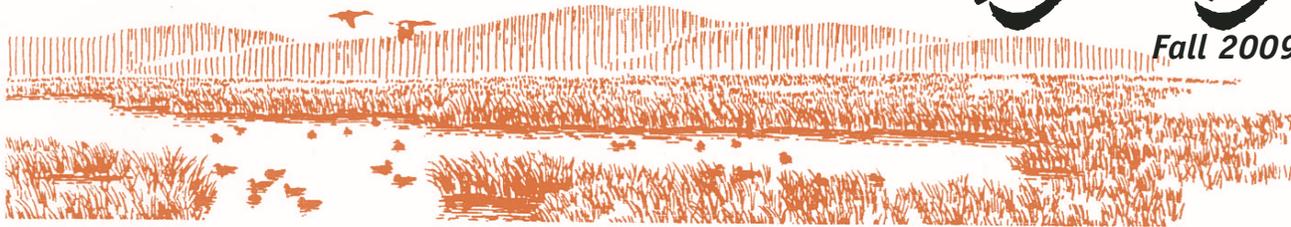


# The Flyway

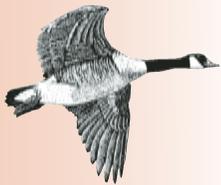
Fall 2009



Quarterly newsletter of Nisqually and Grays Harbor National Wildlife Refuges

## Inside...

- Estuary Restoration ..... page 1
- What is an Estuary? ..... page 2
- Waterfowl Hunt Opening Postponed ..... page 3
- Metal Sculpture Exhibit..... page 3
- Jr. Duck Stamp Art in Vancouver ..... page 4
- New Education Center ..... page 5
- Nisqually Watershed Festival ..... page 6



**2010 Nisqually National Wildlife Refuge Calendars Now Available at the Nature Shop!**

## Restoration of the Nisqually Estuary: Construction Continues

A very busy summer of restoration work continues here at Nisqually NWR, with the help of Ducks Unlimited and the contractor, Nutter Corporation. The restoration of the Nisqually estuary is proceeding on schedule aided by the dry weather. Approximately 75% of the dike has been reduced to a small wedge to hold back the tide for the remainder of the summer. The removal of this last wedge in late September or October will be a crucial phase of the largest estuary restoration project in the Pacific Northwest, allowing Puget Sound tides to flow across 762 acres that have been cut off from tidal action for the better part of 100 years.

Other construction work needed to prepare for restoring the tides includes preparations to reconnect the historic tidal sloughs inside and outside the old dike. The rock armoring protecting portions of the old dike has been removed to allow the Nisqually River and McAllister Creek to choose their own paths in the future. Restoring natural processes is a primary focus of the project and allowing changes in the rivers' path to

occur naturally will allow the creation of complex and diverse habitats that native fish and wildlife species prefer. The raising of the surge plain riparian restoration site just outside the new dike near the Twin Barns will allow planting next winter. Restoration of this rare habitat type will benefit a wide range of species from songbirds to juvenile Chinook salmon. An engineered logjam will be installed just beyond

the River Overlook to protect the overlook and new exterior dike from erosion by the river while providing habitat for fish and wildlife. The new exterior dike is also being raised to finished elevation to protect the freshwater wetland area and Refuge headquarters.

Planning is ongoing for the new boardwalk that will be constructed next summer, ending near the mouth of McAllister Creek. It will provide visitors with a unique perspective of the

natural processes, as they rapidly heal and sustain a dynamic estuary important for all of Puget Sound. The boardwalk will take visitors into the estuary to experience the huge tidal range: from the lowest tides where visitors can see mudflats used by

*Continued on page 2*



*It takes many steps to restore the estuary including lowering the dike in phases, filling the borrow ditch, and removing the rock armoring along the Nisqually River.*

# What is an Estuary and Why Does it Matter?

By Kristin Stewart

An estuary is essentially a place where fresh water from rivers and streams mix with oceanic salt water, creating a unique combination of habitats: high salt marsh, low salt marsh, mudflats, and intertidal channels or sloughs that are woven throughout the marshes. Approximately 80% of all estuarine habitats have been destroyed throughout the entire Puget Sound. The restoration project under way at Nisqually National Wildlife Refuge will restore about 85% of the Nisqually estuary. There is so little estuary left in the Puget Sound that it is estimated the restoration project at Nisqually, along with the nearby restoration already done by the Nisqually Tribe, will increase the amount of estuarine habitat within south Puget Sound by more than 50%!

Estuaries are one of the richest ecosystems on earth, because they are made of several types of smaller but highly productive habitats such as salt marshes and mudflats. A

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Save trees, think green

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salt marsh is where the land and salt water meet and vegetation can grow there. High salt marsh is that area that is flooded by salt water only during storms or the very highest tides and, therefore, is less salty than the low salt marsh. The plants that inhabit the high marsh include grasses, sedges, and shrubs that are only able to tolerate being submerged in salt water occasionally. The low salt marsh is flooded twice daily with the tides and produces tough plants that are adapted to salt water. These include pickleweed, sand spurry, sedges, and rushes. The channels or sloughs are distributaries or streams that branch off from a river and are subject to tidal waters. Beyond the marshes lie the

mudflats, exposed only at low tide.

