

## Pend Oreille Fishery Recovery Update

January, 2011

It's been another encouraging year on Lake Pend Oreille, with lots of indications the fishery recovery effort is heading in the right direction. The kokanee population continues to rebuild as predation decreases, while the lake trout population shows more signs of overharvest. Between netting and angling, over 26,000 lake trout were removed from Pend Oreille in 2010. This brings the total since 2006 to over 114,000 fish. Anglers not only saw more rainbows than previous years, but some of the largest fish in recent history were caught. At least one rainbow over 25 pounds was harvested in the fall, and anglers reported several others over 20 pounds. As long-time Pend Oreille anglers have been expecting, more kokanee means bigger rainbows.

### Kokanee

Kokanee egg take at Sullivan Springs is complete and the hatchery crew collected over 10 million eggs and handled about 100,000 fish! This is very encouraging news, considering that the *combined* take in 2007 and 2008 was only around 1 million eggs. Amazingly, if cold weather in November and heavy rains in December hadn't pushed some of spawners back out of the stream before they were ripe, the crew may well have been looking at 3-5 million additional eggs. With any luck, those fish that went back to the lake spawned on their own in suitable shoreline gravels. Either way, the highly successful egg-take this year helps insure an abundant year class of fry for release in 2011.

Many people, including IDFG biologists, were excited to see the tremendous return of early-spawning kokanee to Pend Oreille tributaries in September. Between Granite, Trestle, North Gold, Gold, and Grouse creeks we estimated an escapement that likely exceeded 40,000 early spawners. Most of these fish are likely two and three-year-old hatchery fish released in 2007 and 2008. While this is very encouraging, and suggests survival was much improved, it's important to recognize that the early spawning kokanee, which rely on tributaries, can never fill the void of the late spawning population, which relies on the shoreline. To illustrate the point, consider that this year's escapement of 40,000+ fish is a tiny fraction of the historical late spawner escapement, which regularly exceeded a half million. In other words, tributary spawning habitat is far more limited than lake shore habitat when lake levels are managed to support spawning kokanee. Further, eggs deposited in tributaries face risks from high flows that dislodge eggs or deposit sediments. For example, a major rain on snow event already occurred this winter and may have substantially reduced survival of eggs deposited by early spawners in the fall. Although early spawners are making a valuable contribution, the future of kokanee in Pend Oreille lies primarily with late spawning fish.

Speaking of late spawning kokanee, the research crew out of Bayview counted shoreline spawners, and the results were also encouraging. The peak shoreline count was about 8,200 kokanee spawners, which was three times higher than last year and the highest count we've seen in many years. Many shoreline spawning kokanee are too deep to easily see, so the number counted represents only a fraction of the total number of shoreline spawners. The counts are however, a valuable index and further evidence of a rebounding kokanee population.

Monitoring spawner returns tells us how well mature kokanee are doing, but we also evaluate other age classes to fully assess the status of the kokanee population. To do this, we conduct trawling and hydroacoustics surveys every August and September. Results from these surveys tell us whether upcoming age classes of kokanee are strong or weak and give us annual survival rate estimates. In 2011, surveys indicated more mature fish than last year, which was confirmed by the good spawner returns

later in the fall. Abundance of age-1 (1.5 million) and age-3 (409,000) kokanee was up slightly from last year. Unfortunately, age-2 abundance (268,000) was very low. We expected this to be a weak age class because these fish were produced from spawners that returned in 2007. This was the year kokanee spawners were at a record low. Related to the low age-2 abundance, survival rate was 22% from age-1 to age-2 compared to 69% last year. Fortunately, survival rates for other age classes remained stable. We are concerned about the survival decrease and are working to understand what might be causing this. The weak age-2 year class and the poorer survival those fish experienced this year highlights that we are not out of the woods with predation. We have greatly reduced predation during the past few years, but it still poses a threat to kokanee. Sustaining good survival will be the key to the speed of the recovery process and eventually re-opening a kokanee fishery.

### **Lake Trout Netting**

The commercial netting equipment was deployed from February 1 through May 28 and again from September 2 through December 17th in the fall. In 2011, the crew will resume in mid-January. Over the past two years, we've been testing the effectiveness of netting in the winter months. We've learned that not only does it minimize problems between netting and angling, it's a productive time to target juvenile lake trout and avoid bull trout as well.

From mid-September through mid-October gillnets were set in the two primary spawning areas near Windy Point and Echo Bay. For the five week period, the netters used two boats, with one stationed out of Hope and one stationed out of Farragut. As in past years, telemetered (sonic tagged) fish have been used to guide the efforts. Unfortunately, a third spawning site was discovered from telemetry work this fall. A shoreline site near Evans Landing was used by spawning fish, although the aggregation of fish was much smaller than at the other two spawning sites. At the three sites combined, approximately 2,000 spawners were removed during the 2010 spawning season.

Outside of the spawning season, netting efforts have been focused on the "nursery areas" around the islands in the northern part of the lake. With the addition of the enclosed gill net boat (the "Kokanee") the netters are able to net more effectively in adverse weather conditions. This allows us to maintain netting effort through the winter months. Past efforts have shown that catch rates on juvenile lake trout are high in late November and in February, so in 2010 we netted through mid-December and plan to resume in mid-January of 2011. If this netting schedule proves to be effective, we'll continue to shift netting activity to the "off season" thus minimizing conflicts with the peak angling season. Thus far in 2010, over 13,000 lake trout have been removed, bringing the total since 2006 to over 52,000 fish.

As many anglers have noticed, the use of trapnets was scaled back in 2010. No trapnets were used in the spring, and we've pared down the fall effort to the most productive six trapnets sites. This is in response to their declining effectiveness. Trapnets are mainly effective on larger (over 22 inch) lake trout, so as the adult lake trout population continues to decline, catch rates are expected to decline as well. That, in fact, has happened, with mean catch declining from 4.1 (fish/net/night) in 2007 to 1.7 in 2010. Though not as effective as they were three and four years ago, trapnets still play an important role in the effort. By setting them in standard locations each fall, we can continue to compare catch rates from year to year and gauge the effectiveness of removal efforts.

### **Rainbow Trout**

Anglers reported better fishing for rainbows and this was reflected by totals from the Angler Incentive Program. In 2010, anglers removed 8,357 rainbows, which was the highest annual total since the program started in 2006. That brings the total rainbow harvest to 32,954 over the past five years.

Thanks to the help of many anglers, we started a tagging study this year that will allow us to get an updated population estimate and evaluate harvest rate. We used different tags this year, called coded wire tags that allowed us to tag a wider size range of rainbows. During the spring, we worked with anglers (especially during the Spring Derby) to tag fish they caught. This turned out to be a very effective method. We tagged 291 rainbows that were caught by 45 different anglers. Combined with fish our crews collected, we tagged 322 rainbows in all. Tags were implanted in the heads of rainbows (invisible to the eye) and estimates are made based on how many tags are found in heads turned in to the AIP throughout the year. This recapture period will run until this coming spring, so be sure and turn your heads in to help us get the best estimate possible!

While the high catch total for rainbows in 2010 might seem impressive, it actually has not effectively reduced the rainbow population. Through the end of 2010, only 16% of the tagged fish had been turned in by anglers. That means we are unlikely to see an annual harvest rate higher than about 25-30% by the time the recapture period ends. This is consistent with past years and tells us that harvest rate is well below the level necessary to reduce the rainbow population (likely >50%). Confirming this, a population estimate generated through the end of 2010 was higher than in 2009. We'll have a final estimate come June, but early indication is that the rainbow population has actually increased in spite of the AIP program.