Prince William Sound Drift Gillnet Salmon Fishery
Optimum Numbers Study

CFEC Report Number 26-06N
September 2026

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Abstract

This report informs potential regulatory adjustments intended to support the long-term economic and resource sustainability of the Prince William Sound drift gillnet salmon fishery. It estimates the optimum number of drift gillnet permits that can participate while allowing fishermen a reasonable opportunity to earn returns to their labor, management, and investment (RLMI).

To estimate the economic optimum number, CFEC surveyed members of the drift gillnet fleet regarding operating costs, quantified fishery revenues, and estimated capital costs using vessel and permit values. The economic optimum number is defined as the range of permit participation at which 25 to 75 percent of participants are expected to earn returns to labor, management, and investment comparable to the median income in the Chugach Census Area, where the fishery occurs. The management optimum number is defined as the number of permits that the Alaska Department of Fish and Game can reasonably expect to manage.

There are currently 535 permits issued for the Prince William Sound drift gillnet fishery. The optimum number of participating permits in the Prince William Sound drift gillnet salmon fishery is estimated to be between 400 and 470 permits.

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1.0 Introduction

At the December 2024 Prince William Sound (PWS) Board of Fisheries (BOF) meeting, several proposals were considered that would have allowed some form of dual or stacked permit operation in the PWS drift gillnet fishery. As presented by the proposers, these measures were intended to reduce permit latency and improve the economic viability of the fishery. After substantial discussion, none of the proposals passed. Individuals interested in the details of those proceedings should consult the publicly available BOF meeting materials and related documents[1].

Following the meeting, several permit holders suggested that the Commercial Fisheries Entry Commission (CFEC) conduct an optimum numbers study for the Prince William Sound drift gillnet fishery. On January 28, 2025, CFEC received an official petition requesting such a study, attached to this report as Appendix A. In addition to the formal petition, CFEC received numerous phone calls and emails from permit holders expressing support for further review of participation levels and the fishery's economic condition.

An optimum numbers study evaluates participation in a limited entry fishery considering the statutory standards governing economic health, resource management needs, and the avoidance of serious economic hardship[2]. At its core, such a study examines whether the current level of participation is consistent with an economically viable fishery while still maintaining appropriate levels of participation necessary for sound resource management and sustained use of the resource. Depending on the fishery, that analysis may suggest that economic viability and resource sustainability could be improved through either an increase or a decrease in participation.

CFEC has long maintained detailed information on participation and gross earnings in Alaska fisheries. Gross earnings data, however, do not by themselves provide a sufficient basis for evaluating economic viability. A meaningful review of viability must also account for the costs incurred by permit holders in order to participate in the fishery. For that reason, cost information is a necessary component of any net earnings analysis and, by extension, any serious optimum numbers review.

An essential part of cost information is capital costs. Fishing operations, like any business, require capital. In fishing activities, the majority of that capital is comprised of vessels and permits. The cost of gear is not included as a capital cost in this study and is instead included as a maintenance cost, as nets are often used up completely and replaced, unlike vessels and permits.

In February 2025, CFEC began collecting participation cost information through an email survey of Prince William Sound drift gillnet permit holders. This survey was the third effort of its kind conducted by CFEC in recent years and was also intended to help inform the design of future cost surveys[3]. The survey was intentionally brief to encourage broad participation, and it focused on the principal categories of cost faced by permit holders. It was not designed to obtain highly detailed financial records or other high-resolution economic data, which are often both confidential and sensitive. Rather, its purpose was to identify broad cost structures that, when combined with gross earnings information already maintained by CFEC, can help support future evaluation of net earnings and economic viability in the fishery.

This report provides a summary of the survey responses received from Prince William Sound drift gillnet permit holders, reviews recent gross earnings information from the fishery, and then uses the survey data, gross earnings, CFEC information on permit and vessel values, and vendor survey data to develop a complete picture

[1] *Alaska Department of Fish and Game* (2024) www.adfg.alaska.gov
[2] AS 16.43.290
[3] Kohlhase. *Prince William Sound Drift Gillnet Cost Survey Results*, CFEC (2025)

of the returns realized by individual respondents to management, labor, and capital investment. The report then compares returns to management, labor, and investment (RMLI) to the area's median income and scales revenue to participation with the assumption that costs scale with revenue and that revenue is scaled inversely with the number of participants, keeping each respondent's proportional earnings consistent.

Economic optimum numbers are not the only numbers that matter. This report also relies on guidance from the Alaska Department of Fish and Game (ADF&G) regarding the number of permits under which the fishery can be successfully managed. Setting the optimum number either too low or too high can undermine effective fishery prosecution.

The number of permits must be sufficient to ensure that the resource is adequately harvested, particularly in salmon fisheries, where substantial over-escapement can be detrimental to the resource by saturating spawning habitat or producing runs so large that future population stability is reduced. At the same time, the number of permits must not be so great that harvest pressure risks reducing escapement below levels needed to sustain future production.

Accordingly, this report recommends an optimum number of permits that reflects both economic and management considerations.

2.0 Optimum Numbers Overview

In 1973, the Alaska Legislature passed the state's Limited Entry Act, establishing the Commercial Fisheries Entry Commission (CFEC). This quasi-judicial body is charged with the implementation and management of open access and limited entry permits in Alaskan fisheries. Limited entry is intended to promote the conservative and sustained use of Alaska's fishery resources while also preserving the economic health and stability of the commercial fishing industry through regulation of participation in a manner consistent with public interest and without unjust discrimination[4].

The Limited Entry Act establishes a two-step approach to limiting participation in a fishery. First, upon receiving a petition, the CFEC determines whether limitation is warranted and establishes a maximum number of permits. That initial maximum generally reflects recent peak participation prior to limitation and is not necessarily intended to be permanent. Secondly, after limitation, the CFEC determines the optimum number of entry permits, which may be lower or higher than the initial maximum, depending on the circumstances of the fishery. In distressed fisheries, it was generally expected that the optimum number would often be lower than the maximum number initially issued[5].

The statutory basis for optimum numbers appears in Alaska Statute (AS) 16.43.290. Under this provision, following initial issuance of limited entry permits, the Commission is to establish the optimum number of limited entry permits for each fishery based upon a reasonable balance of three general standards:

1. The number of permits sufficient to maintain an economically healthy fishery that will result in a reasonable average rate of economic return to participating fishermen, considering time fished and necessary investments in vessels and gear;
2. The number of permits necessary to harvest the allowable catch in a manner consistent with sound fishery management techniques; and
3. The number of permits sufficient to avoid serious economic hardship to those currently engaged in the fishery, considering other economic opportunities reasonably available to them.

Central to this analysis is the statutory concept of an "economically healthy fishery." Under AS 16.43.990(2), such a fishery is one that "yields a sufficient rate of economic return to participating fishermen to provide for, among other things,… (A) maintenance of vessels and gear in satisfactory and safe operating condition; and (B) [the] ability and opportunity to improve vessels, gear, and fishing techniques…" Neither the statutes nor the regulations define with precision what constitutes a "reasonable" return or "serious economic hardship."

[4] AS 16.43.010(a)
[5] Rickey and Adasiak. *1976 Annual Report*, CFEC (1977)

As a practical matter, those concepts must be evaluated fishery by fishery. What is reasonable in one fishery may not be reasonable in another, and the CFEC has historically treated those questions as dependent on the specific characteristics of the fishery under review[6].

History shows that the process of determining optimum numbers has moved much slower than was initially expected after the passage of the Limited Entry Act. Following enactment of the Act, there was an expectation that optimum numbers would be identified soon after initial permit issuance and that buyback programs might be used where appropriate to reduce fleets. The Commission's early annual reports reflected that expectation, and economic analysis of operating costs and net earnings were undertaken in support of those efforts. ADF&G management biologists were also asked to provide estimates of harvest efforts needed, relevant to the management standard. In practice, however, the initial adjudication and issuance of permits proved far more complex and time-consuming than expected, slowing further action on optimum numbers[7].

At the same time, important changes were occurring in Alaskan fisheries. The adoption of limited entry, together with the Fisheries Management and Conservation Act of 1976 and later increases in salmon hatchery production, contributed to major changes in economic conditions in many salmon fisheries. As returns improved, permit values rose, and legislative concerns increasingly focused not only on economic distress but also on the cost of entry as a barrier for younger fishermen, and the possibility that limited entry could become overly exclusive.

These issues became even more significant after legal and constitutional concerns were raised regarding permit buyback mechanisms and the broader structure of limited entry. The Alaska Supreme Court's decision in *Johns v. CFEC* (1988) emphasized that limited entry must remain tied to its constitutional purposes: conservation and prevention of economic distress. The court's reasoning underscored that optimum numbers are not merely optional housekeeping devices, but an important part of keeping the limited entry system aligned with constitutional requirements. It was also made clear that preserving permit values for existing limited entry permit holders is not a sufficient basis for maintaining a lower number of permits[8].

Accordingly, the optimum number of permits is not necessarily fixed. If the underlying fishery changes materially, CFEC may undertake a new optimum numbers study to determine whether the previously established range remains appropriate. That point is especially important in fisheries where biological productivity, market conditions, technology, hatchery production, or management practices have changed substantially over time.

For Prince William Sound, these principles matter because the commercial salmon fisheries have changed dramatically since initial limitation. The fishery has evolved biologically, economically, and institutionally, particularly with the rise of large-scale hatchery enhancement and the different harvesting capacities of purse seine, drift gillnet, and set gillnet fisheries. Any attempt to define regulatory optimum numbers in Prince William Sound therefore must begin with both the statutory framework and the historical development of the fishery itself.

3.0 A History of Salmon Fishing in Prince William Sound

Commercial salmon fishing in Prince William Sound has been documented as far back as 1880's, with the first cannery being constructed sometime between 1887 and 1889[9]. Historically, a variety of gear types were used to harvest salmon in the Sound, but the modern commercial fisheries are organized around three principal gear groups: purse seine, drift gillnet, and set gillnet[10]. These fisheries now form the core of the Prince William

[6] Johnson (2024)
[7] Rickey and Adasiak. *1976 Annual Report*, CFEC (1977)
[8] *Johns v. CFEC*, 758 P.2d 1256 (Alaska 1988)
[9] Lethcoe and Lethcoe. *A History of Prince William Sound Alaska* (2001)
[10] Scannell, Botz, and Niepoth, *Prince William Sound Area Commercial Salmon Fisheries: A Report to the Alaska Board of Fisheries, 2024,* ADF&G (2024)

Sound salmon industry and have long been central to the economies of Cordova, Valdez, and surrounding coastal communities.

As in many other parts of Alaska, the early commercial salmon industry in Prince William Sound grew under the cannery system. Processing capacity, transportation links, and coastal settlement patterns developed together with the fishery[11]. In the territorial period, management tools were comparatively limited, and concern about salmon conservation was a recurring feature of Alaskan fisheries in general[12]. By the middle of the twentieth century, weak salmon returns in parts of Alaska helped drive a transition toward stronger state management. State management increasingly relied on escapement-based regulation, in-season emergency orders, and tighter control over participation and harvest timing[13].

Prince William Sound's salmon fishery was swept into that broader transformation. In 1972, Alaska voters amended the state constitution to allow limited entry in the state's commercial fisheries, and in 1973 the Legislature enacted the Limited Entry Act. The Prince William Sound salmon fisheries were among the original group of Alaska salmon fisheries limited after passage of that law. Under AS 16.43.230, the Prince William Sound drift gillnet fishery was identified among the state's distressed fisheries, and limited entry permits in the three Prince William Sound salmon fisheries were first issued in 1975[14]. That moment marked a major institutional turning point in the region's fishing history.

The modern Prince William Sound salmon fisheries are also differentiated by species composition. Over the 1975–2023 period, pink salmon accounted for 85.2% of total ex-vessel value in the purse seine fishery, while sockeye salmon accounted for 60.3% of ex-vessel value in the drift gillnet fishery and 81.5% in the set gillnet fishery. When all three gear groups are combined, pink salmon made up 44.7% of total ex-vessel value, followed by sockeye at 31.5%, chum at 12.2%, coho at 7.5%, and Chinook at 4.1%. These figures illustrate an important feature of Prince William Sound: although the region is strongly associated with pink salmon, particularly in the seine fleet, the drift and set gillnet fisheries have historically depended much more heavily on sockeye[15].

As this report is about defining the optimum numbers for the drift gillnet fleet it is important to realize that the harvest by the drift gillnet fleet is much more variable in species composition than harvests by set netters or seine operators. Sockeye are by far the most valuable species harvested by gillnetters as mentioned above, but coho, chum, and Chinook salmon all contribute to drift gillnet gross earnings. Pink salmon make up only a small portion (3%) of the gross earnings in the fishery.

One of the most consequential developments in Prince William Sound was the rise of hatchery enhancement. In 1971 the legislature enacted bills to develop hatcheries, leading to the creation of the Fisheries Rehabilitation, Enhancement, and Development Division (FRED) at the Alaska Department of Fish and Game[16].

In 1974 the private non-profit hatchery act was passed[17]. The Prince William Sound Aquaculture Corporation (PWSAC) was then formed in 1974 to supplement highly variable wild returns, and Prince William Sound eventually became one of the most important hatchery-based salmon producing regions in Alaska. Hatchery development expanded salmon availability, especially for pink and chum salmon, and materially changed the scale and timing of commercial opportunity in the Sound. Today there are 6 hatcheries located either in PWS or on waters that feed into PWS[18].

