

NSRAA - 2021 Salmon Season

- Returns/2022 Forecast
- Value/Allocation

NSRAA came in at **87%** of forecast overall – **3.8 Million fish**

all species



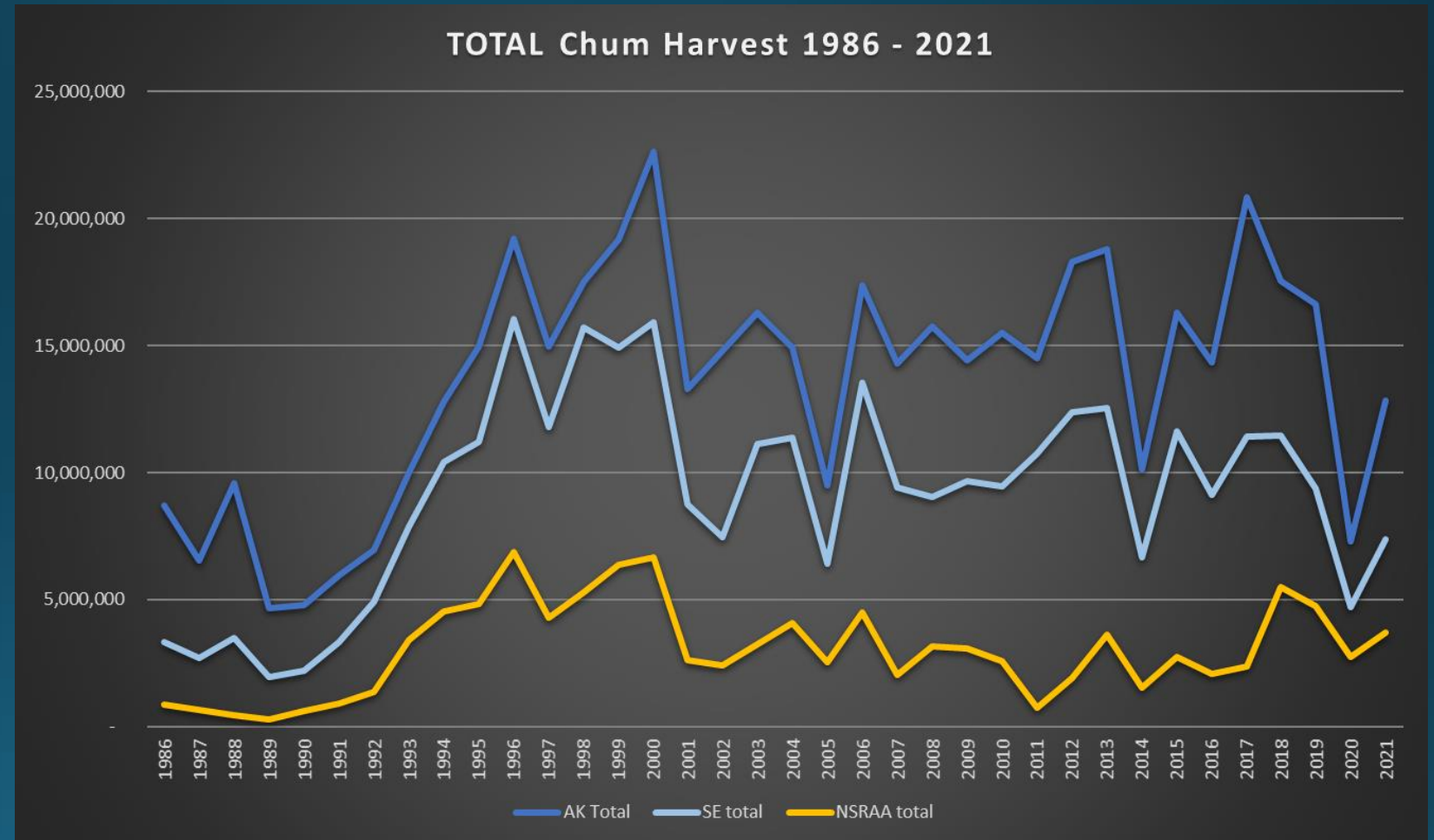
2021 Salmon Returns

-Chum



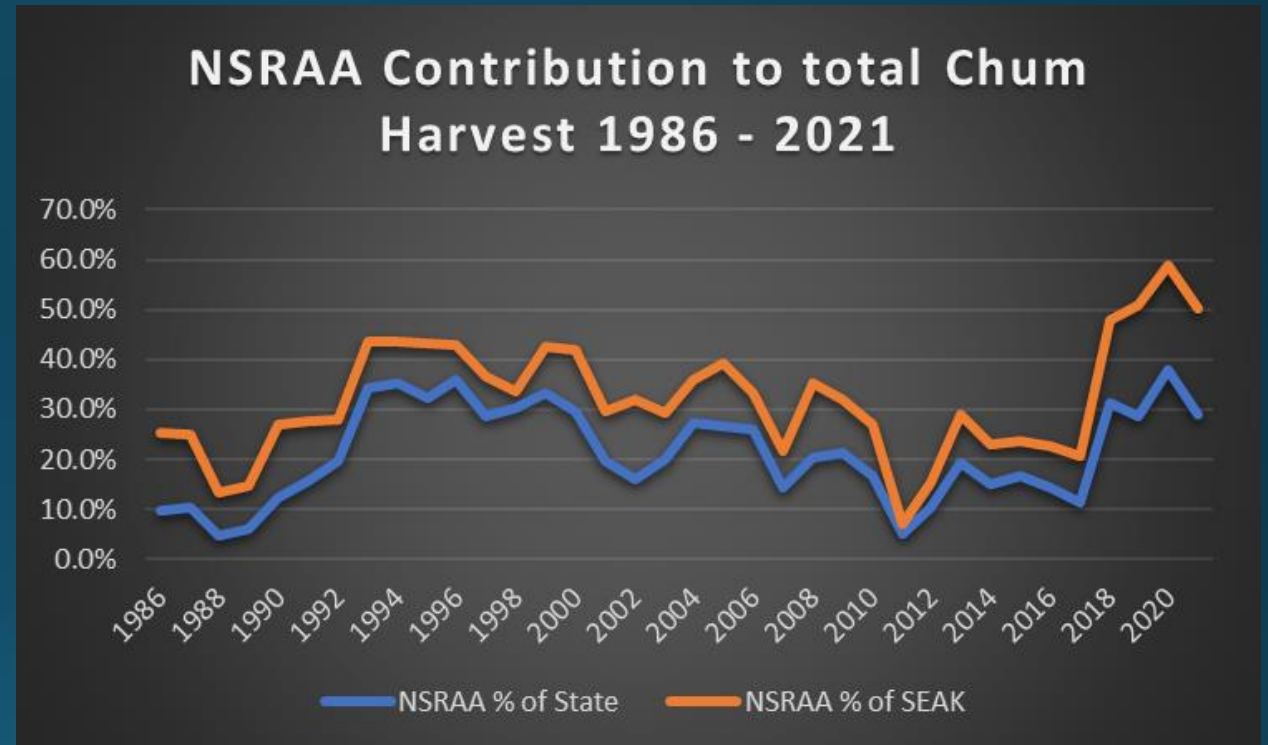
2021 Chum Returns – TOTAL HARVEST

- Better year than 2020
 - Still not great
- 2021 Total AK = 12.8 million
 - 24th/36 years
- 2021 Total SEAK = 7.4 million
 - 26th/36 years
- 2021 Total NSRAA = 3.7 million
 - 12th/36 years



2021 Chum Returns – TOTAL HARVEST

- Better year than 2020
 - Still not great
- NSRAA (3.7 m) = 29% of AK Harvest (12.8 m)
 - 10th/36 years
 - 2020 1st
- NSRAA (3.7 m) = 50% of SEAK Harvest (7.4 m)
 - 3rd/36 years
 - Top 4 years = 2018-2021



| Year | AK Total | SE total | NSRAA total | NSRAA % of State | Rank of 36 | NSRAA % of SEAK | Rank of 36 |
|------|------------|------------|-------------|------------------|------------|-----------------|------------|
| 2018 | 17,549,063 | 11,479,058 | 5,513,657 | 31.4% | 7 | 48.0% | 4 |
| 2019 | 16,628,170 | 9,357,462 | 4,759,621 | 28.6% | 12 | 50.9% | 2 |
| 2020 | 7,308,481 | 4,684,806 | 2,761,214 | 37.8% | 1 | 58.9% | 1 |
| 2021 | 12,837,156 | 7,365,613 | 3,701,510 | 28.8% | 10 | 50.3% | 3 |

2021 data sources:
 AK Total 2021 Salmon Harvest Summary (1/1/2021)
 SE total ADFG Tag Lab Database 11/3/2021
 NSRAA total Final Catch estimates

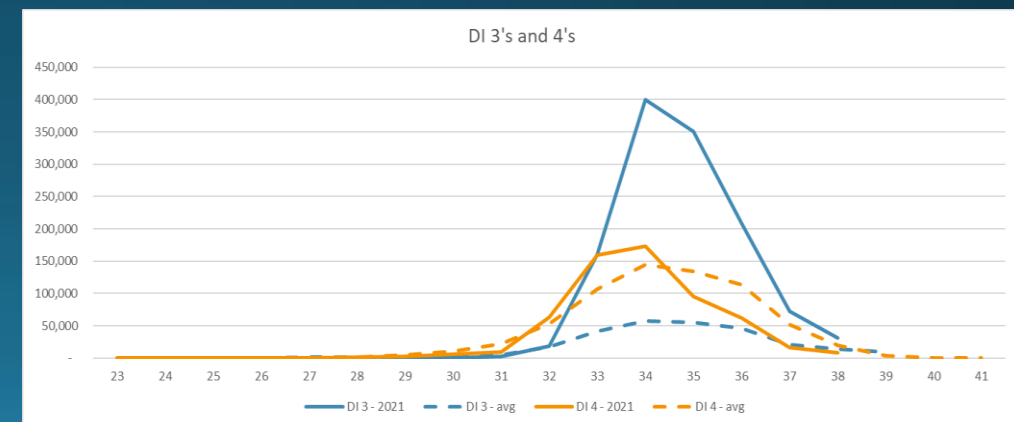
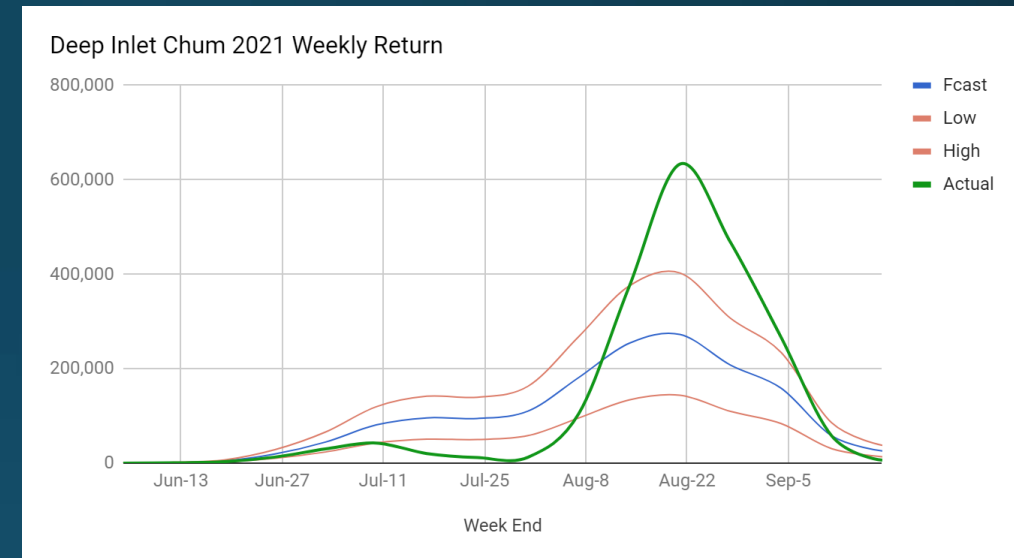
2021 Chum Returns – DEEP INLET