Estuaries are among the most productive habitats in the world, creating a nutrient-rich soup of plants and minerals. A salt marsh is a complex system of growth and decay that provides a fertile nursery for organisms dependent on the marshes for their very existence. Fungi and bacteria begin the process by breaking down dead plants, which then allows small invertebrates such as protozoa and worms to further the process. They are in turn consumed by larger invertebrates such as crabs, shrimp, clams, and small fish.

Many thousands of fish, birds, and

*Continued on next page*

## Estuary Restoration

*From page 1*

shorebirds, tidal channels for fish, and the vegetated salt marsh to the highest tides that provide open water for waterfowl, seabirds, and waterbirds to feed and roost.

U. S. Geological Survey staff from the Western Ecological Research Center and Western Coastal and Marine Geology Program (both are part of the Pacific Science Center), Western Fisheries Research Center, the Nisqually Tribe, and other part-

ners have been working very hard this summer to collect baseline data before the tides are allowed into the site. Monitoring sites have been set up, and information is being collected on everything from vegetation and topography to benthic invertebrates and the freshwater/saltwater mixing zone. This project provides an important and unique opportunity to study how the delta, nearshore, and Puget Sound respond to a large scale estuary restoration. ✂

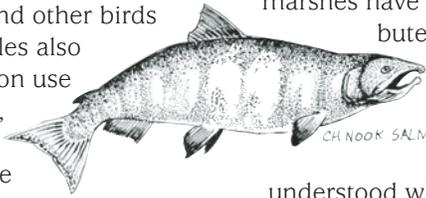


*Only a small wedge of dike remains separating native salt marsh from the restoration area along McAllister Creek.*

## Estuaries matter

From previous column

mammals depend on these areas during some part of their life cycle. Shorebirds, for example, utilize the nutrient rich mud flats and low salt marsh areas during both spring and fall migration, as do American widgeon. Many species of waterfowl spend the winters in these areas, and other birds such as bald eagles also feed there. Salmon use the marsh edges, the inter-tidal channels, and the nearshore waters during migration to and from fresh water. Their juveniles move from the fresh waters of the streams and rivers in which they hatched to the estuary where they feed, grow, and adjust to salt water before moving to the open oceans; they also find protection from predators in the shallow waters. When adult



Salmon migrate back to spawn, they too use these waters to adjust to a fresh water environment again. A diversity of other animals use the estuary including many insects, rodents, and larger mammals such as muskrats, raccoons, and river otters.

As well as providing shelter and food for a myriad of creatures, marshes have the additional attributes of filtering pollution and providing flood control assistance that were not clearly understood when development and building occurred in the Puget Sound. Most of the marshes were ditched and drained, dredged, diked, and developed, since rivers and shorelines provide attractive sites for building and development which includes many of the world's largest cities. A large amount of pollution gets concen-

trated in these developed areas, but marshes can act as a filter for some pollutants by diluting them in the tidal cycle and providing marsh plants that can absorb or break down certain pollutants so that they are less harmful. The destruction of almost 70% of Puget Sound salt marshes means that our waters are more polluted and more prone to flooding, since marshes can provide some flood control by absorbing excess water. Estuaries can provide many benefits, and their restoration will help restore Puget Sound.

For more information on estuaries, try checking out some of the following websites:

- <http://www.estuaries.gov/>
- <http://www.epa.gov/owow/estuaries/kids/>
- <http://en.wikipedia.org/wiki/Estuary>
- <http://www.estuaries.org/>

For details on the Nisqually National Wildlife Refuge estuary restoration project, check out <http://nisquallydeltarestoration.org>.

## Nisqually NWR Waterfowl Hunt Opening Postponed

Opening Nisqually NWR to waterfowl hunting has been postponed until fall 2010 due to delays related to a national-level lawsuit on hunting within national wildlife refuges. A Draft Supplemental Cumulative Impact Analysis (Draft Supplement) for the Nisqually National Wildlife Refuge waterfowl hunt program was made available for public review in November 2008. It complemented a much more detailed analysis of the waterfowl hunt that was completed as part of the Nisqually NWR Comprehensive Conservation Plan and Environmental Impact Statement in 2004. The Draft Supplement was prepared to provide additional analysis of the cumulative impacts of opening Nisqually NWR to waterfowl hunting. This analysis was done in response to the Fund for Animals lawsuit against the Service on March 14, 2003, alleging noncompliance with the National Environmental Policy Act (NEPA) in opening 37 refuges to hunting during the 1997-98

through 2002-03 seasons. During the public review of the Nisqually NWR Draft Supplement, 102 public comments were received. Although none of the comments specifically addressed the cumulative impact analysis, several provided specific comments on hunt regulations or the hunt area.

All comments received in response to the Draft Supplement were considered in developing a final package, which resulted in a decision to open Nisqually NWR to waterfowl hunting. However, the ongoing lawsuit has precluded opening Nisqually NWR to waterfowl hunting in 2009, so it has been postponed until the fall 2010 hunt season.