In 2025, a total of 34% of the harvest in Alaska is from hatchery produced fish. In Prince William Sound, hatcheries are especially important; in 2025, 84% of the fish harvested are of hatchery produced fish in the total

[11] Lethcoe and Lethcoe. *A History of Prince William Sound Alaska* (2001)
[12] Meacham and Clark. "Pacific Salmon Management — The View from Alaska." *Alaska Fishery Research Bulletin* (1994)
[13] Clark, et al. "The Commercial Salmon Fishery in Alaska." *Alaska Fishery Research Bulletin* (2006)
[14] Strong. *CFEC Permit Holdings and Estimates of Gross Earnings in the Prince William Sound Commercial Salmon Fisheries, 1975–2023*, CFEC (2024)
[15] Strong. *CFEC Permit Holdings and Estimates of Gross Earnings in the Prince William Sound Commercial Salmon Fisheries, 1975–2023*, CFEC (2024)
[16] Holland, ed. *FRED 1987 Annual Report to the Alaska State Legislature*. ADF&G (1988)
[17] *CH 111, SLA 1974*
[18] McDowell Group. *Economic Impact of the Prince William Sound Aquaculture Corporation* (2018)

commercial harvest of PWS, which makes up for 72% of the total ex-vessel value. In the drift gillnet fleet, which depends upon sockeye more than the other gear groups, only 27% of the sockeye are from hatcheries. Enhancement-driven production increased harvest opportunities, strengthened processor throughput, and made Prince William Sound one of Alaska's most important salmon-producing regions by volume[19].

Another event that left a lasting mark on the fishery was the *Exxon Valdez* oil spill in 1989. The spill released roughly 11 million gallons of crude oil in Prince William Sound and had immediate consequences for fisheries, coastal communities, and public confidence in the region's marine environment[20]. The oil spill resulted in contamination of intertidal pink salmon spawning habitat and significant embryo mortality, and long-term ecological effects.

Despite these shocks and changes, Prince William Sound remained a major commercial salmon region. Over time, the fishery adapted to state management, limited entry, hatchery enhancement, volatile market conditions, and major environmental disturbance. The region's fisheries moved from an earlier period of relatively open participation into a system defined by permit limitation, biologically driven management, and increasingly specialized gear groups. Later, enhancement altered both the economics and the practical meaning of participation. Any examination of optimum numbers in Prince William Sound therefore must recognize that the fishery seen today is the product of multiple historical layers. No serious effort has been made to define the optimum number of permitted participants before this study.

4.0 Current Management

Current management of the Prince William Sound drift gillnet salmon fishery is carried out by the Alaska Department of Fish and Game under multiple layered and complex management plans. These plans include separate management plans for Chinook and sockeye Salmon escapement into the Copper River, and a management plan specifically for the allocation of enhanced salmon in Prince William Sound between gear groups. Additionally, there are management plans for each of the five hatcheries located in Prince William Sound.

Under current regulation, drift gillnets may be used in the Coghill, Unakwik, Eshamy, Copper River, and Bering River Districts[21] (figure 1), and fishing time in those districts is established by emergency order rather than fixed season dates. In the Copper River and Bering River Districts, openings begin at 7:00 a.m. or 7:00 p.m.; in the other drift districts, whole-district openings begin at 8:00 a.m.[22]

A central feature of current management is the hatchery allocation framework. The purpose of the framework is to provide a fair and reasonable allocation of enhanced salmon harvest among drift gillnet, purse seine, and set gillnet fisheries and to reduce conflicts among those user groups[23]. Under that plan, the set gillnet gear group receives 4 percent of the five-year average ex-vessel value of Prince William Sound Aquaculture Corporation-produced salmon, and the drift gillnet and purse seine fleets divide the remainder according to the allocation formula and corrective measures specified in the plan. For example, for the 2026 fishing season, ADF&G reported that the 2020–2024 five-year average ex-vessel value shares were 48.8 percent for drift gillnet, 51.2 percent for purse seine, and 5.3 percent for set gillnet; as a corrective measure, the purse seine fleet was assigned exclusive access to the Port Chalmers Subdistrict in 2026, while the set gillnet fleet was limited to no more than 36 hours per week in the Eshamy District beginning July 10, 2026[24].

In practice, the drift fishery is managed in-season around escapement, run strength, hatchery needs, and harvest performance. In the Copper River District, ADF&G described the standard schedule in 2025 as two evenly spaced fishing periods per week, with actual harvest opportunity adjusted according to fishing effort, harvest,

[19] Wilson. *Alaska Salmon Fisheries Enhancement Annual Report, 2025.* ADF&G (2026)
[20] Steiner and Byers. *Lessons of the Exxon Valdez* (1990)
[21] 5 AAC 24.330
[22] 5 AAC 24.320
[23] 5 AAC 24.370
[24] ADF&G. *Prince William Sound Sound Salmon Fishery – 2026 Allocation Plan,* ADF&G (2026)

Copper River Delta escapement, and Miles Lake sonar counts[25]. Because of weak recent Chinook production, ADF&G stated it would begin that season conservatively by closing the inside closure area during early periods and, if necessary, expanding those closures to reduce Chinook harvest while still allowing opportunity on sockeye. This conservative approach is also reflected in current regulation: the Copper River King Salmon Management Plan requires the department to manage Copper River fisheries to achieve a sustainable escapement goal of 21,000 to 31,000 king salmon, and during statistical weeks 20 and 21 the commissioner may not open more than one 12-hour commercial fishing period within the inside closure area. In the other Prince William Sound drift districts, management similarly balances wild-stock escapement with hatchery cost-recovery and broodstock needs. ADF&G's 2025 outlook stated that Eshamy, Coghill, and Unakwik would generally be managed toward two periods per week, when possible, but with closures, shortened periods, or area adjustments as needed for Main Bay and Wally Noerenberg Hatchery needs, escapement performance, and fleet harvest capacity. The 2025 season summary confirms that this is how management was applied: Coghill hatchery subdistricts were managed conservatively because of cost-recovery needs, Eshamy experienced limited fishing time and effort because of weak Main Bay returns, and the drift fleet had exclusive access to the Port Chalmers chum fishery that year under the allocation framework[26].

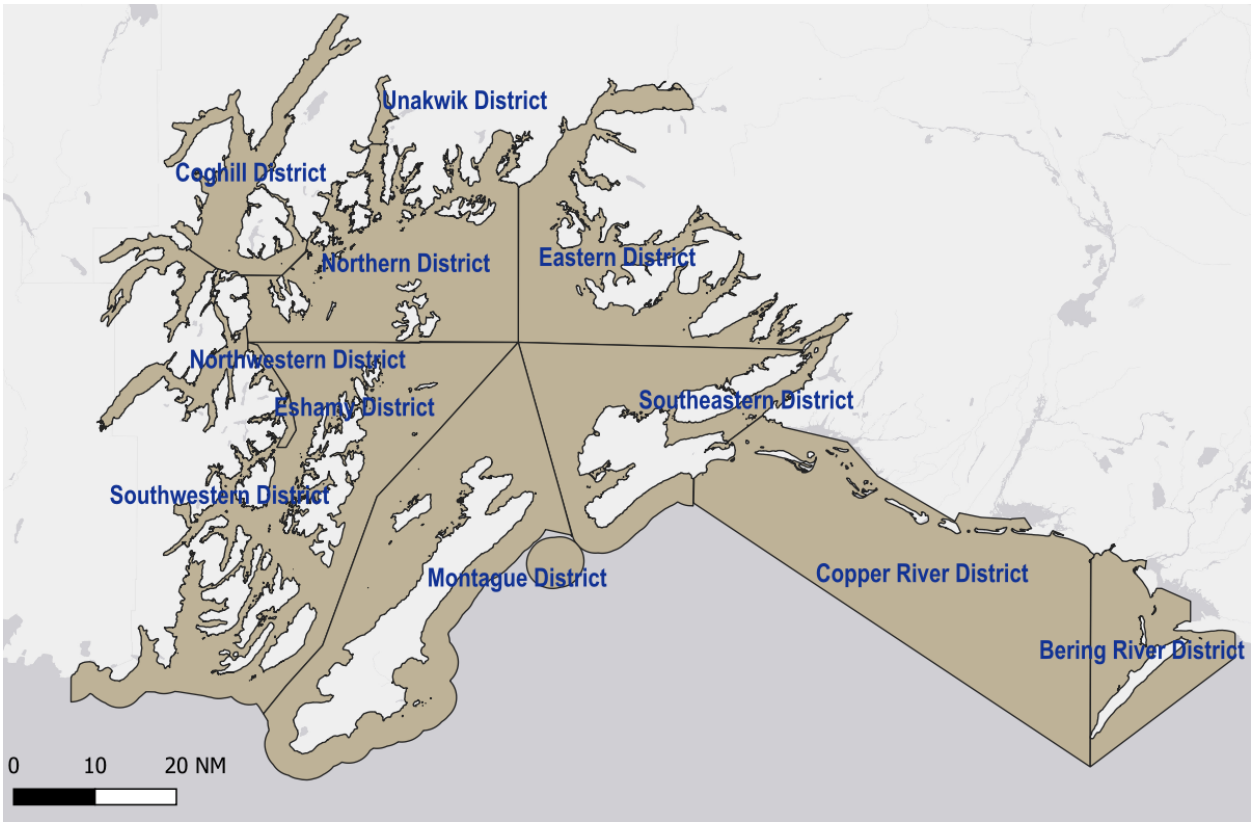

Figure 1: Prince William Sound Salmon Districts

[25] ADF&G. *2025 Prince William Sound Salmon Fishery Information,* ADF&G (2025)
[26] ADF&G. *2025 Prince William Sound Salmon Season Summary*, ADF&G (2025)

5.0 Current Economics

5.1 Gross Earnings and Participation Trends

The current economic situation in the Prince William Sound drift gillnet fishery remains well below the stronger earning years of the mid-2010s and is also marked by declining participation (figure 2). In 2024, there were 535 drift gillnet permits issued, but only 423 permits posted landings, meaning about 21% of permits were latent. Total estimated gross earnings in 2024 were $31.7 million dollars. On average, that amounted to about $74,945 in real gross earnings per permit with landings. The average earnings in this fishery may seem substantial given that it takes place only over the summer months, but we must account for costs of participation before we can determine if a fishery is profitable or not. Permit latency must also be accounted for. After the decrease in earnings seen starting in 2015, many permit holders responded by opting out of fishery participation. When individuals choose not to participate in the fishery, the individuals who remain end up harvesting more, bolstering their average earnings. Average earnings in this fishery would be significantly lower if participation remained as high as it was in the 1980s, 1990s, and 2000s, at well above 500 permits in any given year.

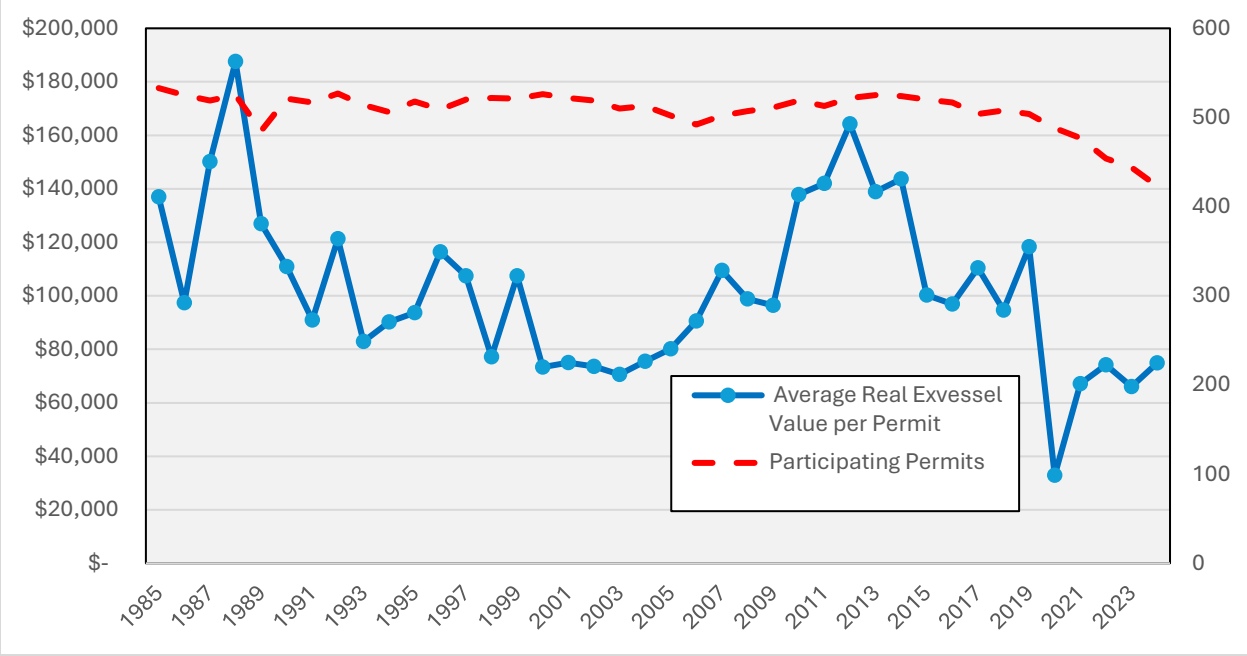

Figure 2: Participation and Average Exvessel Value Per Permit in 2026 Dollars

From 2015 through 2019, the fishery averaged about $104,113 in real gross earnings per permit holder, with roughly 511 permits making landings each year. By contrast, from 2020 through 2024, average annual real gross earnings per permit holder fell to about $63,034, and average participation dropped to about 457 permits. The recent seasons therefore reflect both reduced aggregate earnings and reduced active participation relative to the more productive recent historical period.

Viewed another way, 2024 appears to continue a pattern of constrained economic performance following the sharp downturn in 2020 due to the COVID-19 pandemic. While 2021 through 2024 improved substantially from the 2020 low, earnings in 2024 remained low in real terms, and participation continues to edge downward. These figures suggest a fishery in which fewer permit holders are actively participating and those who do participate are doing so in an environment of more modest gross returns than was typical in the years immediately preceding 2020.

The reduction in average gross earnings and the reduction in participation both strongly indicate that economic optimum number of permits in this fishery should be less than the 535 permits currently issued.

5.2 Costs

As a part of this optimum numbers study, CFEC conducted a cost survey, which collected data to be used in this study[27]. CFEC does not have time-series cost information, only a snapshot from the 2025 survey. All permit holders with a valid email address in the CFEC database received an email with an attached survey. The survey was necessarily short, and designed to elicit a maximum number of responses. Long surveys tend to get very few responses.