Summer run – 30% of forecast (120,000)

- No BY18 (3-year-old) component

Fall run – 130% of forecast (1.9 million)

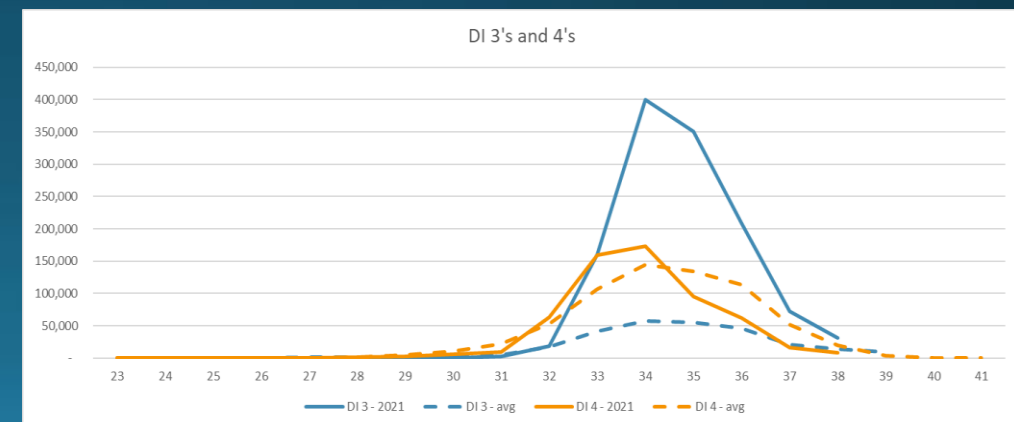
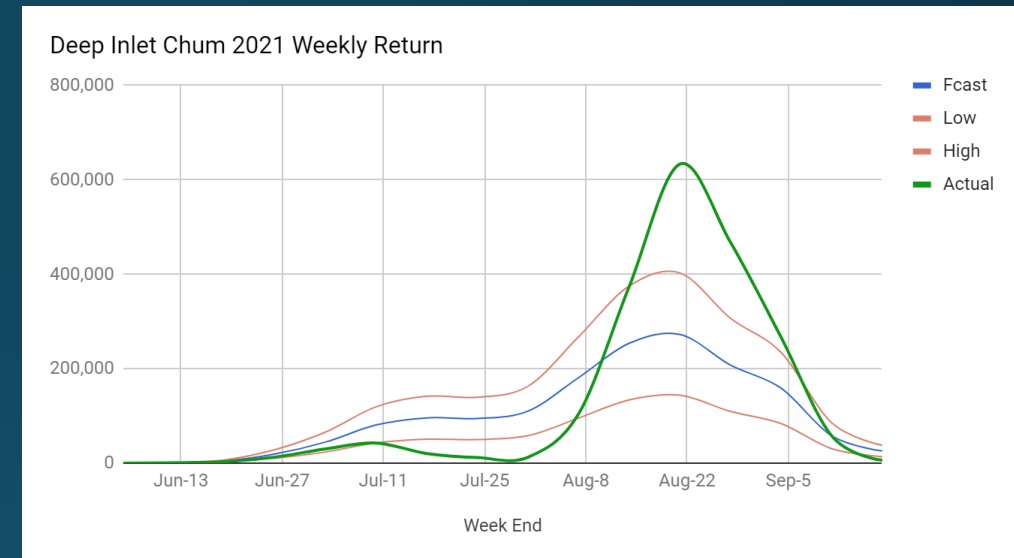
- No scheduled cost recovery, >90% of the return went to commercial fisheries
 - GN = 18% (379,000 total)
 - Peak catch week 34
- 69% 3-year-olds (2% survival to-date)
 - ~50% of these were bound for Bear Cove
 - Bear Cove component survived 1.8x greater than Deep Inlet
 - Likely changed Deep Inlet migration patterns



2021 Chum Returns – DEEP INLET

Silver Bay Harvest

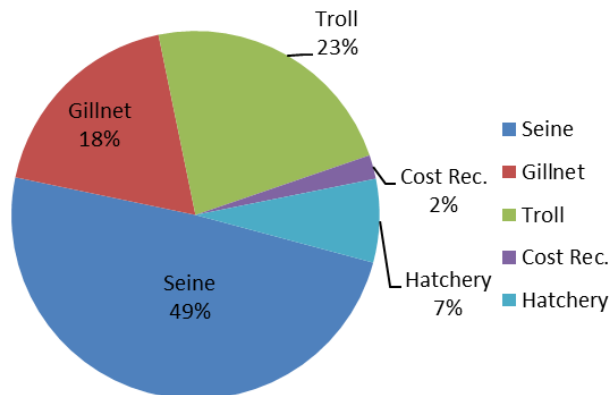
- Late Aug - Historically adequate brood secured in Bear Cove + buildup near Sawmill Creek
 - ADF&G requested a clean up effort
 - Cost recovery (8/28) – 37,000 caught
 - Determined majority to be BC origin
 - Additional fish remained, more coming
 - Commercial seine opening (9/2) - 30,000 fish (reported)
- Early Sept - excessively high male ratio at Medvejie Rack persisted
 - Ultimately required 30,000 additional fish for egg take
 - Closed Deep Inlet for chum and coho brood stock on 9/14
 - Captured/transported remaining ~5,000 chum for brood ~50 coho
 - Egg take extended through early October, goals were eventually met.



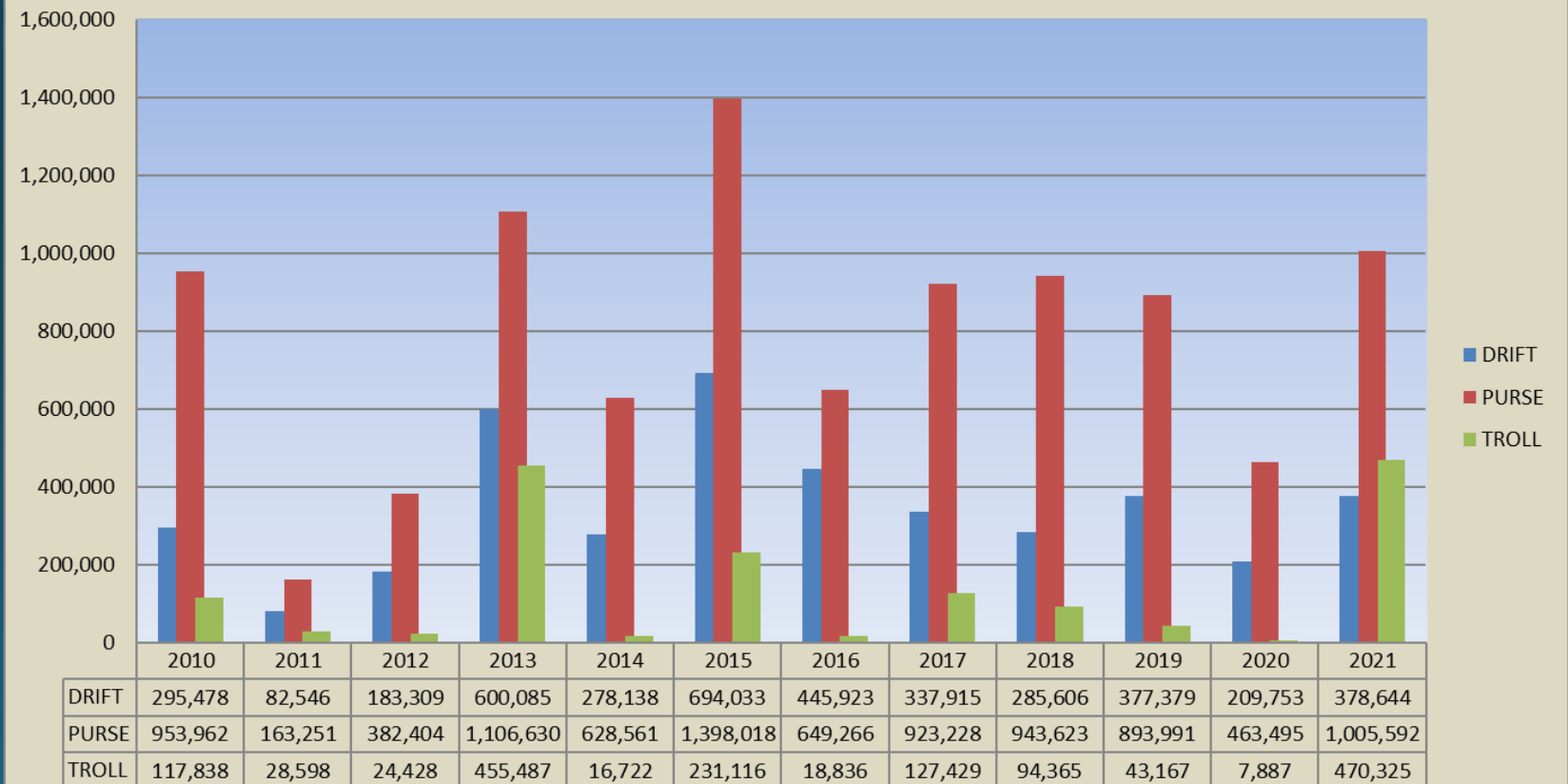
2021 Chum Returns – DEEP INLET

- Gillnet = 18% of total return
- Deep Inlet's Gillnet Chum catch was 379,000 which is 109% of the previous 10-year average

