

2011 Olympic Knotweed Working Group



Giant hogweed found (and treated) while treating knotweed on Spencer Creek in Jefferson County

prepared by
Clallam County Noxious Weed Control Board



Crew Member Deciding Which Knotweed Plant to Inject

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EXECUTIVE SUMMARY

PROJECT GOAL

The goal of this project is to protect the natural resources, ecosystem functions and land values in Clallam and Jefferson Counties from the impacts of invasive knotweeds. .

PROJECT OVERVIEW

The Olympic Knotweed Working Group (OKWG) is a loose-knit consortium of governments, tribes, non-profits and private landowners, working together since 2005 to eliminate invasive knotweed from riparian areas in Clallam and Jefferson Counties. (See list of participants on page 12.) The group meets twice a year for the purpose of sharing information and creating a strategic plan for knotweed control. Clallam County Noxious Weed Control Board (CCNWCB), as the *de facto* group leader, coordinates the meetings and supports the work of other group members by acquiring Landowner Agreements, distributing herbicide, coordinating projects and in some cases supplying an aquatic applicator. CCNWCB also attempts to “fill in the gaps” by controlling knotweed in areas not otherwise covered and educates the community about knotweed impacts and control. Most of our partners have sought and received independent funding and knotweed control is now taking place in all four Peninsula Counties.

2011 OVERVIEW

Many groups are now involved in knotweed control on the Olympic Peninsula. (See the 2011 Summary for details of work by all groups.) Clallam and Jefferson County Weed Boards continued to coordinate and support the work of other entities in their own counties, many of whom have pursued independent funding.

One focus in 2011, as in 2010, was involving landowners in monitoring and controlling their own knotweed, rather than doing it for them. Years of treatment have greatly reduced most infestations, many of which are no longer in water and are therefore easier for landowners to control. Plus, we know that funding from the state cannot continue indefinitely and we are attempting to transition to landowner control of knotweed wherever possible, believing this to be the only long-term solution. We offered six public workshops for landowners, at different locations in Clallam, Jefferson and Mason Counties. Equipment and supplies were made available to landowners who attended a workshop.

Funding uncertainty was an issue in 2011. We had some funding early in the year but did not know until September, if we would be funded from July 1st onward. This made planning very difficult.

Collaboration between all four counties continues to be excellent, with knotweed detection and control expanding in both Gray's Harbor and Mason Counties.

2011 ACCOMPLISHMENTS

In 2011 CCNWCB and JCNWCB

- Managed **244 existing Landowner Agreements**, solicited and obtained **134 new Landowner Agreements** (covering **800** parcels in all—see Appendix II)
- Surveyed, treated or re-treated an estimated **24 miles of rivers or streams 40 miles** of road.
- Worked with **18** other OKWG partners, representing a mix of federal, state, tribal and local entities
- Treated a further **58 miles** of streams (All other OKWG partners)
- Offered **six Knotweed Workshops** (in Shelton, Brinnon, Quilcene, Sequim, Port Angeles and Forks).
- Acquired an NPDES permit for aquatic use and did reporting associated with it (Clallam and Jefferson work only).
- Coordinated a spring and a fall meeting of the OKWG.
- Distributed herbicide to other Olympic Knotweed Working Group (OKWG) members. Members reported a total of approximately **152 gallons** of herbicide. (See Appendix I for a table of herbicide use)

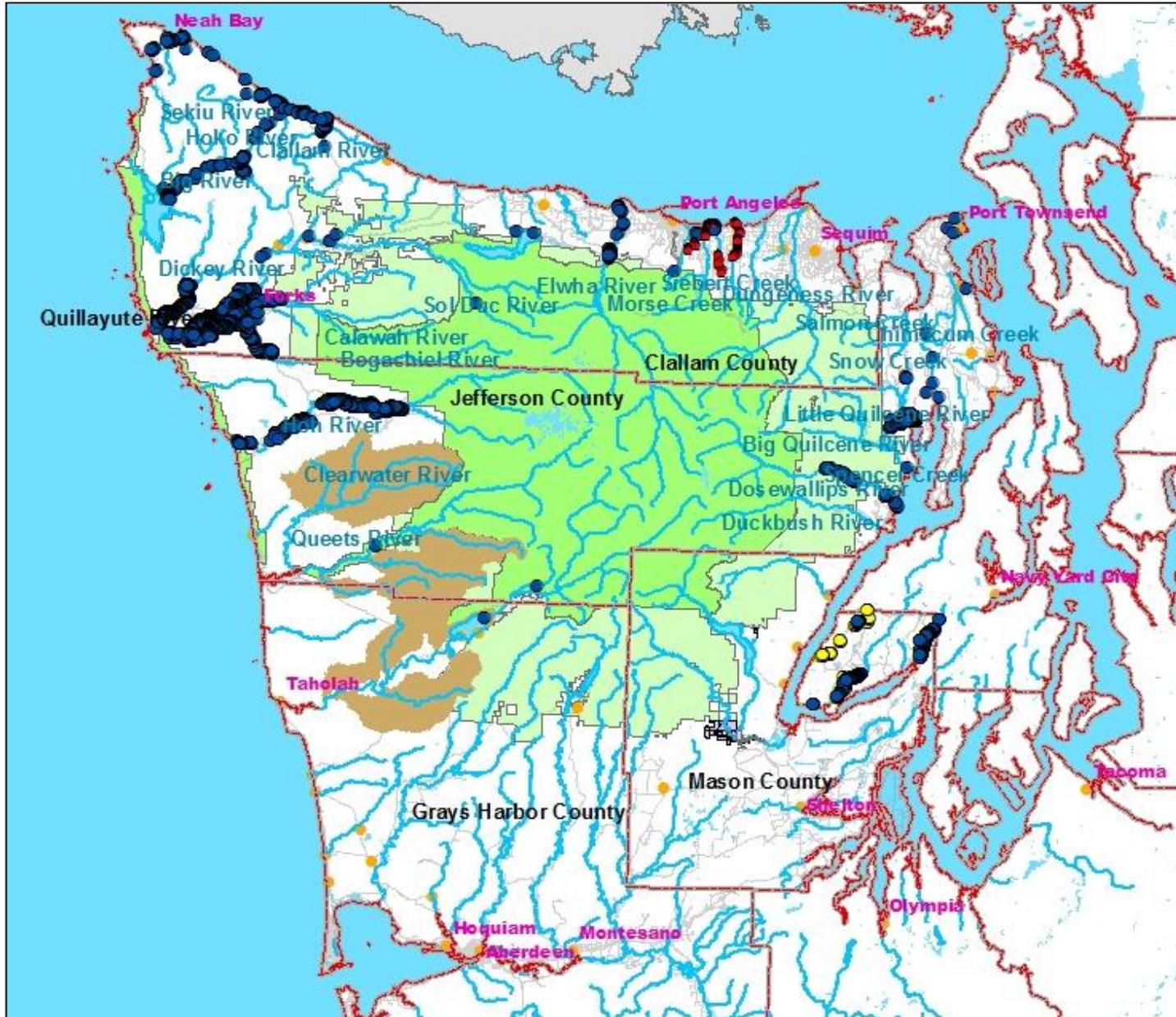
STAFF HOURS

Clallam and Jefferson County Noxious Weed Control Boards' staff spent a total of 1.369 hours on knotweed projects in 2011. Funding has been reduced, staff hours are now about half of 2009 levels and we have adapted to this change. Our goal is still landowner involvement but we must balance this with our long-term commitment to sites we have treated in the past. See graphs on Pages 9 and 10 for more detail on how staff hours were spent.

FUNDING

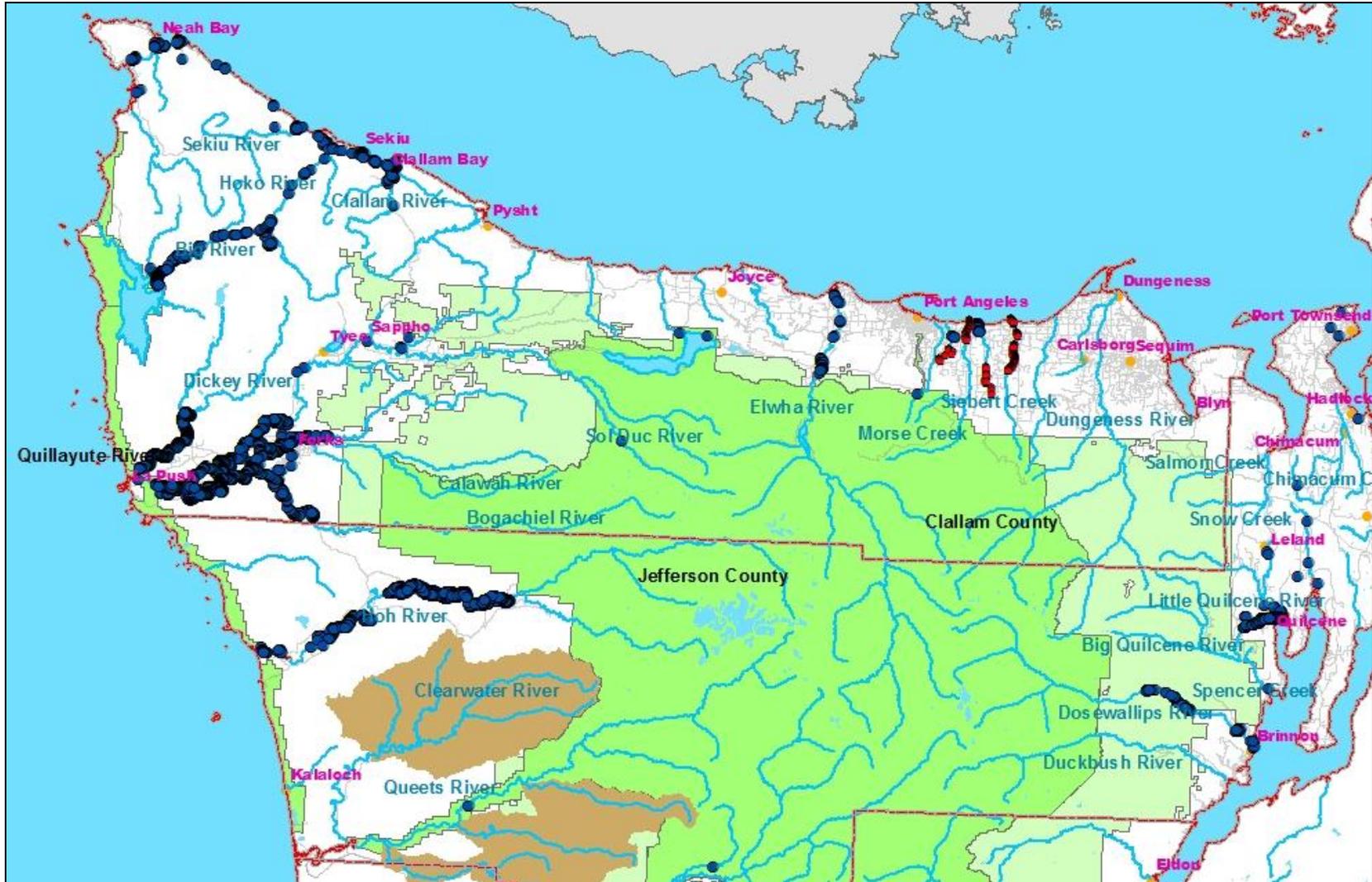
Projects summarized in this report were funded by: Washington State Department of Agriculture and Forest Health Protection (WSDA and NFS), Clallam County Noxious Weed Control Board, the Salmon Recovery Funding Board (through North Olympic Salmon Coalition and Hood Canal Salmon Enhancement Group) and separate funding administered by the Quinault Indian Nation (through SRFB and EPA grants), 10,000 years Institute, the Quileute Nation, and Mason Conservation District.

OVERVIEW MAP OF THE OLYMPIC PENINSULA



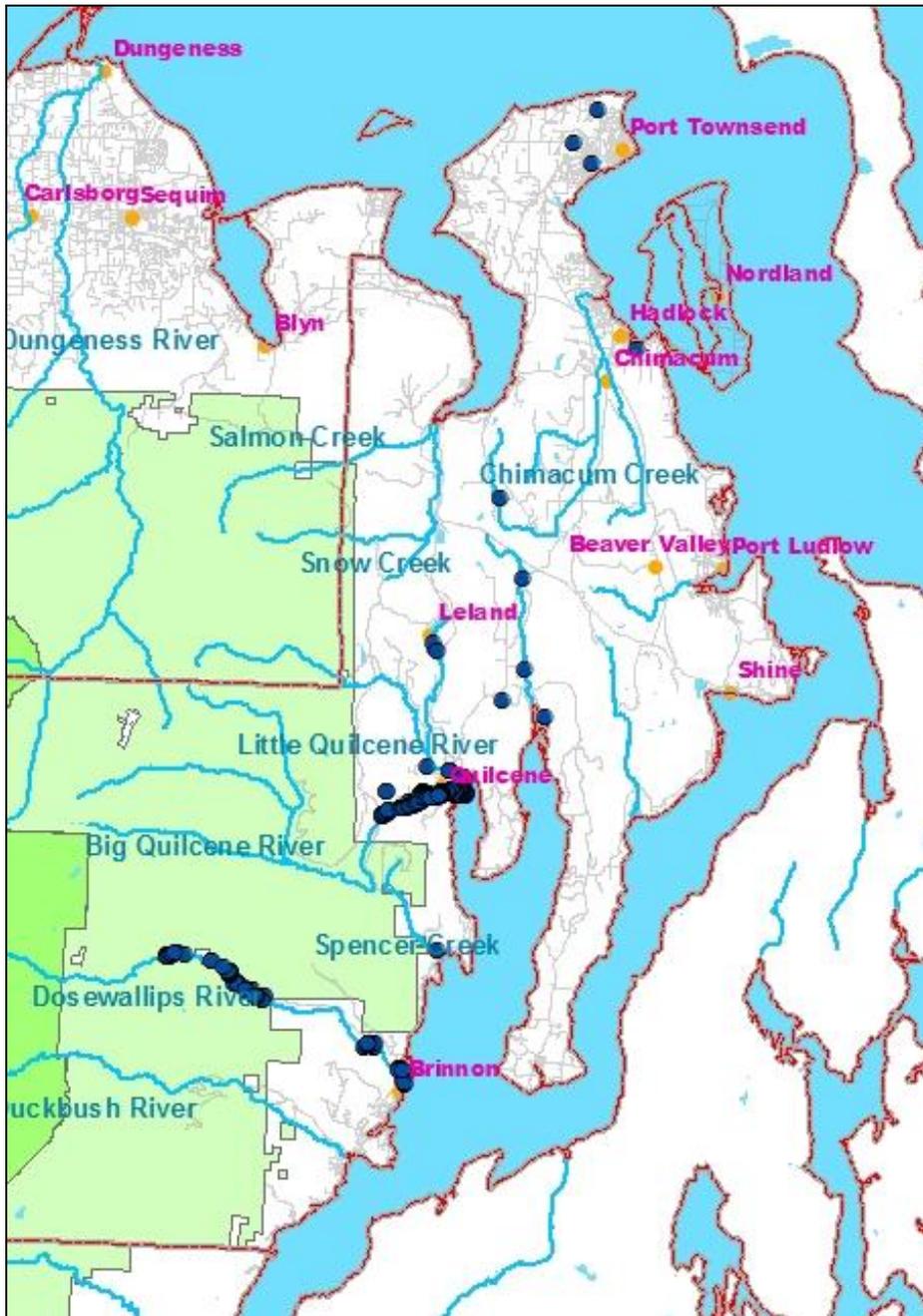
Blue dots indicate where knotweed treatments occurred in 2011. Yellow dots indicate knotweed found but not treated. Red dots indicate a null survey—no knotweed seen. The brown patches indicate the Quinault Indian Nation project area. (Map prepared by Ed McFarlen for OKWG meeting and modified for this report)

OVERVIEW MAP OF CLALLAM COUNTY AND WEST JEFFERSON COUNTY



Blue dots indicate where knotweed treatment occurred in 2011. Red dots indicate a null survey—no knotweed seen. The brown patches indicate the Quinault Indian Nation project area. (Map prepared by Ed McFarlen for OKWG meeting and modified for this report)

OVERVIEW MAP OF EAST JEFFERSON COUNTY



Blue dots indicate where knotweed treatment occurred in 2011. (Map prepared by Ed McFarlen for OKWG meeting and modified for this report)

PROJECT DESCRIPTION

Project Goal

The goal of this project is to protect the natural resources, ecosystem functions and land values in Clallam and Jefferson Counties and the rest of the Olympic Peninsula from the negative impacts of invasive knotweed. The project focused on riparian areas; rivers were chosen for their high significance to fish and wildlife or their natural resource value to public or tribal entities.