For further information, visit the Nisqually NWR website at <http://nisqually.fws.gov>, where the waterfowl hunt package can be found, or contact the Refuge Manager at (360)753-9467.

## Unique Metal Sculpture Exhibit on Display in Visitor Center

Ann Kirchhoff was an accomplished local artist creating metal sculpture that reflected her interest in the native elements (especially plants) of the Pacific Northwest. While Ann unfortunately passed away this past April, her passion for the natural world lives on in through her artwork. Her metal sculpture collection entitled *The Northwest Series* will be on display in the Refuge Visitor Center Auditorium this September through November. The Visitor Center is open Wednesday through Sunday from 9am-4pm. Come and check out this amazing display of metal sculpture!

# Junior Duck Stamp Winning Artwork Goes on Exhibit in Vancouver

The Federal Junior Duck Stamp program has been a fixture at Nisqually NWR, since the Refuge began managing the state Junior Duck Stamp contest back in 1994. The exhibit of each year's state-level winning artwork in the Auditorium is one of the highlights at the Visitor Center. This year the 2009 winning art has traveled down to Vancouver where it is on display through October in the Water Resources Education Center's White Sturgeon Art Gallery. The art exhibit is being featured during the 22<sup>nd</sup> Annual Columbia Wildfowl Show & Competition held at the education center September 12-13.

The Junior Duck Stamp Contest is actually two separate competitions: the state-level contest and the national contest. Washington awards three 1<sup>st</sup> place, three 2<sup>nd</sup> place, and three 3<sup>rd</sup> winners within each of the four grade categories (K-3, 4-6, 7-9, and 10-12) at the state-level competition. There are also 16 Honorable Mentions awarded within each grade category, but they are not featured in the exhibit of winning artwork. A Best of Show is selected from all the 1<sup>st</sup> place winners, which then goes on to the national competition for a chance to become the Federal Junior Duck Stamp.

The deadline for entry into this year's contest is March 15. Details about the Junior Duck Stamp contest can be found online at

<http://www.fws.gov/juniorduck> or by emailing [nisqually@fws.gov](mailto:nisqually@fws.gov).



*Best of Show artwork by 16 year-old Jing Xue*



*Example of 1<sup>st</sup> place winning artwork by 10 year-old Charity Young*



*Example of 2<sup>nd</sup> place winning artwork by 12 year-old Xianguang Yan*



*Example of 3<sup>rd</sup> place winning artwork by 7 year-old Victor Wu*

# New Environmental Education Center Opens in September

The Refuge is pleased to announce that the new Environmental Education Center (EEC) at Nisqually NWR will open for the first time to the public on September 26 during the Nisqually Watershed Festival. During the festival, visitors will have a chance to tour the building and take part in a variety of hands-on activities.



for indoor activities. The building also has offices, indoor bathrooms, and a small kitchen. All of the edu-

Starting in October, the EEC will be open by reservation only for school groups participating in the Refuge's environmental education program. The EEC, which has three classrooms, will be used for opening and closing sessions and

cational materials and resources that were in the old education center, including the bird mounts, have been moved to the new EEC. A group of Timberline High School students designed and painted a wall mural that greets visitors when they enter the building.

"We are very pleased to be opening the building and starting this new phase of our education program," said Refuge Manager Jean Takekawa. "The facility will provide a much needed space for students to learn more about wildlife and conservation and will complement the Refuge's outdoor experience."

The Refuge plans to install a Nature Explore Area outside and adjacent to the new EEC. A dedication of the EEC and Nature Explore Area will be held in the spring of 2010.

## Friends of Nisqually NWR

is a 501(c)(3) non-profit organization established in 1998 to promote conservation of the natural and cultural resources and fund education and outreach programs at Nisqually National Wildlife Refuge Complex.

## Join Friends Of Nisqually NWRC!

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- Please send information on making Friends of Nisqually NWRC a beneficiary of my estate.
- Check here to receive an electronic version of *The Flyway* newsletter by email.

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Please make checks payable to: Friends of Nisqually NWRC, 100 Brown Farm Rd, Olympia, WA 98516

Your tax deductible contribution will help preserve the unique habitats, fish, and wildlife of the Nisqually Delta and the Grays Harbor Tidelands.

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# **Nisqually Watershed Festival!**

**Great Fun for the Whole Family:**

- ▶ Music and live animal presentations
- ▶ Tours and guided walks throughout the day
- ▶ Great educational displays around the area
- ▶ Fin, the Wild Olympic Salmon
- ▶ Red Salmon tent, storytelling, and critters parades
- ▶ Marine touch tank
- ▶ New Environmental Education Center Open House
- ▶ **And, of course, the famous Nisqually Salmon Bake!**

**Saturday, September 26  
at Nisqually NWR  
from 10-4 pm**

**All Events are Free!**  
(Except the food)

**Join us and celebrate the cultural, economic, and natural resources of the Nisqually Watershed!**  
A complete schedule of events and times can be found at [www.nisquallyriver.org](http://www.nisquallyriver.org) or by calling (360) 753-9467.