Deep Inlet Chum 2021 Return



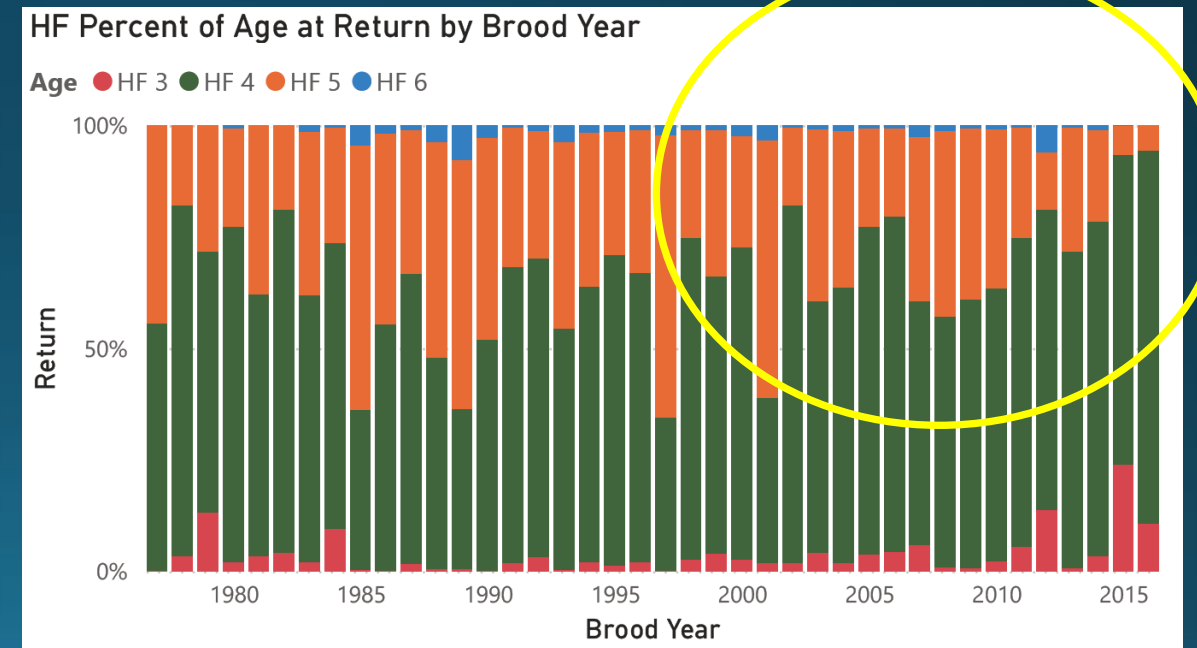
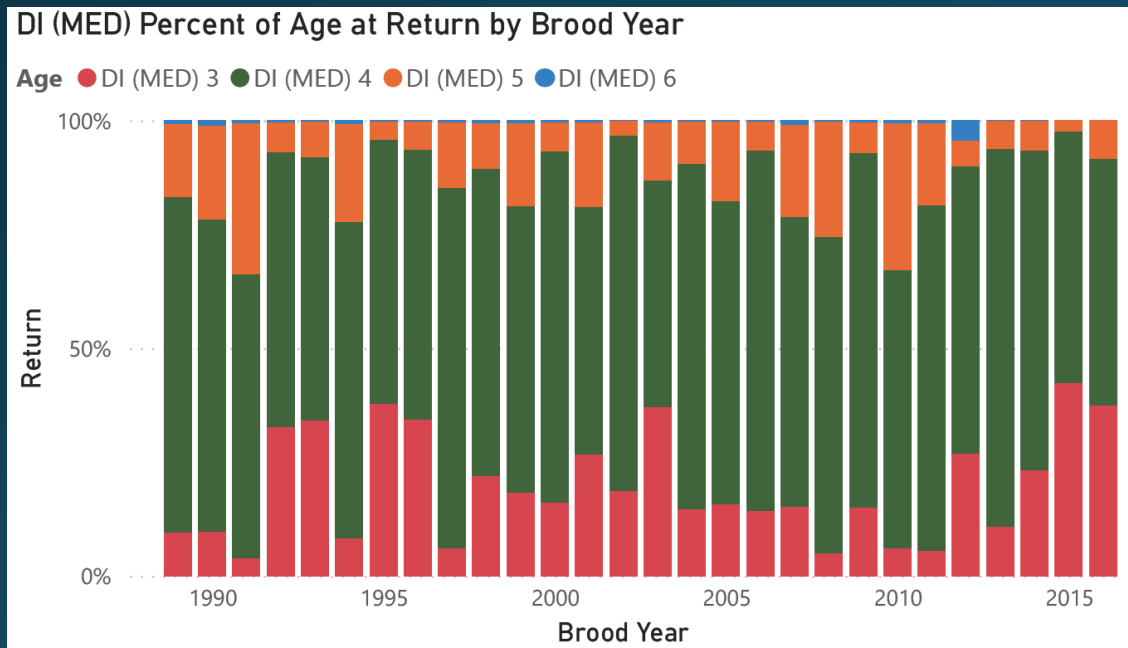
Deep Inlet
Chum Harvest - Catch



2021 Chum Returns – AGE SHIFT

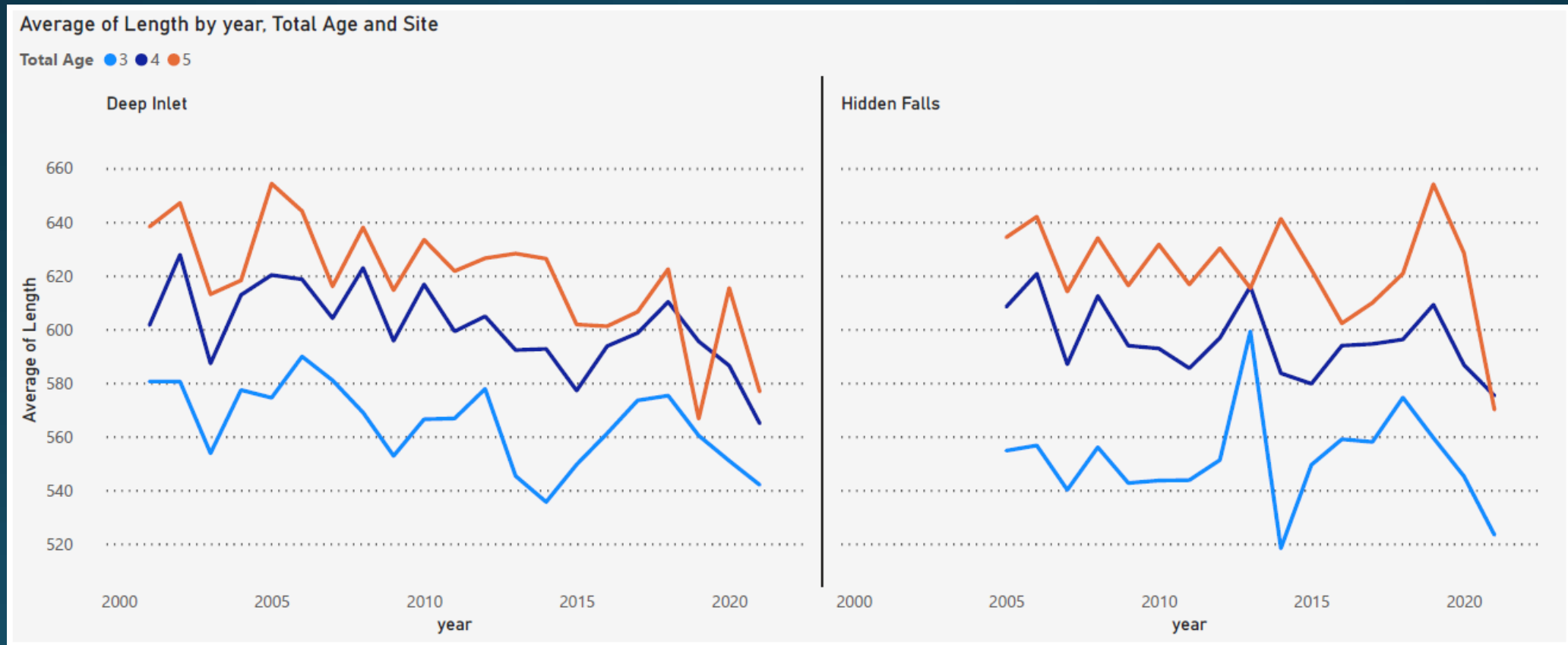
- Recent trends for both long term stocks
 - Fewer older fish, **more younger fish**

| 2021 Return Year Age Composition | | | | |
|----------------------------------|-----|-----|-----|----|
| SITE | 3 | 4 | 5 | 6 |
| HIDDEN FALLS | 10% | 86% | 3% | 0% |
| HIDDEN FALLS (SEC) | 15% | 69% | 15% | 1% |
| GUNNUK CREEK | 4% | 96% | 0% | 0% |
| HIDDEN FALLS (TB) | 3% | 92% | 4% | 0% |
| MEDVEJIE (HF) | 0% | 91% | 9% | 0% |
| MEDVEJIE (MED) | 69% | 30% | 1% | 0% |
| CRAWFISH INLET | 18% | 79% | 3% | 0% |



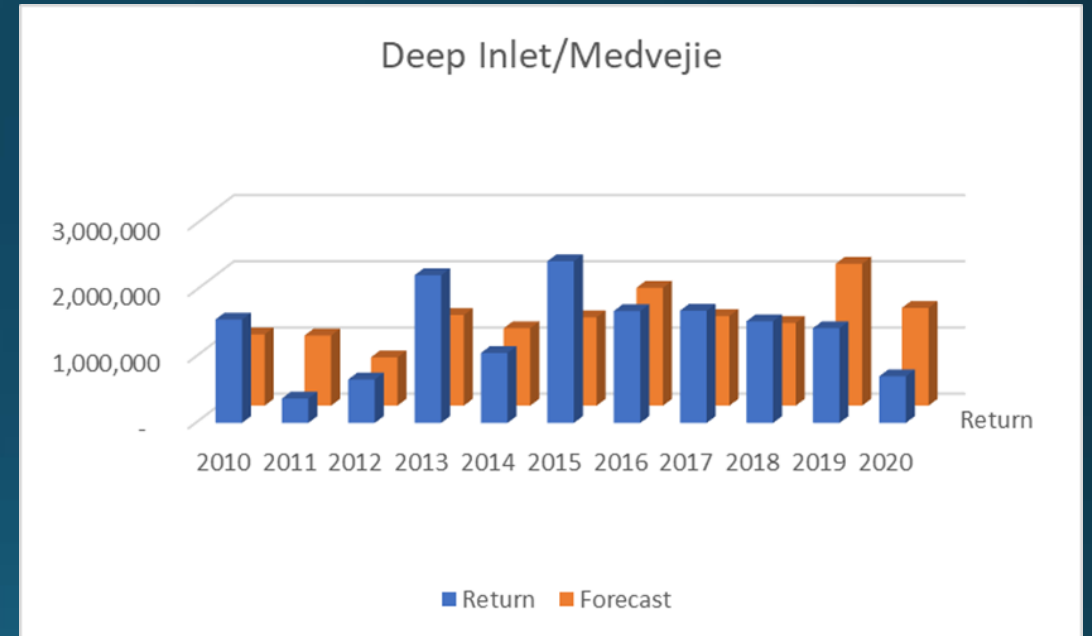
2021 Chum Returns – SIZE

- Size reduction over time across all ages and gender



2022 PRELIMINARY Forecasts

- Problematic
 - Age shifts...
 - Can't base return estimates off historical data
 - Otolith mark issues – DEEP INLET / BEAR COVE
 - Very large return of threes in 2021 – BY18 to-date survival 3.0% (BC) and 1.7% (DI) for discrete marks
 - Others released from both sites share a mark
 - How many threes came back from each??
 - Not knowing = hard to project return to Bear Cove/ Silver Bay
 - Estimate varies depending on data selected for model
 - Management implications