In any business, costs are divided into two categories: fixed and variable. Fixed costs are single purchases that must be made once, or in the case of a fishery, on a seasonal basis. Insurance is an example of a fixed cost, as are transportation costs, logistic costs, and docking and storage fees. Variable costs are costs that scale with production. An example of this would be fuel costs and crew share.

In addition to fixed and variable costs, capital must also be accounted for. The capital base can be thought of as the assets that had to be purchased or financed in order to operate the business.

Appendix B shows a theoretical income statement for a participant in the Prince William Sound drift gillnet salmon fishery, based upon the methods outlined here to define costs.

Fixed Costs

The major fixed costs in the Prince William Sound drift gillnet fishery are, according to the survey: vessel and permit financing, transportation and logistics, maintenance and upgrades, insurance, and docking/storage. Among respondents, 53 percent owned their vessels free and clear, 45 percent had financed vessels, and 2 percent leased or used some other arrangement. For those with financing, the average monthly vessel payment was $1,349. Annual transportation and logistics costs averaged $5,118, annual vessel maintenance and upgrades averaged $10,674, annual insurance averaged $5,160, and annual docking, moorage, or storage averaged $3,033.

Respondents also identified additional recurring fixed costs such as permit payments, vessel and trailer maintenance, gear and net replacement, storage lockers and freezer units, licensing and registration fees, bookkeeping and tax preparation, association dues, utilities, insurance, hauling, and navigation or communications subscriptions. The report notes that many of these additional costs are substantial and difficult to quantify consistently across operations.

Variable Costs

On the variable-cost side, the report summarizes fuel use, food and provisions, crew share, and a few other harvest-related expenses. Average fuel use was 2,602 gallons for the season. Food and provisions averaged $3,156 per season. Just over half of respondents, 52 percent, reported having no deckhands, while about 39 percent reported one deckhand. Across respondents, the average reported crew share was 8.79 percent of gross income, with most reporting a crew share between 5 and 20 percent.

Respondents also identified several other important variable costs that were not fully quantified in the survey. The most commonly mentioned were net repair, replacement, and mending, often ranging from $2,000 to more than $10,000 annually, along with expendable gear and supplies, oil and fluids, mechanical repairs, haul-out services, crew gear and licensing, fish taxes and marketing assessments, direct marketing costs such as boxes and gel packs, and occasional major breakdown costs such as engine or transmission replacement. Several fishermen also noted that time and area restrictions create indirect economic costs by reducing fishing efficiency and profitability.

Finally, gear is often thought of as part of the capital base because it can be expensive and may represent tens of thousands of dollars in equipment. For the purposes of this study, however, gear costs are treated as variable costs. This is because gear must be repaired regularly and may need to be completely replaced from one season to the next. These costs also scale with fishing activity and harvest volume. A permit holder who harvests 150,000 pounds of salmon is likely to incur substantially greater repair costs, and may require replacement gear, compared to a permit holder who harvests 75,000 pounds. In addition, gear costs are not usually financed in

[27] Kohlhase. *Prince William Sound Drift Gillnet Cost Survey Results*, CFEC (2025)

the same manner as vessels or permits, and repairs are often performed by crew members and permit holders themselves.

Capital Base

Capital base means the total amount of capital invested in or required to operate a commercial drift gillnet operation. This is important for calculating the opportunity cost of capital. In a commercial fishery a major component of capital base for any fishing operation is the value of the vessel being used. Vessels are platforms for major fishing equipment such as net reels, electronics, and living accommodations; all these items add to the value of a vessel.

Another major component of capital base is the value of a permit. CFEC publishes monthly permit value estimates that are based upon the most recent permit sales over the most recent months. Individuals may pay more or less than that estimate for a permit, or may own a permit free and clear; nevertheless the value of permit is whatever the market commands.

As mentioned previously, gear is not included as a part of the capital base.

6.0 Economic Optimum Numbers

As mentioned previously, optimum number studies need to take three standards into account: economic health, sound fishery management, and the avoidance of serious economic hardship for those currently engaged in fishing. The first and third considerations are economic in nature. This study addresses those standards by estimating whether participating permit holders can earn a return to labor, management, and investment that is sufficient to compensate them for their time, operating costs, and capital investment. It also examines how returns vary at different participation levels, ensuring that the recommended range doesn't improve average economic performance only by reducing participation to a point that would place unreasonable hardship on those who currently depend on the fishery.

6.1 Design and Data Inputs

This analysis combines CFEC participation and gross earnings records with a 2025 cost survey of Prince William Sound drift gillnet permit holders. The objective is to estimate return to labor, management, and investment (RLMI) under a range of hypothetical permit levels and compare each permit holder's estimated return to an individual benchmark. That benchmark is intended to represent the return needed to compensate the permit holder for labor, management effort, and invested capital. Labor opportunity cost is based on the median income for the area immediately adjacent to the fishery, adjusted for the estimated length of the fishing season, while capital opportunity cost is based on the value of the vessel and permit used in the operation.

The analysis then uses a sweep method to evaluate many hypothetical permit levels. The model "sweeps" across a range of possible participation levels and calculates expected outcomes for each permit holder who responded to the cost survey. In this study, every permit level from 1 through 700 is evaluated. At each permit level, the model estimates how gross earnings, variable costs, fixed costs, and return to labor, management, and investment (RLMI) would change for each respondent.

In general, the model works by scaling gross earnings and variable costs with the assumed level of fishing activity, while holding fixed costs constant for each permit holder. Labor opportunity cost and capital opportunity cost are also calculated at the individual permit-holder level and held constant across the sweep. The central assumption is that, as participation increases, gross earnings per permit holder decrease because available earnings are distributed across more participants. Conversely, as participation decreases, gross earnings per permit holder increase because available earnings are distributed across fewer participants.

This study does not attempt to calculate a separate fair return for each individual component of RLMI. Instead, it asks whether the combined return to management, labor, and investment exceeds what an individual could reasonably expect to earn by leaving the fishery and devoting their labor, management effort, and capital to other income-producing activities.

Gross Earnings Data, Vessel Data, and Permit Values

Participation information was gathered using the CFEC Gross Earnings Database. This database is based on Alaska Department of Fish and Game fish tickets and is augmented with CFEC permit holder information, vessel information, and price information from Commercial Operators Annual Reports provided by the Alaska Department of Fish and Game. Several processes are used to validate and enhance fields such as statistical areas, vessel identification, and permit ownership.

For purposes of this study, participation is defined as a permit posting a at least one fish ticket with a commercial sale in a given year. Gross earnings for an individual permit are calculated as the sum of the value of all fish sold under a single permit during the year. Because the purpose of this study is to estimate the optimum number of permits, the analysis is conducted at the permit level and does not aggregate or quantify participation by vessel or individual person. This study used data from 2021 through 2025 to calculate the average gross earnings per permit over the five-year period.

Vessel values were obtained from CFEC vessel files. When individuals register a vessel with their CFEC permit, they also provide CFEC with various vessel specifications, including vessel value, gross tons, fuel tank size, build date, and other information. Vessel value information was used to calculate the opportunity cost associated with vessel ownership. The vessels used in this analysis were the vessels fished during the 2024 fishing season. This choice was made because, at the time of the 2025 survey, the 2024 fishing season was the most recently completed season, and permit holders were presumed to have answered cost questions based on the vessel they had most recently used.

Permit values were obtained from CFEC permit transfer surveys. When individuals buy, sell, or otherwise transfer a permit, they must complete a CFEC transfer survey identifying what they paid or received in exchange for the permit, along with any associated financing information. The permit value used in this study was $70,169, which was the permit value in January 2026. Permit values had decreased by approximately $5,000 as of the writing of this report.

Cost Data

Responses from the 2025 Drift Gillnet Cost Survey were used to calculate many of the costs included in this analysis. The survey data were cleaned, and nonsensical responses were removed from the data set. Nonsensical responses were defined as answers that were clearly off by orders of magnitude. For example, a reported annual maintenance cost that was implausibly high by an order of magnitude relative to the operation and fishery would be reviewed and removed if it could not reasonably be interpreted as a valid response.

Missing values in the data set were imputed using the following methods.

Crew members: Blank responses for number of crew members were assumed to indicate that the operation had no crew members on board.

Vessel value: Many individuals do not provide CFEC with vessel value information. Because vessel value represents a significant portion of the capital base, and therefore the opportunity cost of a commercial fishing operation, missing vessel values were estimated using median imputation.

Vendor data: In addition to cost data collected through the survey, vendors around Prince William Sound were contacted to gather information on fuel prices, gear costs, and other operating expenses relevant to the drift gillnet fishery.

6.2 Permit Sweep Method and Return to Labor, Management, and Investment

For each surveyed permit holder i, return to labor, management, and investment was calculated as gross earnings less total operating costs:

$$RLMI_i = G_i - C_i$$

where:

$$G_i = \text{gross earnings for permit holder } i$$

and total costs are defined as:

$$C_i = VC_i + FC_i$$

with:

$$VC_i = \text{variable costs}$$
$$FC_i = \text{fixed costs}$$

Variable costs include both crew share costs and other variable costs:

$$VC_i = CSC_i + OVC_i$$

where:

$$CSC_i = s_i G_i$$
$$s_i = \text{crew share percentage for permit holder } i$$
$$OVC_i = VC_i - CSC_i$$

Thus, the baseline observed cost structure for each permit holder is:

$$C_i = CSC_i + OVC_i + FC_i$$

or equivalently:

$$RLMI_i = G_i - (CSC_i + OVC_i + FC_i)$$

For the permit sweep, the 2024 fishery was treated as the baseline condition. The baseline number of participating permits was:

$$P_0 = 423$$

For each candidate permit level P_j, where:

$$P_j \in \{1,2,3,\ldots,700\}$$

a scaling factor was calculated as:

$$\lambda_j = \frac{P_0}{P_j}$$

This factor represents the change in expected gross earnings and variable costs under each hypothetical permit level. Gross earnings were scaled as:

$$G_{ij} = G_i \lambda_j$$

Crew share costs were scaled in proportion to gross earnings:

$$CSC_{ij} = CSC_i \lambda_j$$

Other variable costs were also scaled in proportion to fishing activity:

$$OVC_{ij} = OVC_i \lambda_j$$

Total variable costs under each permit level were therefore:

$$VC_{ij} = CSC_{ij} + OVC_{ij}$$

Fixed costs were not scaled because they are assumed to be incurred by each permit holder regardless of the amount harvested:

$$FC_{ij} = FC_i$$

Total costs under each candidate permit level were calculated as:

$$C_{ij} = VC_{ij} + FC_i$$

or:

$$C_{ij} = \left(CSC_i \lambda_j + OVC_i \lambda_j\right) + FC_i$$

Return to labor, management, and investment under each candidate permit level was then calculated as:

$$RLMI_{ij} = G_{ij} - C_{ij}$$

Substituting the scaled cost components gives:

$$RLMI_{ij} = G_i \lambda_j - \left[\left(CSC_i \lambda_j + OVC_i \lambda_j\right) + FC_i\right]$$

or more compactly:

$$RLMI_{ij} = \lambda_j (G_i - CSC_i - OVC_i) - FC_i$$

Each permit holder's calculated $RLMI_{ij}$ was then compared against an individual benchmark representing the estimated return needed to compensate labor, management, and invested capital:

$$B_i = LC_i + KC_i$$

where:

$B_i =$ RLMI benchmark for permit holder i
$LC_i =$ labor opportunity cost benchmark
$KC_i =$ capital opportunity cost benchmark

The labor opportunity cost benchmark was calculated by scaling the regional median income by the share of the season represented by the permit holder's estimated fishing days:

$$LC_i = \left(\frac{D_i}{D_{\max}}\right) M$$

where:

$D_i = \min(d_i + 40,\ 260)$
$d_i =$ observed number of days between first and last landing
$D_{\max} = 260$
$M =$ median income benchmark

The capital opportunity cost benchmark was calculated as:

$$KC_i = rK_i$$

where:

$r =$ opportunity cost rate
$K_i =$ capital base for permit holder i

When permit value is included in the capital base, the capital base is calculated as:

$$K_i = V_i + Q$$

where:

$V_i =$ vessel value for permit holder i
$Q =$ permit value

Accordingly, the full benchmark is:

$$B_i = \left(\frac{\min(d_i + 40,\ 260)}{260}\right) M + r(V_i + Q)$$

Each surveyed permit holder was then evaluated under each candidate permit level using the following indicator:

$$I_{ij} = \begin{cases} 1, & \text{if } RLMI_{ij} \geq B_i \\ 0, & \text{if } RLMI_{ij} < B_i \end{cases}$$

The number of surveyed permit holders meeting or exceeding the benchmark at each candidate permit level was calculated as:

$$N_j = \sum_{i=1}^{n} I_{ij}$$

The share of surveyed permit holders meeting or exceeding the benchmark was calculated as:

$$S_j = \frac{N_j}{n}$$

where:

$n =$ number of surveyed permit holders included in the sweep

The optimum number calculation therefore evaluates each candidate permit level according to the proportion of surveyed permit holders whose scaled return to labor, management, and investment meets or exceeds the benchmark:

$$S_j = \frac{1}{n}\sum_{i=1}^{n} \mathbf{1}\left[RLMI_{ij} \geq B_i \right]$$

The preferred permit level is then identified by selecting the permit count at which the desired share of permit holders meets or exceeds the benchmark. For example, if the target is that at least 75 percent of permit holders meet or exceed the benchmark, the selected permit level is:

$$P^* = \max\{P_j : S_j \geq 0.75\}$$

This sweep method preserves individual variation in earnings, fixed costs, variable costs, crew share, vessel value, and fishing days, while estimating how the distribution of returns changes as the number of participating permits changes. Gross earnings and variable costs are scaled with participation, while fixed costs and individual opportunity cost benchmarks are held at the permit-holder level.