Project Overview

The Olympic Knotweed Working Group (OKWG) is a loose-knit consortium of governments, tribes, non-profits and private landowners, all working to eliminate invasive knotweed from riparian areas in Clallam and Jefferson Counties and the rest of the Olympic Peninsula. The group has met twice a year since 2005 for the purpose of sharing information and creating a strategic plan for knotweed control. Clallam County Noxious Weed Control Board (CCNWCB), as the *de facto* group leader, coordinates the meetings and supports the work of other group members. We also attempt to “fill in the gaps” by controlling knotweed in areas not otherwise covered. Most of our partners have sought and received independent grant funding and knotweed control is taking place in all four Peninsula Counties.

2011 Overview

Many groups are now involved in knotweed control on the Olympic Peninsula. (See the 2011 Summary for details of work by all groups.) Clallam and Jefferson County Weed Boards continued to coordinate and support the work of other entities in their own counties, many of whom have pursued independent funding.

One focus in 2011, as in 2010, was involving landowners in monitoring and controlling their own knotweed, rather than doing it for them. Years of treatment have greatly reduced most infestations, many of which are no longer in water and are therefore easier for landowners to control. Plus, we know that funding from the state cannot continue indefinitely and we are attempting to transition to landowner control of knotweed wherever possible, believing this to be the only long-term solution. As in 2010, we offered six public workshops for landowners, at different locations in Clallam, Jefferson and Mason Counties. Equipment and supplies were made available to landowners who attended a workshop.

Funding uncertainty was an issue in 2011. We had some funding early in the year but did not know until September, if we would be funded from July 1st onward. This made planning very difficult.

Clallam County—With some funding remaining early in the season, we tackled previously untreated streams of concern knowing that knotweed there, would be seen earlier than treated sites. Later, when more funding was available, we focused treatments on the four major west end rivers—the Big, Hoko, Sekiu and Clallam Rivers, where knotweed control is now mandatory. Additionally, we asked the crew to collect as much data as possible so that we had a better baseline from which to assess the efficacy of past treatments and assist with future planning.

Jefferson County--weed board staff treated a number of small sites, and a WCC crew, funded by both North Olympic Salmon Coalition (NOSC) and the Hood Canal Salmon Enhancement Group (HCSEG) re-treated the entire Big Quilcene River and did some survey and re-treatment on the Dosewallips. Jefferson County Noxious Weed Control Board (JCNWCB) also worked with (and was funded by) the Quinault Indian Nation, to acquire landowner permissions for knotweed survey and control in the Queets-Clearwater watershed.

Mason County—the Mason Conservation District (MCD), the Weed Board and Hood Canal Salmon Enhancement Group (HCSEG) all worked in Mason County in 2011, surveying and treating on the Skokomish River (MCD), and the Union, Tahuya and Dewatto Rivers (HCSEG). The Mason County NWCB specifically worked to develop a landowner control program and on-line resources.

Gray's Harbor County—a separate CWMA has been formed in Gray's Harbor, to battle knotweed in the Lake Quinault, Queets-Clearwater area. (See the Overview Map for the project area). The Quinault Indian Nation (QIN) has been especially active in surveying and treating. Cascade Land Conservancy and Gray's Harbor Weed Board have also participated.

Collaboration between all four counties continues to be excellent.

2011 Project Activity Summary

This list summarizes work accomplished in 2011 and reported to CCNWCB by members of the Olympic Knotweed Working Group (OKWG). It may not be a comprehensive list of activities of all OKWG partners.

Landowner Contacts and Outreach (within Jefferson and Clallam Counties):

- Managed **244 existing Landowner Agreements**. [Clallam County Noxious Weed Control Board (CCNWCB) and Jefferson County Noxious Weed Control Board (JCNWCB)]
- Identified and contacted **287 landowners** on Lees, East Fork Lees, Morse, Bagley and Siebert Creeks, all of which are east of Port Angeles and drain into the Strait of Juan de Fuca. (93 permission forms returned) [CCNWCB]
- Obtained **134 new Landowner Agreements** [CCNWCB and JCNWCB].
- Many agreements covered multiple parcels. We are currently managing agreements on **800 parcels** [CCNWCB and JCNWCB]
- Re-contacted **38 West Clallam County landowners on the four rivers where control is required**, asking them to monitor and control their own knotweed, but offering to help as funding allowed, and announcing landowner workshop opportunities. [CCNWCB]
- Identified, solicited and obtained **13 new Landowner Agreements** in the Queets-Clearwater watershed [JCNWCB and Quinault Indian Nation (QIN)].
- Conducted **six Knotweed Workshops** (in Shelton, Brinnon, Quilcene, Sequim, Port Angeles and Forks). All were extensively promoted through various media. Additionally sent 60 personal invitations. [CCNWCB & JCNWCB]
- CCNWCB and JCNWCB staff highlighted our knotweed program at **26 other educational events**.
- Coordinated **2 Olympic Knotweed Working Group meetings**, (one held in Shelton, Mason County, the other in Port Hadlock, Jefferson County). 60-70 attendees at each meeting included representatives from 7 Native American Tribes, 4 Federal agencies, 4 State agencies, 7 counties and 6 non-profits.
- Updated **Clallam County Weed Control Board's website**, including several pages on knotweed—the minutes of meetings of the Olympic Knotweed Working Group and many of the presentations from those meetings. **Jefferson County's web page** will be linked.

Survey/Treatment:

This list is ordered geographically starting in south-west Clallam County with the Quillayute River system and, working clockwise around the Peninsula, ending in the Hoh River system. The Project Activities by Watershed is ordered similarly ordered.

- Re-treated **3 miles (62 acres)** of the Dickey River [Quileute Nation and The North Cascades EMPT with NPS].
- Re-treated **3 miles (67 acres)** on the Calawah River [Quileute Nation].
- Re-treated **6 miles (451)** on the Bogachiel River [Quileute Nation].
- Re-treated **2 miles (68 acres)** on the Quillayute River [Quileute Nation and North Cascades EPMT with NPS]
- Monitored and re-treated **2 miles (11 acres)** of the Big River [CCNWCB and North Cascades EPMT with NPS]
- Treated knotweed on roadsides and in a quarry on the Makah reservation [Makah Tribe crew].
- Monitored and re-treated **2 miles (6 acres)** of the Hoko River [CCNWCB].
- Re-treated **2 parcels (2 acres)** of shoreline on Highway 112 [CCNWCB].
- Monitored and re-treated **3 miles (20 acres)** on the Clallam River [CCNWCB].
- Re-treated several sites on the Elwha River [Lower Elwha Klallam Tribe and CCNWCB]
- Treated sites within ONP boundaries on the Sol Duc River and Ennis Creek [North Cascades EPMT with NPS].
- Surveyed portions of Valley, Peabody, Lees, Morse, Bagley and Siebert Creeks where permission had been granted—approximately **13 miles** in all [CCNWCB].
- Treated 1 mile (5 acres) on Bagley Creek and approximately 0.5 acres on Lees Creek [CCNWCB].
- Treated or re-treated **4 miles (56 acres)** of the Big Quilcene River [East Jefferson WCC crew, through Hood Canal Salmon Enhancement Group (HCSEG)].
- Surveyed **8 miles** and treated **6 acres** on the Dosewallips River [East Jefferson WCC crew, through North Olympic Salmon Coalition (NOSC)].

- Treated or re-treated other small, high priority sites in Jefferson County, on Spencer Creek, Tarboo Creek, Lake Leland, Kah Tai Lagoon and various roadsides [JCNWCB].
- Re-treated knotweed on **2.5 acres** on the Union River, **0.1 acres** on the Dewatto River and **0.26 acres** on the Tahuya River [HCSEG].
- Surveyed **2,190 acres** and treated **1.97 acres** on the Skokomish River. [Mason Conservation District and Mason County NWCB].
- Surveyed and/or treated on the Queets and Clearwater Rivers, Prairie Creek, the Quinault River, (including the town of Neilton) and on Lake Quinault. [QIN, Gray's Harbor NWCB and the North Cascades EPMT with NPS]. **Project area encompasses 227,774 acres.**
- Monitored and re-treated **22 miles** on the Hoh River [10,000 Years Institute and North Cascades EPMT with NPS].
- In Clallam and Jefferson Counties-Helped at least **170 private landowners** by monitoring, treating or re-treating knotweed [CCNWCB, JCNWCB, and the East Jefferson WCC crew]
- In Clallam and Jefferson Counties-Directly treated land owned by **7 public entities** including US Forest Service, **3** state agencies (WA State Parks, WA Department of Natural Resources and WA Department of Fish and Wildlife), **2** cities (Port Townsend and Port Angeles) and **2** counties (Clallam and Jefferson) (CCNWCB and JCNWCB).
- Distributed herbicide to other Olympic Knotweed Working Group (OKWG) members when requested. Members reported a total of approximately **152 gallons** of herbicide, but some figures were still unavailable at the time of this report. (See Appendix I for a table of herbicide use)

Data Management/Documentation:

- Hired a contractor to modify, populate, and install a **Knotweed Projects Database** for **Clallam and Jefferson Counties' Noxious Weed Control Boards**, and to train staff in its use.
- Clallam and Jefferson Counties' NWCBs separately applied for NPDES permitting and did the necessary reporting. The East Jefferson WCC crew and 10,000 Years Institute were both covered under Jefferson County NWCB.

2011 Project Procedures

1. Surveys and Monitoring

- Surveys and monitoring were conducted from April 12th through October 27th, on foot.

2. Project Teams

Teams were typically comprised of 2-4 people and always included a licensed aquatic applicator.

- **The Quileute Nation crew**, led by Garrett Rasmussen (licensed aquatic applicator), worked on the Bogachiel, Calawah, Dickey and Quillayute Rivers.
- **The Makah Tribe crew** led by Jeremiah Johnson (licensed aquatic applicator), treated knotweed on roadsides and in a quarry on the reservation.
- **The CCNWCB crew**, consisting of Cathy Lucero, David Freed, Ethan Strahan and occasionally Katie Gibbons and Grace Bell (all licensed aquatic applicators) worked on the Big, Hoko, Sekiu and Clallam Rivers and Bagley and Lees Creeks.
- **The JCNWCB crew** (Katie Gibbons and Eve Dixon—both licensed aquatic applicator)s, treated small sites in Jefferson County, on Spencer Creek, Lake Leland, Tarboo Creek and on roadsides.
- **The East Jefferson WCC crew**, led by Owen French (licensed aquatic applicator), did extensive treatments on the Big Quilcene River and surveyed and re-treated some sites on the Dosewallips River.
- **The Hood Canal Salmon Enhancement Group crew**, led by Mendy Harlow, (licensed aquatic applicator), treated on the Union, Dewatto and Tahuya Rivers, on the Hood Canal in Mason County
- **Mason Conservation District and Mason County NWCB** treated knotweed on the Skokomish River—details unavailable at the time of this report.
- **The North Cascades Exotic Plant Management Team with the National Park Service**, led by Dan Campbell (licensed aquatic applicator) worked on knotweed populations within the Olympic National Park boundary on the Quinault, Hoh, Dickey, Quillayute, Big, Sol Duc and Elwha Rivers and on Ennis Creek and Lake Quinault.
- **The Quinault Indian Nation crew**, led by Jill Silver (licensed aquatic applicator) worked on the Clearwater and Queets Rivers in Jefferson County and Prairie Creek, the Quinault River and Lake Quinault in Gray's Harbor County.
- **The Pacific Salmon Coalition crew**, led by Carl Chastain (licensed aquatic applicator) and funded by 100,000 Year Institute worked on the Hoh River

3. Invasive Species Surveyed or Treated

Bohemian knotweed (*Polygonum bohemicum*) was the dominant knotweed species of concern. The next most common species was giant knotweed (*Polygonum sachalinense*). Only a few sites contained Japanese knotweed (*Polygonum cuspidatum*). Himalayan knotweed (*Polygonum polystachyum*) was looked for but not found on a previously-treated site in Clallam County jurisdiction. A small population of Himalayan knotweed was treated within Olympic National Park boundaries.

4. Data Collection & Equipment

Electronic data is collected differently depending on funding and technical capacity of each group. Some set ups are described below. It is not clear at this time how many participants in the Olympic Knotweed Working Group used the same data dictionary or sections thereof so that data taken in different places by different people could be grouped, summarized and mapped

- A recreational grade GPS unit (Garmin 78 CX loaded with TOPO 24K) with track log was used to keep track of null surveys (sites that crew visited but found no knotweed), and was increasingly used to mark sites where knotweed was found and treated.
- A Trimble GEO XT instrument, using the "Data Dictionary" developed by the Olympic Knotweed Working Group (OKWG) and using *Pathfinder* software for post-processing. A copy is available.
 - The Data Dictionary contains the following required fields: Agency Name, Collector, GIS Projection Reference, Site ID, Species of Knotweed, Cluster Type, Average Stem Height, Stem Count, Phenology, Site Type and Action.
 - The following fields are optional: Herbicide, Surfactant, Treatment, Ownership, Canopy, Substrate, Plant Erosion Potential, Site Erosion Potential, Area, Unit, and Comments. Date, and Time fields autofilled.

- We track herbicide use in watersheds from year to year. Herbicide use is then used as a proxy for change in biomass to help measure treatment efficacy. Herbicide figures, when available, are included in the section “Project Activities by Watershed” and are summarized in Appendix II
- All survey and treatment data was added to the new Knotweed Database. This database facilitates tracking of landowner contacts, agreement expiration, treatments, site status and monitoring. Currently Clallam County holds the master copy, but it would ideal for the state to hold the master and to distribute copies to weed boards around the state. Contact Frances Lucero at francesism@gmail.com for a copy and more information.