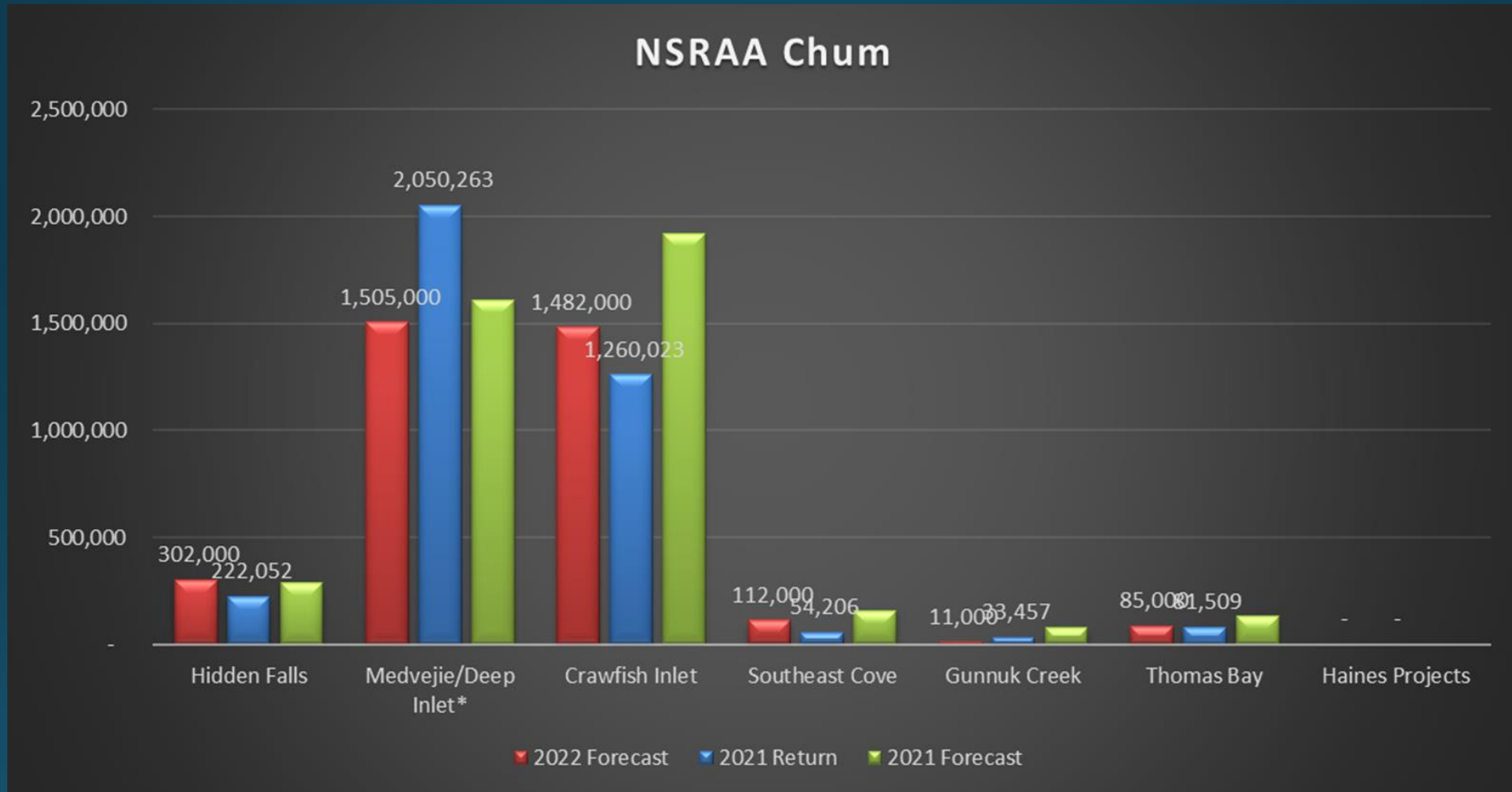
2022 PRELIMINARY Forecasts

- 1.5 million for Deep Inlet – PRELIMINARY
 - ~1.4 million available for CPH assuming no CR
- No summer stock Deep Inlet 4-year-olds – very small summer return
- Increase in Bear Cove bound component to ~50% (2021=37%)
 - Uncertainty due to non-discrete thermal marks

Return splits for Medvejie/Deep Inlet:

| | <u>Stock</u> | | | | <u>Release Site</u> | | |
|--------------------------------|-----------------|------------|-------------|----------------|---------------------|-------------------|--------------|
| | <u>Forecast</u> | <u>Low</u> | <u>High</u> | <u>Percent</u> | <u>Bear Cove</u> | <u>Deep Inlet</u> | <u>Total</u> |
| Hidden Falls stock (early run) | 93,000 | 35,000 | 152,000 | 6% | 39,000 | 54,000 | 93,000 |
| Medvejie stock (late run) | 1,412,000 | 544,000 | 2,620,000 | 94% | 676,000 | 736,000 | 1,412,000 |
| | 1,505,000 | 579,000 | 2,772,000 | | 715,000 | 790,000 | 1,505,000 |
| | | | | | 48% | 52% | 100% |

2021 Chum



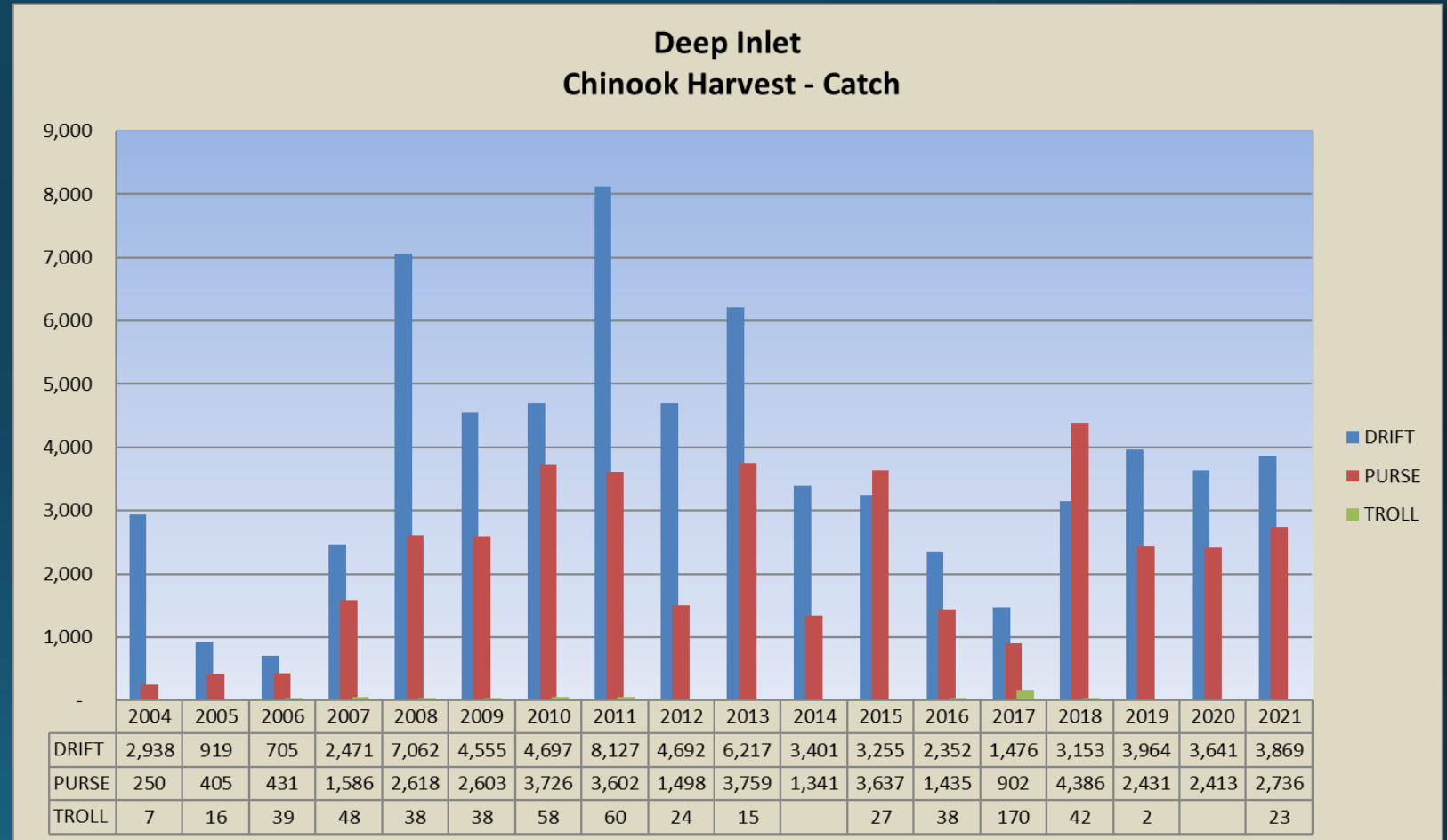
2021 Salmon Returns

-Chinook

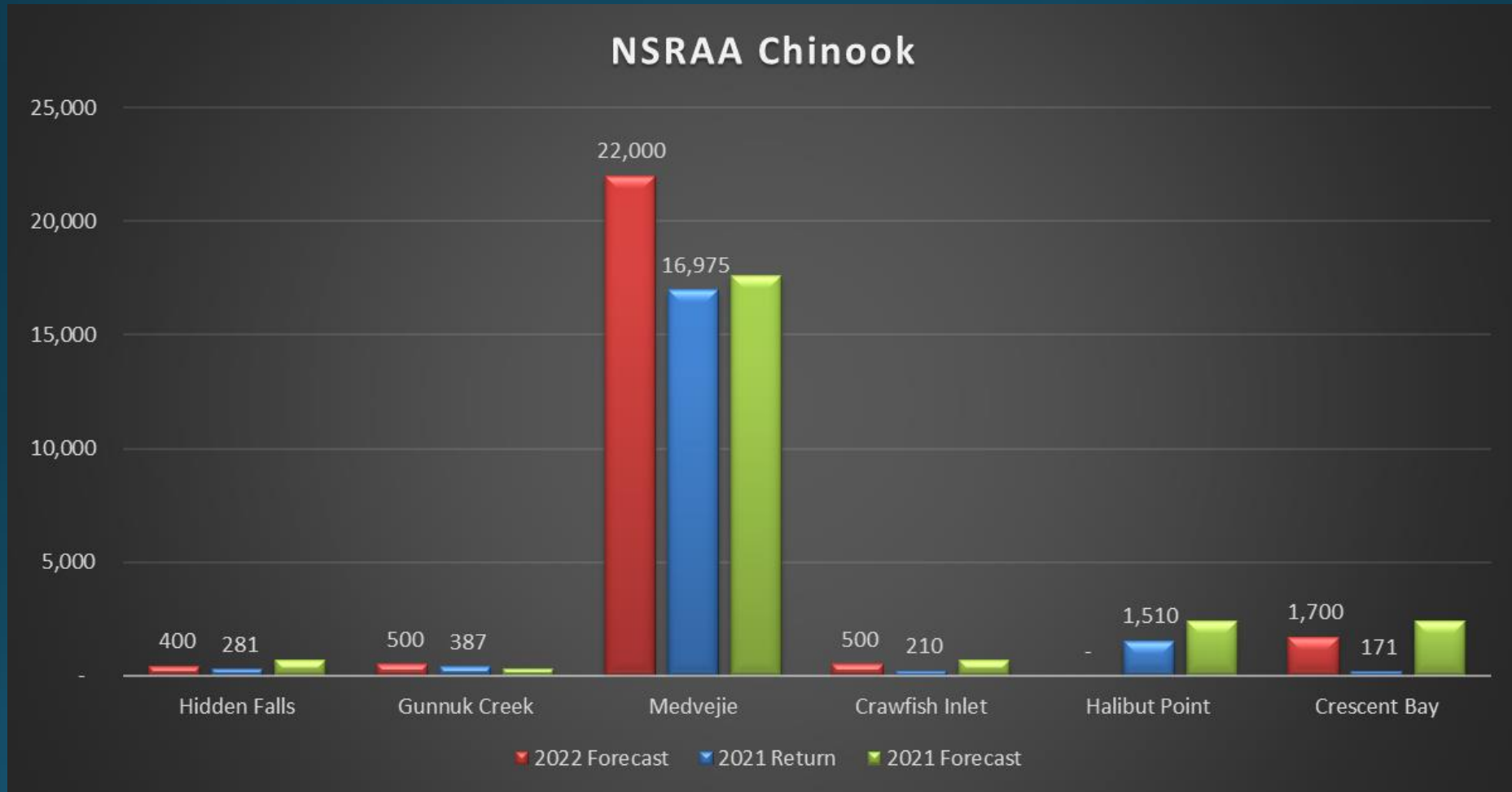


2021 Chinook - DEEP INLET

- NSRAA's Chinook came in near forecast at Medvejie (96%)
- Deep Inlet's Gillnet Chinook catch was 3,869 which is 96% of the previous 10-year average.
- Gillnet = 58% of DI commercial catch



