-2, 1-3, 1-5 and 1-7.
2E	All sub-areas.
2W	All sub-areas.
3	3-1.
4	None.
5	All sub-areas.
6	6-9, 6-11, 6-13, 6-17 and that portion of 6-10 seaward of a line from Mcphee Point on Princess Royal Island to the southern tip of Campania Island.
7	7-1, 7-2, 7-18, 7-19, 7-20, 7-23, 7-25 7-26, 7-27 7-31 and 7-32.
8	8-1
9	None.
10	Those portions of sub-area 10-1 and 10-2 lying north of a line due west from Bay Point to the surfline.

EARLY SOCKEYE OPENINGS

The following portion of Dixon Entrance and Hecate Strait will open 0001 hrs, June 28 to sockeye troll fishing 7 days/week until further notice (See Figure 3):

Outside surfline - Areas 101, 102-1, 103, 104 and 105.
Inside Surfline - Area 1 (sub-areas 1-1, 1-2, 1-3, 1-5 and 1-7 only), Area 3 (sub-area 3-1 only) and Area 5 (all sub-areas).

These northern sockeye fishing areas will close to the retention and possession of sockeye if the areas 1, 3, 4 and 5 troll sockeye ceiling is reached, or by 2359 hours July 18, whichever occurs first. In addition, areas 1 to 10 will be open to sockeye trolling during net times and areas from 0001 hrs, June 28 until 2359 hours

July 18 when there will be non-retention and non-possession until the coastwide opening for Fraser River sockeye.

These measures are considered necessary to support coastwide enforcement of sockeye non-retention and non-possession during the period prior to the coastwide Fraser sockeye opening.

COASTWIDE FRASER SOCKEYE OPENING

North Coast troll areas will open for sockeye trolling as part of the coastwide Fraser sockeye openings. Please see the South Coast sockeye plan for further details of the coastwide sockeye opening.

The outside portions of Area 2W (as defined in the chinook section of this plan, and outlined in Figure 4) and sub-areas 130-2 and 130-3 will close to all trolling once the coastwide Fraser sockeye allocation is reached. If a Fraser sockeye restart is required, North Coast areas will be included.

COHO

There are serious concerns for the conservation of Skeena coho. The conservation measures implemented in 1989 and 1990 are also required for 1991. Accordingly, Area 4 inside the surfline will be closed to trolling except during net fishing times in net fishing areas (See Figure 5). If the troll fishery extends past August 25 sub-areas 4-1, 4-2, 4-3, 4-4, and 4-13 (and possibly other sub-areas) will reopen to trolling.

In addition, a two week closure will be implemented in that portion of Areas 102-1 and 104 North of 54 degrees (Figure 5). If the boundary area that divides 101-10 and 104 causes significant enforcement problems the closed area will be expanded to include that portion of 101-10 East of 131 degrees 40 minutes (this is the North-South line running through the Rose Spit red can buoy).

The first day of the coho closure will be coincident with the first day of the coastwide four day troll closure, or August 4, whichever comes first, and will last for fourteen (14) days.

In 1990, fall coho fishing opportunities were provided because of high coho abundance. If this abundance is indicated in 1991, similar opportunities will again be provided. If non-retention and non-possession of chinook is implemented prior to August 25, then the following closure to trolling will be implemented 0001 August 25 to reduce chinook shaker problems. The intent of this closure is to enhance the opportunity to fish coho in September, although the continuation of this fishery will be dependant on coho abundance.

The areas closed to trolling will include: that portion of 101-10 East of Rose Point, 102-1 North of 54 degrees, Area 104, and Area

105-1 (see Figure 6). If in-season information suggests that the relative abundances of coho and chinook in area 105-1 will permit the fishery to continue, then consideration will be given to adjusting the closed area.

PINK

Area 1 Pacific Salmon Treaty Pink Troll Arrangement:

In order to comply with the Pacific Salmon Treaty arrangements for 1991 the following management actions will be taken:

1) When the pink salmon troll catch in subareas 101-4, 101-8 and 101-3 North of 54 degrees 37 minutes and in 103 North of 54 degrees 37 minutes reaches 300,000 or at 2359 hrs, July 22 (whichever comes first) these areas will close to retention of pink. (Figure 7). The area will revert to non-possession and non-retention of pink if there are any abuses.

