



# DIPAC NETWORK NEWS



Spring 1999

## 1998 DIPAC SALMON HARVEST

DIPAC incubates rears and releases all five species of Pacific salmon; pink, chum, chinook, coho and sockeye. The pink and chum species are produced mainly for the commercial fleets, the chinook and coho primarily for sport, and sockeye production enhances commercial fishing the most. Since the mid-1980's, DIPAC has relied on pink and chum returns as its primary source of cost recovery revenue, but chinook and coho do contribute as well. As the sockeye program matures, DIPAC will harvest a portion of that production to help pay for operating costs. DIPAC's goal is to contribute 60 percent of its production to the common property fisheries (commercial, sport and personal use) and 40 percent of production to the hatchery cost recovery harvest.



The Eleanora, a commercial seiner, harvests chum salmon.

### Snapshots of Last Summer

**Chum Production**—Almost 1.3 million chums returned from DIPAC enhancement projects in 1998. Common property fisheries and cost recovery were the lion's share at 1.1 million, with the remainder going to brood stock.

**Chum Common Property Fishery** — Commercial fisheries caught an estimated 429,852 chum, down from recent years but within the range of the expected forecasts. The majority was harvested by the gillnetters in District 111 and 115, with a minimum estimated value of \$710,000.

This amount is expected to increase as post-season payments are reported.

**Chum Cost Recovery** — Revenues of \$1.12 million were realized through cost recovery on chum salmon from an estimated 758,000 fish that returned to hatchery special harvest areas. The salmon were processed by Trident Seafood, a major processor based in Seattle. They brought in a floating processor to handle the salmon on-site. This was the second year of a two-year joint venture contract with Trident. DIPAC is currently working on a new processing contract for the upcoming season.

tors access to salmon returning to the hatchery. A total of 2,400 chums were landed at the dock in 1998.

**Chum Brood Stock** — 128,000 fish were harvested for brood stock producing 108 million eggs, just shy of the 111 million egg goal. The run ended abnormally early this year, which caused the minor short fall. The small percentage shortfall should not impact future returns and is being offset by higher survivals from egg to fry.

**Coho Production** — The 1998 return is estimated at 104,387 fish, including 5,600 jacks (undersized salmon). The return broke down as follows: 46,800 fish for cost recovery, 1,900 for brood stock, and 50,082 harvested in the common property fishery. The commercial catch distribution was 26,752 by trollers, 6,003 by gillnetters and 1,703 caught by seiners. The estimated commercial value equaled \$167,505. The sport contribution for coho was 15,624 fish, including approximately 12,000 at the

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### Chum Sport Dock Fishery

DIPAC's sportfish dock is located at the Gastineau hatchery site. The dock gives residents and visi-



## DIPAC DIRECTORY

**Jon Carter**, Executive Director  
**Rick Focht**, Operations Manager  
**Eric Prestegard**, Remote Program Manager  
**Sam Rabung**, Gastineau Hatchery Manager  
**Steve Reid**, Snettisham Hatchery Manager  
**Alicia Smith**, Tourism Manager

### Board of Directors

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*Territorial Sportsmen*  
**Jim Dorn**, Vice President  
**Rob Swope**, Treasurer  
**Amy Jo Meiners**, Secretary  
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**Mike Mann**, USAG  
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**Bob Thorstenson, Jr.**, SEAS  
**Alaska Trollers Seat**, Vacant