6.3 Assumptions

The permit sweep method relies on several simplifying assumptions about earnings, costs, and participation.

1. The model assumes that the 2024 fishery participation represents the baseline condition for the analysis. The baseline number of participating permits is set at 423, and each hypothetical permit level is compared against that baseline using a scaling factor. The sweep evaluates permit levels from 1 through 700. This assumption is justified because the cost survey was conducted in 2025, after the conclusion of the 2024 fishing season.
2. Baseline earnings are set at the average gross earnings per permit holder for the last five years of available data- in this case, 2021 through 2025 - excluding years in which the permit holder did not participate. All participating years are weighted equally when calculating average gross earnings. A five-year average was used to smooth year-to-year variation while still reflecting current conditions in the fishery. Using a longer time period would be inappropriate because the fishery has changed rapidly in recent years, both in participation levels and total gross earnings. At the same time, using only a single year would be inappropriate because salmon fisheries are highly variable from year to year due to run strength, prices, management conditions, hatchery returns, and the multi-year life cycle of salmon. A five-year average therefore provides a practical balance: it captures recent fishery conditions while reducing the risk that the analysis is driven by an unusually strong or weak single season
3. Gross earnings scale inversely with the number of participating permits. In other words, if fewer permits participate, the available gross earnings are distributed across fewer operations, increasing expected earnings per permit holder. If more permits participate, expected earnings per permit holder decline. This is represented by the scalar:

   $$\lambda_j = \frac{423}{P_j}$$

   where P_j is the candidate number of permits being evaluated. In the script, gross earnings are multiplied by this scalar at each permit level.
4. Variable costs scale with gross earnings and fishing activity. Crew share costs and other variable costs are both multiplied by the same participation scalar used for gross earnings. This reflects the

assumption that costs such as crew share, fuel, gear repair, and other production-related expenses rise or fall with the level of harvest and fishing activity.

5. Fixed costs are assumed not to scale with harvest volume or permit count. They are held constant for each individual permit holder across all permit levels in the sweep. This reflects the assumption that costs such as permit fees, insurance, storage, and other fixed seasonal costs must generally be incurred whether the permit holder harvests more or less fish. For example, CFEC permits must be renewed annually, and hull and indemnity insurance is generally paid on an annual or seasonal basis. These costs do not increase simply because a permit holder harvests more fish. Similarly, the salmon season occurs during roughly the same period each year, with limited variation in the overall season length. Harvesting more fish may affect variable costs such as fuel, crew share, gear repair, or tendering costs, but it does not necessarily mean the permit holder spent a longer season on the water or incurred higher fixed costs.
6. The benchmark is also held constant for each individual permit holder across the sweep. The model does not scale the benchmark upward or downward with hypothetical permit levels. Instead, the benchmark is calculated from each permit holder's estimated labor opportunity cost and capital opportunity cost. Labor opportunity cost is based on fishing days, adjusted by a 40-day offset and capped at 260 days. Capital opportunity cost is based on vessel value plus permit value.
7. The method assumes that crew share can be reconstructed from gross earnings and the reported crew share percentage. Crew share cost is calculated as:

$$\text{Crew Share Cost}_i = \text{Crew Share Percentage}_i \times \text{Gross Earnings}_i$$

8. Finally, the method assumes that a permit level can be evaluated by counting the share of surveyed permit holders whose scaled return to labor, management, and investment meets or exceeds their individual benchmark. The script calculates both the number and share of surveyed permit holders meeting the benchmark at each permit level, then identifies the permit level closest to 75 percent and the maximum permit level at which at least 75 percent meet the benchmark.

6.4 Economic Optimum Number Results

The permit sweep analysis indicates that the economic optimum number of participating permits in the Prince William Sound drift gillnet fishery is below the current number of issued permits and is generally lower than the number of active participants in recent years. This is no surprise, permit holders are generally rational when it comes to economic decisions: if a permit holder is unable to meet their financial needs through fishing, they will look for other opportunities. Under the assumptions described above, the economic optimum number is estimated to be between 141 and 423 participating permits (figure 3). This range reflects the permit levels at which a meaningful share of participating permit holders are able to earn returns to labor, management, and investment that meet or exceed their individual benchmarks. Those benchmarks include both labor opportunity cost and capital opportunity cost, rather than only a comparison to gross earnings or median income alone.

The lower end of the range, approximately 141 permits, represents the point at which 75% or more of participating permit holders are expected to meet or exceed the benchmark. At lower participation levels, gross earnings per permit holder increase because the available fishery value is distributed among fewer operations. Variable costs also increase with fishing activity, but fixed costs remain constant. Because fixed costs do not rise with harvest volume, lower participation levels generally improve each permit holder's ability to generate sufficient return after accounting for costs.

The upper end of the economic range, approximately 423 permits, represents the point at which the share of permit holders meeting the benchmark begins to fall toward the lower acceptable bound. As participation increases, gross earnings per permit holder decline because the same general pool of available fishery value is spread across more operations. Variable costs decline with reduced harvest per operation, but fixed costs and individual opportunity cost benchmarks remain unchanged. As a result, additional participation eventually reduces the number of permit holders who can meet or exceed the benchmark.

The results therefore show a clear economic relationship between participation and expected return. When participation is high, too many permit holders are attempting to earn income from the same fishery, and the expected return to individual operations declines. When participation is lower, individual gross earnings increase, and a greater share of permit holders can cover operating costs while also earning a return sufficient to compensate labor, management, and invested capital. The sweep analysis identifies the range where this relationship appears most consistent with the economic-health standard used in this study.

These results are also consistent with recent participation and earnings trends. In 2024, 535 drift gillnet permits were issued, but only 423 permits made landings, meaning that roughly one-fifth of the permits were latent. Recent participation has already fallen below the total number of permits issued, suggesting that market conditions, operating costs, and individual business decisions have reduced active participation in the fishery. The sweep results indicate that this reduction in active participation is economically meaningful: a fishery operating with just over 400 participating permits is more likely to provide adequate returns than a fishery in which all currently issued permits participate.

6.5 Permit Latency and Economic Interpretation

Permit latency is an important consideration in interpreting the economic optimum number results. In 2024, there were 535 Prince William Sound drift gillnet permits issued, but only 423 permits made landings. Latency is not unusual in limited entry fisheries, but in this fishery the current level of latency is both higher than what is seen in many active fisheries and economically meaningful. This elevated latency coincides with a period of reduced earnings, increased operating costs, and declining active participation.

The permit sweep analysis estimates how economic outcomes would change under different levels of active participation. It does not assume that every issued permit will be fished every year. The economic model evaluates participating permits because returns to labor, management, and investment can only be measured for permits that actively participate. Latent permits do not directly reduce current gross earnings per active permit in a given year because they are not harvesting fish. These permits do, however, remain part of the potential fleet and may reenter the fishery if conditions improve. At the same time, other permits may exit participation in a given year for many of the same reasons. This ebb and flow of participation is normal. A regulatory optimum number should therefore allow for ordinary year-to-year fluctuations in latency without reducing the active fleet below the level needed for management or increasing participation to a point where economic returns to permit holders suffer.

High latency can also indicate that the number of issued permits exceeds the number the fishery can economically support. When a substantial share of permit holders choose not to participate, and that nonparticipation occurs alongside weak earnings, it suggests that current conditions do not provide enough expected return for all permit holders to remain active. In this sense, latency is not merely an administrative fact; it is part of the economic signal observed in the fishery.

The 2024 active participation level of 423 permits is therefore especially relevant. It is below the current issued permit total of 535, suggesting that recent latency has already moved the active fleet closer to a level that is more economically viable, while still preserving sufficient management capacity. However, the current issued permit total remains high enough that a substantial increase in participation could reduce average returns and lower the share of permit holders meeting the return to labor, management, and investment benchmark.

Therefore, the upper end of the economic optimum number range is found to be 470 permits. This level allows for approximately 10 percent latency before active participation would fall below 423 permits, the number of permits that made landings in 2024. Stated differently, an issued permit level of 470 would be expected to produce about 423 active participants if roughly 10 percent of permits were latent. This provides some allowance for ordinary nonparticipation while keeping the potential active fleet well below the current issued permit total of 535.

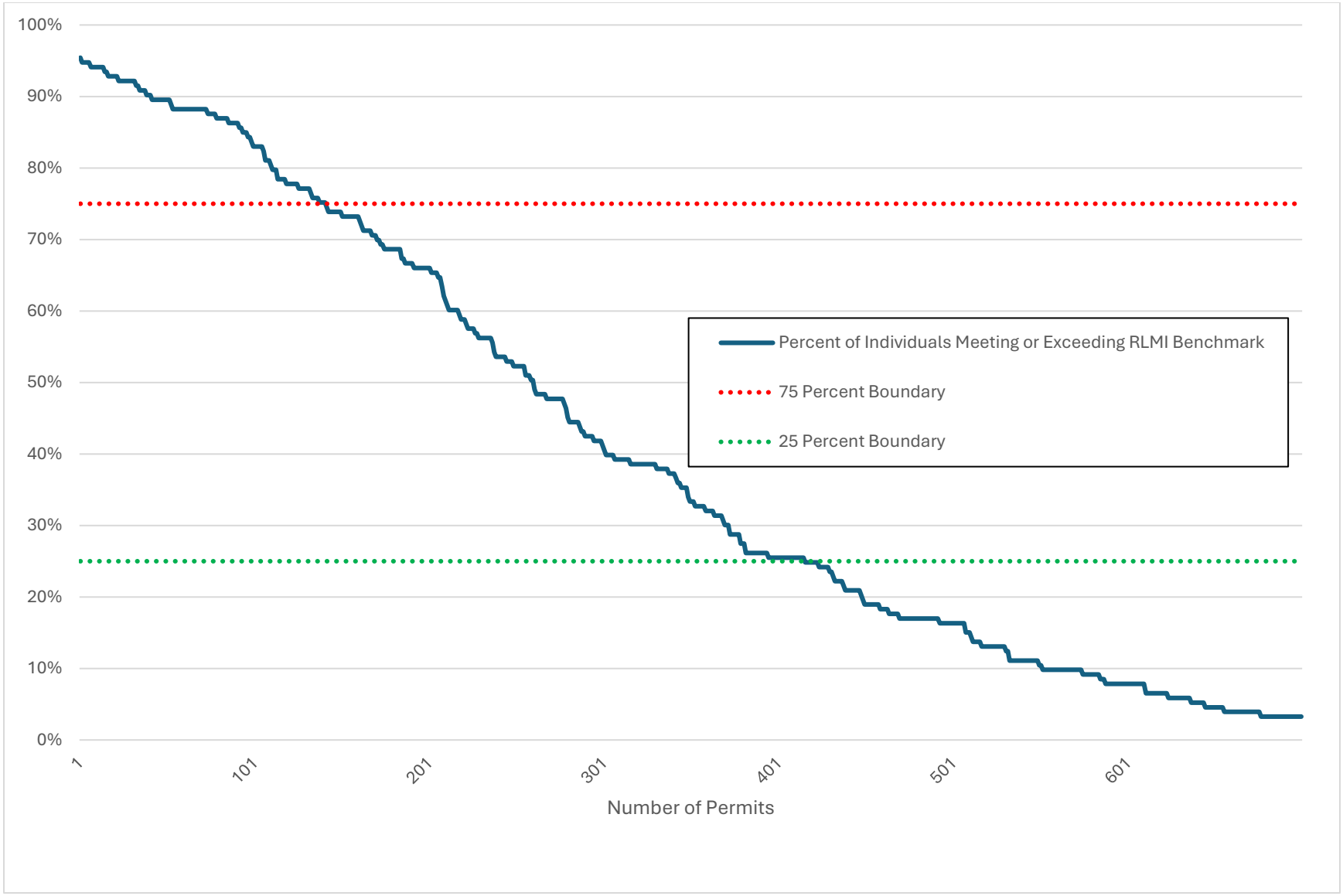

Figure 3: Percent of Individuals Meeting or Exceeding RLMI Benchmark VS Permits Participating

The results should not be interpreted as predicting the exact income of any individual permit holder. The model preserves individual variation in earnings, costs, crew share, vessel value, and fishing days, but it necessarily relies on simplifying assumptions. Gross earnings and variable costs are scaled with participation, while fixed costs and opportunity cost benchmarks are held constant at the individual level. The resulting range should therefore be understood as an economic estimate of the participation level at which the fishery is more likely to provide reasonable returns to participating permit holders, not as a guarantee of profitability for every operation.

Overall, the economic analysis supports an optimum number below the current number of issued permits. Appendix C shows the results of the permit sweep method, presenting hypothetical numbers of participating permits, and the percentage of individuals that would meet the RLMI benchmark if given the opportunity to fish with that hypothetical number of permits.

7.0 Management Optimum Numbers

Optimum numbers are not simply economic optimum numbers. Rather, the optimum number must reflect both the economic constraints facing permit holders and the management requirements necessary for a sustainable and orderly fishery. Management biologists need enough participating permits to fully harvest available surplus during years of abundance, particularly in a salmon fishery where unharvested surplus can create management and biological concerns. At the same time, participation cannot be so high that, during years of weaker returns, managers must rely on severe time and area restrictions to prevent overharvest. The management optimum is therefore a balance between maintaining enough fleet capacity to prosecute the fishery effectively and avoiding so much capacity that ordinary management tools become unnecessarily restrictive or difficult to apply.

For these reasons, CFEC requested technical input from ADF&G management biologists regarding the range of permit participation that could effectively be managed under varying biological and operation conditions. CFEC specifically asked ADF&G management biologists to identify the lowest number of active drift gillnet permits with which the department could reliably conduct the fishery and harvest available surplus, as well as the highest number of active permits that could effectively be managed using the time and area controls under their purview while still meeting escapement, conservation, hatchery, and allocation requirements (Appendix D).