2) The Area 1 pink troll catch shall not exceed 1.95 million.

Every attempt will be made to co-ordinate pink troll closures (if necessary) with sockeye and chinook management actions.

Other Pink Considerations:

The majority of South Coast Study Area pink salmon stocks are not predicted to return in sufficient strength to support a fishery. Therefore, the following actions will be taken for the conservation of these stocks.

Areas 142-1, and associated inshore areas (This closes all 2W subareas to the retention of pinks inside and outside the Surf line south of Chads Point); 130 (all subareas), 127 (all subareas), 126-4, 111 and 11 will be closed to the retention of pink salmon until the troll fishery for Fraser River sockeye starts.

In addition, all North Coast areas, except area 1, will close to trolling for pink if the troll catch of pink reaches 4% of the total all gear pink catch. If this closure occurs prior to the coastwide Fraser sockeye opening, the 2W outside areas and area 130-2 and 130-3 will reopen to pink trolling when the coastwide Fraser sockeye fishery occurs.

CHUM

No restrictions are anticipated. This does not preclude inseason measures if unexpected conservation or allocation issues arise.

CHINOOK

The management intent for the North coast troll fishery is to maintain the quality and economic base of the fishery and the opportunity to extend the season to harvest other species while minimizing shakers and the need for chinook offloading. It is again proposed to implement Red Line closures when in-season catches reach prescribed levels. Red line closures will not be implemented before the end of the period of trolling for Fraser sockeye.

In-season decision points have been established that will trigger a major troll closure to slow the chinook catch. In 1991, the following area closure (see Figure 4) will be implemented when the Red Line values are reached.

The following points define the outside boundary of the closed area depicted in Figure 4:

		LATITUDE (Degrees, Minutes)	LONGITUDE
1)	Commencing at Cape Naden		
2)	thence true North for approx. 6 miles to	54°13.20'N	132°35.00'W
3)	thence 276° true for approx. 12 miles to	54°14.20'N	132°55.00'W
4)	thence 326° true for approx. 2.9 miles to	54°17.00'N	132°57.80'W
5)	thence true west for approx. 8 miles to	54°17.00'N	133°13.40'W
6)	thence 218° true for approx. 21.4 miles to	54°00.00'N (Approx. 15.7 miles W of White Pt)	133°33.50'W
7)	thence 145° true for approx. 23.3 miles to	53°41.60'N (Approx. 6 miles W of Louis Rock)	133°11.70'W
8)	thence 153° true for approx. 25 miles to Pt)	53°19.00'N (Approx. 4 miles W of Kindakun	132°52.90'W

9) thence 149° true for approx. 15.5 miles to — 53°05.60'N 132°39.60'W (Approx. 3 miles W of Buck Pt)

10) thence 146° true for approx. 22 miles to — 52°48.20'N 132°19.00'W (Approx. 3 miles W of Chads Pt)

11) thence 139° true for approx. 32.1 miles to — 52°24.00'N131°43.50'W (Approx. 5 miles W of Gowgaia Pt light)

12) thence 143° true for approx. 35 miles to a point at the interception of the area 130-3 boundary, 4.7 miles true W of Cape St. James Lighthouse.

North Coast Red Line Structure:

After the Fraser sockeye troll fishery, Redline closures will be implemented when the North Coast chinook catch reaches 185000, if this occurs before August 15.

After Aug. 15, closures would only be implemented if required to offer an extended season without chinook shaking.

Lower Georgia Strait Conservation Measures:

As outlined in the South Coast plan, the following portions of Areas 10 and 11 will be open to trolling for the season (See Figure 2):

1) Those portions of sub-areas 10-1 and 10-2 lying north of a line due West from Bay Point to the Surfline.

2) Sub-area 11-1 and the portion of 11-2 lying west of a line from the northwest corner of sub-area 11-2, to Pine Island, to Bright Island in the Buckle Group, then to the mainland following the Area 11 and 12 boundary.

In addition, the Area 10, 11, 110 and 111 total troll chinook catch is limited to 21,000. The 21,000 is part of the North Coast troll ceiling of 203,300. If the 21,000 ceiling or the North Coast 203,300 troll ceiling is reached, non-retention and non-possession of chinook will be in effect in these areas.