5. Landowner Contacts and Agreement Management

- We determined rivers of concern where knotweed was known or suspected to occur and extracted corresponding landowner information from GIS layers.
- We solicited Landowner Agreements by phone, letter, face-to-face contact or email.
- We converted waypoints from our surveys into shapefiles, added them as layers to the county parcel map.
- We used the standard Landowner Permission forms produced by WSDA. CCNWCB staff explained to landowners that they could cancel the agreement at any time.
- We monitored expiration dates and solicited new agreements as needed.
- We monitored property ownership, and solicited new agreements when ownership changed.
- We contacted landowners at the beginning of each season before entering their property for survey or treatment.
- We entered all landowner data into the new Knotweed Database. This included contact information, site information and date the Agreement was signed.
- Staff worked on Landowner Agreements from February through September. (See Appendix II for a Table of Landowner Agreements).

6. Permits

- CCNWCB and JCNWCB obtained NPDES permits from WSDA for water ways of concern.
- Crews followed all posting and notification requirements as outlined in the permit.
- Total amounts of herbicide used by CCNWCB and JCNWCB crews were submitted on-line to WSDA at the end of the treatment season.
- We submitted copies of Pesticide Application Records pertaining to aquatic sites to WSDA.

7. Treatment, Equipment, and Rate

CCNWCB and JCNWCB surveys and treatments took place from April 12th though October 27th. Other entities may have had a different season.

“*Skip treatments*”, a strategy where treatments are alternated between years, was employed at some sites where 3 or more years of treatment had taken place. This option is being examined for use on sites where epinastic re-growth may not provide sufficient surface area or connectivity to underground mass to effectively kill roots, our primary target. If effective, *skip treatments* may also provide a means of stretching funding.

Three methods of herbicide application were considered—*injection*, *foliar* and *wipe*, as follows:

Injection—injecting undiluted herbicide directly into the stem

Equipment consisted of JK Injection Systems hand injection guns.

Rate applied was 3-5 mls of 100% solution per cane (no surfactants or dyes added). Various aquatic glyphosate formulations, labeled for this method, were used.

- Crews could chose to inject canes greater than ½ inch in diameter, except on sites where doing so would exceed the maximum legal herbicide use per acre.
- We injected into the lower internode.
- We used short needles and if we encountered pressure while trying to inject we punched a relief hole in the stem and injected herbicide below the relief hole.
- We marked injected canes with a spot of paint to prevent treating the same cane twice.

Foliar—spraying plants that were too small to inject; or where plant density was great enough to exceed allowable rates per acre with injection

Equipment consisted of low pressure, Solo Backpack Sprayers, 4 gallon capacity

Rate applied varied, but was generally either a 6% solution of an aquatic glyphosate product, or a 4% solution of an aquatic glyphosate product with 1% of an imazapyr product, either Habitat or Polaris AQ AQ. We also added 1-2% of a surfactant and 0.5% of a marker dye.

Wipe—applying herbicide to the surface of the leaves and stems with a foam paint brush. Effective when treating small sprouts or when there is a need to be highly selective.

Rate a 33% solution with 10% surfactant, by volume, (as allowed by label)

- This method was not used in 2011 because it is so labor-intensive.

8. Records

- Crews filled out a Pesticide Application Record, as developed by the WSDA for knotweed, for each herbicide treatment.
- Crews recorded acres treated on the Pesticide Application Record. For the purpose of this report, the total acres treated in each watershed were calculated simply by adding the acres treated on each Record from that watershed.

Outreach and Training

Outreach to landowners was a focus in 2011. Early in the year we discussed our strategy and goals and began writing to landowners. We wrote to landowners on the Big, Hoko, Clallam and Sekiu Rivers (the four rivers where knotweed control is mandatory), explaining landowner responsibility under the law, and asking them to monitor and treat plants themselves, but offering to help if necessary. We also let them know that workshops would be presented later in the year.

We wrote to landowners on several streams that drain into the Strait of Juan de Fuca, which had never been surveyed. To increase landowner trust and involvement, we gave them the option of accompanying us when we surveyed. Several accepted.

We re-contacted landowners whose agreements had expired and where we planned to work, asking them to renew the agreement. We also solicited new agreements on property where ownership had changed. Because timber companies are large landowners in many watersheds, we talked with some of their representatives, renewed agreements and discussed access to sites.

We conducted six Landowner Workshops, in Shelton (Mason County), Brinnon and Quilcene (Jefferson County) and Sequim, Port Angeles and Forks (Clallam County). We broadened the scope to include general weed control methods and strategy, to attract a larger audience. All were extensively promoted through various media, and posters were displayed in many locations in both counties. Additionally, we sent 60 direct mailings to landowners—either known to have terrestrial knotweed, or in areas suspected to have knotweed. Attendance was required to receive the use of equipment and supplies from the Weed Boards. Multiple depots were available across both counties to increase accessibility to these resources. In Sequim an on-site treatment was included in the hands-on portion of the program. Two pesticide license credits were offered for each workshop. Several field crew members took advantage of this opportunity. We prepared a handout sheet for landowners telling them what they should and should not do and giving our contact information. (See Appendix IV for a workshop poster). A total of 55 people attended a workshop.

The threat of knotweed was highlighted by Clallam and Jefferson Weed Board staff during 26 other educational and outreach events. Similar outreach took place in Mason and Gray's Harbor counties.

More knotweed information was added to the Clallam County Weed Board's web site. This included general control information as well as presentations from OKWG meetings for the past 5 years. On-line knotweed reporting continued through the same website.

To support a higher level of education and professionalism, we encourage those who use herbicides to become licensed and we help defray the cost of maintaining a pesticide license. To this end we coordinated license credits with WSDA. This year our classes garnered a total of 12 free pesticide credits. At the request of professional foresters attending OKWG meetings, we added national forestry credits through the Society of American Foresters.

We coordinated a spring and fall meeting of the Olympic Knotweed Working Group. These meetings are a forum for exchanging information and ideas, networking and pooling resources. They also help us identify future needs, obstacles and solutions to problems.

The spring meeting was held in Shelton (Mason County) and the fall meeting in Port Hadlock (Jefferson County). We have moved the meeting location to different partner counties to facilitate travel and to encourage local participation. This year, each meeting has attracted 60-70 participants including representatives from 7 Native American Tribes, 4 Federal agencies, 4 State agencies, 7 counties and 6 non-profits.



Pictures from the Fall meeting of the Olympic Knotweed Working Group (from top left, clockwise: #1—Dr Tim Miller presents, #2—wall-size maps of project areas, prepared by King County NWCB, in background, #3—Alison Halpern presents, #4—Kathy Hamel presents, #5—Amy Yahnke presents and #6—workshop attendees)

Funding

Projects summarized in this report were funded by: Washington State Department of Agriculture and Forest Health Protection (WSDA and NFS), Clallam County Noxious Weed Control Board, the Salmon Recovery Funding Board (through North Olympic Salmon Coalition and Hood Canal Salmon Enhancement Group) and separate funding administered by the Quinault Indian Nation (through SRFB and EPA grants), 10,000 years Institute, the Quileute Nation, and Mason Conservation District.

Participating Groups

Clallam County Noxious Weed Control Board
Jefferson County Noxious Weed Control Board
Mason County Noxious Weed Control Board
Gray's Harbor Noxious Weed Control Board
Mason Conservation District
US Forest Service (Olympic Region)
North Cascades Exotic Plant Management Team
with the National Park Service
The Quileute Nation
The Makah Nation

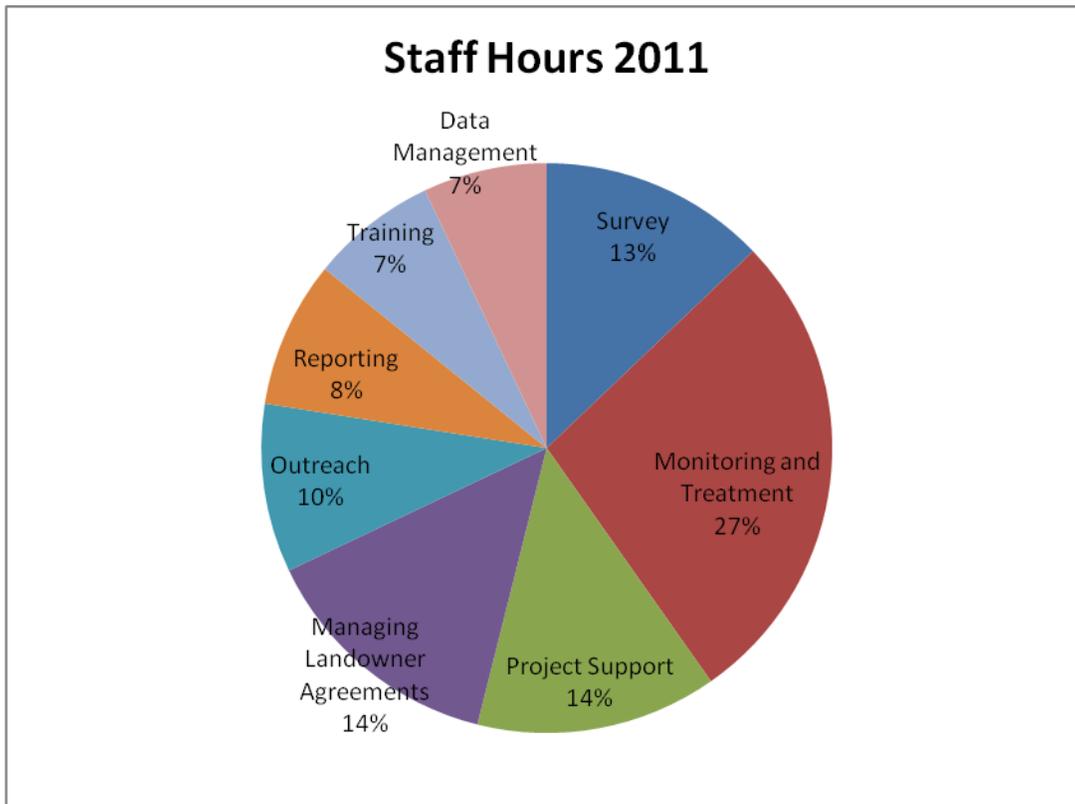
The Lower Elwha Klallam Tribe
Jamestown S'Klallam Tribe
The Quinault Indian Nation
10,000 Years Institute
Pacific Salmon Coalition
North Olympic Land Trust
Hood Canal Coordinating Council
Hood Canal Salmon Enhancement Group
North Olympic Salmon Coalition
Cascade Land Conservancy
East Jefferson WCC crew with Washington
Conservation Corps

See Appendix III for contact information.

Staff Hours

This section reports only on hours worked by CCNWCB and JCNWCB staff. Staff spent a total of 1369 hours on knotweed projects in 2011. Staff hours were categorized in the following manner:

- **Survey** includes driving time and data collection ("survey" means looking in new areas)
- **Monitoring and Treatment** includes driving time, time spent looking for plants, actual application periods, setup before, and cleanup afterwards ("monitoring" means checking already-treated sites)
- **Project Support** includes driving time, providing spreadsheets to the crew, general crew oversight, applying for permits, and acquiring and maintaining supplies and equipment
- **Managing Landowner Agreements** includes researching land ownership, preparing spreadsheets, writing to, phoning or emailing landowners, driving time, time taken to establish an agreement with the landowner, and re-contacting landowners when crews will be on their property.
- **Outreach** includes driving time, time spent preparing presentations or printed materials for handout and mailings, posting notices, travel time to and from a presentation, the presentation itself along with question periods afterwards, and any follow-up with citizens/agencies afterwards. Also posting knotweed information on the Counties' websites, and preparing and presenting landowner workshops on knotweed control.
- **Reporting** includes reviewing Pesticide Application Records, compiling data, reporting herbicide use and preparing an Annual Report.
- **Data Management** includes downloading and organizing shape files, creating maps and entering data into an Access database.
- **Training** includes time spent training crew in data collection, treatment methods, and any other necessary job tasks. Also organizing and attending twice-yearly meetings of the OKWG.



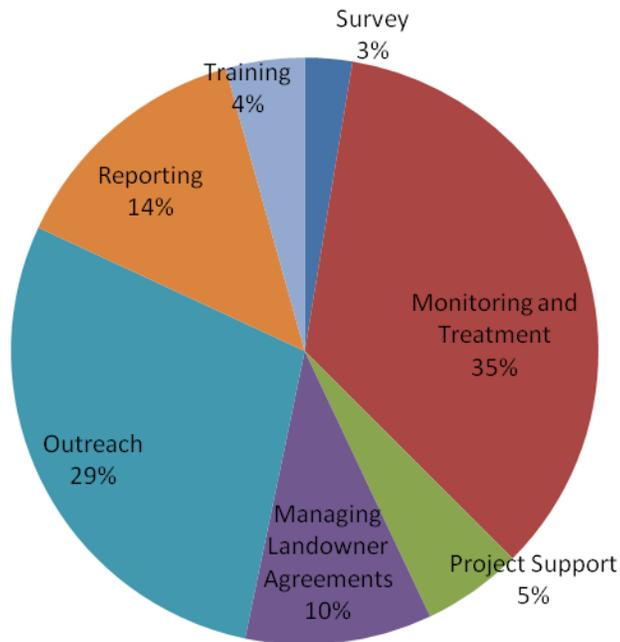
CCNWCB and JCNWCB 2011 STAFF HOURS								
Survey	Monitoring and Treatment	Project Support	Managing Landowner Agreements	Reporting	Outreach	Data Management	Training	Total Hours
176	375	187	192	114	131	96	98	1369

The focus of our program has shifted over the years. The pie charts above and below are provided to illustrate this shift proportionally, but do not show total hours, which have dropped dramatically overall with success in greatly reducing overall knotweed infestations.

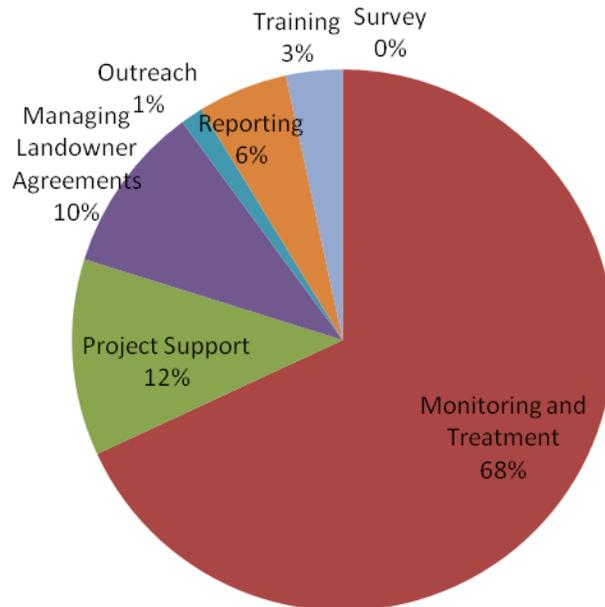
- In 2009 more than half our time was spent monitoring or treating knotweed.
- In 2010 we shifted focus towards outreach, realizing that getting landowners involved was the only way to ensure long-term control of knotweed. Reporting took a higher percentage of staff time in 2010 than in 2009, mainly because funding was down, we had fewer staff hours but still needed as much time for reporting and documentation.
- In 2011 we spent a considerably higher percentage of time surveying than in the previous 2 years, mainly because a number of medium-sized streams that drain into the Strait of Juan de Fuca had never been surveyed. Less time was spent on outreach even though we still put on 6 landowner workshops. This was mainly because we had made many contacts last year and publicity was easier. Finally, we spent much more time on data management (a new category that we added this year). Keeping track of land ownership, landowner contacts and treatment on each site has become problematic and in 2011 we hired a contractor to customize and populate a database especially designed for knotweed projects with information collected about knotweed locations and characteristics, landowners and treatments in Clallam and Jefferson watersheds and knotweed. We entered this year's treatment data.