2021 Chinook



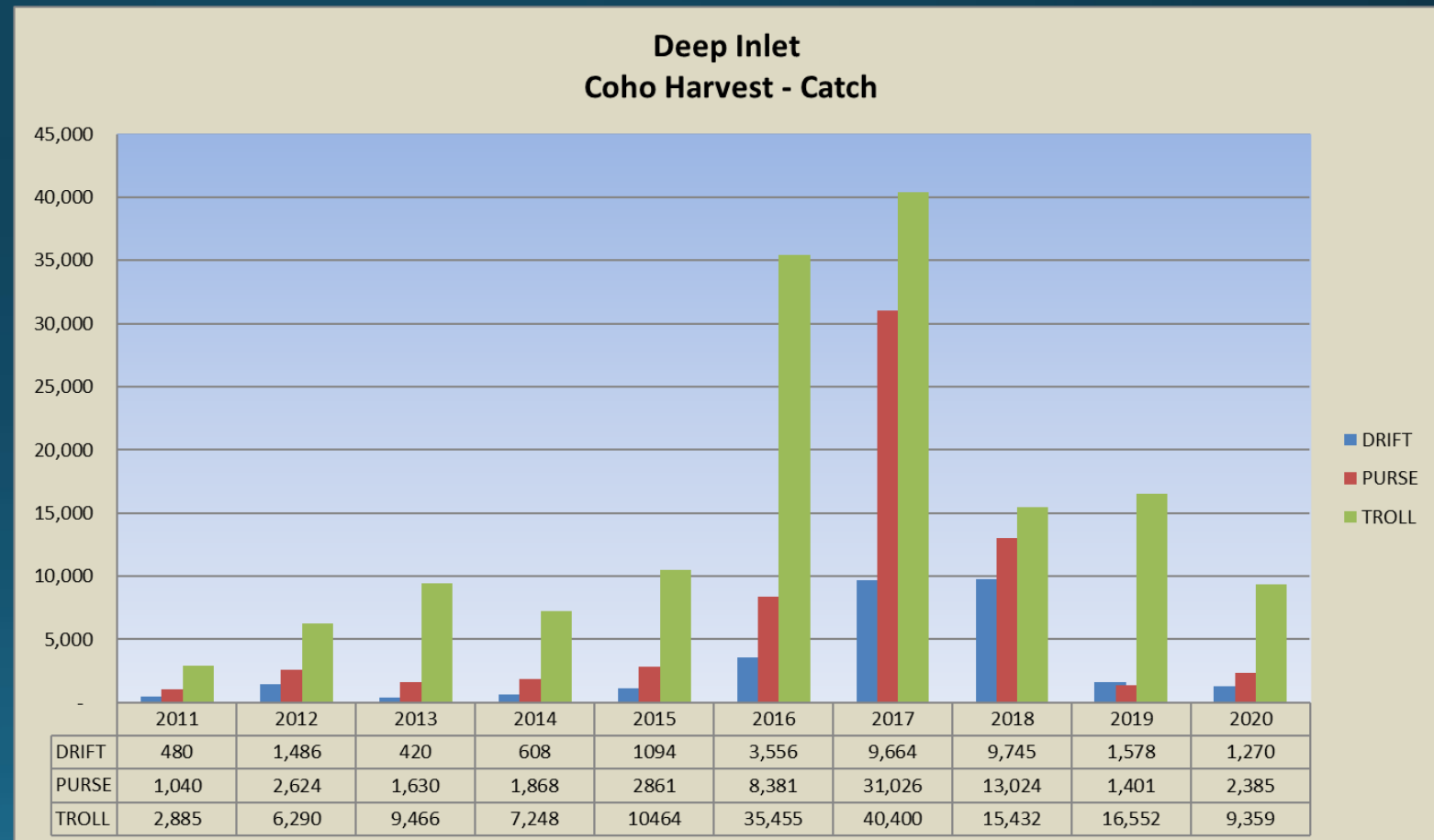
2021 Salmon Returns

-Coho

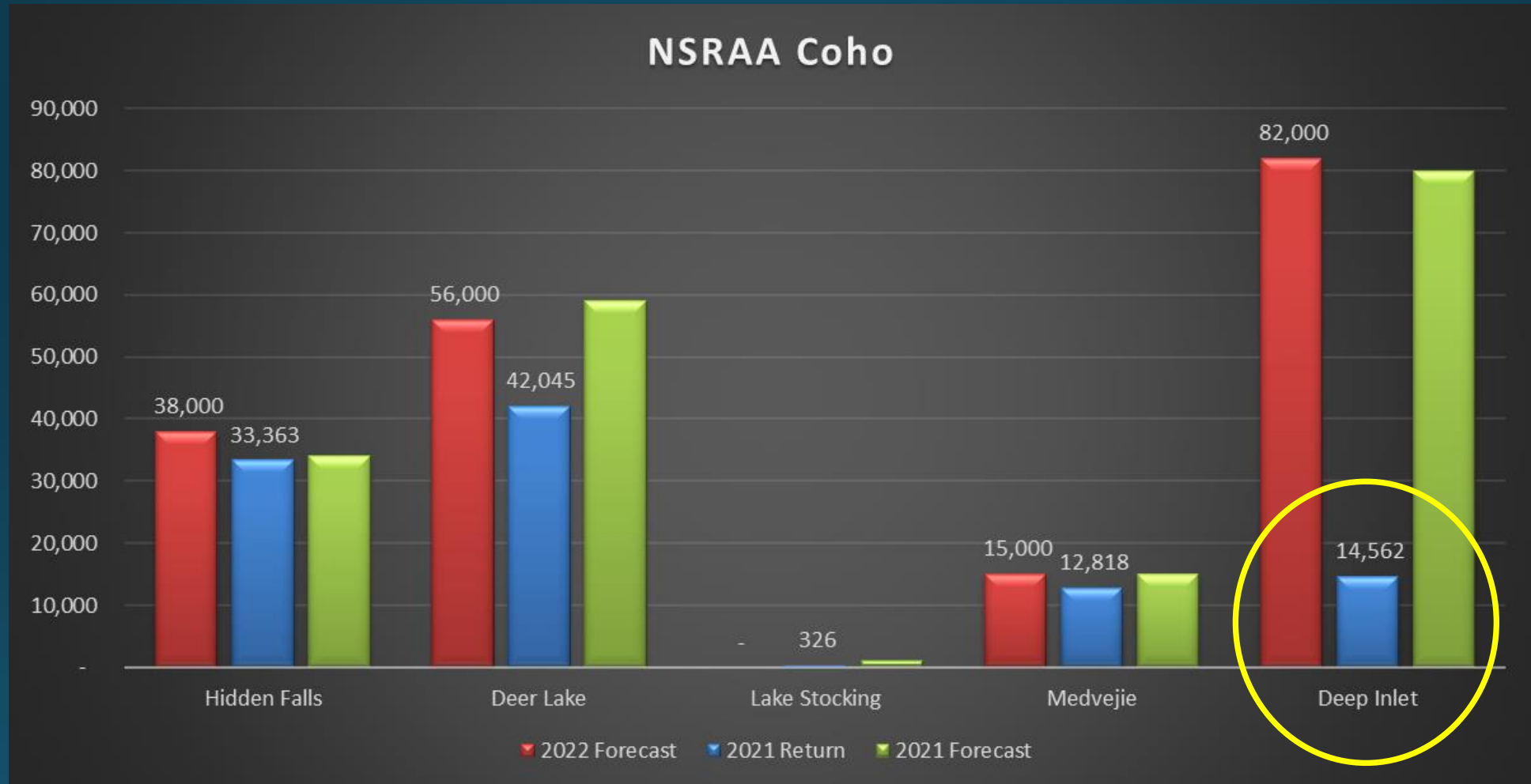


2021 Coho – DEEP INLET

- NSRAA's coho returns showed relatively poor marine survival at all sites, except for Bear Cove (6.0%)
- Deep Inlet (0.9%) grossly underperformed (18% of forecast).
- Deep Inlet's Gillnet Coho catch was 1,270 which is 40% of the previous 10-year average.
- Gillnet = 9% of DI commercial catch

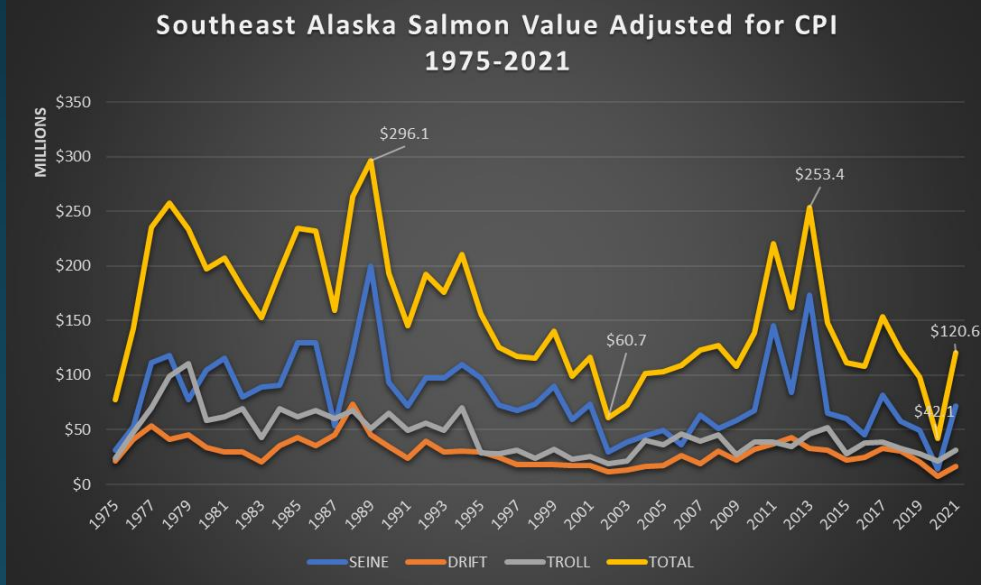
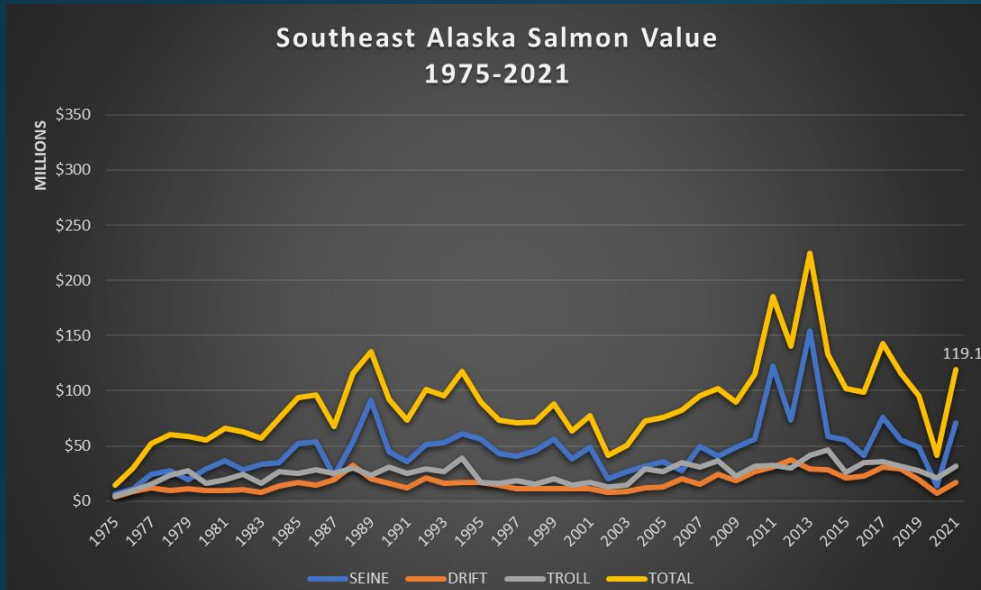