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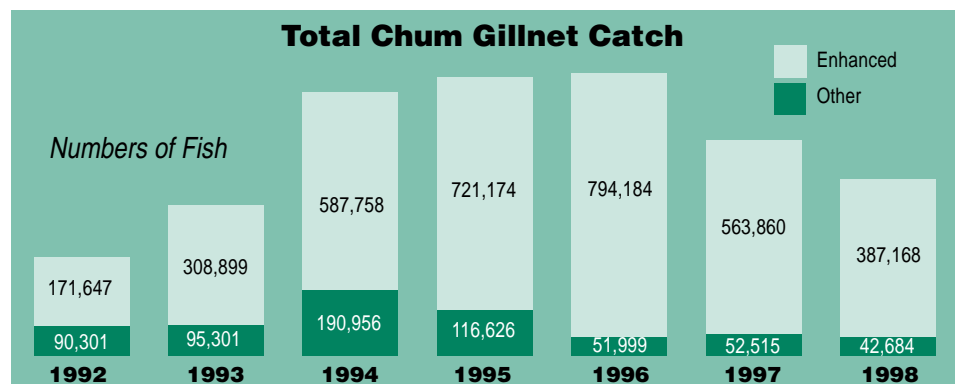
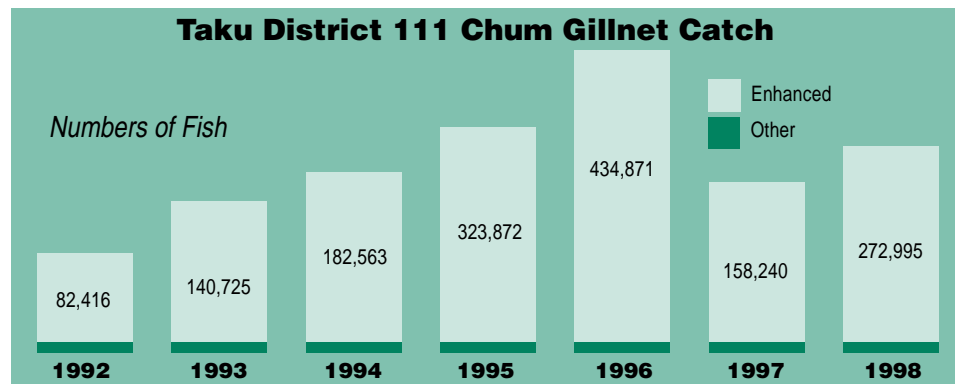
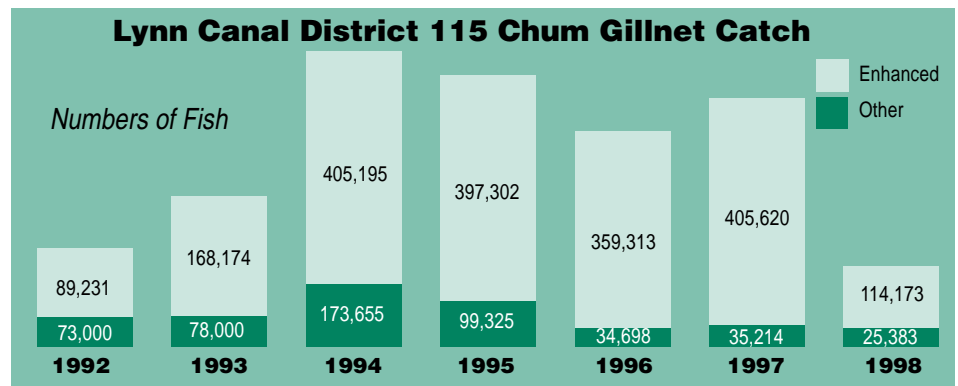
**1998 SALMON HARVEST**, *continued*  
 DIPAC sport dock and beach. This is the highest estimated catch since the creel census on the dock started in 1993.

**Pink Production** - Despite the small size of the program, pink salmon showed a surprisingly high 2.9 percent rate of return. Over 171,000 fish returned in 1998, including 5,600 pinks that were caught in the sport fishery adjacent to the Gastineau Hatchery.

**Chinook Production** - A total of 2,500 king salmon returned in 1998, consisting of 1,459 for sport anglers, 490 to the commercial catch and the remaining 461 to brood stock. These numbers are consis-

tent with the downward trend and lower survival rates the species has been experiencing. Despite the lower returns of Chinook last year, the incidence of jacks were up substantially promising stronger harvests in coming years. The 1998 contribution to sport king catches did not decline at the same rate as commercial catch. Of the total, 900 fish were caught from boats and 559 from the dock and beach. The sport catch has ranged from 1,300 to 2,300 over the past three years.

**The Golden North Salmon Derby** - DIPAC operations contributed 32 percent of the coho and 31 percent of the chinook caught during the Golden North Salmon Derby in 1998.





## 1999 PROJECTIONS The Bottom Line

**Chum** – The estimate, based on a model using age composition and sibling relationships, is 1.83 million fish.

**Coho** – A total of 107,000 fish is the forecast based on the strong segments of the 1998 return. We expect similar results looking at the good quality, size and health of last year’s smolt release.