Many other agencies contributed to the implementation of the 2011 summarized accomplishments. These hours are not included in the totals given above and pertain only to CCNWCB and JCNWCB staff.

Staff Hours 2010



Staff Hours 2009



Observations and Conclusions

- Funding uncertainties made planning difficult and less efficient this year. However, we GREATLY appreciated receiving help at any time.
- Knotweed re-growth on previously treated sites is now often delayed until mid or even late September, depending on the weather. The window for retreating sites is therefore shrinking considerably.
- With the above conditions in mind, we focused some funding from the '10-'11 cycle on baseline assessment within significant, but untreated waterways where early season surveys would be most effective. This helped us eliminate some waterways (where no knotweed was found), and to pinpoint small, but burgeoning populations just getting established.
- With funding stretched thin over a wide area, we had to make some hard choices. We prioritized treatments on the four rivers where control is required and landowners had been cooperative. We decided to "skip" treatments on other sites where applications had occurred for three or more years in a row and, where knotweed infestations were greatly reduced in general. Private landowners were encouraged to treat their own, even high profile, terrestrial sites.
- We reduced our field interaction with other knotweed partners depending on each to work independently within specific project areas. This may have saved money, but we need to be careful not to sacrifice vibrant relationships. This is a sign of a transition, but we should ensure a stable, consistent monitoring component as project focuses naturally drift to other areas.
- We have moved to a knotweed specific data base system that will ease landowner agreement management and better monitor where treatment has occurred.
- OKWG meetings have been very useful for sharing ideas between attendees, identifying needs and research gaps, and suggesting solutions.
- Many groups reported best results with 1% imazapyr. But there is concern about using this herbicide in well-head protection areas.
- Different entities have come up with innovative ways of using new technology.
- Staff learned to better use both GIS and GPS tools.
- Several organizations made a point of funding Weed Board involvement in projects. This has been greatly appreciated and helps stabilize Weed Board programs' long term involvement in dire economic times.
- Crew documentation of each site since initial baseline information was captured, was not careful enough to provide good analysis of efficacy. In 2011 our crews were instructed to take much more detailed characterization of each site than in the last two years.
- We continue to report on knotweed activities around the Peninsula to show the level of effort and collaboration that has been generated to combat this threat to our natural resources and human infrastructure.
- New partnerships were formed, specifically with North Olympic Land Trust, who now own parcels on several watersheds where knotweed treatment has been on-going. One of their staff helped with treatments and is considering becoming a licensed applicator in to be able to maintain their own properties invasive-free.
- Herbicide expended on re-treatments continues to decline. (See Appendix I)
- The Jefferson County policy banning herbicide use on county roads was amended to allow spot treatments of noxious weeds. This enabled treatment of knotweed on some roadside sites where aquatic resources were threatened.- Clallam has yet to receive this ability.
- Our outreach was effective but we want to make changes to improve this effort.
- As public awareness about knotweed increased, we received more reports of knotweed on terrestrial sites. Knotweed Workshops not only provided an avenue for landowners to deal with these sites themselves but also were an opportunity to learn about other invasive species.
- Treating high-profile sites, even when not near water, increases public support for our programs.
- The State's knotweed program has been indispensable. As well as supplying funding, it has helped us with permitting and technical advice. We greatly appreciate the leadership and guidance supplied by WSDA, especially in these tough economic times. The Olympic Knotweed Working Group is expanding and MANY other groups are now doing knotweed control work on the Olympic Peninsula. (See Summary on Page 9) The Weed Boards are supporting these groups and in many cases WSDA funding is being used to leverage other funds.

Recommendations

- Initiate detection and treatment on Salt Creek, East Twin, and several other significant streams west of the Elwha River.
- Seek funding to treat areas “skipped” in 2011, and other priority areas early in the season.

- Continue to nurture relationships that encourage landowners who live on site to control knotweed themselves.
- Focus on timber companies, who are LARGE land managers, to increase their involvement in monitoring, prevention and treatment of terrestrial sites, especially rock sources.
- Look for ways to better engage hunters, fishers and other recreationists in knotweed detection.
- Update our web page to include information highlighting work by partners, including contact information. Encourage partners to get work posted on more restoration sites-or incorporated into Lead Entity sites.
- Update Best Management Practice documents, based on recommendations of Working Group members and other experts.
- Consider workshops that are targeted in neighborhoods where we can treat on site.

- Develop more information about imazapyr, to address public concerns and water quality.
- Continue to explore alternative treatments for epinastic growth.
- Consider establishing a small number research sites where progress could be carefully monitored from the beginning.
- Canvass the group to find out what documents or other tools would be useful.
- Provide training opportunities and workshops on using technology and managing data to document progress. Consider modifying King County mapping techniques for use in our area.
- Continue to incorporate information about other invasives in our working group meetings.
- Work to cross-train in other natural resource disciplines.
- Identify which partner is best suited to implementing each component to avoid overlap and undue competition.

- Work with Clallam County Commissioners and/or County Roads to get permission to treat roadside knotweed sites. Routine maintenance activities on roadsides are a major vector for knotweed spread.
- Provide a representative to watershed groups (such as lead entities) to ensure an invasive species management plan is incorporated into restoration proposals and to work towards grant schedules that allow for longer timelines for implementation.
- Encourage planners to include weed inventory in pre-project check list.
- Urge the state to consider providing help for Federal collaborators to apply for the new EPA NPDES permit.

PROJECT ACTIVITIES BY WATERSHED IN CLALLAM COUNTY

QUILLAYUTE RIVER SYSTEM

Crews

Treatment— The Quileute Tribe crew, led by Garrett Rasmussen, and the North Cascades Exotic Plant Management Team with the National Park Service, led by Dan Campbell.



Bright green dots indicate knotweed sites found in the original surveys on the Dickey, Calawah, Bogachiel and Quillayute Rivers. All sites have since been treated at least once—many of them multiple times.

The Quillayute system includes the Sol Duc, Calawah, Bogachiel, Quillayute and Dickey, along with their tributaries. The Sol Duc and its tributaries are dealt with separately. The entire Quillayute system is popular for fishing. The rivers host the healthiest stocks of wild winter steelhead in the Pacific Northwest, with as many as 19,000 fish returning in some years. These rivers also support large runs of Chinook and coho salmon. There are no Threatened or Endangered species within the Quillayute watershed. The Quileute Tribe is endeavoring to preserve the ecosystem in its current, functioning state believing this to be easier and more cost-effective than restoring a system once it is degraded. Knotweed elimination is an important factor in preserving habitat for fish species. It is also important for elk and deer and other species that forage on the floodplain, where knotweed is out-competing native vegetation. Frank Geyer, biologist with the Quileutes, has observed that elk and deer do not actively feed on knotweed and that elk have returned to calve on sites previously infested with knotweed.

• **Dickey River**

The Dickey is a large, low gradient river, draining 108 square miles, characterized by sandy bank soils and extensive off-channel fish habitat and riparian areas. The mainstem Dickey River flows for 8 miles from the confluence of the East and West Forks, joining the Quillayute River approximately one mile from the Quillayute's mouth on the Pacific at La Push. Knotweed infestation levels in the Dickey before treatment began were possibly the worst on the Olympic Peninsula. Surveys indicated the source was probably an old homestead approximately a quarter of a mile upstream of the East and West Fork confluence.

Knotweed treatment on the Dickey River began in 2002 and has been continued each year since. Work had been undertaken mainly by the Quileute Nation; the North Cascades Exotic Plant Management Team with the National Park Service has treated patches within Olympic National Park. Additionally, Lauren Urgensen, a University of Washington Graduate student studying knotweed impacts and control, established plots along the Dickey as part of her study from 2006 to 2008.

In **2011** work continued on the Dickey and the crew reported seeing more shoots and re-growth than usual, despite the long history of treatment. The North Cascades Exotic Plant Management Team with the National Park Service treated knotweed within National Park boundaries.

Herbicide use, Dickey River (gallons)					
	2007	2008	2009	2010	2011
Acres Treated	140	50	95	101	
Total Herbicide:	12.65	0.165	18	7.21	

• **Calawah River**

Both the North Fork and South Fork of the Calawah River originate in the Olympic National Park. They converge close to the town of Forks and the Calawah flows into the Bogachiel on the west side of Forks. The Calawah is 31 miles in length, with a drainage basin of 133 square miles.

In 2006 the Quileutes surveyed the Calawah, recording 344 sites, all downstream from the North Fork-South Fork confluence. The Calawah was treated by the Quileutes each year from 2007 through 2010. Most of the knotweed on the Calawah is giant knotweed and it responded well to treatment.

In **2011** the Quileutes did a small amount of re-treatment on the Calawah.

Herbicide use, Calawah River (gallons)					
	2007	2008	2009	2010	2011
Acres Treated	202	100+	110	127	
Total Herbicide:	11.12	2.31	1.59	0.24	

• **Bogachiel River**

The Bogachiel River joins with the Sol Duc, forming the Quillayute, about 4 miles from the town of La Push where the Quillayute empties into the Pacific Ocean. The Bogachiel is 46 miles in length, with a drainage basin of 154 square miles.

In 2006 the Quileutes surveyed the Bogachiel, recording 1,336 sites. Knotweed infestation on the Bogachiel was so extensive it was not attempted immediately and attention was focused on the Dickey. Treatment began in 2008 and continued in 2009. Clallam County supplied a crew for 8 or 9 days, helping the Quileutes and supplying some grant match. In 2010 the remaining stretch was treated.

In **2011** the entire river was re-treated. Knotweed populations were much reduced.

Herbicide use, Bogachiel River (gallons)					
	2007	2008	2009	2010	2011
Acres Treated	4.1	900+	693	725	
Total Herbicide:	0.65	33.88	77.34	62.1	

• **Quillayute River**

Although the Quillayute has the largest drainage area on the Peninsula (629 square miles) it is only 5 ½ miles long and approximately half its length is in the coastal strip of the Olympic National Park.

The Quileute Tribe treated knotweed on the Quillayute River in 2008 and 2009. Clallam County crews spent approximately 3 days in 2009 treating in and around a county park on the Quillayute. In 2010 the North Cascades Exotic Plant Management Team with the National Park Service treated 0.94 acres of knotweed on the Quillayute, within the Olympic National Park.

In **2011** the Quileutes treated the right bank of the Quillayute from the mouth of the Sol Duc River to the Olympic National Park; as well as the tribal property on the left bank. The North Cascades Exotic Plant Management Team with the National Park Service treated knotweed within National Park boundaries.

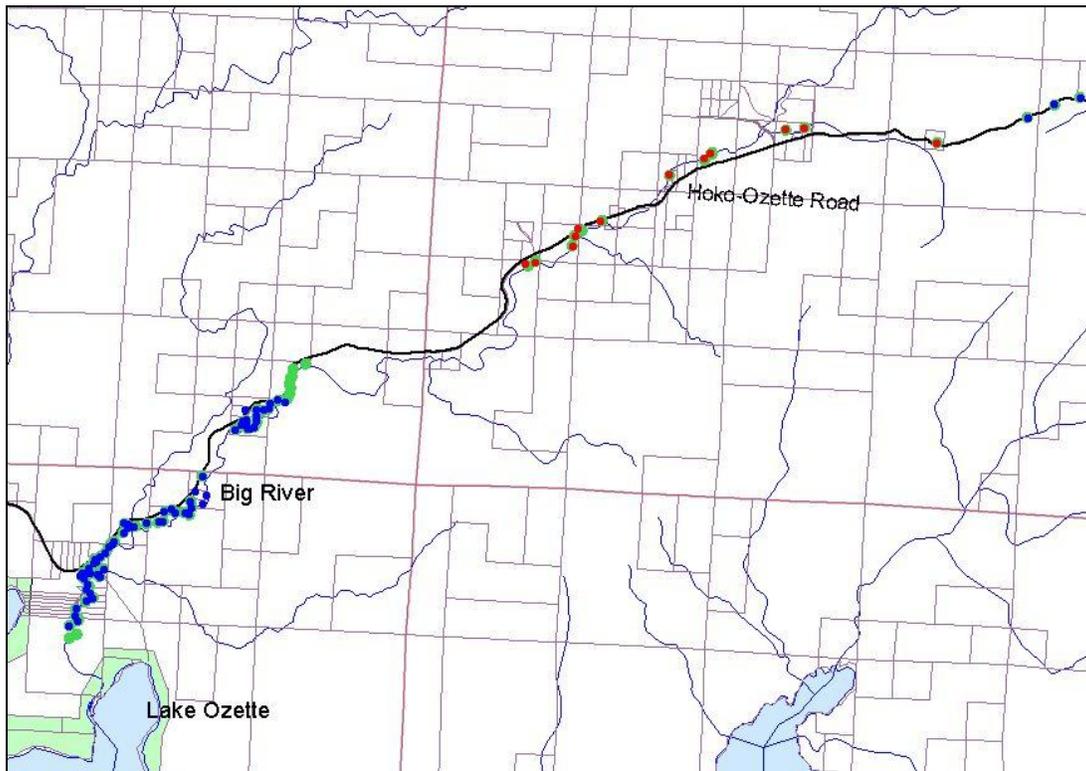
Herbicide use, Quillayute River (gallons)					
	2007	2008	2009	2010	2011
Acres Treated	N/A	170	40	.5	
Total Herbicide:	N/A	6.77	1.7	0.64	

For more information about the Quillayute River System, please contact Frank Geyer at (360) 374-2027 or frank.geyer@quileutenation.org

BIG RIVER AND HOKO-OZETTE ROAD

Crew

Treatment—David Freed and Ethan Strahan and the North Cascades Exotic Plant Management Team with the National Park Service, led by Dan Campbell.



Bright green indicates sites surveyed and recorded in 2007. Blue indicates treatment in 2011 and red indicates no plants found in 2011.

• BIG RIVER

The Big River is one of several large, low elevation, low gradient streams that drain into Lake Ozette, the third largest natural lake in Washington. Lake Ozette empties through the Ozette River into the Pacific Ocean. The Ozette Basin is approximately 88 square miles and Lake Ozette itself lies within the Olympic National Park in western Clallam County. Major land uses within the Big River watershed include timber production, agriculture, recreation and wildlife preservation (in Olympic National Park).

The Ozette basin supports stocks of coho, sockeye, and kokanee (resident) salmon, small numbers of Chinook and chum salmon, steelhead and cutthroat trout (sea-run and resident), as well as many other native and exotic fish. Sockeye salmon were listed as Threatened under the Endangered Species Act in 1999. It is believed that knotweed infestations, by displacing native vegetation and all of its benefits, are impacting both spawning sites and habitat for juvenile salmonids.