2021 Coho



2021 Salmon Value

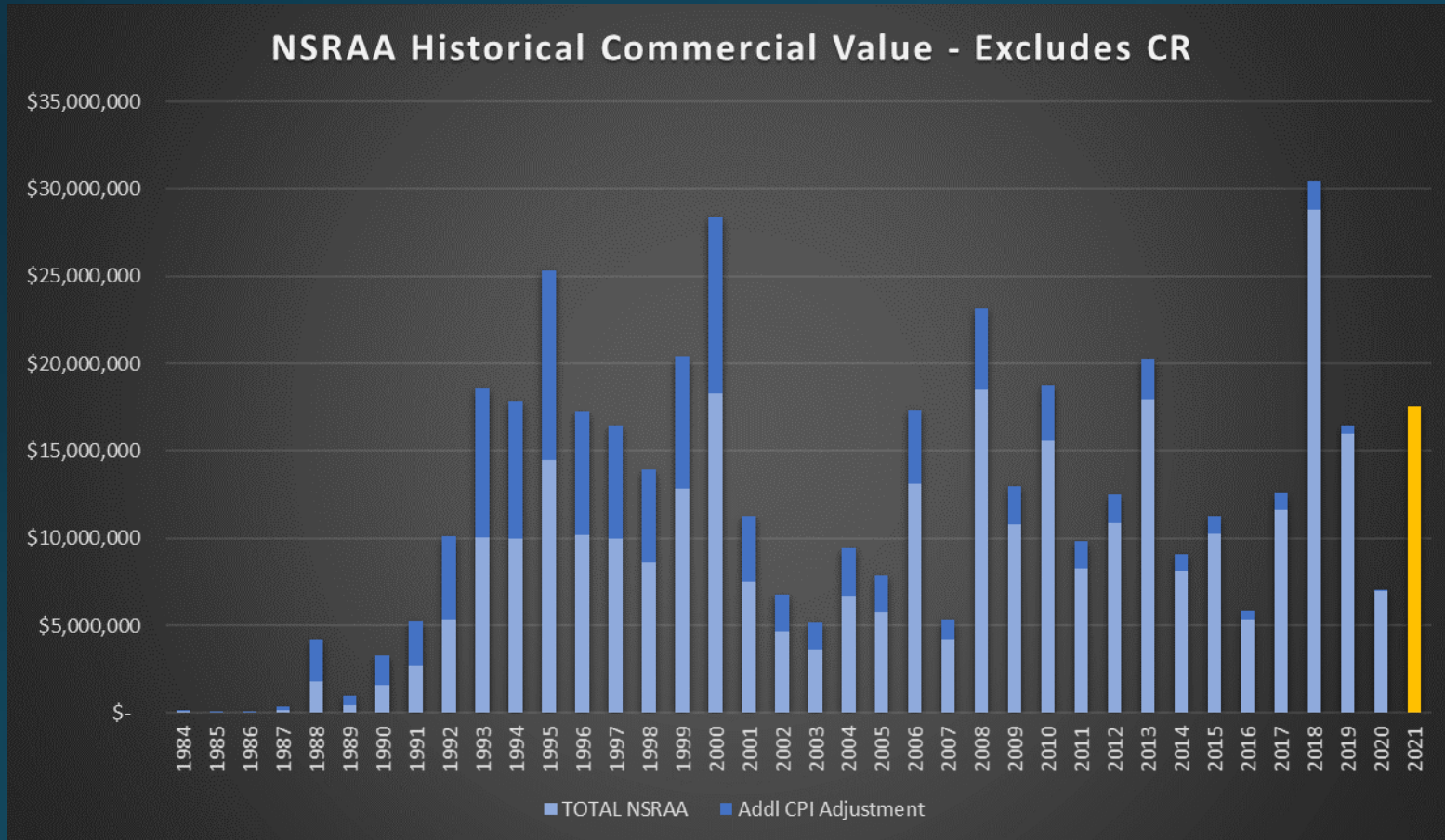
2021 All Species Commercial Value - SEAK



- 2021 SEAK Total Value = \$119 million
 - Excludes Cost Rec
 - Ranks 7/47 – Not adjusted
 - Ranks 32/47 – Adjusted for CPI
- NSRAA % of all SEAK Commercial Value
 - 2021 = 14.7%
 - Ranks 8/37
 - 10 year avg = 11.9%

2021 All Species - NSRAA Commercial Value

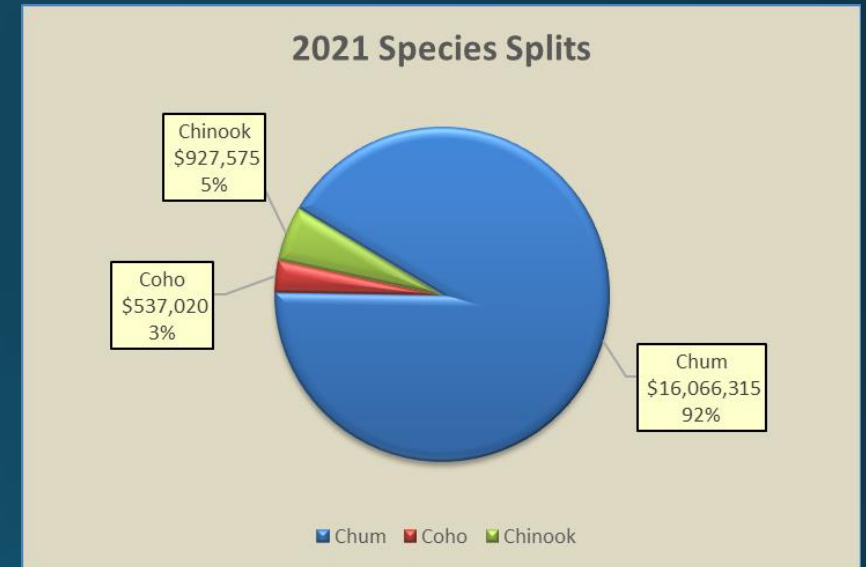
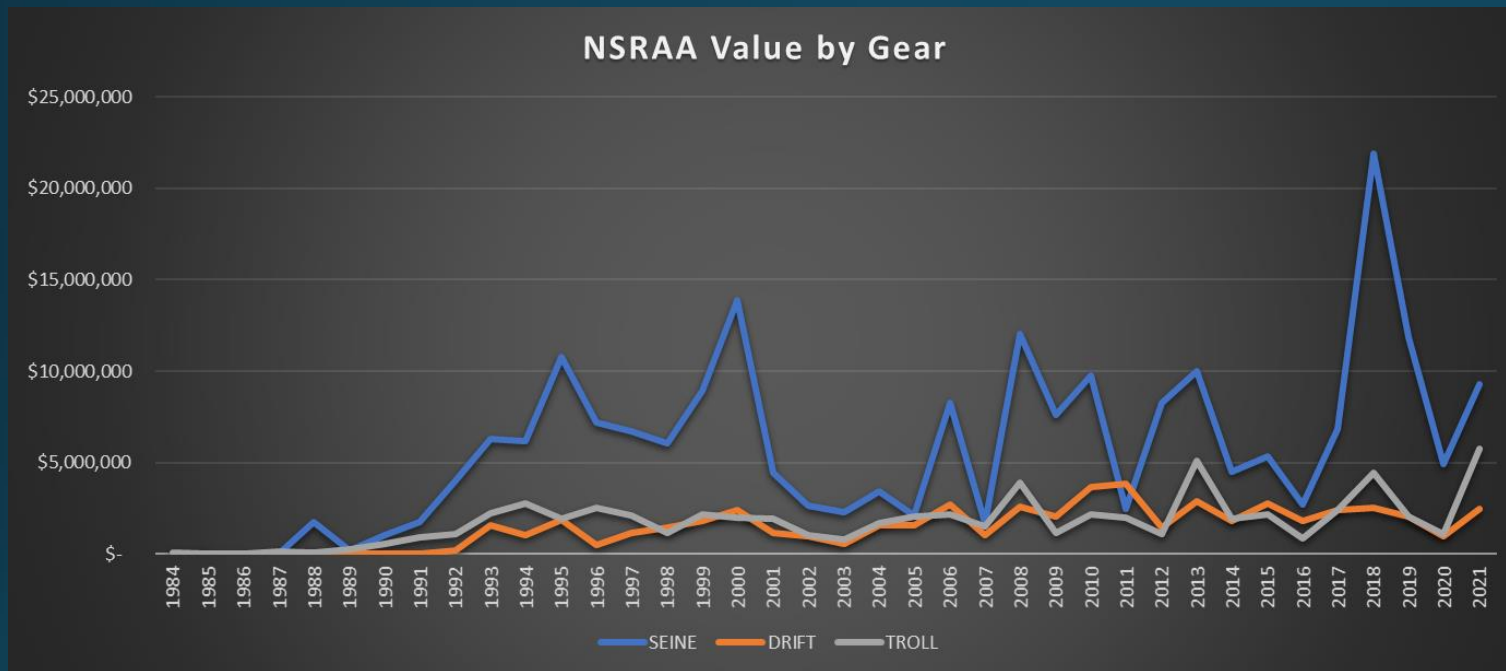
\$ 17,530,910



4th

10th with CPI adjustment

2021 NSRAA Commercial Value Splits



| Gear | Chum | Coho | Chinook | Total | Record | Year |
|---------|---------------|------------|------------|---------------|---------------|------|
| Troll | \$ 4,715,044 | \$ 517,422 | \$ 515,605 | \$ 5,748,072 | \$ 5,748,072 | 2021 |
| Seine | \$ 9,124,407 | \$ 11,380 | \$ 156,915 | \$ 9,292,702 | \$ 21,620,375 | 2018 |
| Gillnet | \$ 2,226,863 | \$ 8,217 | \$ 255,056 | \$ 2,490,136 | \$ 3,819,466 | 2011 |
| Total | \$ 16,066,315 | \$ 537,020 | \$ 927,575 | \$ 17,530,910 | \$ 28,556,687 | 2018 |