**Pink** – DIPAC expects 170,000 returning fish based on long-term historical averages.

**Chinook** – Based on stronger 1998 jack returns, 4,500 fish are forecast. This upswing is encouraging relative to the past two to three years.

**Sockeye** – The return of Snettisham hatchery produced sockeye is projected to be 184,484 fish.

## Thermal Marking — A Glossary of Terms

### Otoliths

Otoliths are the ear bones of salmon. Found in pairs beneath the fish’s brain, they are composed of calcium carbonate and protein. The otoliths lay down the calcium carbonate and protein daily in a pattern of rings similar to that of trees. External factors such as temperature influence these patterns.

### Thermal Marking

Hatchery salmon are marked prior to hatching, or soon thereafter in the incubators. By manipulating the water temperature in the incubators, fish culturists can place a series of rings on the otoliths that will identify them by hatchery and brood year. This process forms a type of “bar code” on the otolith that remains with the fish for its lifetime. These patterns of bands can be customized for each hatchery and brood year by varying the number of bands and the width and spatial placement of these bands. Thermal marking is an efficient means of marking 100 percent of the fish at the hatchery. Therefore, we can take any salmon in the ocean, remove its otoliths, or ear bones, and be able to tell if it originated at DIPAC.

### Coded Wire Tags

Before the availability of thermal marking, marking the fish with coded-wire tags was our only method of identification. Unfortunately, only a small percentage of the fish could be tagged.

### What Thermal Marking Means to DIPAC

Thermal marking allows DIPAC to track our fish in order to learn more about their migration patterns and to show our contribution to commercial catches. Since 1991, 100 percent of Gastineau Hatchery salmon have been given a thermal mark identifying them as DIPAC fish. This information is used to check that the fish are returning to the hatchery and to DIPAC’s special harvest areas. It also determines what percent of DIPAC’s fish are caught in the common property fishery. In most cases, this information can be available within 24 hours of the samples being collected. Thermal marking is also used to track where the salmon go during their ocean migration.

Learn more on our web site  
[www.alaska.net/~dipac](http://www.alaska.net/~dipac)

### Forecasting and Evaluation

DIPAC has come a long way in developing its forecasting and evaluation techniques. We have reached a point where there is enough historical data (as far back as brood year 1984) to apply sound fisheries science to forecasts. In the past we relied on generally accepted assumptions and estimation. As with any new program, once actual data is available the system becomes more precise. We can now see how well the fish survive, analyze age compositions, use sibling relationships and watch trends.

Thermal marking helps by identifying where fish go and when they return. Modifying markings by site provides information on specific fish. This adds to the statistical power of the scientific methods. DIPAC operates an independent in-house lab that uses a refined sampling process to analyze otoliths and output information in 24 hours. Working closely with ADF&G, managers can actively manage in season, adjusting openings according to relative composition of the catch. This information identifies DIPAC fish so we can accurately calculate the estimated contribution to the catch on a weekly basis during the season.





# The Snettisham Sockeye Story

## Stocked with Potential

**A**t Port Snettisham, 30-miles South of Juneau, the water that flows through Juneau's hydroelectric power plant also supplies a productive sockeye salmon hatchery run by DIPAC.

DIPAC has operated the Port Snettisham hatchery since July 1996, when it took over from the Alaska Department of Fish and Game. The 20-year operational contract has allowed DIPAC to make significant improvements in the facility, including making the sockeye hatchery safer from disease and increasing production.

Sockeye salmon is a difficult species to raise in captivity because the fish are very susceptible to a virus called IHN. The culture of sockeye has only been around for 15 years and researchers have constantly searched for ways to overcome the challenges. In particular, this has meant learning to manage around the disease.

It is now possible to control the IHN virus through isolation. DIPAC keeps fish in small compartments, using separate incubators with their own rearing areas and

separate outside raceways. "Using isolation, we are able to work around the virus," explains Eric Prestegard, Remote Program Manager at DIPAC. "We further protect the stock by disinfecting at every stage."

Sockeye are kept at the Snettisham hatchery for about a year and a half. Eggs are collected in October and incubated until May, then reared until the next May or early June when they are released.

1998 marked the largest release yet. A whopping 5.6 million smolts were released compared to the .75 to 2 million generally let go. "The return should be huge," says Prestegard. Historically, the Taku River District 111 gillnet fishery averages around 100,000 fish. With a 10 percent average survival rate for sockeye, that means an estimated 560,000 fish will return. Prestegard projects that the .5 million returns will begin in the year 2000. "That first year, we will be getting only 4-year olds, then 2001 will be the start of the big years."