7.1 Overview of Management

ADF&G management biologists are tasked with considering many different factors in order to successfully manage a fishery. The ADF&G mission statement outlines this responsibility:

> Manage, protect, maintain, and improve the fish, game, and aquatic plant resources of Alaska, and manage their use and development in the best interest of the economy and the well-being of the people of the state, consistent with the sustained yield principle.

The sustained yield principle is a management paradigm under which fishery resources may be harvested indefinitely, provided harvest does not exceed the capacity of the resource to regenerate. To achieve sustained yield, fish must be harvested in a manner that protects the long-term reproductive capacity of the stock. The management optimum number is therefore the number of permits that allows for the orderly harvest of available surplus while avoiding a significant risk of over-exploitation.

Salmon are managed using escapement-based management. Each year, salmon return to their natal streams to spawn. By allowing enough salmon to "escape" the fishery and reach the spawning grounds, biologists can help ensure that harvest does not damage the reproductive capacity of the resource.

Escapement-based management, however, does not simply mean allowing as many fish as possible to reach the spawning grounds. It also means ensuring that escapement does not exceed the capacity of the spawning and

rearing environment. Too few spawners can reduce future production, but too many spawners can also create biological problems if the habitat cannot support them.

Salmon reproductive habitat can be limited in two general ways. The first is physical spawning capacity. Some lake systems are deep and productive, but have limited shallow shoreline habitat suitable for spawning. In these systems, the amount of available spawning area may be much smaller than the amount of juvenile rearing habitat. If too many salmon return to spawn, later-arriving fish may disturb or destroy reds created by earlier spawners, reducing egg survival.

The second limitation is biological productivity. Some spawning and rearing systems may have ample physical space for spawning, but limited food production for juvenile salmon. In those systems, excessive escapement can result in more juvenile salmon than the environment can support. If juvenile salmon exceed the productive capacity of the system, growth and survival may decline because there is not enough food available after emergence.

Salmon escapements in Prince William Sound also involve an additional management concern: hatchery egg-take requirements. As previously mentioned, the salmon fisheries in Prince William Sound are highly enhanced. Each hatchery has specific broodstock and egg-take needs that must be met to support future hatchery production. Management biologists are therefore tasked not only with managing escapement into wild streams, but also with ensuring that enough salmon return to hatchery facilities to meet broodstock and production needs. This requirement is made explicit in multiple Prince William Sound hatchery management plans, which direct the department, in consultation with the hatchery operator, to manage specific subdistricts to achieve hatchery escapement goals. For example, the Armin F. Koernig, Main Bay, and Wally Noerenberg hatchery management plans each direct ADF&G to manage in consultation with the hatchery operator to achieve the applicable hatchery escapement goal.

Finally, salmon managers must also ensure that allocative criteria established by the Board of Fisheries are met. The Prince William Sound Management and Salmon Enhancement Allocation Plan states that its purpose is to provide a fair and reasonable allocation of enhanced salmon harvest among the drift gillnet, purse seine, and set gillnet commercial fisheries, while reducing conflict among those user groups. Under that plan, the set gillnet gear group is allocated 4 percent of the total exvessel value of enhanced salmon, while the drift gillnet and purse seine fleets divide the remaining enhanced salmon value equally, at 50 percent each. The plan also establishes corrective measures when allocation percentages fall outside the regulatory thresholds. If the set gillnet fleet exceeds its threshold, fishing time may be limited; if the drift gillnet or purse seine fleet falls to 45 percent or less of the five-year average value comparison, the under-allocated gear group may receive exclusive access to specified hatchery-return areas in the following year.

These allocation requirements add another practical constraint to the management optimum number. The fleet must be large enough to harvest available surplus and meet allocation objectives when enhanced returns are abundant, but not so large that managers must impose severe time and area restrictions during weak return years to protect wild escapement, hatchery broodstock needs, and allocation requirements. The allocation plan expressly preserves the commissioner's emergency order authority to manage wild stocks even when doing so affects allocation percentages, which underscores that allocation, hatchery needs, and wild-stock conservation must be balanced together rather than treated as separate management questions.

Determination of a Management Optimum Number

ADF&G management biologists' response to our request for defined management optimum numbers stressed that a single fixed management number was difficult to identify because harvest opportunity can vary substantially from one year to the next. It was also emphasized that the fishery has two different operating paradigms.

In some years when run timing is spread over a longer period and fish are broadly distributed throughout the sound, a small fleet can efficiently harvest if managers are able to provide broad time and area access. When this occurs, managers can successfully prosecute fisheries as they may need 200 – 300 permits for sufficient harvesting power to control escapements and effectively manage for hatchery needs. Few vessels can fish broad

areas without creating immediate conservation concerns. These lower participation years do not by themselves define management optimum numbers.

In other years more harvesting power may be necessary, especially years when large returns of salmon are pulsing into Copper River, or chum salmon returns to Port Chalmers are large. In those years the department would likely need 400 or more participation permits. The department notes that as many as 500 permits could still be manageable in these scenarios if the managers use short duration openers and small area management to control harvest and fine tune escapement outcomes.

These two paradigms are essential to determining a management optimum number. The number cannot be based only on the minimum number of permits that could operate years of low abundance or the number of permits that can operate during years of high abundance. These considerations support a management optimum number that, like the economic optimum number range, is broad. From an operational standpoint ADF&G indicates that some years, they could manage with as few as 200 – 300 permits, however, this range would be too low and would not provide them with confidence that they could effectively harvest surplus in other years. In fact, an optimum number of permits that is significantly below 400 would provide meaningful risks.

A management optimum number that goes above 500 permits would also be difficult to justify from a management perspective. Currently there are 535 permits in Area E for drift gillnet, but not all are actively fished. ADF&G's response does not indicate that full participation of all currently issued permits is necessary to manage the fishery. Rather, the response indicates that 400 to 500 participating permits provides the practical range within which the department can preserve sufficient harvest capacity during years of abundance while still retaining the ability to control harvest through time and area restrictions during years of scarcity. Accordingly, the management optimum number for the Prince William Sound drift gillnet fishery is best estimated as between 400 to 500 participating permits.

8.0 Optimum Number Determination

The optimum number of entry permits for the Prince William Sound drift gillnet salmon fishery must reflect a reasonable balance between economic viability, sound fishery management, and the avoidance of serious economic hardship for those currently engaged in the fishery. The economic analysis and management analysis do not produce identical ranges. That is expected. The purpose of the optimum number determination is not to select the lowest number that maximizes individual earnings, nor the highest number that can technically be managed in some years. Rather, the purpose is to identify a practical regulatory range that supports the economic health of the fishery while preserving sufficient harvesting capacity for effective inseason management.

The economic analysis indicates that the current number of issued permits exceeds the level likely to provide reasonable economic returns if all permits were actively fished. In 2024, 535 drift gillnet permits were issued, but only 423 permits made landings. This means that approximately one-fifth of the permits were latent. Recent participation has therefore already adjusted downward in response to economic conditions, operating costs, and individual business decisions. The permit sweep analysis confirms that this reduction in active participation is economically meaningful. As participation decreases, expected gross earnings per participating permit increase, and a larger share of permit holders can meet or exceed the return to labor, management, and investment benchmark used in this study.

At the same time, the management analysis indicates that participation cannot be reduced too far without creating operational risk. Management biologists emphasized that the drift gillnet fishery does not operate under a single consistent harvest pattern from year to year. In some years, when returns are spread out over time and fish are broadly distributed, a smaller fleet can harvest effectively if managers are able to provide broad time and area access. In those circumstances, 200 to 300 active permits may provide sufficient harvesting power. However, those years do not define the full management need of the fishery.

In other years, greater fleet capacity is necessary. Large pulses of salmon into the Copper River District, strong chum salmon returns to Port Chalmers, or other concentrated return events may require substantially more harvesting power. In those circumstances, ADF&G indicated that approximately 400 or more active permits

may be needed, and that as many as 500 active permits could still be manageable if the department relies on shorter openings and more precise area management. These comments indicate that a management optimum number below 400 permits would create meaningful risk in high-return years because the fleet may not have enough capacity to harvest surplus fish, control escapement, meet hatchery needs, or satisfy allocation requirements.

The upper end of the range also requires judgment. ADF&G did not indicate that full participation of all 535 currently issued permits is necessary for effective management. Although participation near 500 permits may be manageable in some circumstances, maintaining a permit level near the current issued total would weaken the economic purpose of the optimum number determination. The economic analysis shows that as participation increases, the share of permit holders meeting the return to labor, management, and investment benchmark declines. A range that extends too close to full current permit issuance would therefore preserve management flexibility but would not adequately address the economic-health standard.

For these reasons, the optimum number should be set within the area where the economic and management analyses overlap in a practical sense. The management analysis supports a lower bound of approximately 400 permits because participation materially below that level may reduce the department's ability to prosecute the fishery during years of abundance. The economic analysis supports an upper bound below the current issued permit level because additional participation reduces the likelihood that individual permit holders will earn a reasonable return after accounting for fixed costs, variable costs, labor opportunity cost, and capital opportunity cost.

This study therefore recommends that the Commission establish an optimum number range of 400 to 470 permits for the Prince William Sound drift gillnet salmon fishery.

The lower bound of 400 permits is based primarily on the management optimum number identified through ADF&G input. This level preserves enough fleet capacity to harvest available surplus in years when strong or concentrated returns require substantial effort. It also reduces the risk that the fleet would be too small to meet escapement, hatchery, and allocation objectives. While some years may be manageable with fewer active permits, the optimum number must be robust enough to account for the range of conditions the department is likely to face over time.

The upper bound of 470 permits reflects the economic findings and recent participation patterns. This level is above the 2024 active participation level of 423 permits, allowing room for some additional participation in stronger years, but remains well below the current 535 issued permits. It also accounts for ordinary permit latency. In most Alaska fisheries, some percentage of permits will not be actively fished in any given year because of personal circumstances, business decisions, vessel problems, market conditions, or other factors. Assuming ordinary latency of roughly 5 to 10 percent, an issued permit range near 470 would generally be expected to produce active participation near the lower management threshold while still avoiding the economic consequences of full current permit issuance.

This recommended range is therefore intended to balance the three statutory standards. It maintains enough permits to support sound fishery management, reduces the number of permits below the current issued level to improve the likelihood of reasonable economic returns, and avoids a reduction so severe that it would impose unnecessary hardship on current participants or undermine management flexibility. A range of 400 to 470 permits is broad enough to recognize annual variation in salmon returns, fleet behavior, and market conditions, while narrow enough to provide a meaningful regulatory target.

The recommended optimum number should not be interpreted as a guarantee that every permit holder's operation will be profitable every year. Salmon fisheries are inherently variable. Prices, run strength, hatchery production, fuel costs, crew costs, vessel condition, and individual fishing strategy all affect annual outcomes. The recommended range instead identifies the number of permits most consistent with maintaining an economically healthy fishery while preserving the department's ability to manage the resource under realistic operating conditions.

Accordingly, this report finds that the current number of issued Prince William Sound drift gillnet permits is higher than the optimum number. Based on the combined economic and management analyses, the optimum number of entry permits for the Prince William Sound drift gillnet salmon fishery is recommended to be established at 400 to 470 permits.

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Appendix A: PWS Drift Gillnet Salmon Fishery Petition for an Optimum Numbers Study

January 22nd 2025

RECEIVED
JAN 28 2025
CFEC

Commercial Fisheries Entry Commission
P.O. Box 110302
Juneau, Ak 99811
Att: Reid Johnson,

I would like to request an Optimum number study for boats in the CR/PWS area E drift fishery. Economic circumstances have changed drastically over the past few years in this fishery. Market stability, fish prices, and basic expenses to keep a boat safe and reliable on the water have escalated.

Gross income levels are down, new entrants into the fishery are down, and latent permits are way up.

The question was asked by a board member in the most recent Board of Fish meeting in Cordova, Ak, if such a study has, or was being done.

The information that would be created by an Optimum number study would be valuable to the sustainability to the CR/PWS area E drift fishery moving forward. Thank you,

[redacted]

[redacted]

Appendix B: PWS Drift Gillnet Salmon Fishery Returns to Labor, Management, and Investment Compared to Benchmark

RLMI (Sales Minus Costs)		$22,445.92
Sales (Salmon Sold)		$74,586.48
Costs		$52,140.56
Variable Operational Costs Total	$ 33,986.27	
Nets	$11,650.00	
Fuel	$10,324.90	
Crewshare	$4,533.47	
Logistics	$4,511.20	
Food	$2,966.70	
Fixed Costs Total	$18,154.29	
Maintenance and Upgrades	$9,950.37	
Insurance	$4,907.32	
Storage and Moorage	$2,928.61	
Registration and Permit Fees	$368.00	
Benchmark		$49,937.85
Capital Opportunity Cost	$13,099.12	
Labor Opportunity Cost	$36,838.73	
RLMI Minus Benchmark		($27,491.90)

Note: These numbers are estimates based upon 2021 – 2025 gross earnings and answers to the 2025 Prince William Sound Cost Survey