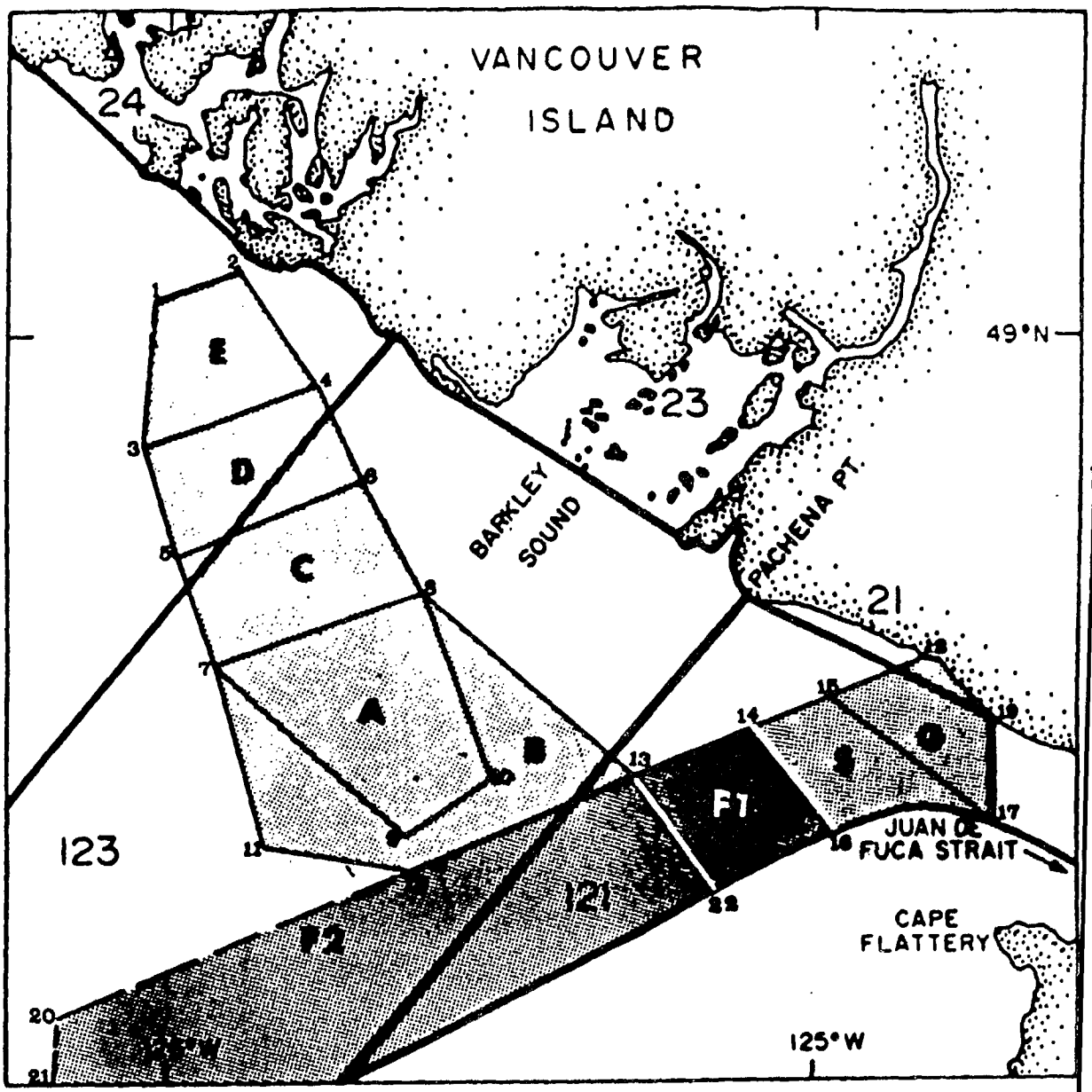
6.0 ENFORCEMENT

OBSERVE, RECORD AND REPORT 1-800-663-WILD (1-800-663-9453)

Users of the resource have a responsibility to report violators. Any suspected or actual violations can be quickly and discretely passed on to the appropriate Enforcement Officer by telephoning the toll-free Observe, Record and Report (ORP) number for reporting fisheries, wildlife and pollution violations. Confidentiality is assured.