Although the hatchery's production pri-

marily supports the gillnet fleet, the project also provides for personal use/sport fish stocks. The Sweetheart Lake outlet is a popular fishing spot for locals and the number of permits issued for personal use there has doubled in recent years. Last spring DIPAC received permits to use the hatchery fry to stock the lake, significantly reducing cost and workload compared to a remote egg take operation.

However, it appears that 1999 will be the calm before the storm. Because of an IHN outbreak that DIPAC inherited when it took over the hatchery, this season will be unusually low. During the winter of 96-97, the disease devastated the entire 1995 brood-year stock. The fish that should be returning in 1999 were wiped out.

It was that devastation that forced the changes that now protect the stocks. "We have learned a lot about IHN. Our confidence level is building and we are optimistic that we are heading toward success," says Prestegard. "The next two years will tell."

That success will make the Port Snettisham sockeye project able to support itself through cost-recovery. To date, operations have been supported by DIPAC. After the devastation in 1996, grants allowed the temporary repairs that were crucial to continuing the program. DIPAC received support from the City of Wrangell, City and Borough of Juneau, and from the Northern Southeast Regional Aquaculture Association. "This funding is helping to tide us over until we are self-sufficient," reports Prestegard.





# Snettisham short stories

## ■ Salmon Treaty Success

Hang on to your fishing caps – there really *has* been a successful piece of the Pacific Salmon Treaty. DIPAC is part of the cooperative program to enhance salmon production on the Taku and Stikine Rivers. These rivers are TransBoundary River (TBR) systems that flow across the U.S. - Canada borders. Each year, the Canadians take the eggs, fly them to the DIPAC hatchery where the otoliths are marked and then they are returned by air to be released in the river systems. In the midst of the controversy surrounding the Pacific Salmon Treaty, it is gratifying that the U.S. government continues to provide funding for this successful program.

## ■ Snettisham Weather Watch

The crew at Snettisham is counting the clear days until spring. The Snettisham area receives two- to three-times the amount of snowfall that Juneau receives. At the end of January, that meant 8.5 feet of snow on the ground. It also meant that the hatchery's flat roof was really holding its weight – about 120 lbs. per square foot.

As the snow piled higher, the DIPAC crew could see their impending fate. It took four people and one snow blower eight days to remove the 91-inch deep snow layer from the 60-foot by 260-foot roof. You do the math!

Thanks to Steve Reid, Kevin Steck, Darcy Damrau, and Jon Thorington for a job well done!



## Summer Salmon and Sightseers

As DIPAC prepares for the arrival of the summer salmon, the Tourism Division prepares for the sightseers. During the months from May to September, Alicia Smith, DIPAC's Tourism Division Manager, and her staff welcome 120,000 visitors to the Gastineau hatchery.

The hatchery is unique to others in the state in that it was designed with the visitor in mind. People are able to get an up-close view and learn first hand about Alaska's five salmon species. The hatchery is open to the public seven days a week in the summer. Smith reports that 95 percent of DIPAC's visitors come off cruise ships, three percent are independent travelers and two percent are locals. As the number of cruise visitors to Juneau increases, so does the number of visitors to DIPAC.

DIPAC's Tourism Division is able to pay for itself and provide the community with special events and educational programs. Revenue is generated by admission fees, sales in their retail shop which features local salmon products and gift items, and facility rentals for receptions and meetings. Sixteen percent of the FY99 DIPAC budget, about \$455,370, went to tourism activities resulting in 18 percent of the total revenues, or \$525,212.

After the summer rush, the Tourism Division focuses on education. DIPAC teaches about 2,000 students a year from Juneau and around Southeast about the local sea life.

During the spring and fall, DIPAC invites kids from local schools for Sea Week and field trips. The hatchery holds special educational tours for classes and hosts groups like Elderhostel. The DIPAC staff also travels to the schools for special in-class programs. DIPAC is also proud to host annual programs for the community, such as *Juneau Appreciation Day* and the hatchery's tour operator reception.