Local residents report that knotweed infestations have been present on the Big River since the 1940s but before 2002 it was not present in significant quantities. By 2004 knotweed had spread to become an extensive monoculture along some of the stream banks. The North Cascades Exotic Plant Management Team has been treating knotweed in the Olympic National Park since 2004, when knotweed first became established within the National Park boundary.

• HOKO-OZETTE ROAD

Because the Hoko-Ozette Road closely follows the Big River for approximately six miles, and at times comes within a few feet of it, knotweed surveys and control work were undertaken there and considered as part of the Big River project.

Treatment

Knotweed treatment on the Big River began in **2004** as a small pilot project and has continued each year since. Work was performed by Clallam County and/or the Makah Indian Tribe. The North Cascades Exotic Plant Management Team with the National Park Service treated within their jurisdiction in the lower portion of the river. In **2009** knotweed control was made mandatory on the Big River, mainly to encourage one reluctant landowner to sign an agreement allowing the county crew to do the work, rather than have to do it himself. In **2010** the county did a small amount of treatment but our focus was on outreach and education because we knew that on most sites knotweed populations had been significantly reduced and landowners could realistically monitor and control themselves. Also, we were aware that funding will not be continued indefinitely and that turning responsibility over to the landowners is the only way to achieve knotweed control long-term. We held a number of workshops for landowners and met with representatives of the timber companies that own much of the land in the Big River watershed, asking them to monitor and treat themselves as much as possible.

In early **2011** funding for the second half of the year seemed extremely uncertain and many of our landowner agreements had expired, since they are good only for 5 years. So in February we checked land ownership and agreement status, and wrote to all the landowners, asking for a new agreement if needed, letting them know a crew may be out later in the year but it was uncertain, and asking them to monitor, treat themselves if they could and ask for help if they needed it. In fact we did get WSDA funding and sent a small crew out in late September to monitor and treat. (Knotweed plants appear late in the year after several treatment seasons—hence the late start.) The crew treated some sites, focusing on one that had been treated for only two years, as opposed to 6 or 7 years for other sites. They did an excellent job of recording data, enabling us to better assess the efficacy of treatments in future. On several days the weather was too wet to spray so the crew injected, even though the plants were not large. North Cascades Exotic Plant Management Team with the National Park Service treated within their jurisdiction, in the lower portion of the river.

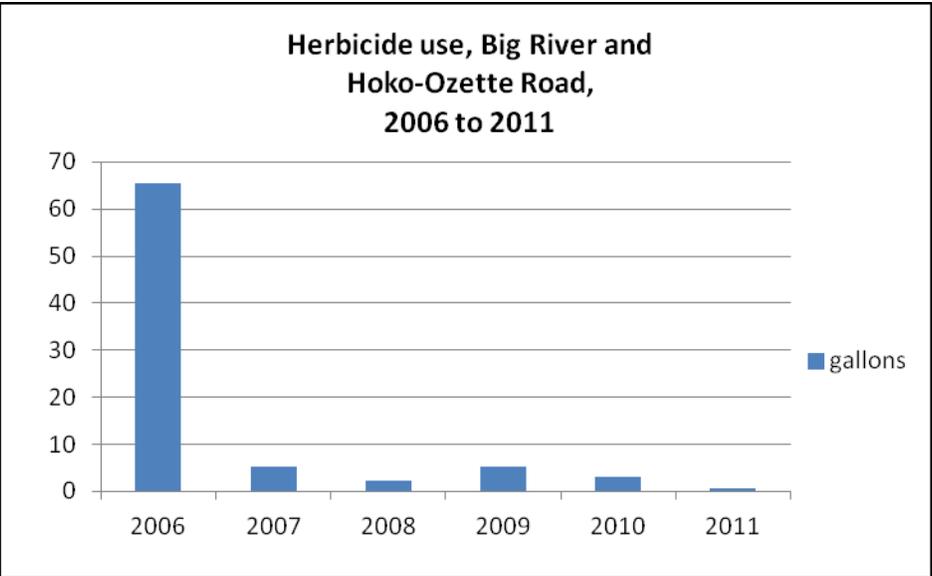
We continued the landowner outreach we began in 2010, putting on 6 workshops, one of which was in Forks. (See Appendix IV for workshop schedule)

Knotweed control on the Big River began in 2004, making it the watershed in which CCNWCB had been involved for the longest and it has been an excellent example of private, county, tribal and federal landowners working together towards a common goal. This was taken a step further in 2010 when the Makah Tribe purchased several parcels of land on the river, which have now been turned over to North Olympic Land Trust, to be conserved in perpetuity for conservation and habitat. The knotweed control and an invasive plant survey performed by CCNWCB were used as match to facilitate the purchase.

Knotweed populations on the Big River have been greatly reduced, and knotweed impacts on the river system are now slight. However, because the remaining plants seem harder to kill than in other watersheds, we have more concerns about re-infestation.

Herbicide Use, Big River and Hoko-Ozette Road (gallons)						
	2006	2007	2008	2009	2010	2011
Parcels Inspected/Known Parcels			30/42 (est)	39/43	24/34	12/34
Acres Treated		28	57	57	22	10.4
Aqua Neat or Glypro injected:		1.24	0	3.5	0.3	0.496
AquaNeat or Glypro sprayed:		3.3	1.876	1.3	2.28	0.12
Habitat (imazapyr) sprayed:	0	0.6	0.305	0.32	0.594	0.03
Total Herbicide:	65.39	5.14	2.181	5.12	3.174	0.646

Note: The term “Inspected” is used, rather than “treated” because in many cases crews looked for plants but did not find them. “Acres Treated” were calculated by adding together the acreage on all of the Pesticide Application Records and may vary depending on whether the applicator recorded strictly the area treated or the whole infested area. The discrepancy between acres treated in different years may be due to different counting methods being used. The number of Known Parcels has decreased because some parcels originally on the spreadsheet were actually on different waterways or had never had knotweed.



The rise in herbicide use in 2009 was caused by large amounts of herbicide being injected on a site where the owner had previously refused to give permission. Given the lack of data and inconsistencies of our data collection, decline in herbicide use is probably one of the best indicators of decline in knotweed plant mass and efficacy of treatments. .

SEKIU RIVER

Crew

Treatment—David Freed and Ethan Strahan (CCNWCB)



Bright green indicates sites surveyed and recorded in 2006. Blue indicates treatment in 2011 and red indicates no plants found in 2011.

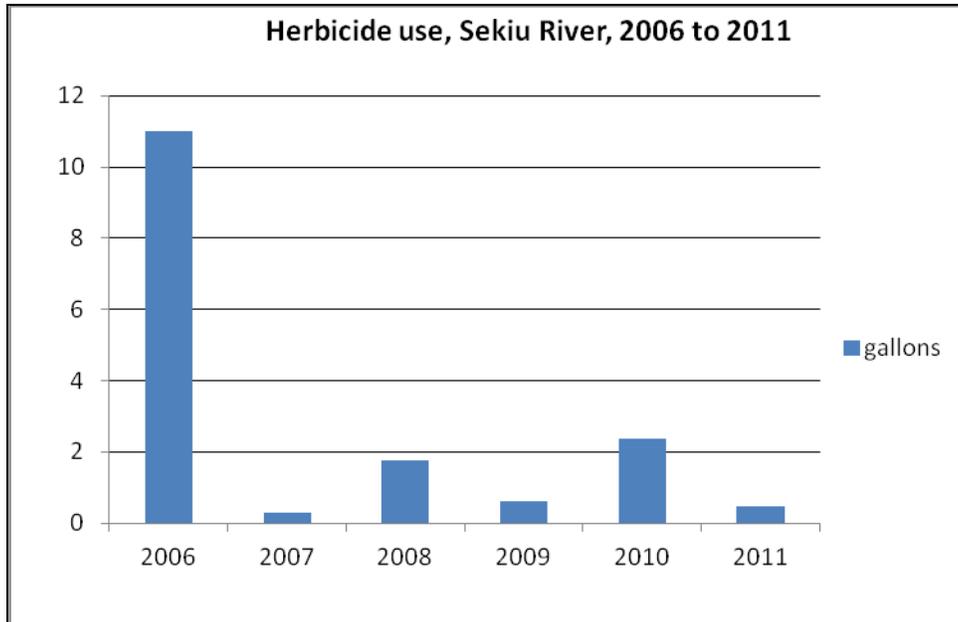
The Sekiu is a low gradient coastal river with many small forested, scrub-shrub and emergent wetlands scattered throughout. It flows into the Straits of Juan de Fuca about 10 miles east of the Makah Reservation. Much of the land in the watershed is zoned for commercial forestry. Chinook, coho and chum salmon have been recorded in the Sekiu River, as well as winter steelhead and cutthroat.

Knotweed control on the Sekiu River began in 2006 and has continued each year since. Work has been performed by the Makah Tribe and/or Clallam County Noxious Weed Control Board. In 2010 control was made mandatory and one previously reluctant landowner then allowed us to treat rather than do it himself. Some other sites were also treated that year, but our focus was on outreach and education because we knew that on most sites knotweed populations had been significantly reduced and landowners could realistically monitor and control themselves. Also, we were aware that funding will not be continued indefinitely and that turning responsibility over to the landowners is the only way to achieve knotweed control long-term. We held a number of workshops for landowners and met with representatives of the timber companies that own much of the land in the Sekiu River watershed, asking them to monitor and treat themselves as much as possible.

In 2011 a small crew surveyed and re-treated on the Sekiu River, focusing on sites that had been treated just one or two years, as opposed to 4 or 5 years. Even though knotweed control on the Sekiu River is now mandatory, it is a priority watershed and we are attempting a gradual transition. Virtually all parcels on the Sekiu River were visited and treated as necessary. Very few plants remain on most parcels and several landowners are looking out for knotweed and treating it themselves, which is our long-term goal. Knotweed impacts have been greatly reduced.

Herbicide Use, Sekiu River (gallons)						
	2006	2007	2008	2009	2010	2011
Parcels Inspected/ Known Parcels			1/11	10/11	10/11	10/11
Acres Treated		1.78	2	16	8.5	1.17
AquaNeat injected:		0.1	1.7	0	2.125	0.25
AquaNeat sprayed:		0.18	0.06	0.487	0.18	0.18
Habitat (imazapyr):	0	0.02	0.007 (Polaris AQ)	0.122	0.045	0.045
Total Herbicide:	11	0.3	1.767	0.609	2.35	0.475

Note: The term "inspected" is used, rather than "treated" because in many cases crews looked for plants but did not find them. "Acres Treated" were calculated simply by adding together the acreage on all of the Pesticide Application Records and may vary depending on whether the applicator recorded strictly the area treated or the whole infested area.

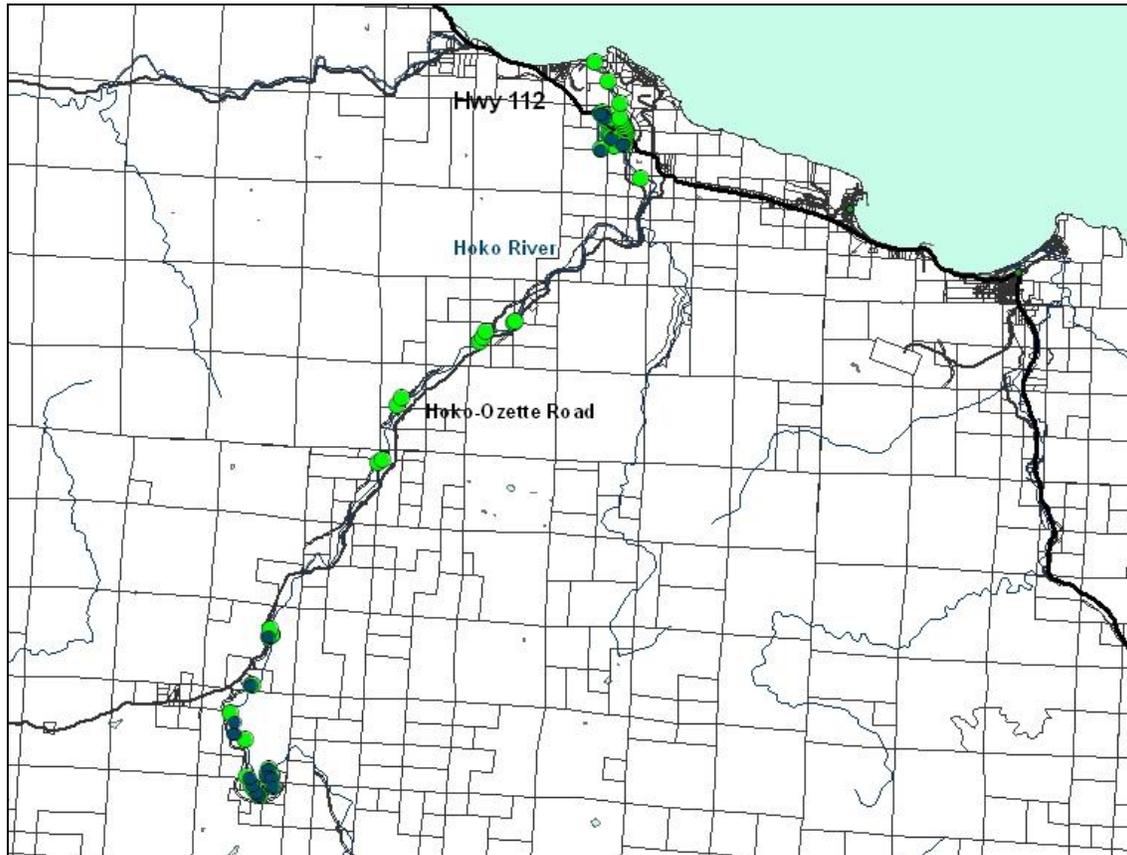


Herbicide use increased in 2008 because a new site was treated, using 1.78 gallons of herbicide. It declined again in 2009 because all applications were re-treatments and all were foliar spray, not injection. Herbicide use increased in 2010 when another site was treated for the first time by injection, using 2.125 gallons of herbicide.

HOKO RIVER

Crew

Treatment— David Freed and Ethan Strahan (CCNWCB)



Bright green indicates sites surveyed and recorded in 2006. Blue indicates treatment in 2011.

The Hoko River flows into the Straits at Eagle Point, about a mile and a half east of the Sekiu River. There is a small residential community known as “The Vista” near its mouth, and Washington State Parks owns a considerable amount of land, also near the mouth, which will eventually become a State Park. The Hoko River supports runs of Chinook, coho, chum and winter steelhead.