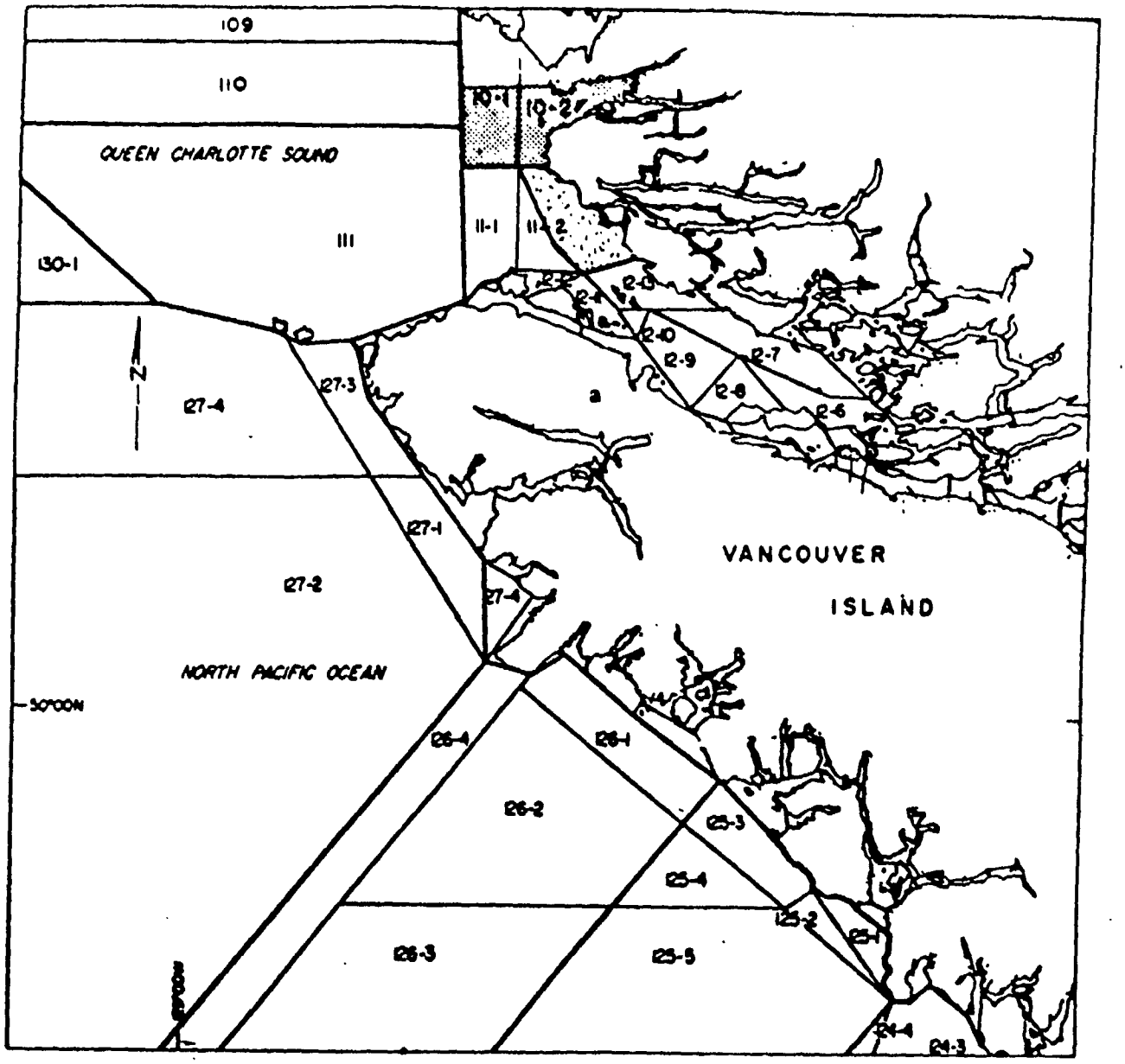
June 15 - November 30:	24 hour coverage
December 1 - June 14:	7am - 11pm coverage
	11pm - 7am leave a message

FIGURE 1. 1991 CONSERVATION AREAS



Conservation Area A
Conservation Area B
Conservation Area C
Conservation Area D
Conservation Area E
Conservation Area F1
Conservation Area F2
Conservation Area G
Swiftsure Bank S

Figure 2. Area 10 and 11 closures.