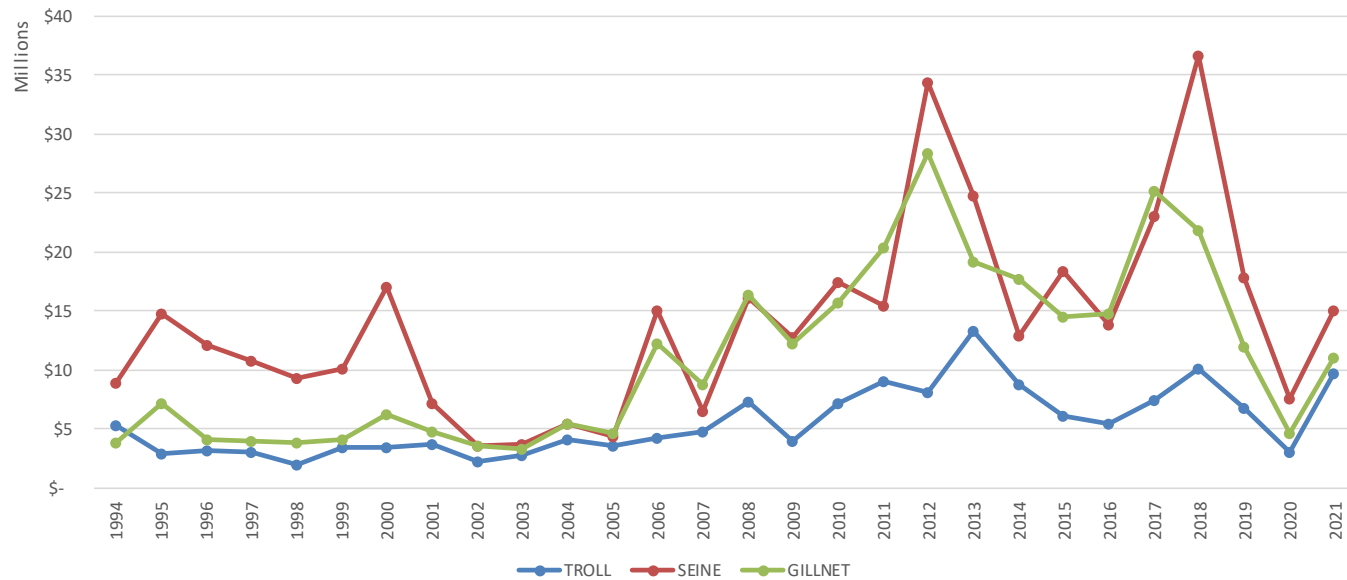
2021 Allocation Estimates

2021 SEAK (ENHANCED) Value - \$36.0 Million

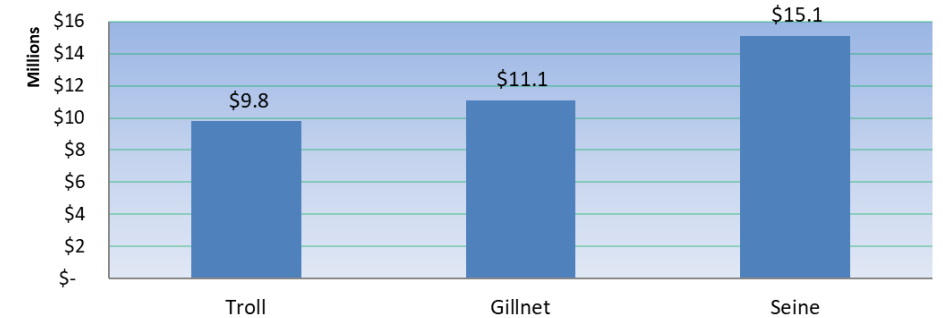
2021 data is very preliminary; values are from end-of-season (Nov ' 21) operator estimates from SSRAA, NSRAA, DIPAC, AKI.

(no AKI pink, partial AKI chum estimate)

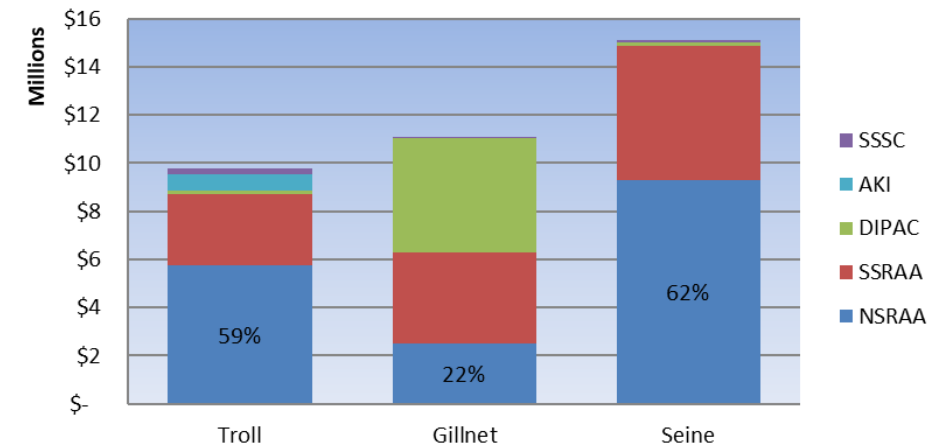
SE Alaska Enhanced Salmon Value
Annual Estimates by Gear



Enhanced Value
2021 Preliminary Estimates



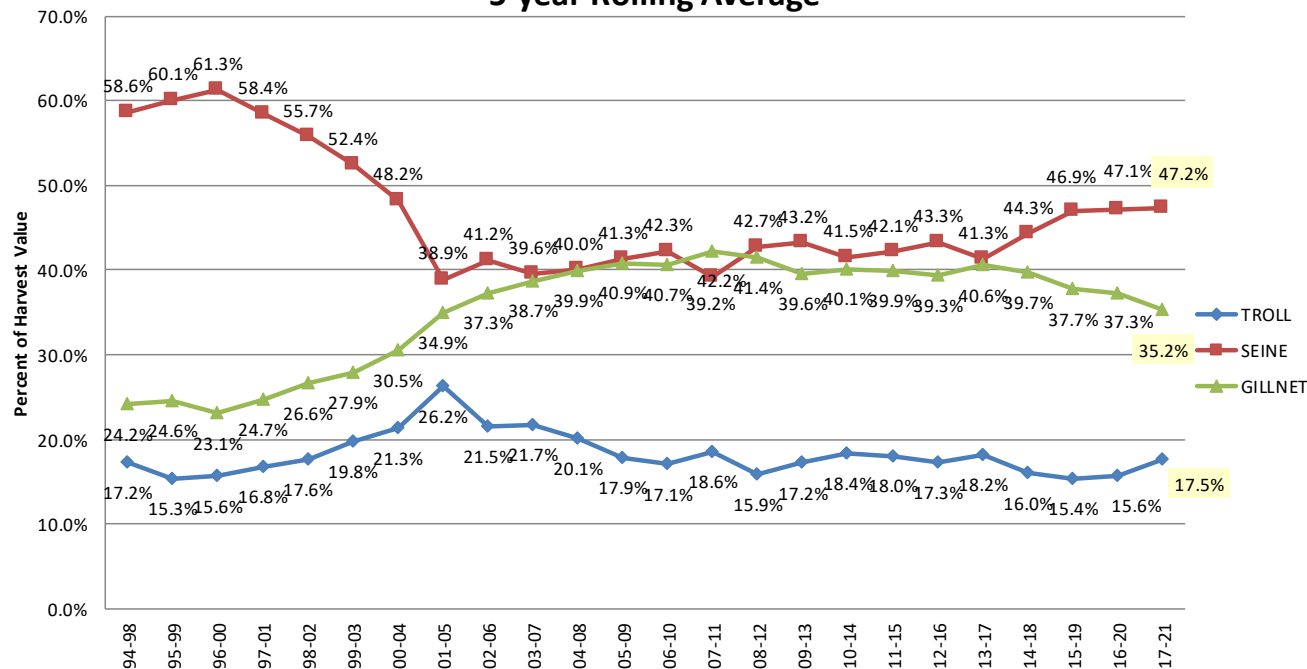
Enhanced Value by Agency
2021 Preliminary Estimates



2021 Allocation Estimates

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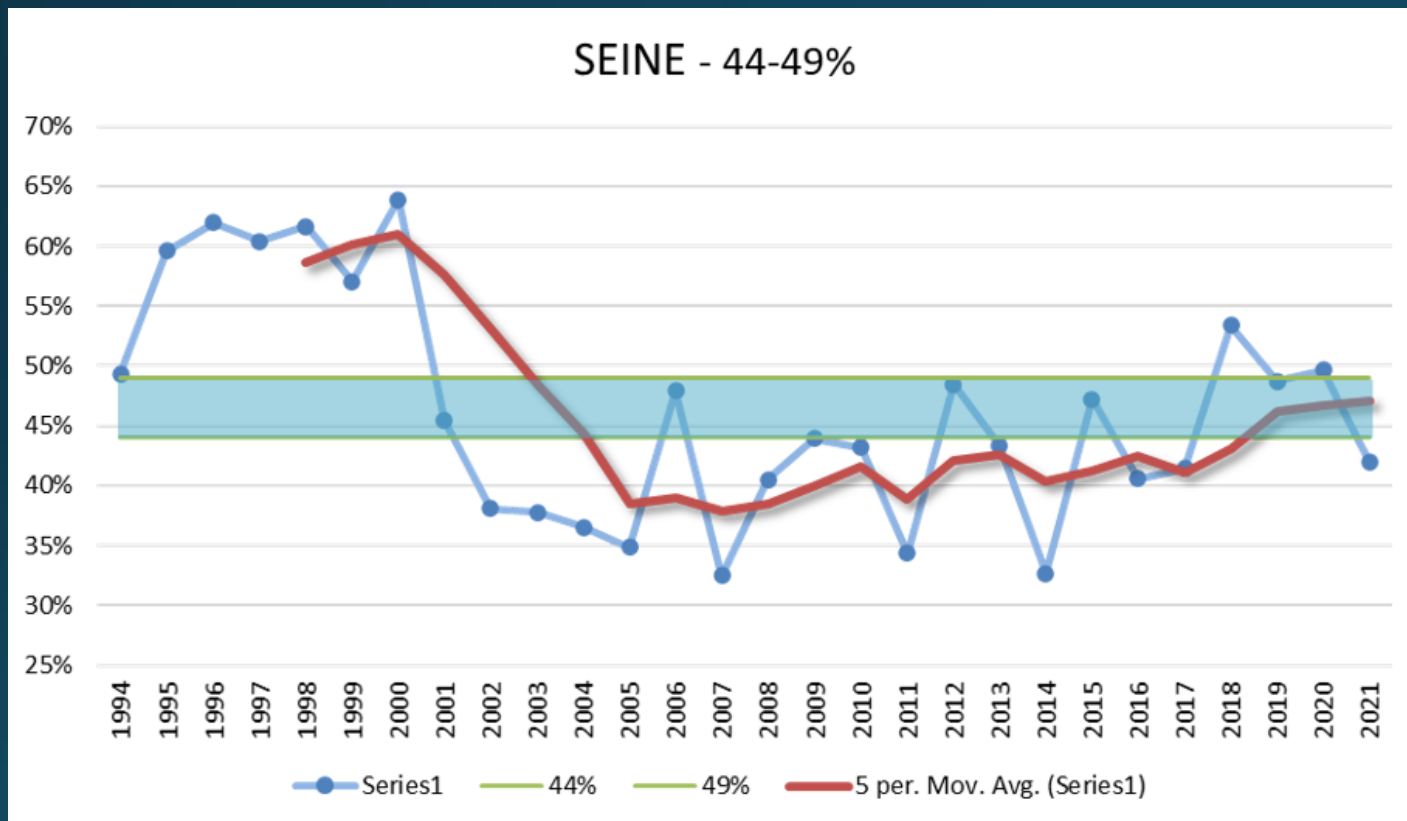
SE Alaska Enhanced Salmon Value
5-year Rolling Average