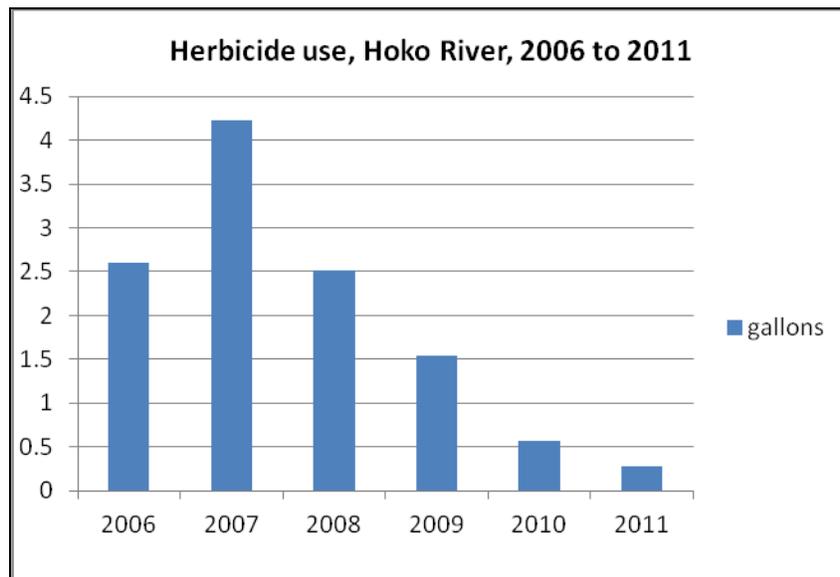
Knotweed (mostly giant) was found on the Hoko River in 2006 and has been treated each year since. Work has been accomplished by the Makah Tribe and/or Clallam County Noxious Weed Control Board. In 2009 control was made mandatory and, as on the Big River, one previously reluctant landowner then allowed us to treat rather than do it himself. The mouth of the Hoko is only accessible by boat and was not treated in 2009. In 2010 a boat was available so the mouth was treated. Very few plants were found; giant knotweed responds better to treatment than other species. In 2010 the county did a small amount of treatment but our focus was on outreach and education because we knew that on most sites knotweed populations had been significantly reduced and landowners could realistically monitor and control themselves. Also, we were aware that funding will not be continued indefinitely and that turning responsibility over to the landowners is the only way to achieve knotweed control long-term. We held a number of workshops for landowners and met with representatives of the timber companies that own much of the land in the Hoko River watershed, asking them to monitor and treat themselves as much as possible.

In 2011 funding for the second half of the year seemed extremely uncertain and we did not know if we would be able to send a crew out to treat later in the year. In February we wrote to all the landowners, letting them know a crew may be out later in the year but it was uncertain, and asking them to monitor, treat themselves if they could and ask for help if they needed it. In fact we did get WSDA funding and sent a small crew out in late September to monitor and treat. (Knotweed plants appear late in the year after several treatment seasons—hence the late start.) The crew went to the furthest upstream sites, which had not been visited or treated for several years and

treated all plants that they found. They also did an excellent job of recording data, enabling us to better assess the efficacy of treatments in future.

Herbicide Use, Hoko River (gallons)						
	2006	2007	2008	2009	2010	2011
Parcels Inspected/Known Parcels			25/32 (est)	23/32	18/32	10/32
Acres Treated		5.82	17.16	12	18.25	2.175
AquaNeat injected:		1.63	0	1.218	0	0.16
AquaNeat sprayed:		2.52	2.27	0.26	0.45	0.1
Habitat (imazapyr):		0.075	0.246	0.063	0.113	0.025
Total Herbicide:	2.6	4.225	2.516	1.541	0.563	0.285

Note: The term "inspected" is used, rather than "treated" because in many cases crews looked for plants but did not find them. "Acres Treated" were calculated simply by adding together the acreage on all of the Pesticide Application Records and may vary depending on whether the applicator recorded strictly the area treated or the whole infested area.

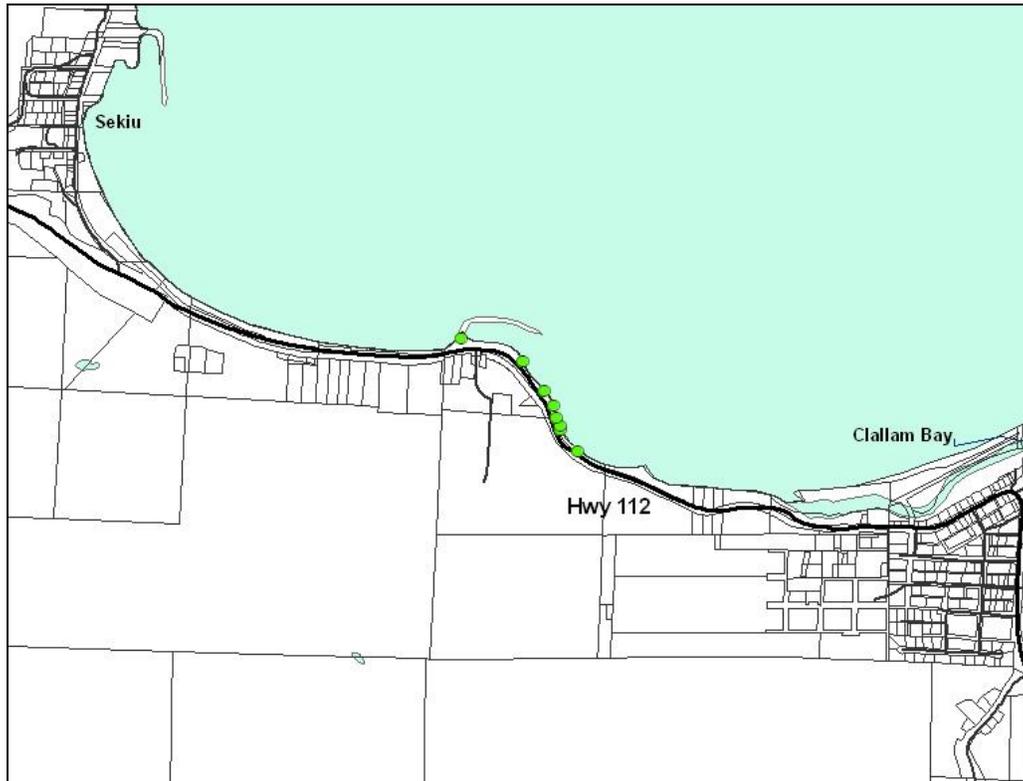


Total herbicide use was further reduced in 2011. Most of the knotweed on the Hoko is giant knotweed and it seems to respond to treatments better than other species.

SEKIU, CLALLAM BAY AND HIGHWAY 112

Crew

Treatment—David Freed and Ethan Strahan (CCNWCB)



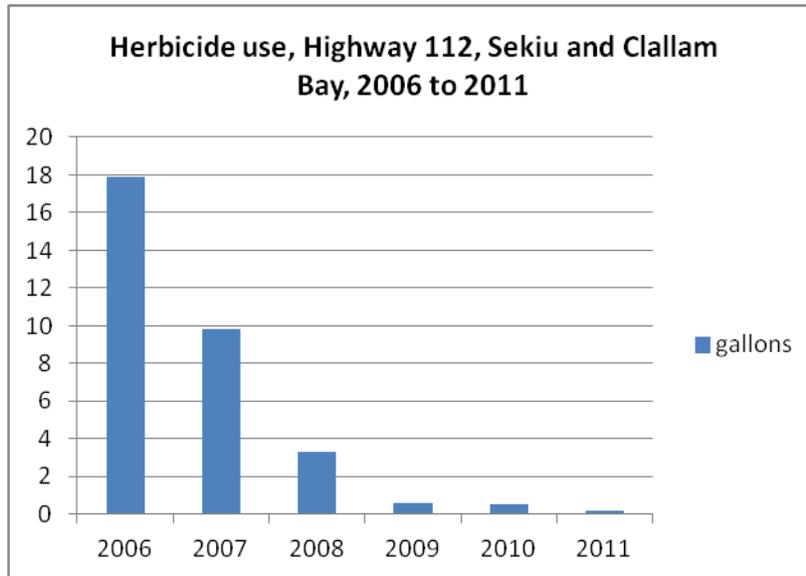
Bright green indicates sites treated in 2011.

- Sekiu and Clallam Bay are small coastal towns about two miles apart, consisting mostly of fishing resorts and residential properties. Knotweed in the Sekiu and Clallam Bay area has a long history, dating back to 1930. Knotweed has long been associated with the coming of the railroad, although it is not clear whether it was planted intentionally or came as a contaminant.
- Highway 112 runs west-east near the shoreline and crosses the Sekiu, Hoko and Clallam Rivers. The Hoko-Ozette Road, which heads south-west from Highway 112, runs very close to both the Hoko River and the Big River. Both these roads serve as significant vectors of knotweed through movement of plant fragments in the course of road maintenance and related activities.

By 2004 there were large stands of knotweed in both Clallam Bay and Sekiu and along Highway 112. Many of the infestations were in or close to water (Straits of Juan de Fuca). **In 2006** CCNWCB hired local residents to educate landowners about knotweed and collect permission forms. The Makah Tribe and CCNWCB treated in Sekiu and Clallam Bay. The community appreciated the help given by CCNWCB and our efforts in this area helped pave the way when approaching landowners in other areas. Treatment has continued each year since but this area has never been a top priority for our program, because many of the sites are terrestrial.

In 2011 we treated knotweed on a bluff overlooking the Start of Juan de Fuca. This was the only obvious knotweed site in the Sekiu—Clallam Bay area. This is in marked contrast to the huge stands of knotweed previously seen in both towns. Our treatments have been very effective. Better still, many residents are aware of knotweed and are actively looking for it and treating it on their own property. As has been discussed, this is our long-term goal.

Herbicide Use, Highway 112, Clallam Bay and Sekiu (gallons)						
	2006	2007	2008	2009	2010	2011
Parcels Inspected/Known Parcels			55/67 (est)	67/68	18/68	2/68
Acres Treated		25	45	26	3.25	1.8
Aqua Neat injected		3.5	1.945	0	0	0.16
Aqua Neat sprayed		6.06	1.224	0.45	0.4	0.02
Habitat (imazapyr):		0.23	0.29	0.155	0.1	0.005
Total Herbicide:	17.9	9.79	3.459	0.605	0.5	0.185

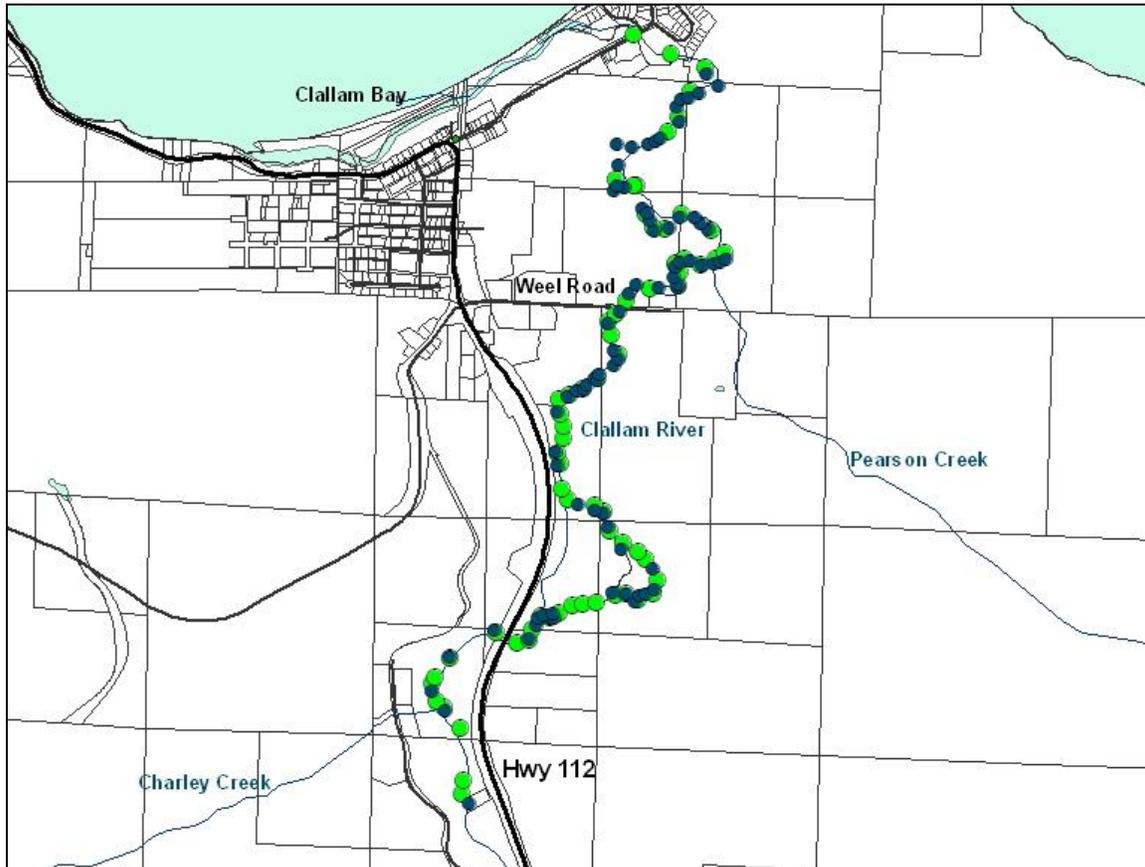


Herbicide use in the whole area decreased steadily from 2006 to 2009 and remained low in 2010. Some plants on the beach were injected because they were large and rain precluded spraying. Otherwise, herbicide use in 2010 would have been less. Only one site on Hwy 112 was treated in 2011, so even less herbicide was used.

CLALLAM RIVER

Crew

Treatment—David Freed and Ethan Strahan (CCNWCB)



Bright green indicates sites surveyed and recorded in 2006. Blue indicates treatment in 2011.

The Clallam is a low-gradient river, flowing into the Straits at the town of Clallam Bay. It is a unique system in that sand and gravel frequently block the mouth of the river. This phenomenon can cause flooding and can trap anadromous fish behind the gravel bar with no way to escape to the safety of the ocean, making them easy prey. In 1998 a channel was excavated to allow fish to escape. It was effective but was only a temporary solution. There is a popular County Park at the mouth, and also a large portion of land owned by Washington State Parks.

The Clallam River is about 13.4 miles long. Coho and winter steelhead spawn in the mainstem, and in several tributaries. Moderate numbers (500 or less) of chum have been observed in the lower mainstem.

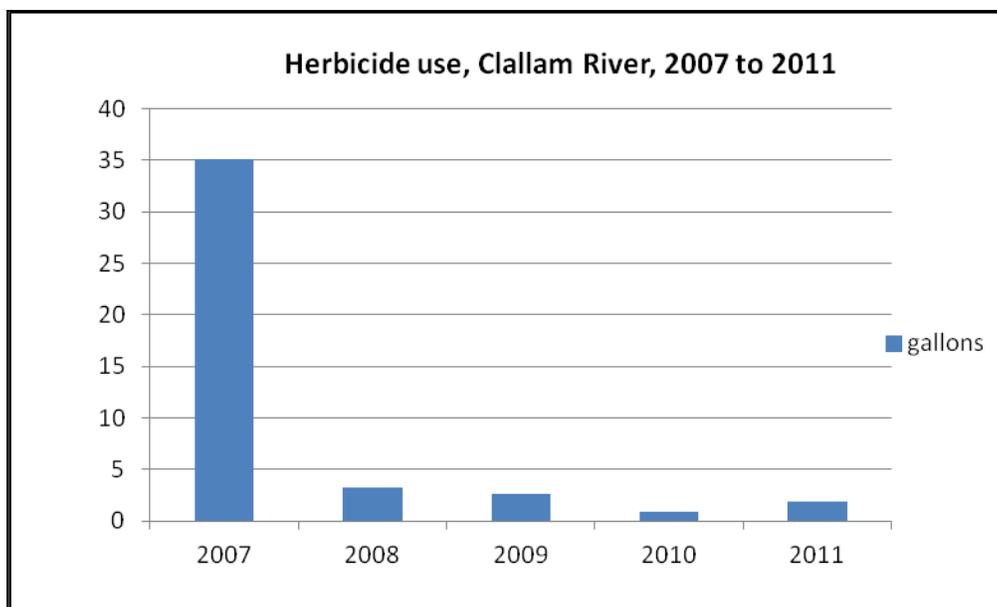
The first reported sightings of knotweed on the Clallam River were around 1998 and it has spread rapidly since then (Mike McHenry, Lower Elwha fish biologist, pers. com), although it is likely to have been present, but unnoticed, for much longer.