NOTE: The shaded area shows the closed portion of Areas 10 and 11. These areas are closed for the conservation of Lower Georgia Strait chinook. A catch ceiling of 21,000 is in effect in 1991 for Areas 111, 110, 11 and 10.

Figure 3 North Coast early sockeye troll boundaries.

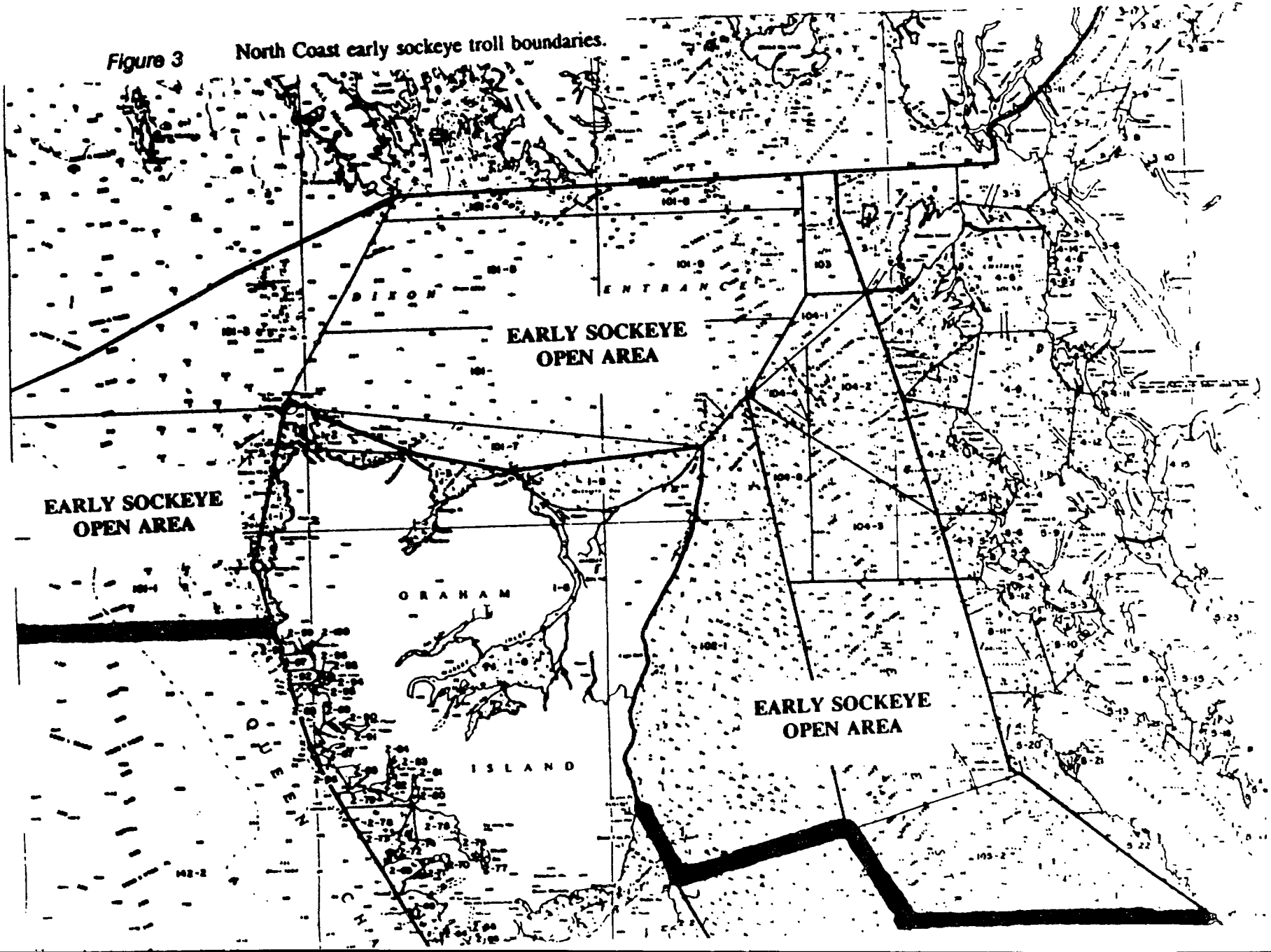
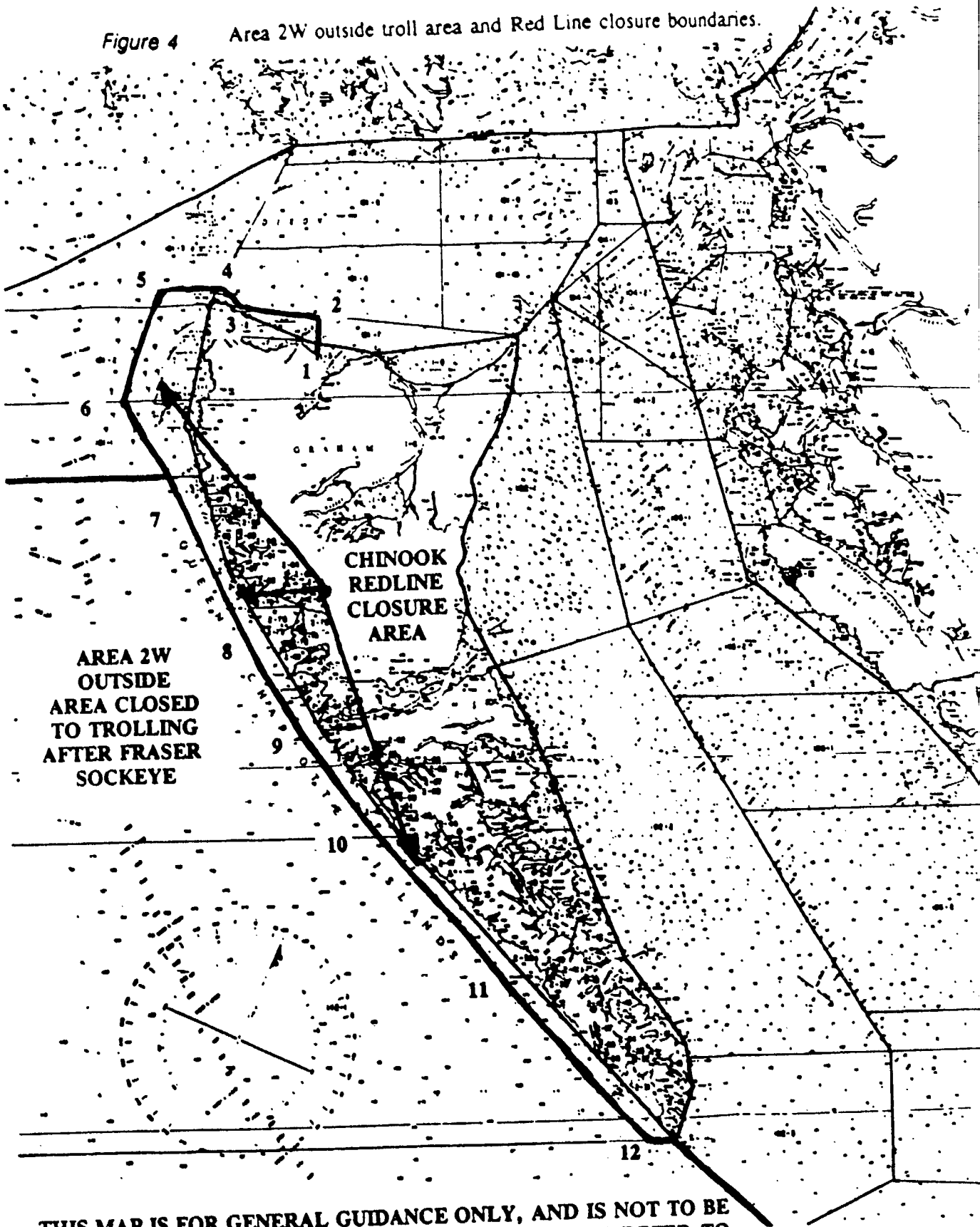
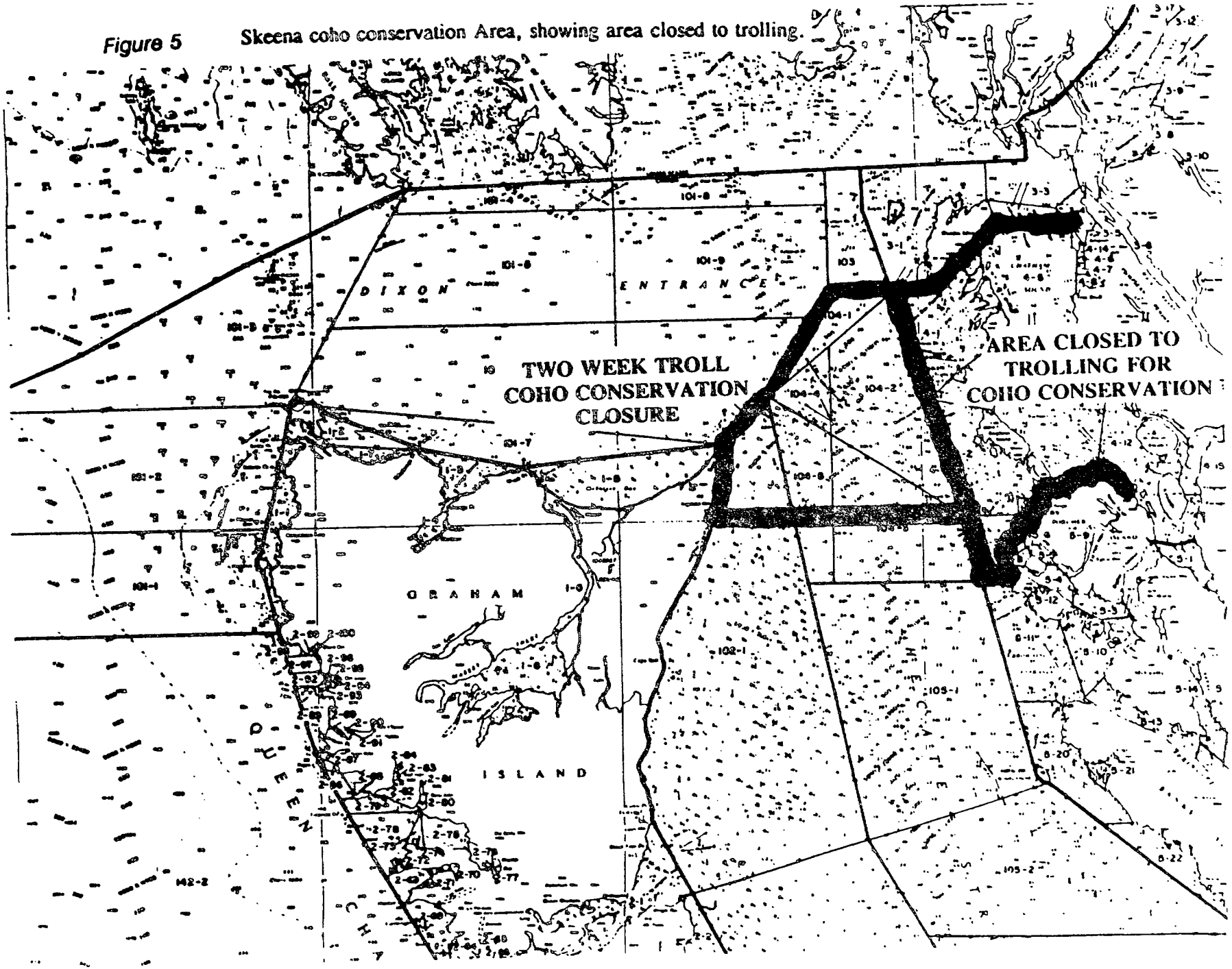