Appendix C: Permit Sweep Method Results

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
1	95.4%	$22,072,033	$19,838,871	$46,535
2	94.8%	$11,021,114	$9,903,177	$46,535
3	94.8%	$7,337,475	$6,591,278	$46,535
4	94.8%	$5,495,655	$4,935,329	$46,535
5	94.8%	$4,390,563	$3,941,760	$46,535
6	94.8%	$3,653,835	$3,279,380	$46,535
7	94.1%	$3,127,601	$2,806,252	$46,535
8	94.1%	$2,732,925	$2,451,406	$46,535
9	94.1%	$2,425,955	$2,175,414	$46,535
10	94.1%	$2,180,379	$1,954,621	$46,535
11	94.1%	$1,979,454	$1,773,972	$46,535
12	94.1%	$1,812,016	$1,623,431	$46,535
13	94.1%	$1,670,337	$1,496,050	$46,535
14	94.1%	$1,548,898	$1,386,867	$46,535
15	93.5%	$1,443,652	$1,292,241	$46,535
16	93.5%	$1,351,561	$1,209,444	$46,535
17	92.8%	$1,270,304	$1,136,387	$46,535
18	92.8%	$1,198,076	$1,071,448	$46,535
19	92.8%	$1,133,450	$1,013,345	$46,535
20	92.8%	$1,075,288	$961,051	$46,535
21	92.8%	$1,022,664	$913,739	$46,535
22	92.8%	$974,825	$870,727	$46,535
23	92.2%	$931,145	$831,455	$46,535
24	92.2%	$891,106	$795,599	$46,535
25	92.2%	$854,269	$762,722	$46,535
26	92.2%	$820,266	$732,373	$46,535
27	92.2%	$788,782	$704,132	$46,535
28	92.2%	$759,547	$677,996	$46,535
29	92.2%	$732,328	$653,885	$46,535
30	92.2%	$706,924	$631,211	$46,535
31	92.2%	$683,158	$610,000	$46,535
32	92.2%	$660,878	$590,114	$46,535
33	91.5%	$639,948	$571,433	$46,535
34	91.5%	$620,250	$553,852	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
35	90.8%	$601,677	$537,275	$46,535
36	90.8%	$584,136	$521,619	$46,535
37	90.8%	$567,543	$506,809	$46,535
38	90.8%	$551,823	$492,779	$46,535
39	90.2%	$536,909	$479,468	$46,535
40	90.2%	$522,742	$466,822	$46,535
41	90.2%	$509,265	$454,794	$46,535
42	89.5%	$496,430	$443,338	$46,535
43	89.5%	$484,192	$432,416	$46,535
44	89.5%	$472,510	$421,989	$46,535
45	89.5%	$461,348	$412,026	$46,535
46	89.5%	$450,670	$402,497	$46,535
47	89.5%	$440,448	$393,372	$46,535
48	89.5%	$430,651	$384,628	$46,535
49	89.5%	$421,254	$376,241	$46,535
50	89.5%	$412,232	$368,189	$46,535
51	89.5%	$403,565	$360,453	$46,535
52	89.5%	$395,231	$353,015	$46,535
53	88.9%	$387,212	$345,857	$46,535
54	88.2%	$379,489	$338,965	$46,535
55	88.2%	$372,047	$332,323	$46,535
56	88.2%	$364,871	$325,918	$46,535
57	88.2%	$357,947	$319,738	$46,535
58	88.2%	$351,262	$313,771	$46,535
59	88.2%	$344,803	$308,111	$46,535
60	88.2%	$338,560	$302,695	$46,535
61	88.2%	$332,521	$297,457	$46,535
62	88.2%	$326,677	$292,388	$46,535
63	88.2%	$321,019	$287,480	$46,535
64	88.2%	$315,537	$282,726	$46,535
65	88.2%	$310,224	$278,117	$46,535
66	88.2%	$305,072	$273,649	$46,535
67	88.2%	$300,074	$269,313	$46,535
68	88.2%	$295,223	$265,105	$46,535
69	88.2%	$290,512	$261,020	$46,535
70	88.2%	$285,936	$257,051	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
71	88.2%	$281,489	$253,193	$46,535
72	88.2%	$277,166	$249,443	$46,535
73	88.2%	$272,961	$245,796	$46,535
74	87.6%	$268,869	$242,247	$46,535
75	87.6%	$264,887	$238,793	$46,535
76	87.6%	$261,009	$235,429	$46,535
77	87.6%	$257,233	$232,153	$46,535
78	87.6%	$253,553	$228,961	$46,535
79	86.9%	$249,966	$225,850	$46,535
80	86.9%	$246,469	$222,817	$46,535
81	86.9%	$243,058	$219,858	$46,535
82	86.9%	$239,730	$216,972	$46,535
83	86.9%	$236,483	$214,155	$46,535
84	86.9%	$233,313	$211,406	$46,535
85	86.9%	$230,217	$208,721	$46,535
86	86.3%	$227,194	$206,098	$46,535
87	86.3%	$224,240	$203,536	$46,535
88	86.3%	$221,353	$201,032	$46,535
89	86.3%	$218,531	$198,584	$46,535
90	86.3%	$215,772	$196,191	$46,535
91	86.3%	$213,073	$193,850	$46,535
92	85.6%	$210,433	$191,560	$46,535
93	85.6%	$207,850	$189,320	$46,535
94	85.0%	$205,322	$187,127	$46,535
95	85.0%	$202,847	$184,980	$46,535
96	85.0%	$200,423	$182,878	$46,535
97	84.3%	$198,050	$180,819	$46,535
98	84.3%	$195,725	$178,802	$46,535
99	83.7%	$193,447	$176,826	$46,535
100	83.0%	$191,214	$174,890	$46,535
101	83.0%	$189,026	$172,992	$46,535
102	83.0%	$186,880	$171,131	$46,535
103	83.0%	$184,777	$169,306	$46,535
104	83.0%	$182,713	$167,517	$46,535
105	83.0%	$180,689	$165,761	$46,535
106	82.4%	$178,704	$164,039	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
107	81.0%	$176,755	$162,348	$46,535
108	81.0%	$174,842	$160,689	$46,535
109	81.0%	$172,965	$159,061	$46,535
110	80.4%	$171,122	$157,462	$46,535
111	79.7%	$169,311	$155,892	$46,535
112	79.7%	$167,534	$154,350	$46,535
113	79.7%	$165,787	$152,835	$46,535
114	78.4%	$164,071	$151,347	$46,535
115	78.4%	$162,386	$149,858	$46,535
116	78.4%	$160,729	$148,392	$46,535
117	78.4%	$159,100	$146,952	$46,535
118	78.4%	$157,499	$145,536	$46,535
119	77.8%	$155,925	$144,144	$46,535
120	77.8%	$154,378	$142,775	$46,535
121	77.8%	$152,856	$141,429	$46,535
122	77.8%	$151,358	$140,105	$46,535
123	77.8%	$149,885	$138,802	$46,535
124	77.8%	$148,436	$137,521	$46,535
125	77.8%	$147,010	$136,259	$46,535
126	77.1%	$145,607	$135,018	$46,535
127	77.1%	$144,226	$133,797	$46,535
128	77.1%	$142,866	$132,594	$46,535
129	77.1%	$141,528	$131,411	$46,535
130	77.1%	$140,210	$130,245	$46,535
131	77.1%	$138,912	$129,097	$46,535
132	77.1%	$137,634	$127,967	$46,535
133	76.5%	$136,375	$126,853	$46,535
134	75.8%	$135,135	$125,757	$46,535
135	75.8%	$133,913	$124,620	$46,535
136	75.8%	$132,709	$123,405	$46,535
137	75.8%	$131,523	$122,209	$46,535
138	75.2%	$130,354	$121,030	$46,535
139	75.2%	$129,202	$119,867	$46,535
140	75.2%	$128,066	$118,722	$46,535
141	75.2%	$126,946	$117,592	$46,535
142	74.5%	$125,842	$116,479	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
143	73.9%	$124,754	$115,381	$46,535
144	73.9%	$123,681	$114,299	$46,535
145	73.9%	$122,622	$113,231	$46,535
146	73.9%	$121,578	$112,178	$46,535
147	73.9%	$120,548	$111,139	$46,535
148	73.9%	$119,532	$110,114	$46,535
149	73.9%	$118,530	$109,103	$46,535
150	73.9%	$117,541	$108,106	$46,535
151	73.2%	$116,565	$107,122	$46,535
152	73.2%	$115,603	$106,150	$46,535
153	73.2%	$114,652	$105,192	$46,535
154	73.2%	$113,714	$104,245	$46,535
155	73.2%	$112,788	$103,312	$46,535
156	73.2%	$111,874	$102,390	$46,535
157	73.2%	$110,972	$101,479	$46,535
158	73.2%	$110,081	$100,581	$46,535
159	73.2%	$109,201	$99,693	$46,535
160	73.2%	$108,332	$98,817	$46,535
161	72.5%	$107,474	$97,951	$46,535
162	71.9%	$106,627	$97,097	$46,535
163	71.2%	$105,790	$96,252	$46,535
164	71.2%	$104,963	$95,418	$46,535
165	71.2%	$104,146	$94,595	$46,535
166	71.2%	$103,339	$93,781	$46,535
167	71.2%	$102,542	$92,976	$46,535
168	70.6%	$101,754	$92,182	$46,535
169	70.6%	$100,976	$91,397	$46,535
170	70.6%	$100,207	$90,621	$46,535
171	69.9%	$99,446	$89,854	$46,535
172	69.9%	$98,695	$89,096	$46,535
173	69.3%	$97,952	$88,347	$46,535
174	69.3%	$97,218	$87,606	$46,535
175	68.6%	$96,492	$86,874	$46,535
176	68.6%	$95,774	$86,150	$46,535
177	68.6%	$95,065	$85,434	$46,535
178	68.6%	$94,363	$84,727	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
179	68.6%	$93,670	$84,027	$46,535
180	68.6%	$92,984	$83,335	$46,535
181	68.6%	$92,305	$82,651	$46,535
182	68.6%	$91,634	$82,045	$46,535
183	68.6%	$90,971	$81,453	$46,535
184	68.6%	$90,314	$80,867	$46,535
185	67.3%	$89,665	$80,287	$46,535
186	67.3%	$89,023	$79,714	$46,535
187	66.7%	$88,387	$79,147	$46,535
188	66.7%	$87,759	$78,586	$46,535
189	66.7%	$87,137	$78,031	$46,535
190	66.7%	$86,521	$77,481	$46,535
191	66.7%	$85,912	$76,938	$46,535
192	66.0%	$85,309	$76,400	$46,535
193	66.0%	$84,713	$75,867	$46,535
194	66.0%	$84,123	$75,341	$46,535
195	66.0%	$83,538	$74,819	$46,535
196	66.0%	$82,960	$74,303	$46,535
197	66.0%	$82,388	$73,792	$46,535
198	66.0%	$81,821	$73,286	$46,535
199	66.0%	$81,260	$72,786	$46,535
200	66.0%	$80,705	$72,290	$46,535
201	66.0%	$80,155	$71,799	$46,535
202	65.4%	$79,611	$71,314	$46,535
203	65.4%	$79,072	$70,832	$46,535
204	65.4%	$78,538	$70,356	$46,535
205	65.4%	$78,010	$69,884	$46,535
206	64.7%	$77,486	$69,417	$46,535
207	64.7%	$76,968	$68,955	$46,535
208	63.4%	$76,455	$68,497	$46,535
209	62.1%	$75,946	$68,043	$46,535
210	61.4%	$75,443	$67,593	$46,535
211	60.8%	$74,944	$67,148	$46,535
212	60.1%	$74,450	$66,707	$46,535
213	60.1%	$73,960	$66,270	$46,535
214	60.1%	$73,475	$65,837	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
215	60.1%	$72,995	$65,409	$46,535
216	60.1%	$72,519	$64,984	$46,535
217	60.1%	$72,047	$64,563	$46,535
218	59.5%	$71,580	$64,146	$46,535
219	58.8%	$71,117	$63,733	$46,535
220	58.8%	$70,659	$63,323	$46,535
221	58.8%	$70,204	$62,918	$46,535
222	58.2%	$69,754	$62,516	$46,535
223	57.5%	$69,307	$62,117	$46,535
224	57.5%	$68,865	$61,722	$46,535
225	57.5%	$68,426	$61,331	$46,535
226	57.5%	$67,991	$60,943	$46,535
227	56.9%	$67,561	$60,558	$46,535
228	56.9%	$67,134	$60,177	$46,535
229	56.2%	$66,710	$59,799	$46,535
230	56.2%	$66,291	$59,425	$46,535
231	56.2%	$65,875	$59,054	$46,535
232	56.2%	$65,462	$58,686	$46,535
233	56.2%	$65,053	$58,321	$46,535
234	56.2%	$64,648	$57,959	$46,535
235	56.2%	$64,246	$57,600	$46,535
236	56.2%	$63,848	$57,244	$46,535
237	55.6%	$63,452	$56,892	$46,535
238	54.2%	$63,061	$56,542	$46,535
239	53.6%	$62,672	$56,195	$46,535
240	53.6%	$62,287	$55,851	$46,535
241	53.6%	$61,905	$55,510	$46,535
242	53.6%	$61,526	$55,172	$46,535
243	53.6%	$61,150	$54,836	$46,535
244	53.6%	$60,777	$54,504	$46,535
245	52.9%	$60,407	$54,174	$46,535
246	52.9%	$60,041	$53,847	$46,535
247	52.9%	$59,677	$53,522	$46,535
248	52.9%	$59,316	$53,200	$46,535
249	52.3%	$58,958	$52,880	$46,535
250	52.3%	$58,603	$52,563	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
251	52.3%	$58,251	$52,249	$46,535
252	52.3%	$57,901	$51,937	$46,535
253	52.3%	$57,555	$51,628	$46,535
254	52.3%	$57,211	$51,321	$46,535
255	52.3%	$56,870	$51,016	$46,535
256	51.0%	$56,531	$50,714	$46,535
257	51.0%	$56,195	$50,414	$46,535
258	51.0%	$55,862	$50,117	$46,535
259	50.3%	$55,531	$49,822	$46,535
260	50.3%	$55,203	$49,529	$46,535
261	49.0%	$54,877	$49,238	$46,535
262	48.4%	$54,554	$48,949	$46,535
263	48.4%	$54,233	$48,663	$46,535
264	48.4%	$53,915	$48,379	$46,535
265	48.4%	$53,599	$48,097	$46,535
266	48.4%	$53,285	$47,817	$46,535
267	48.4%	$52,974	$47,514	$46,535
268	47.7%	$52,665	$47,173	$46,535
269	47.7%	$52,359	$46,953	$46,535
270	47.7%	$52,054	$46,719	$46,535
271	47.7%	$51,752	$46,449	$46,535
272	47.7%	$51,452	$46,181	$46,535
273	47.7%	$51,155	$45,916	$46,535
274	47.7%	$50,859	$45,652	$46,535
275	47.7%	$50,566	$45,390	$46,535
276	47.7%	$50,275	$45,130	$46,535
277	47.7%	$49,986	$44,872	$46,535
278	47.1%	$49,699	$44,616	$46,535
279	46.4%	$49,414	$44,362	$46,535
280	45.1%	$49,131	$44,109	$46,535
281	44.4%	$48,850	$43,858	$46,535
282	44.4%	$48,571	$43,610	$46,535
283	44.4%	$48,294	$43,362	$46,535
284	44.4%	$48,019	$43,117	$46,535
285	44.4%	$47,746	$42,873	$46,535
286	44.4%	$47,475	$42,631	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
287	43.8%	$47,206	$42,391	$46,535
288	43.1%	$46,938	$42,152	$46,535
289	43.1%	$46,673	$41,915	$46,535
290	42.5%	$46,409	$41,680	$46,535
291	42.5%	$46,147	$41,446	$46,535
292	42.5%	$45,887	$41,214	$46,535
293	42.5%	$45,629	$40,983	$46,535
294	42.5%	$45,372	$40,754	$46,535
295	41.8%	$45,117	$40,527	$46,535
296	41.8%	$44,864	$40,301	$46,535
297	41.8%	$44,613	$40,077	$46,535
298	41.8%	$44,363	$39,854	$46,535
299	41.8%	$44,115	$39,632	$46,535
300	41.2%	$43,869	$39,412	$46,535
301	40.5%	$43,624	$39,194	$46,535
302	39.9%	$43,381	$38,977	$46,535
303	39.9%	$43,139	$38,761	$46,535
304	39.9%	$42,899	$38,547	$46,535
305	39.9%	$42,661	$38,334	$46,535
306	39.9%	$42,424	$38,123	$46,535
307	39.2%	$42,189	$37,913	$46,535
308	39.2%	$41,955	$37,685	$46,535
309	39.2%	$41,723	$37,430	$46,535
310	39.2%	$41,492	$37,177	$46,535
311	39.2%	$41,263	$36,925	$46,535
312	39.2%	$41,035	$36,675	$46,535
313	39.2%	$40,809	$36,426	$46,535
314	39.2%	$40,584	$36,179	$46,535
315	39.2%	$40,360	$35,934	$46,535
316	38.6%	$40,138	$35,690	$46,535
317	38.6%	$39,918	$35,448	$46,535
318	38.6%	$39,698	$35,207	$46,535
319	38.6%	$39,480	$34,968	$46,535
320	38.6%	$39,264	$34,730	$46,535
321	38.6%	$39,049	$34,494	$46,535
322	38.6%	$38,835	$34,259	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
323	38.6%	$38,622	$34,026	$46,535
324	38.6%	$38,411	$33,794	$46,535
325	38.6%	$38,201	$33,563	$46,535
326	38.6%	$37,993	$33,334	$46,535
327	38.6%	$37,785	$33,106	$46,535
328	38.6%	$37,579	$32,880	$46,535
329	38.6%	$37,375	$32,655	$46,535
