

HSWRI Aquaculture Program Research Report

**** June & July 2010 ****



White Seabass Broodstock Collection in Full Gear

Efforts to collect new white seabass (WSB) brood fish for the Ocean Resources Enhancement and Hatchery Program (OREHP) are in full swing these days. The OREHP maintains a broodstock population of 200 individuals apportioned equally in four large spawning tanks. The results of recent genetics research by Dr. Kristen Gruenthal of HSWRI have prompted the Institute's researchers to work to replace as many as 50 hatchery brooders with new WSB collected from the wild each year.



Figure 1: HSWRI scientists deflate the hyper-inflated swim bladder of a newly collected WSB brood fish.

During 2010, several broodstock collecting trips were made to Santa Catalina Island and other local mainland areas. Catalina offers the most consistent fishing for a species that is otherwise very elusive. Furthermore, the large WSB can be readily transported to our net pens in Catalina Harbor for long-term holding. At present, the pens are holding 44 brooders for us. Brood fish are caught using traditional hook and line, netted, and placed in tanks supplied with flow-through seawater on the boat (Figure 1). The tanks are covered to keep the fish calm and prevent them from jumping out. The WSB are transferred to the net pen by boat where they are PIT-tagged for identification, and examined to determine their sex (Figure 2) before being released into the pen. They are held in the pen until they are transported to the main hatchery in Carlsbad, using a large commercial fishing boat. Once at the Carlsbad Hatchery, they receive treatment to remove parasites and then undergo a 45-day quarantine period before being introduced into the hatchery population.



Figure 2: A newly collected WSB brood fish is measured after capture.

This recent broodstock collecting effort has been spearheaded by Carlsbad Hatchery Manager Eric McIntire, with gracious support from former Growout Facility Coordinator and long-time program supporter

Jock Albright. Jock has donated the use of his 13.4-m Pacifica Sport Fisher *Kea Kai* for the collection trips, as well as his time and money for fuel, food, and bait. We have also had fish donated by private angler Joe Enterline, and a collection trip aboard the sport boat *Rail Time* was sponsored by Berkley Pure Fishing.

HSWRI Hosts the Bill Poole Memorial Angling Tournament

In July, HSWRI hosted the Bill Poole Memorial Angling Tournament, in honor of the late Bill Poole, who passed away last November. Bill was considered the father of the long-range sportfishing industry in southern California, working with the US Coast Guard and Mexican government officials to establish permits and regulations for what was to become the world's premier long-range sportfishing fleet. After Bill's passing in 2009, his wife Ingrid Poole eagerly joined with the Institute because, as she said, "Bill was always interested in conservation and wildlife, and he was among the first to encourage his passengers to catch and release when reasonable limits were attained." The major sponsors of this year's tournament included [SeaWorld San Diego](#), [Ingrid Poole/EXCEL](#), [The Tuna Club of Avalon](#), [AFTCO Manufacturing Company](#), [David Wirth](#), and the [Chefs de Cuisine Association](#).

The one-day benefit tournament had six different angling divisions, with six eligible species of fish. The eligible fish included white seabass, California halibut, California yellowtail, and three tuna species. Winners in each of the divisions are shown in Figure 3 as they receive their trophies. The 1st, 2nd, and 3rd place spots in the private boat division



Figure 3: Congratulations to all of our winners who participated in the Bill Poole Memorial Angling Tournament! From left to right: Kurt Hoffman, High Kayak (14-kg yellowtail); Bob Fletcher, High Sport Boat (11.8-kg bluefin); Peter Vasiliou, High Private Boat 1st Place (22.7-kg white seabass); Rod Melchert, High Private Boat 2nd Place (17.2-kg white seabass); and Paul Gomez, High Private Boat 3rd Place (15.8-kg white seabass).

were won by anglers with white seabass, while the top fish caught by a kayaker was a yellowtail. The high sport boat spot was won with an 11.8-kg bluefin tuna, and the overall high tournament angler won with a 22.7-kg white seabass.

An awards barbecue took place the following day on the bayside patio of the Institute's Mission Bay facility. The nearly 300 guests who attended enjoyed a gourmet feast

that included California sushi rolls, abalone, seaweed salad, and delicious grilled fish tacos using fish cultured by HSWRI. All food was prepared on-site by chefs from the Chefs de Cuisine Association. In addition, the guests enjoyed tours of the Institute's hatchery operations, a terrific assortment of prizes from opportunity drawings and a silent

auction, and visits from SeaWorld’s animal ambassadors. The event raised awareness of the Institute’s programs and brought in close to \$50,000 in support of its research efforts.

High Tech High Student Completes Internship in Fish Genetics

Austin Vetter is a high school student who just completed his junior year at The Gary and Jerri-Ann Jacobs High Tech High in San Diego, California (Figure 4). From May 24 through June 11, Austin participated in an intensive – 40 hr per week – genetics internship under the direction of Dr. Kristen Gruenthal. Through this internship opportunity, Austin was able to experience the full range of genetic field and laboratory research that takes place at the Institute and associated facilities. Austin collected tissue samples from fish at the HSWRI’s Carlsbad Hatchery, and then processed them at the NOAA Southwest Fisheries Science Center (SWFSC), before analyzing his data at HSWRI’s main laboratory in San Diego.



Figure 4: High Tech High intern Austin Vetter.

Austin’s project entailed assigning male and female parents to white seabass (WSB) larvae samples produced by adult brood fish at the Carlsbad hatchery. Genetic techniques are being used to determine parentage because WSB are group broadcast spawners that release their eggs and sperm into the water column in synchronized mass spawning events, often at night. For this reason, it is impossible to discern who the parents of offspring are without using genetic techniques. The larvae Austin analyzed were from two mass spawn events. He found that eggs from each spawn were produced by single, separate females that had each mated successfully with multiple males – a pattern that appears typical of WSB in our hatchery. Austin’s work will help assess the genetic diversity of the juveniles released from the Carlsbad hatchery as part of a replenishment program for WSB. As part of his project, Austin successfully presented his findings orally to a group of his high school advisers on June 14. Austin even returned to volunteer over the summer to continue producing data for the project!

Acknowledgements

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The Aquaculture Research Program has been active for more than 25 years at HSWRI. The primary objective of this program is to evaluate the feasibility of culturing marine organisms to replenish ocean resources through stocking, and to supply consumers with a direct source of high quality seafood through traditional aquatic farming. Please direct any questions to Dr. Kristen Gruenthal at kgruenthal@hswri.org.

Aquaculture research at HSWRI is currently supported by these major contributors:

- The California Department of Fish and Game's Ocean Resources Enhancement and Hatchery Program
- Cabrillo Power/NRG
- SeaWorld San Diego
- SeaWorld Parks and Entertainment
- The U.S. Fish and Wildlife Service's Sport Fish Restoration Account
- Chevron Corporation
- The Catalina Seabass Fund
- The Shedd Family
- The Fletcher Foundation
- California Sea Grant
- NOAA Fisheries
- National Institute of Food and Agriculture
- United Soybean Board
- San Diego County Fish and Wildlife Advisory Commission
- NOAA's Saltonstall-Kennedy Program

Hubbs-SeaWorld Research Institute is a 501(c)(3) non-profit charity. If you would like to become a financial supporter of the Institute's aquaculture research, please contact Karen Terra at (619) 226-3870. You can also make an online donation by clicking here: [Donate Now](#)

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