Figure 4 Area 2W outside troll area and Red Line closure boundaries.



THIS MAP IS FOR GENERAL GUIDANCE ONLY, AND IS NOT TO BE USED FOR LEGAL BOUNDARY DEFINITION. PLEASE REFER TO FORMAL WRITTEN DESCRIPTIONS THE TROLL PLAN.

Figure 5 Skeena coho conservation Area, showing area closed to trolling.



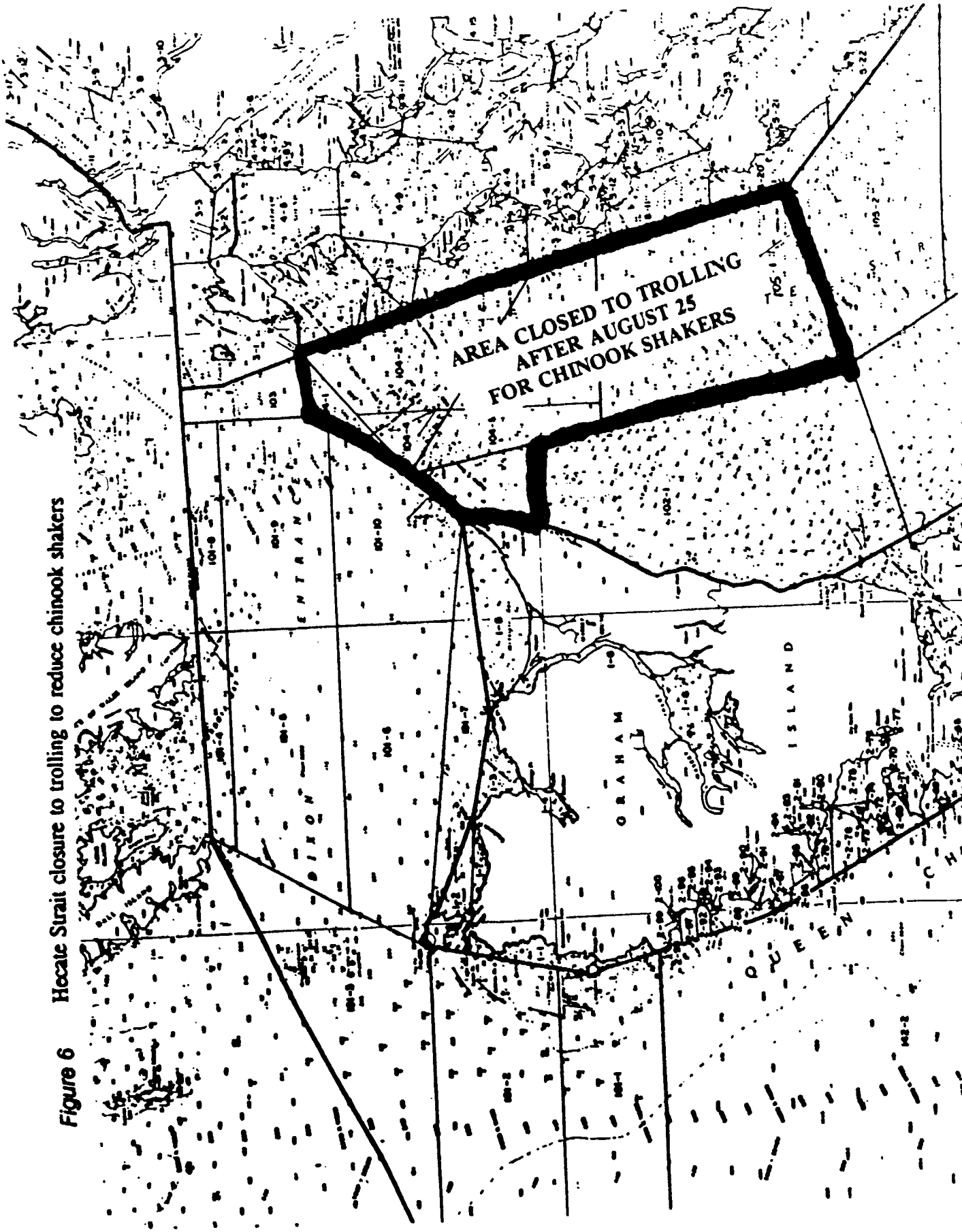


Figure 6 Hecate Strait closure to trolling to reduce chinook shakers

Figure 7 **Area 1 Pink Troll sub-areas relevant to Pacific Salmon Treaty.**