In 2006 the Makah Tribe surveyed the lower portion of the Clallam River and in 2007 funding from a NFWF grant with the Clallam Conservation District became available for the Lower Elwha Klallam Tribe to treat the knotweed there. This was done with the help of an aquatic licensed applicator from CCNWCB. Treatment has continued each year since. In 2010, knotweed control was made mandatory on the Clallam River, in hope of persuading reluctant landowners to allow us to treat. This was not as successful as it was on the Big, Hoko and Sekiu Rivers. There is still one parcel where the owners do not want us to treat, however, they are aware that they are responsible for treatments and that the CCNWCB will inspect for compliance. Some communication took place in 2011 and we will continue to do our best in 2012.

In 2011 we attempted to visit and re-treat all known sites on the Clallam River; this was not done in 2010 because of difficult access. A problem arose when we realized that ownership of one parcel had changed and we could not contact the new owner. Making contact will be a priority in 2012. Almost all the parcels visited had some plants remaining but they were small and scattered. The slight rise in herbicide use is due to more parcels being surveyed and treated.

Herbicide Use, Clallam River (gallons)					
	2007	2008	2009	2010	2011
Parcels Inspected/Known Parcels	16/20	16/20	18/20	13/20	21/23
Acres Treated	26	21.5	55	18.75	14.78
AquaNeat injected:	32.95	0.52	0	0.43	0.93
AquaNeat sprayed:	2.14	1.34	2.05	0.401	0.78
Polaris AQ (imazapyr):	0	0.34	0.53	0.1	0.16
Total Herbicide:	35.09	3.28	2.58	0.931	1.87

Note: "Acres Treated" were calculated simply by adding together the acreage on all of the Pesticide Application Records and may vary depending on whether the applicator recorded strictly the area treated or the whole infested area.



Herbicide use decreased dramatically from 2007 to 2008, as usually happens after the initial treatment and declined since then, despite almost half a gallon being injected in 2010, on a previously-untreated site. Herbicide use increased in 2011 because more sites were accessed and treated.

PYSHT RIVER

The Pysht River is approximately 16.3 miles long and drains into the Straits of Juan de Fuca at Pillar Point, eight miles east of Clallam Bay. The Pysht supports coho and chum salmon and winter steelhead.

In 2005 knotweed on the Pysht was first observed and treated. No complete survey was taken that year, but two property owners notified CCNWCB of knotweed infestations. One of these owners was Merrill & Ring, which owns a large amount of land on the Pysht including a tree farm near the mouth. They were enthusiastic about controlling their knotweed and hired a crew to do the work, with help from CCNWCB.

The other landowners who came forward were the Burdicks, who had a knotweed infestation covering 80,000 square feet. In 2005 they started manually digging knotweed as an alternative to herbicide use.

In 2006 Merrill and Ring hired a crew who treated their knotweed sites with help from CCNWCB. The crew noticed good results from the previous year's treatments—one site of approximately 3,060 square feet had been covered with knotweed in 2005. By 2006 only 50 to 100 canes remained; they were about 3 feet tall. 5 separate sites were treated in 2006, including infestations of around 4,000 square feet on both sides of the Old Sappho-Pysht Highway.

Treatment continued each year since, up until 2010, but no herbicide treatment was done in 2011. Reduced funding has caused us to prioritize and interrupt treatments where few plants remain in the hopes of picking up treatment in a subsequent year. We did however receive a renewed agreement to work with Merrill and Ring and their subsidiary companies for the next five years.

SOL DUC RIVER AND TRIBUTARIES

The Sol Duc sub-basin, within the Quillayute watershed, drains over 200 square miles. The Sol Duc River originates within Olympic National Park and stretches for nearly 20 miles before emerging from Park boundaries. It then runs for 45 miles until it joins with the Bogachiel, forming the Quillayute. It contains timber lands, agriculture, and residential development. The Sol Duc supports numerous salmonids such as chinook, coho, chum, sockeye, and steelhead, as well as cutthroat and rainbow trout. North Cascades Exotic Plant Management Team with the National Park Service continues to treat a small patch of Himalayan knotweed (0.001 acres) in the upper part of the river. CCNWCB and the Quileute Tribe operated only in the mid and lower sections of the Sol Duc because the upper section is within the Olympic National Park. The mid and lower Sol Duc are dealt with separately because treatment on the mid Sol Duc has taken place for longer than treatment on the lower Sol Duc. Lake Creek is also discussed separately so it can be shown in more detail

• Mid Sol Duc

In 2005, Clallam County Noxious Weed Control Board (CCNWCB) conducted a float survey on the mid section of the Sol Duc River (from the Park boundary to Whitcomb-Diimell boat launch on Highway 101). The Snider Work Center was the furthest upstream site found.

Treatment began in 2006 and continued through 2010. No treatment was done on the Sol Duc in 2011

• Lake Creek, Lake Pleasant and Beaver

Lake Creek is one of the major tributaries to the Sol Duc and it contains some of most productive coho habitat in the Quillayute system; these coho include a unique, resident population. All of the sockeye in the entire Quillayute system spawn in Lake Pleasant, which they access via Lake Creek.

Treatment began in 2006 and continued through 2010. No treatment was done on Lake Creek in 2011 due to funding constraints previously mentioned.

• Lower Sol Duc

In June 2006 the Quileute Tribe surveyed the lower section of the river (from Whitcomb-Diimell to the confluence with the Bogachiel). They recorded 447 sites.

Treatment began in 2007 and continued through 2010. No treatment was done on the Sol Duc in 2011 as noted above.

FORKS

Knotweed has been observed in the city of Forks for several years and it is of concern because Forks is close to both the Calawah and the Bogachiel. One tributary to the Bogachiel passes through Forks and close to some of the knotweed sites. The Calawah and Bogachiel are major waterways in the Quillayute System. Both rivers have knotweed which the Quileute Tribe is trying to eradicate and there is fear of re-infestation if the Forks sites go unchecked.

Treatment began in 2006 and continued through 2009, done by CCNWCB and/or the Quileute Tribe. No treatment took place in Forks in 2010 or 2011 although the Pacific Salmon Coalition, based in Forks, may be interested in taking on this responsibility.

PORT ANGELES STREAMS

VALLEY CREEK

Valley Creek is a small stream which empties into the Port Angeles Harbor. Salmon and steelhead have probably been extinct from the creek since the late 1940's, when the final sections of the approximately 2,000-foot culvert at the mouth were installed. Recent surveys of fish in this system revealed numerous resident cutthroat trout up to 11 inches in length. The section of the creek by Valley Street has been heavily infested with knotweed for some time and treatment has been ongoing for several years, up until 2010. This site was monitored, (with few plants noted, but no treatment took place in 2011. We will attempt treatment in 2012.

PEABODY CREEK

Crew

Survey—Cathy Lucero (CCNWCB)



Knotweed sites on Peabody Creek found in 2011

Peabody Creek is a small urban stream, draining a watershed of 2.6 square miles, with its headwaters in the northern part of the Olympic National Park. Some logging has occurred in the upper watershed but good stands of mature timber still remain. The 4.8 mile long stream flows through heavily urbanized areas of Port Angeles. Sewage was historically discharged directly into Peabody Creek and large quantities of stormwater are still directed into it. Coho and possibly chum salmon were observed historically but are thought to be extirpated. Currently only cutthroat trout are known to utilize Peabody Creek.

Peabody Creek is close to the Clallam County Noxious Weed Control Board office and employees often notice stands of knotweed on or close to the creek. In 2009 we asked for and received permission to treat from 4 landowners whose property covered about ½ mile of the creek, within the City of Port Angeles. In 2010 these sites were re-treated and we surveyed further upstream, finding large stands of knotweed. In 2011 we re-surveyed but no treatment took place because funding uncertainties made advance planning difficult. Additionally, this creek which is severely degraded under several environmental criteria, is not currently a high priority for restoration. We will consider more treatment when it moves up on our priority list.

ENNIS CREEK

Crew

Treatment—North Cascades Exotic Plant Management Team with the National Park Service.

Because the headwaters of Ennis Creek are at 6000', in the Olympic National Park, it is significantly affected by both snowmelt and runoff. This type of system typically has the highest stock diversity of anadromous fish. Historically Ennis Creek supported stocks of coho, steelhead, and chum. Currently coho stocks are highly degraded. Steelhead and cutthroat numbers are higher.

The lower reaches of Ennis Creek flow through urban areas of Port Angeles where water quality is impacted by stormwater runoff. An old Rayonier mill site is at the mouth of Ennis Creek and this portion of the creek has been rocked, channelized and the riparian corridor highly degraded. The old mill site has had a significant knotweed infestation for many years.

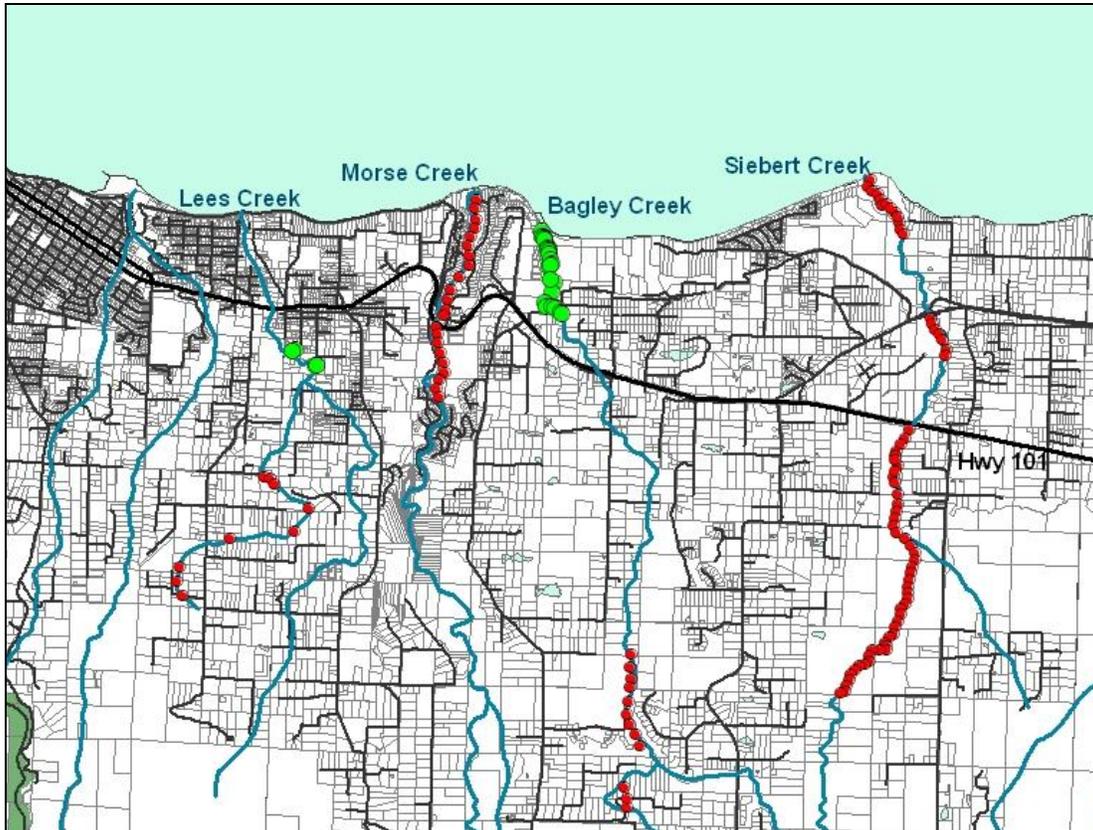
Knotweed treatment has taken place on Ennis Creek and the nearby Waterfront Trail from 2007 through 2010, implemented by the CCNWCB and/or the North Cascades Exotic Plant Management Team with the National Park Service. In 2011 the North Cascades Exotic Plant Management Team with the National Park Service treated within their jurisdiction near Lake Dawn. However, because of funding uncertainties and low level of infestation remaining after previous treatments, this creek will be considered for monitoring and re-treatments in 2012.

LEES, MORSE, BAGLEY AND SIEBERT CREEKS

These four are small independent streams, draining into the Strait of Juan de Fuca.

Crew

Treatment—David Freed, Cathy Lucero, Katie Gibbons, Ethan Strahan and Grace Bell (CCNWCB)



Red dots indicate null surveys (no knotweed found). Green dots indicate knotweed found and treated in 2011

Lees Creek is a medium-sized stream, entering the Strait of Juan de Fuca just east of Port Angeles. It currently supports very low numbers of anadromous salmon, limited to a few returning coho and steelhead. It is a “naturally closed channel” through the summer, as the mouth of the channel is isolated from the Strait of Juan de Fuca by a natural sand spit during low flow periods. Lees Creek has been significantly altered from its historic condition. Fish passage is constricted, large woody debris is lacking and stormwater negatively impacts water quality. No active restoration or improvement actions are known in the Lees Creek watershed.

Morse Creek is the largest of the independent drainages to salt water between the Dungeness and Elwha rivers, entering the Strait of Juan de Fuca approximately two miles east of Port Angeles. The stream extends 16.3 miles from its headwaters in the Olympic National Park. The Park boundary is at RM 9. Morse Creek is diverted at RM 7.2 for hydroelectric generation. The headwaters are steep and a natural falls at RM 4.92 divides the watershed, posing an impassable barrier to anadromous fish. The upper reaches of Morse Creek are in generally excellent, near-pristine condition. It is confined in a ravine-like canyon through large portions of its lower reach, but between RM 3 and RM 1 flat bottomland occurs along the creek. Below approximately RM 1.7, the valley broadens into a relatively wide floodplain. Historically, Morse Creek has been an important anadromous fish stream, known to have supported stocks of spring/summer Chinook, coho, chum, and pink salmon, summer and winter steelhead, and searun cutthroat trout. No artificial fish migration barriers are known to exist in this watershed, but channelization, floodplain development, roadway and railway construction, and vegetation management have impacted habitat. Areas of available suitable salmonid spawning gravel or stable large woody debris are virtually absent, indicating that winter storm flows scour and remove these essential habitat features. A major restoration project involving re-contouring channel and 27 large woody debris log jams has just been completed.

Bagley Creek is a medium-sized independent drainage, entering the Strait of Juan de Fuca approximately 2 miles west of Green Point. Coho and fall chum salmon and winter steelhead are the only identified anadromous fish known to exist in Bagley Creek. The watershed has experienced widespread timber harvest and conversion to residential use. Knotweed had been observed near the mouth prior to 2011 but the creek had never been surveyed.