The summer of 1999 will bring a new look to the facility. "We are undergoing a remodel of the visitors center, replacing carpet, and moving the Tourism Division offices to that part of the building. Our large saltwater aquariums will remain the same, but two new exhibits illustrating the life cycle of salmon and an introduction to the workings of our hatchery will be added to our interpretive displays," Smith said.

### 1998 Summary of Snettisham Hatchery Adult Returns

Common Property Harvest	DIPAC Cost Recovery	Broodstock/Lake Escapement	Total Return
84,126	33,133	75,220	206,659

### 1999 Projection Snettisham Hatchery Adult Returns

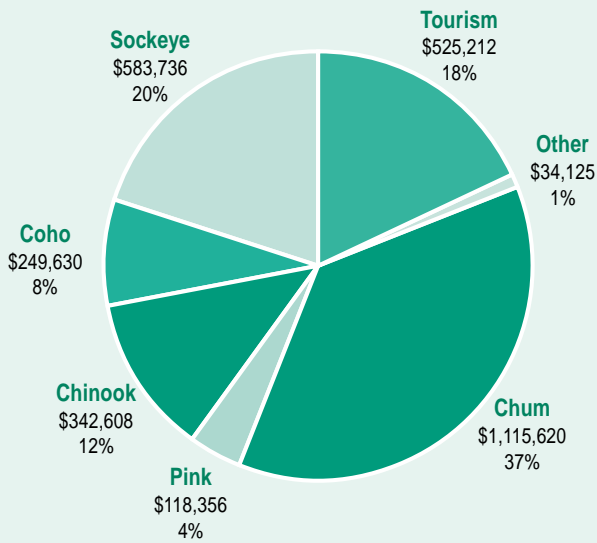
Common Property Harvest	DIPAC Cost Recovery	Broodstock/Lake Escapement	Total Return
94,817	12,456	77,212	184,484



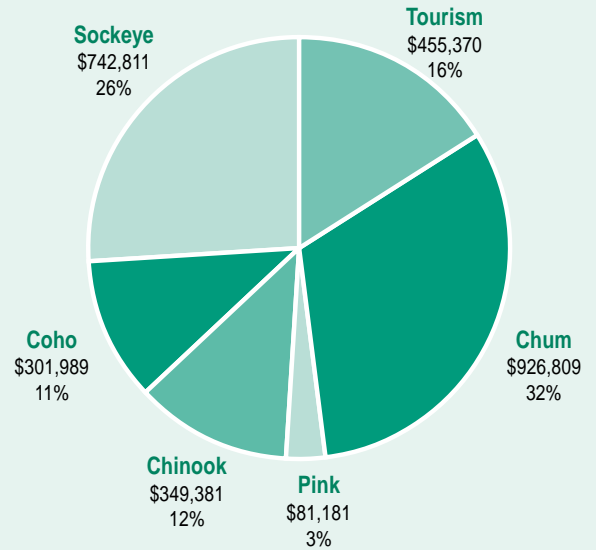
# DIPAC FY99 Financial Report



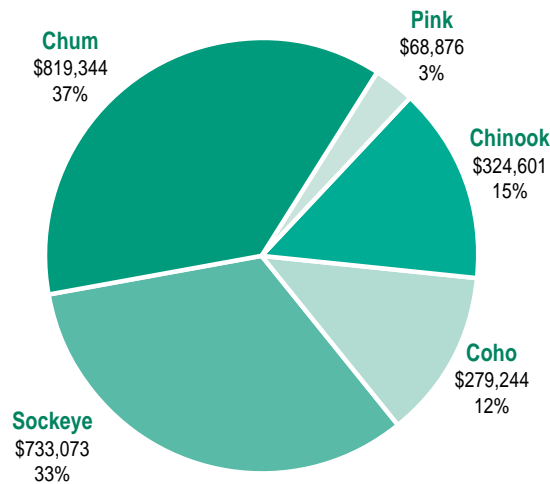
**DIPAC FY99 Revenue  
Allocation by Department**  
Total Revenue: **\$2,969,287**



**DIPAC FY99 Budget  
Allocation by Department**  
Total Operating Budget: **\$2,857,541**



**DIPAC FY99  
Fish Production Costs**



**Total Cost: \$2,260,136**



# Frequently Asked Questions

## How much 3 percent fisherman assessment money does DIPAC receive annually?

DIPAC receives none. All 3 percent money in northern Southeast Alaska is paid to NSRAA, Northern Southeast Regional Aquaculture Association.