330	38.6%	$37,171	$32,432	$46,535
331	37.9%	$36,969	$32,209	$46,535
332	37.9%	$36,768	$31,989	$46,535
333	37.9%	$36,568	$31,769	$46,535
334	37.9%	$36,369	$31,551	$46,535
335	37.9%	$36,171	$31,334	$46,535
336	37.9%	$35,975	$31,118	$46,535
337	37.9%	$35,780	$30,904	$46,535
338	37.3%	$35,586	$30,691	$46,535
339	37.3%	$35,393	$30,479	$46,535
340	37.3%	$35,201	$30,268	$46,535
341	37.3%	$35,010	$30,059	$46,535
342	36.6%	$34,821	$29,851	$46,535
343	35.9%	$34,633	$29,644	$46,535
344	35.9%	$34,445	$29,438	$46,535
345	35.3%	$34,259	$29,234	$46,535
346	35.3%	$34,074	$29,031	$46,535
347	35.3%	$33,890	$28,828	$46,535
348	35.3%	$33,707	$28,627	$46,535
349	34.0%	$33,525	$28,428	$46,535
350	33.3%	$33,344	$28,229	$46,535
351	33.3%	$33,164	$28,031	$46,535
352	33.3%	$32,985	$27,835	$46,535
353	32.7%	$32,807	$27,639	$46,535
354	32.7%	$32,630	$27,445	$46,535
355	32.7%	$32,454	$27,252	$46,535
356	32.7%	$32,280	$27,060	$46,535
357	32.7%	$32,106	$26,871	$46,535
358	32.7%	$31,933	$26,741	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
359	32.0%	$31,761	$26,612	$46,535
360	32.0%	$31,590	$26,483	$46,535
361	32.0%	$31,420	$26,355	$46,535
362	32.0%	$31,251	$26,228	$46,535
363	32.0%	$31,082	$26,101	$46,535
364	31.4%	$30,915	$25,975	$46,535
365	31.4%	$30,749	$25,850	$46,535
366	31.4%	$30,583	$25,725	$46,535
367	31.4%	$30,419	$25,602	$46,535
368	31.4%	$30,255	$25,479	$46,535
369	30.7%	$30,092	$25,356	$46,535
370	30.1%	$29,930	$25,234	$46,535
371	30.1%	$29,769	$25,113	$46,535
372	30.1%	$29,609	$24,993	$46,535
373	28.8%	$29,450	$24,873	$46,535
374	28.8%	$29,292	$24,753	$46,535
375	28.8%	$29,134	$24,635	$46,535
376	28.8%	$28,977	$24,517	$46,535
377	28.8%	$28,821	$24,400	$46,535
378	28.8%	$28,666	$24,283	$46,535
379	27.5%	$28,512	$24,167	$46,535
380	27.5%	$28,358	$24,051	$46,535
381	27.5%	$28,206	$23,936	$46,535
382	26.1%	$28,054	$23,822	$46,535
383	26.1%	$27,903	$23,708	$46,535
384	26.1%	$27,753	$23,595	$46,535
385	26.1%	$27,603	$23,483	$46,535
386	26.1%	$27,454	$23,371	$46,535
387	26.1%	$27,306	$23,260	$46,535
388	26.1%	$27,159	$23,149	$46,535
389	26.1%	$27,013	$23,039	$46,535
390	26.1%	$26,867	$22,929	$46,535
391	26.1%	$26,722	$22,820	$46,535
392	26.1%	$26,578	$22,711	$46,535
393	26.1%	$26,434	$22,603	$46,535
394	26.1%	$26,292	$22,496	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
395	25.5%	$26,150	$22,389	$46,535
396	25.5%	$26,008	$22,283	$46,535
397	25.5%	$25,868	$22,177	$46,535
398	25.5%	$25,728	$22,072	$46,535
399	25.5%	$25,589	$21,967	$46,535
400	25.5%	$25,450	$21,863	$46,535
401	25.5%	$25,313	$21,759	$46,535
402	25.5%	$25,175	$21,656	$46,535
403	25.5%	$25,039	$21,553	$46,535
404	25.5%	$24,903	$21,451	$46,535
405	25.5%	$24,768	$21,349	$46,535
406	25.5%	$24,634	$21,248	$46,535
407	25.5%	$24,500	$21,148	$46,535
408	25.5%	$24,367	$21,047	$46,535
409	25.5%	$24,234	$20,948	$46,535
410	25.5%	$24,103	$20,849	$46,535
411	25.5%	$23,971	$20,750	$46,535
412	25.5%	$23,841	$20,652	$46,535
413	25.5%	$23,711	$20,554	$46,535
414	25.5%	$23,582	$20,457	$46,535
415	25.5%	$23,453	$20,360	$46,535
416	24.8%	$23,325	$20,264	$46,535
417	24.8%	$23,198	$20,168	$46,535
418	24.8%	$23,071	$20,072	$46,535
419	24.8%	$22,945	$19,977	$46,535
420	24.8%	$22,819	$19,883	$46,535
421	24.8%	$22,694	$19,789	$46,535
422	24.8%	$22,570	$19,695	$46,535
423	24.8%	$22,446	$19,602	$46,535
424	24.2%	$22,323	$19,500	$46,535
425	24.2%	$22,200	$19,384	$46,535
426	24.2%	$22,078	$19,268	$46,535
427	24.2%	$21,956	$19,152	$46,535
428	24.2%	$21,836	$19,038	$46,535
429	24.2%	$21,715	$18,923	$46,535
430	23.5%	$21,595	$18,809	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
431	23.5%	$21,476	$18,696	$46,535
432	22.9%	$21,357	$18,583	$46,535
433	22.2%	$21,239	$18,471	$46,535
434	22.2%	$21,122	$18,359	$46,535
435	22.2%	$21,005	$18,248	$46,535
436	22.2%	$20,888	$18,137	$46,535
437	22.2%	$20,772	$18,027	$46,535
438	21.6%	$20,657	$17,918	$46,535
439	20.9%	$20,542	$17,808	$46,535
440	20.9%	$20,427	$17,700	$46,535
441	20.9%	$20,313	$17,592	$46,535
442	20.9%	$20,200	$17,484	$46,535
443	20.9%	$20,087	$17,377	$46,535
444	20.9%	$19,975	$17,270	$46,535
445	20.9%	$19,863	$17,164	$46,535
446	20.9%	$19,751	$17,058	$46,535
447	20.9%	$19,641	$16,952	$46,535
448	20.3%	$19,530	$16,848	$46,535
449	19.6%	$19,420	$16,743	$46,535
450	19.0%	$19,311	$16,639	$46,535
451	19.0%	$19,202	$16,536	$46,535
452	19.0%	$19,094	$16,433	$46,535
453	19.0%	$18,986	$16,330	$46,535
454	19.0%	$18,878	$16,228	$46,535
455	19.0%	$18,771	$16,127	$46,535
456	19.0%	$18,665	$16,025	$46,535
457	19.0%	$18,559	$15,925	$46,535
458	19.0%	$18,453	$15,824	$46,535
459	18.3%	$18,348	$15,724	$46,535
460	18.3%	$18,243	$15,625	$46,535
461	18.3%	$18,139	$15,526	$46,535
462	18.3%	$18,035	$15,427	$46,535
463	18.3%	$17,932	$15,329	$46,535
464	17.6%	$17,829	$15,232	$46,535
465	17.6%	$17,727	$15,134	$46,535
466	17.6%	$17,625	$15,037	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
467	17.6%	$17,523	$14,941	$46,535
468	17.6%	$17,422	$14,845	$46,535
469	17.6%	$17,321	$14,749	$46,535
470	17.0%	$17,221	$14,654	$46,535
471	17.0%	$17,121	$14,559	$46,535
472	17.0%	$17,022	$14,465	$46,535
473	17.0%	$16,923	$14,360	$46,535
474	17.0%	$16,824	$14,246	$46,535
475	17.0%	$16,726	$14,133	$46,535
476	17.0%	$16,628	$14,050	$46,535
477	17.0%	$16,531	$13,978	$46,535
478	17.0%	$16,434	$13,906	$46,535
479	17.0%	$16,337	$13,815	$46,535
480	17.0%	$16,241	$13,723	$46,535
481	17.0%	$16,145	$13,632	$46,535
482	17.0%	$16,050	$13,542	$46,535
483	17.0%	$15,955	$13,452	$46,535
484	17.0%	$15,861	$13,362	$46,535
485	17.0%	$15,767	$13,272	$46,535
486	17.0%	$15,673	$13,183	$46,535
487	17.0%	$15,579	$13,095	$46,535
488	17.0%	$15,486	$13,006	$46,535
489	17.0%	$15,394	$12,918	$46,535
490	17.0%	$15,301	$12,831	$46,535
491	17.0%	$15,210	$12,743	$46,535
492	17.0%	$15,118	$12,656	$46,535
493	16.3%	$15,027	$12,570	$46,535
494	16.3%	$14,936	$12,484	$46,535
495	16.3%	$14,846	$12,398	$46,535
496	16.3%	$14,756	$12,312	$46,535
497	16.3%	$14,666	$12,227	$46,535
498	16.3%	$14,577	$12,142	$46,535
499	16.3%	$14,488	$12,058	$46,535
500	16.3%	$14,399	$11,974	$46,535
501	16.3%	$14,311	$11,890	$46,535
502	16.3%	$14,223	$11,806	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
503	16.3%	$14,136	$11,723	$46,535
504	16.3%	$14,049	$11,640	$46,535
505	16.3%	$13,962	$11,558	$46,535
506	16.3%	$13,875	$11,476	$46,535
507	16.3%	$13,789	$11,401	$46,535
508	15.0%	$13,703	$11,343	$46,535
509	15.0%	$13,618	$11,281	$46,535
510	15.0%	$13,533	$11,193	$46,535
511	14.4%	$13,448	$11,106	$46,535
512	13.7%	$13,363	$11,018	$46,535
513	13.7%	$13,279	$10,932	$46,535
514	13.7%	$13,195	$10,845	$46,535
515	13.7%	$13,112	$10,759	$46,535
516	13.7%	$13,029	$10,673	$46,535
517	13.1%	$12,946	$10,593	$46,535
518	13.1%	$12,863	$10,514	$46,535
519	13.1%	$12,781	$10,436	$46,535
520	13.1%	$12,699	$10,359	$46,535
521	13.1%	$12,618	$10,281	$46,535
522	13.1%	$12,536	$10,204	$46,535
523	13.1%	$12,455	$10,127	$46,535
524	13.1%	$12,375	$10,050	$46,535
525	13.1%	$12,294	$9,974	$46,535
526	13.1%	$12,214	$9,898	$46,535
527	13.1%	$12,135	$9,822	$46,535
528	13.1%	$12,055	$9,747	$46,535
529	13.1%	$11,976	$9,672	$46,535
530	13.1%	$11,897	$9,597	$46,535
531	12.4%	$11,819	$9,522	$46,535
532	12.4%	$11,741	$9,448	$46,535
533	11.1%	$11,663	$9,374	$46,535
534	11.1%	$11,585	$9,300	$46,535
535	11.1%	$11,508	$9,226	$46,535
536	11.1%	$11,430	$9,153	$46,535
537	11.1%	$11,354	$9,080	$46,535
538	11.1%	$11,277	$9,008	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
539	11.1%	$11,201	$8,935	$46,535
540	11.1%	$11,125	$8,863	$46,535
541	11.1%	$11,049	$8,791	$46,535
542	11.1%	$10,974	$8,720	$46,535
543	11.1%	$10,899	$8,648	$46,535
544	11.1%	$10,824	$8,577	$46,535
545	11.1%	$10,750	$8,506	$46,535
546	11.1%	$10,675	$8,436	$46,535
547	11.1%	$10,601	$8,366	$46,535
548	11.1%	$10,528	$8,295	$46,535
549	11.1%	$10,454	$8,226	$46,535
550	10.5%	$10,381	$8,156	$46,535
551	10.5%	$10,308	$8,087	$46,535
552	9.8%	$10,235	$8,018	$46,535
553	9.8%	$10,163	$7,949	$46,535
554	9.8%	$10,091	$7,881	$46,535
555	9.8%	$10,019	$7,812	$46,535
556	9.8%	$9,947	$7,744	$46,535
557	9.8%	$9,876	$7,676	$46,535
558	9.8%	$9,805	$7,609	$46,535
559	9.8%	$9,734	$7,542	$46,535
560	9.8%	$9,663	$7,474	$46,535
561	9.8%	$9,593	$7,408	$46,535
562	9.8%	$9,523	$7,341	$46,535
563	9.8%	$9,453	$7,275	$46,535
564	9.8%	$9,383	$7,209	$46,535
565	9.8%	$9,314	$7,143	$46,535
566	9.8%	$9,245	$7,077	$46,535
567	9.8%	$9,176	$7,012	$46,535
568	9.8%	$9,107	$6,946	$46,535
569	9.8%	$9,039	$6,881	$46,535
570	9.8%	$8,971	$6,817	$46,535
571	9.8%	$8,903	$6,752	$46,535
572	9.8%	$8,835	$6,688	$46,535
573	9.8%	$8,768	$6,618	$46,535
574	9.8%	$8,701	$6,546	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
575	9.2%	$8,634	$6,475	$46,535
576	9.2%	$8,567	$6,404	$46,535
577	9.2%	$8,500	$6,333	$46,535
578	9.2%	$8,434	$6,262	$46,535
579	9.2%	$8,368	$6,192	$46,535
580	9.2%	$8,302	$6,121	$46,535
581	9.2%	$8,237	$6,052	$46,535
582	9.2%	$8,171	$5,982	$46,535
583	9.2%	$8,106	$5,912	$46,535
584	9.2%	$8,041	$5,843	$46,535
585	8.5%	$7,977	$5,774	$46,535
586	8.5%	$7,912	$5,705	$46,535
587	8.5%	$7,848	$5,637	$46,535
588	7.8%	$7,784	$5,569	$46,535
589	7.8%	$7,720	$5,503	$46,535
590	7.8%	$7,656	$5,456	$46,535
591	7.8%	$7,593	$5,408	$46,535
592	7.8%	$7,530	$5,361	$46,535
593	7.8%	$7,467	$5,315	$46,535
594	7.8%	$7,404	$5,268	$46,535
595	7.8%	$7,342	$5,221	$46,535
596	7.8%	$7,279	$5,175	$46,535
597	7.8%	$7,217	$5,129	$46,535
598	7.8%	$7,155	$5,083	$46,535
599	7.8%	$7,094	$5,033	$46,535
600	7.8%	$7,032	$4,975	$46,535
601	7.8%	$6,971	$4,917	$46,535
602	7.8%	$6,910	$4,859	$46,535
603	7.8%	$6,849	$4,801	$46,535
604	7.8%	$6,788	$4,743	$46,535
605	7.8%	$6,728	$4,686	$46,535
606	7.8%	$6,667	$4,629	$46,535
607	7.8%	$6,607	$4,571	$46,535
608	7.8%	$6,547	$4,515	$46,535
609	7.8%	$6,488	$4,458	$46,535
610	7.8%	$6,428	$4,404	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
611	6.5%	$6,369	$4,377	$46,535
612	6.5%	$6,310	$4,350	$46,535
613	6.5%	$6,251	$4,324	$46,535
614	6.5%	$6,192	$4,289	$46,535
615	6.5%	$6,134	$4,229	$46,535
616	6.5%	$6,075	$4,168	$46,535
617	6.5%	$6,017	$4,108	$46,535
618	6.5%	$5,959	$4,048	$46,535
619	6.5%	$5,901	$3,988	$46,535
620	6.5%	$5,844	$3,929	$46,535
621	6.5%	$5,786	$3,869	$46,535
622	6.5%	$5,729	$3,810	$46,535
623	6.5%	$5,672	$3,751	$46,535
624	5.9%	$5,615	$3,692	$46,535
625	5.9%	$5,559	$3,633	$46,535
626	5.9%	$5,502	$3,575	$46,535
627	5.9%	$5,446	$3,517	$46,535
628	5.9%	$5,390	$3,458	$46,535
629	5.9%	$5,334	$3,383	$46,535
630	5.9%	$5,278	$3,309	$46,535
631	5.9%	$5,222	$3,256	$46,535
632	5.9%	$5,167	$3,203	$46,535
633	5.9%	$5,112	$3,151	$46,535
634	5.9%	$5,057	$3,098	$46,535
635	5.9%	$5,002	$3,046	$46,535
636	5.9%	$4,947	$2,997	$46,535
637	5.2%	$4,892	$2,944	$46,535
638	5.2%	$4,838	$2,891	$46,535
639	5.2%	$4,784	$2,844	$46,535
640	5.2%	$4,730	$2,804	$46,535
641	5.2%	$4,676	$2,764	$46,535
642	5.2%	$4,622	$2,725	$46,535
643	5.2%	$4,569	$2,684	$46,535
644	5.2%	$4,515	$2,640	$46,535
645	4.6%	$4,462	$2,596	$46,535
646	4.6%	$4,409	$2,552	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
647	4.6%	$4,356	$2,508	$46,535
648	4.6%	$4,303	$2,465	$46,535
649	4.6%	$4,251	$2,421	$46,535
650	4.6%	$4,199	$2,378	$46,535
651	4.6%	$4,146	$2,335	$46,535
652	4.6%	$4,094	$2,292	$46,535
653	4.6%	$4,042	$2,249	$46,535
654	4.6%	$3,991	$2,206	$46,535
655	4.6%	$3,939	$2,164	$46,535
656	3.9%	$3,888	$2,121	$46,535
657	3.9%	$3,836	$2,079	$46,535
658	3.9%	$3,785	$2,037	$46,535
659	3.9%	$3,734	$1,994	$46,535
660	3.9%	$3,683	$1,952	$46,535
661	3.9%	$3,633	$1,911	$46,535
662	3.9%	$3,582	$1,869	$46,535
663	3.9%	$3,532	$1,827	$46,535
664	3.9%	$3,482	$1,786	$46,535
665	3.9%	$3,432	$1,744	$46,535
666	3.9%	$3,382	$1,703	$46,535
667	3.9%	$3,332	$1,662	$46,535
668	3.9%	$3,282	$1,621	$46,535
669	3.9%	$3,233	$1,580	$46,535
670	3.9%	$3,184	$1,539	$46,535
671	3.9%	$3,134	$1,499	$46,535
672	3.9%	$3,085	$1,458	$46,535
673	3.9%	$3,036	$1,418	$46,535
674	3.9%	$2,988	$1,378	$46,535
675	3.9%	$2,939	$1,338	$46,535
676	3.9%	$2,891	$1,298	$46,535
677	3.3%	$2,842	$1,258	$46,535
678	3.3%	$2,794	$1,218	$46,535
679	3.3%	$2,746	$1,178	$46,535
680	3.3%	$2,698	$1,139	$46,535
681	3.3%	$2,651	$1,099	$46,535
682	3.3%	$2,603	$1,060	$46,535