- 5-year Rolling Avg

- SN – 47.2%
- GN – 35.2%
- TR – 17.5%

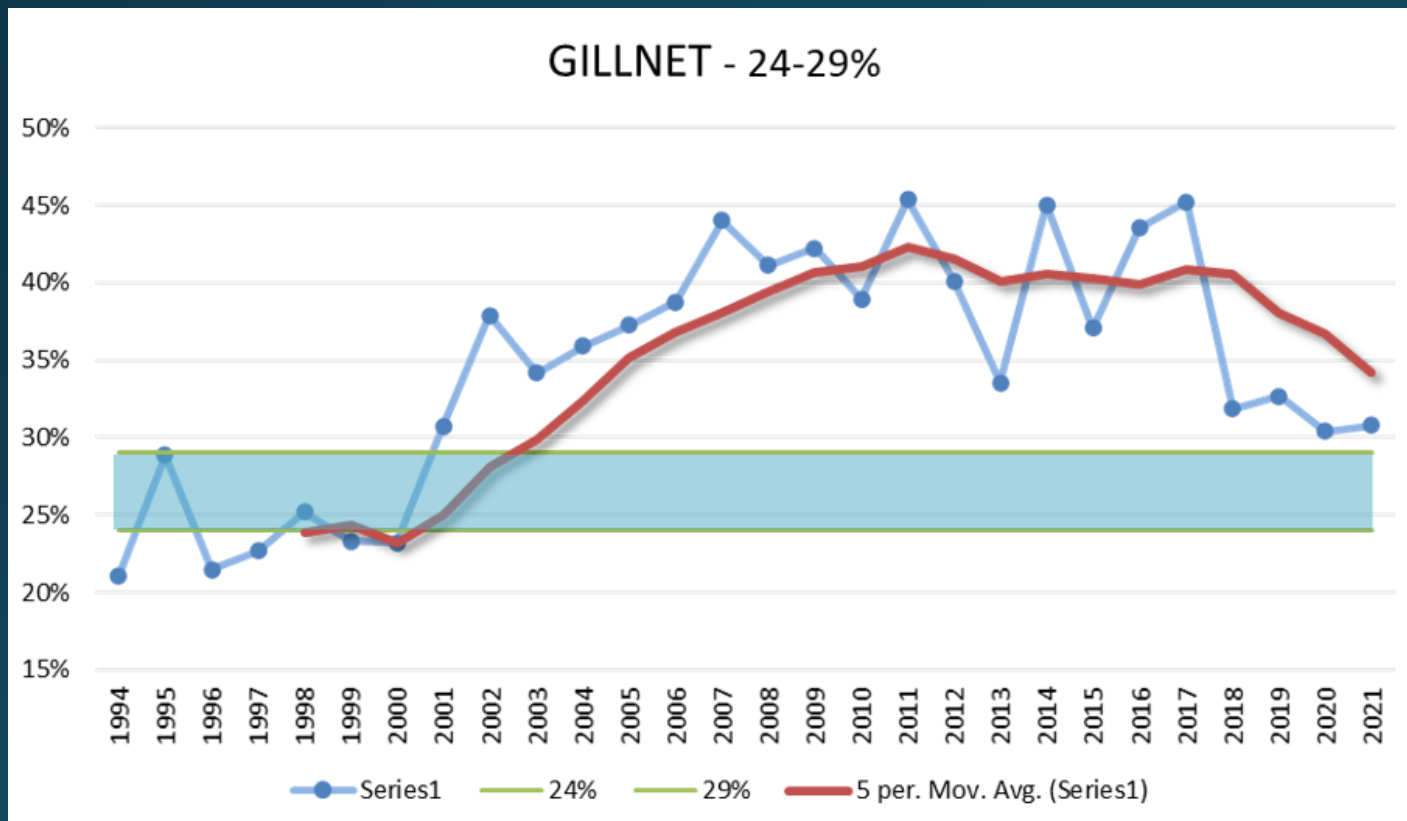
2021 Allocation Estimates - SEINE



- Seine - **WITHIN**

- **Goal: 44-49%**
- 5-year avg: 47.2%
- 2021: 42%

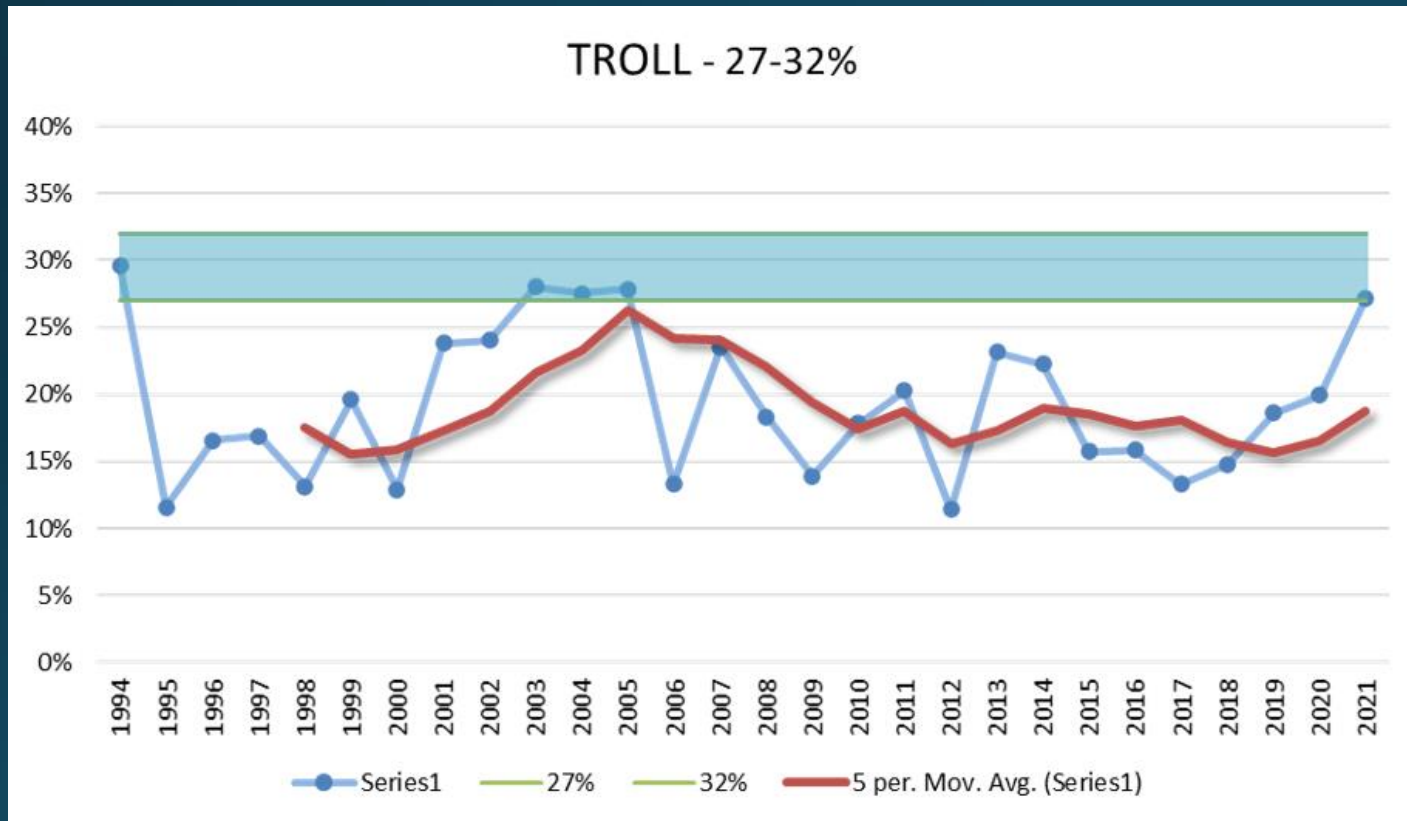
2021 Allocation Estimates - GILLNET



• Gillnet - **ABOVE**

- Goal: 24-29%
- 5-year avg: 35.2%
- 2021: 31%

2021 Allocation Estimates - TROLL



• Troll - **BELOW**

- Goal: 27-32%
- 5-year avg: 17.5%
- 2021: 27%

Questions?

2022 PRELIMINARY Forecasts

| NSRAA 2022 PRELIMINARY Return Projections | | | | | | | | | |
|---|------------------|-----------|-----------|------------------|---------------|----------------|----------------|------------------|------------------|
| Site | Projected Return | Range | | Commercial | Sport | Cost Recovery | Brood Stock | 2021 Return | 2021 Forecast |
| | | Low | High | | | | | | |
| Chum | | | | | | | | | |
| Hidden Falls | 302,000 | 151,000 | 758,000 | 92,000 | - | 50,000 | 160,000 | 222,052 | 286,000 |
| Medvejie/Deep Inlet* | 1,505,000 | 579,000 | 2,772,000 | 1,365,000 | - | - | 140,000 | 2,050,263 | 1,608,000 |
| Crawfish Inlet | 1,482,000 | 495,000 | 2,576,000 | 782,000 | - | 700,000 | - | 1,260,023 | 1,920,000 |
| Southeast Cove | 112,000 | 55,000 | 193,000 | 112,000 | - | - | - | 54,206 | 158,000 |
| Gunnuk Creek | 11,000 | 5,000 | 16,000 | - | - | - | 10,000 | 33,457 | 77,000 |
| Thomas Bay | 85,000 | 43,000 | 128,000 | 85,000 | - | - | - | 81,509 | 132,000 |
| Haines Projects | - | - | - | - | - | - | - | - | - |
| | 3,497,000 | 1,328,000 | 6,443,000 | 2,436,000 | - | 750,000 | 310,000 | 3,701,510 | 4,181,000 |
| Chinook | | | | | | | | | |
| Hidden Falls | 400 | 200 | 800 | - | - | - | 400 | 281 | 710 |
| Gunnuk Creek | 500 | 200 | 800 | 400 | 100 | - | - | 387 | 312 |
| Medvejie | 22,000 | 11,000 | 36,000 | 11,880 | 1,100 | 4,420 | 4,600 | 16,975 | 17,600 |
| Crawfish Inlet | 500 | 200 | 700 | 125 | 25 | 350 | - | 210 | 700 |
| Halibut Point | - | - | - | - | - | - | - | 1,510 | 2,400 |
| Crescent Bay | 1,700 | 800 | 1,500 | 918 | 85 | 697 | - | 171 | 2,400 |
| | 25,100 | 12,400 | 39,800 | 12,405 | 1,225 | 5,467 | 5,000 | 19,534 | 24,122 |
| 0-ck Chinook | | | | | | | | | |
| Medvejie | 200 | 100 | 300 | 108 | 10 | 82 | - | 84 | 120 |
| Crawfish Inlet | 500 | 200 | 700 | 270 | 25 | 205 | - | 355 | 309 |
| | 700 | 300 | 1,000 | 378 | 35 | 287 | - | 439 | 429 |
| Coho | | | | | | | | | |
| Hidden Falls | 38,000 | 19,100 | 76,500 | 15,200 | 4,000 | 8,800 | 10,000 | 33,363 | 34,000 |
| Deer Lake | 56,000 | 28,200 | 112,900 | 22,400 | 4,000 | 29,600 | - | 42,045 | 59,000 |
| Lake Stocking | - | - | - | - | - | - | - | 326 | 1,000 |
| Medvejie | 15,000 | 7,400 | 29,400 | 10,500 | 1,500 | - | 3,000 | 12,818 | 15,000 |
| Deep Inlet | 82,000 | 40,900 | 163,600 | 73,800 | 8,200 | - | - | 14,562 | 80,000 |
| | 191,000 | 95,600 | 382,400 | 121,900 | 17,700 | 38,400 | 13,000 | 103,115 | 189,000 |
| ALL SPECIES TOTALS: | 3,713,800 | 1,436,300 | 6,866,200 | 2,570,683 | 18,960 | 794,154 | 328,000 | 3,824,598 | 4,394,551 |

- Summer chum egg takes could be a challenge
 - GCH esp
 - BY18 summer egg shortage
 - No 4-yo returns to BC/DI
- Haines projects officially complete, no returns expected
- Projecting similar coho and Chinook returns to 2021 Forecast

* Cooperative Project with SJH

NOTE: Projections for Medvejie/Deep Inlet are for total returns (NSRAA + SJH fish).

Chum cost recovery goals for 2022 have yet to be finalized

Coho projections are now based on 5-year-average marine survival, with ranges based on the the 5-year range.