## Is any cost recovery money used to pay for any part of the Tourism Division at DIPAC?

No. In fact, the Tourism Division operates at a profit and contributes to the hatchery's debt retirement.

## Has DIPAC's budget grown a lot?

No. Other than the increase to the operations budget three years ago when DIPAC took over operations at Snettisham, the operational budget has been steadily declining, in spite of a large increase in the price of fish food – a major component of the budget.

## Do commercial fishermen have representation on the DIPAC Board?

Yes. Four gillnetters are part of the 12-member Executive Committee. They also serve on the DIPAC Board of Directors along with a seine representative. (see *Board Roster*, page 2)

## Will DIPAC continue releasing sockeye for the Sweet Heart Flats personal-use fishery?

Yes. Approximately 500,000 sockeye fry will be released annually into Sweetheart Lake, which should produce 2 to 5 thousand returning adults to the stream for harvest.

## Why does DIPAC raise so many pink and chum, rather than coho and chinook salmon?

Due to the very low number of summer chums harvested annually prior to enhancement, chums were identified as an excellent opportunity to enhance commercial fish-

eries in the area. The high cost of raising coho and chinook is also a factor because they must stay at the hatchery longer.

## What is difference between ocean ranching and farming?

Although salmon get their start at hatcheries operated by DIPAC, they are released at a very young age. They grow to maturity in the ocean, mixing with the wild fish, following their same patterns and feeding on similar wild food. Farmed fish are held in pens for their entire life and fed processed meal. This different upbringing results in different muscle texture and taste.



*The Osprey brings a load of salmon on board.*



## USAG—DIPAC Agreement

In mid-February, DIPAC and representatives from the United Southeast Alaska Gillnetters Association (USAG) met to work out agreements on how cost recovery, if warranted, would be conducted in Boat Harbor and Limestone Inlet. In addition, a harvest plan for the Snettisham special harvest area was negotiated that would allow fishermen into Speel Arm on years that they were not able to harvest 60 percent of the Snettisham return in Stephens Passage. The USAG membership and DIPAC Board of Directors are currently considering these tentative agreements for approval.

The meeting was attended by USAG President Bill Auger and Vice President Norman Hughes, Alaska Department of Fish and Game (ADF&G) Area Management Biologist Andy McGregor, USAG Juneau Chapter President and gillnetter Jim Becker, and DIPAC's Executive Director Jon Carter along with staff members Rick Focht and Eric Prestegard. Hughes and Becker currently also serve on the DIPAC Board.

DIPAC agreed not to do cost recovery at Boat Harbor and Limestone Inlet this year. The agreement, however, provides for DIPAC to do cost recovery at these sites in event that two situations, both deemed

## Letter from the Executive Director

In the short period of time since I took over as DIPAC's Executive Director from Ladd Macaulay, it has become increasingly obvious that improved communications between DIPAC and the fleet is critical. This newsletter is one important element in what will be a concerted effort on DIPAC's part to keep you informed.

We intend to publish this newsletter twice a year, once in the Spring and again at the end of the season. If new developments come up and justify an additional letter we will do that on an as needed basis.

We have included a section of most asked questions as an attempt to address

topics that you are concerned about, so please write or e-mail us with your thoughts. Another option is a quick phone call to me or a visit to the administrative offices at the Gastineau facility. Hopefully this will help to eliminate some of the misconceptions that are sometimes spread through "dock talk".

It is my sincere hope that through better communications we can keep more of you informed on our on-going efforts to put fish in your nets and at the end of your lines.

— Jon Carter

unlikely, should occur: DIPAC's cost recovery activities at Amalga Harbor and Gastineau Channel fall below 40 percent of the return; or ADF&G directs DIPAC to harvest for biological reasons. Under either of these circumstances, DIPAC would notify USAG and a joint meeting would occur involving USAG, DIPAC and ADF&G.

The Snettisham agreement was an ef-

fort to look ahead to 2000 and beyond when larger enhanced returns are anticipated. The plan responds to potential wild stock concerns requiring conservative management strategy in Stephens Passage. In those years, fishermen may need the ability to fish in the special harvest area if the 60/40 goal is to be reached.

For more information visit our web site at [www.alaska.net/~dipac](http://www.alaska.net/~dipac)



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