Participating Permits	Percent of Individuals Meeting or Exceeding RLMI Benchmark	Mean RLMI Scaled	Median RLMI	Mean RLMI Benchmark
683	3.3%	$2,556	$1,021	$46,535
684	3.3%	$2,508	$982	$46,535
685	3.3%	$2,461	$943	$46,535
686	3.3%	$2,414	$904	$46,535
687	3.3%	$2,367	$865	$46,535
688	3.3%	$2,320	$826	$46,535
689	3.3%	$2,274	$788	$46,535
690	3.3%	$2,227	$749	$46,535
691	3.3%	$2,181	$711	$46,535
692	3.3%	$2,135	$673	$46,535
693	3.3%	$2,089	$635	$46,535
694	3.3%	$2,043	$597	$46,535
695	3.3%	$1,997	$559	$46,535
696	3.3%	$1,951	$521	$46,535
697	3.3%	$1,906	$484	$46,535
698	3.3%	$1,860	$446	$46,535
699	3.3%	$1,815	$409	$46,535
700	3.3%	$1,770	$371	$46,535

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To: Doug Vincent-Lang
Commissioner
Alaska Department of Fish and Game

Thru: Glenn Haight, Chair
Rick Green, Commissioner
Commercial Fisheries Entry Commission

From: Reid Johnson, Research Section Lead
Commercial Fisheries Entry Commission

Date: September 26, 2025

Subject: Alaska Department of Fish and Game Input for Prince William Sound Drift Gillnet Management Optimum Numbers

The Commercial Fisheries Entry Commission (CFEC) was petitioned by members of the public to review the Prince William Sound (PWS) drift gillnet fishery (S 03E permit type) and to define an optimum number of limited entry permits as outlined under AS 16.43.290. To do so, CFEC requires technical input from the Alaska Department of Fish and Game (ADFG) regarding the management of fishing effort under varying biological and ecological conditions.

The optimum number of limited entry permits is not a single number, but rather a range of permits which has an upper and lower bound. The upper and lower bounds of this range are based upon three standards as defined in statute:

> **AS 16.43.290 Optimum Number of Limited Entry Permits**
>
> Following the issuance of entry permits under AS 16.43.270, the commission shall establish the optimum number of entry permits for each fishery based upon a reasonable balance of the following general standards:
>
> 1. The number of entry permits sufficient to maintain an economically healthy fishery that will result in a reasonable average rate of economic return to the fishermen participating in that fishery, considering time fished and necessary investments in vessels and gear;
> 2. The number of entry permits necessary to harvest the allowable commercial take of the fishery resource during all years in an orderly, efficient manner, and consistent with sound fishery management techniques;
> 3. The number of entry permits sufficient to avoid serious economic hardship to those currently engaged in the fishery, considering other economic opportunities available to them.

When an optimum numbers study is conducted, CFEC uses a comprehensive analysis to determine the economic optimum numbers under the first and third standards listed above. To achieve this, CFEC surveys permit holders and uses their input to define participation costs. These participation

costs are integrated with gross revenues (generated from fish ticket and COAR data sets) in order to estimate net revenues for participating permit holders. These net revenues are then compared to the median household income for the area local to the fishery. The census area local to the PWS drift gillnet fishery is the Chugach Census Area. The central premise of the optimum numbers study is that the net revenue generated from participating in the fishery should be comparable to the other economic opportunities available in the area, which is generally represented by the median household income as reported by the US Census Bureau.

While CFEC staff can determine the economic optimum number, CFEC depends upon ADFG management biologists to determine the management optimum number of entry permits required under AS 16.43.290(2). We realize that the PWS drift gillnet fishery presents unique challenges that must be considered:

1. Participants in this fishery harvest both wild and hatchery stocks, each of which have considerable variability in run size, and differ in run timing. These factors combine to create high variance in harvestable surplus from one year to the next.
2. Run forecasts are imprecise and hatchery returns vary by orders of magnitude from one year to the next. For some of the department managed runs, pulses of abundance can occur within short temporal windows, which prevents the use of the full harvesting capacity of the fleet.
3. Early in the season, Copper River sockeye salmon demand a premium market price, often orders of magnitude more than fish from other areas or than fish caught later in the season. Late in the season, chum salmon and Main Bay sockeye salmon stretch participation by the fleet across different fishing districts within PWS. The concentration of effort at the start of the season combined with the wide geographic distribution late in the season requires management biologists to implement two completely different management paradigms for effective prosecution of the fishery.
4. Management tools are primarily time and area openings, which scale depending on fleet participation.
5. There are 534 extant S 03E permits. In recent years there has been a high percentage of latent permits. In 2024, only 423 permits reported commercial deliveries. Participation has dropped drastically over the last 10 years.

CFEC's well defined role is to evaluate economic and statutory considerations for optimum numbers, but that analysis must rest on what is biologically and operationally manageable. It does neither little good to define an economic optimum number so low that the harvestable surplus cannot effectively be harvested, nor set the number so high that management biologists must effectively shut down the fishery to avoid overharvest of the fishery resource.

With all this in mind, CFEC requests ADFG's assessment of the following:

1. What is the lowest number of active drift gillnet permits with which ADFG can still reliably conduct a fishery where the harvestable surplus is caught by participants, and allocation objectives could still be achieved across a range of expected run conditions?
2. What is the highest number of active drift gillnet permits that ADFG could effectively manage using time/area controls and other in-season tools, while still ensuring escapement goals and conservation requirements are met?
3. How do constraints — such as Chinook conservation, hatchery cost recovery operations, and allocation to other gear groups — affect the effective range of permit holders that you could reasonably work with?

CFEC will incorporate ADFG's input into its broader statutory and economic evaluation of the optimum number of limited entry permits. Your identification of the minimum and maximum manageable permit levels will provide, in part, a foundation for this analysis. Again, economic analysis is generally meaningless without practical real world management considerations.

We appreciate your time and technical expertise, and we look forward to your response.

If you have further questions or need more information, please contact the CFEC Research Section at your convenience at reid.johnson@alaska.gov, (907) 717-6512.