Siebert Creek is a significant independent drainage that remains largely undisturbed. It drains an area of 19.5 mi² and includes 31.2 miles of mainstem stream and tributaries. Siebert Creek begins in the mountains of Olympic National Park and flows 12.4 miles through forested foothills to join the Strait of Juan de Fuca at Green Point, about halfway between Port Angeles and Sequim. The Siebert Creek estuary is likely similar to its historic condition and is one of the finest examples of an intact, functioning, bar-bound estuary in the state of Washington. The nearshore contains healthy beds of both kelp and eelgrass. The estuary and adjoining nearshore provide critical rearing and feeding areas for juvenile salmonids and a diverse assemblage of waterfowl. The proximity of the Siebert Creek estuary to the Dungeness National Wildlife Refuge magnifies its significance for waterfowl. Similarly, the Siebert Creek estuary may provide foraging, refuge, and rearing habitat for ESA-listed chum and chinook juveniles from the Dungeness River during their seaward migration. Coho and fall chum salmon and winter steelhead are the only identified anadromous fish known to exist in Siebert Creek. Development has been minimal in this watershed, but throughout the Olympic Mountain foothills of eastern Clallam County, forestland is rapidly being converted to large-lot residential uses. These conversions and other human activities, including roads and stormwater flows, are having an impact on this stream.

Early in 2011 we identified all landowners on Lees Creek, the East Fork of Lees Creek, Morse Creek, Bagley Creek and Siebert Creek, and wrote to them all asking permission to survey for and/or treat knotweed if found. 287 letters were mailed in all and we received 93 permission forms. (To find out how many permission forms were signed for each stream, please see Appendix II) Because knotweed on these streams had never been treated we knew it would be up and visible early in the year so we sent a small crew out in April and May to survey. Because we did not have survey permission for the entire length of each stream, the crew had to go in and out, but were able to see a representative portion of each stream. No knotweed was found in or near Morse or Siebert Creeks, and only a small amount on Lees Creek (the East Fork of Lees Creek was not surveyed), which was treated in June. A large infestation was found at the mouth of Bagley Creek and was treated twice, in June and again in October. (Contrary to our usual strategy, we treated from the mouth of Bagley to one mile upstream, because we had uninterrupted landowner permission. More knotweed is known to exist upstream. However, Highway 101 crosses the creek at this point, and poses a significant barrier that slows the spread of knotweed from upstream. This, plus the opportunity to support positive relationships with willing landowners, justified treatment). Slightly less than a gallon of AquNeat was sprayed or injected on the Bagley Creek site and half a gallon was sprayed or injected on the Lees Creek site.

DUNGENESS RIVER

The Dungeness River, which is in the eastern portion of WRIA 18, drains 198 square miles. The mainstem extends 31.9 miles and its primary tributary, the Gray Wolf River, adds another 17.4 miles. There are an additional 256 miles of tributaries in the basin. Historically, the Dungeness was highly productive and diverse containing 11 individual salmonid populations. The Dungeness has experienced significant decreases in stock productivity levels and has been the subject of extensive habitat restoration and conservation for many years. In many cases, the Jamestown S'Klallam Tribe, in partnership with other local agencies has been instrumental in implementing restoration efforts. The Tribe treated knotweed on the Dungeness from 2004 through 2008.

From 2009 to 2011 they did not survey or treat for knotweed. They focused their attention on other invasives, particularly butterfly bush.

For more information, please contact Hilton Turnbull at (360) 681-4603 or hturnbull@jamestowntribe.org.

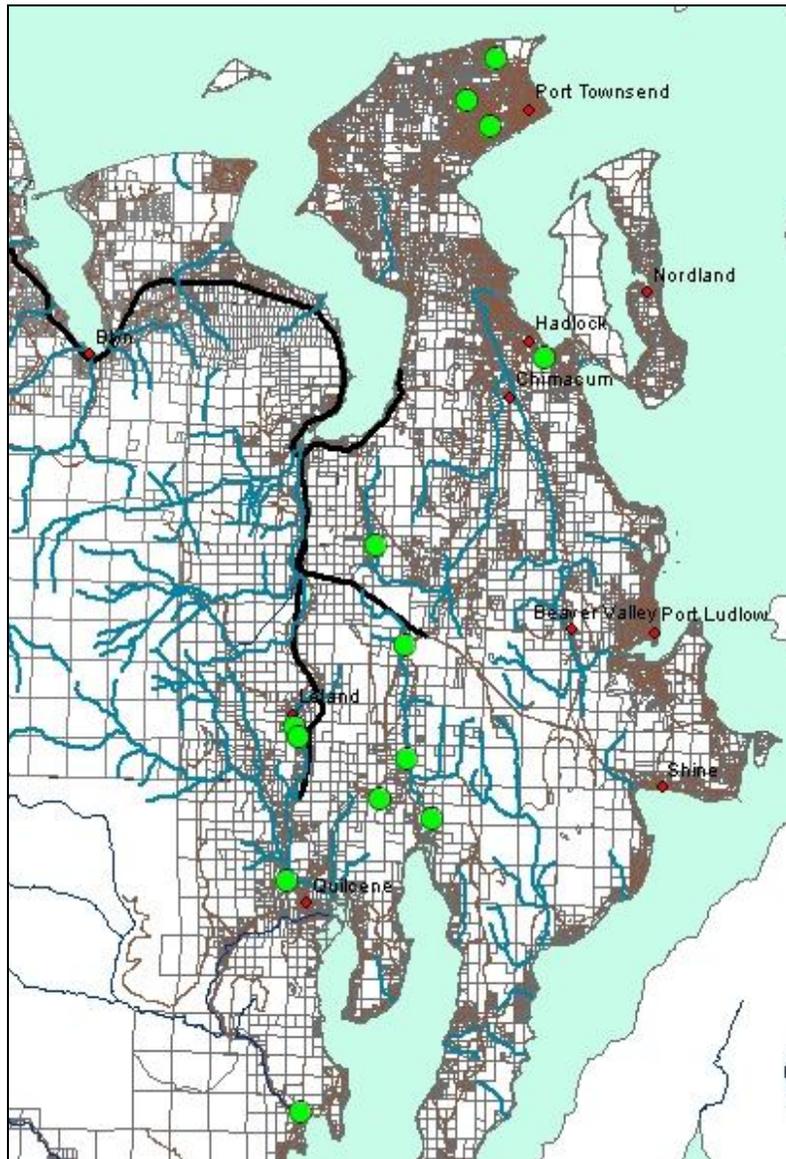
PROJECT ACTIVITIES BY WATERSHED IN EAST JEFFERSON COUNTY

SNOW CREEK AND SALMON CREEK

Snow Creek and Salmon Creek both flow into the south end of Discovery Bay, where a lumber mill operated until the 1950s. Habitat for salmonids and other species has been seriously impacted for many years because thousands of cubic yards of scrap wood blocked tidal flow. Ammonia and sulfur have been leaching into the water, degrading water quality. A restoration project was started in July, 2008, and was completed by the end of that year. The wood waste was removed, along with five derelict buildings, exposing the old marsh surface and restoring the original tide level. Native marsh vegetation is expected to return in three to four years.

Clallam and Jefferson Noxious Weed Control Boards treated knotweed on both Snow and Salmon Creeks from 2006 through 2010. No treatment took place in 2011.

PORT TOWNSEND AND OTHER JEFFERSON COUNTY SITES



Knotweed sites treated by JCNWCB in 2011

A knotweed infestation of approximately 0.75 acres has been present for many years at an entrance to **the Kah Tai Lagoon Park** in Port Townsend. It is highly visible to the public and, being adjacent to the lagoon, winter floods create a potential for plant parts to be moved off site. In the spring of 2008 the Jefferson County Weed Board was granted permission from the City of Port Townsend to chemically treat the Kah Tai knotweed, and other small knotweed sites within the city. JCNWCB treated all of these sites from 2008 through 2011.

Other small sites around Jefferson County treated in 2011 by the Weed Board include:

Oak Bay, near Port Hadlock, is an opening off Admiralty Inlet. It is the site of a county park and is a popular shellfish-digging area, well known for geoduck. Weed board staff have observed a stand of knotweed, close to the water for several years and in 2011 we asked for and got permission to spray.

Lake Leland, five miles north of Quilcene and also the site of a county park, is a popular fishing spot. Four distinct knotweed patches have been observed around the south end of the lake—partly on county road right-of-way and partly on private property. By the start of field season in 2011 we had permission from all of the private landowners and all sites were treated or re-treated.

Old Eaglemount Road runs close to Chimacum Creek, a stream which is home to federally listed Hood Canal summer-run chum. The tidelands at the mouth of Chimacum Creek are popular for clam-digging. A small stand of knotweed has been observed on Old Eaglemount for several years and was treated in 2010 and again in 2011. Very little is left.

Tarboo Creek, which drains into Dabob Bay, is a small but significant stream. 2,700 acres near its mouth are now protected by many different groups and agencies including Jefferson Land Trust, WDNR and the Northwest Watershed Institute (NWI). The lower portion of Tarboo Creek is virtually undeveloped and it includes both conifer and deciduous forests and supports protected species such as bald eagle, northern spotted owl and marbled murrelet. Knotweed has been known to occur near the mouth and in 2011 JCNWCB offered to help NWI to spray it. Two treatments took place, with weed board staff working with a NWI crew.

A landowner in **Quilcene** who has been battling knotweed on her farm for several years asked for help and weed board staff supplied herbicide and worked with her to spray.

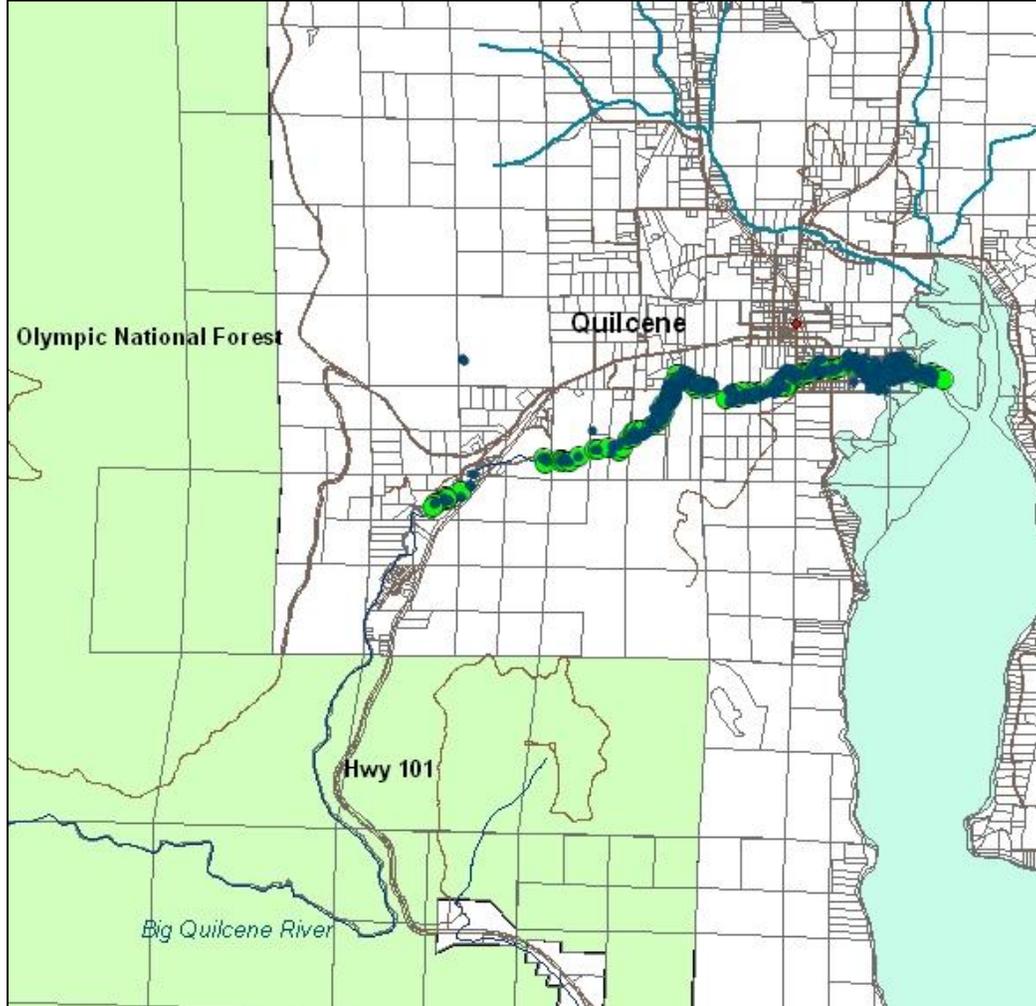
Spencer Creek is a comparatively short waterway that flows into Jackson Cove in the northwest section of the Hood Canal. We have treated an upstream site on Spencer Creek for several years. No treatment took place on that site in 2011 but a large infestation was discovered at the mouth. We were fortunate in getting permission to treat it, after several attempts to locate the landowner. When we did treat we also found and treated a large infestation of giant hogweed, a class A noxious weed.

Herbicide Used on Small Jefferson County Sites, 2011 (gallons)	
Port Townsend	0.15
Oak Bay	1.125
Lake Leland	0.47
Old Eaglemount Road	0.004
Tarboo Creek	1.96
Quilcene	0.56
Spencer Creek	1.69
Total	5.959

BIG QUILCENE RIVER

Crews

Treatment—The East Jefferson WCC crew, led by Owen French.



Bright green indicates knotweed sites recorded in 2008. Blue indicates treatment in 2011.

The Big Quilcene River drains a basin of approximately 70 square miles, most of which is under federal ownership. The Big Quilcene mainstem is 19 miles long, with its headwaters located at a high elevation in the Olympic National Forest. The largest tributaries to the Big Quilcene are Townsend Creek, Tunnel Creek and Penny Creek. The headwaters of both Townsend Creek and Tunnel Creek are at high elevations and the entire length of both tributaries is on Olympic National Forest land. Penny Creek starts at a considerably lower elevation and flows through private and state-owned land. Penny Creek was included in our survey but Townsend Creek and Tunnel Creek were not.

The upper reaches of the Big Quilcene River are high gradient, highly confined channels. The City of Port Townsend has a diversion dam at River Mile 9; most of the water used in Port Townsend comes from the Big Quilcene.

The middle reaches between River Mile 5 and RM 2.5 are moderate gradient channels with widened floodplains. There is Federal Fish Hatchery at the confluence of the Big Quilcene River and Penny Creek, at River Mile 3. Low gradient, unconfined channels characterize the lower 2.5 miles, while the lower mile meanders across a broad alluvial fan. The lower reaches of the Big Quilcene are a popular fishing area, the main species being chum and coho. Large stands of giant knotweed have been visible for many years on the alluvial floodplain at the mouth—one local resident remembers playing in the knotweed 40 years ago!

In 2008 JCNWCB and the Hood Canal Coordinating Council surveyed the river to determine how far upstream the infestation went. The furthest upstream knotweed found on the Big Quilcene mainstem was a little upstream from the Fish Hatchery. Dense populations were found half a mile downstream from the Hatchery and they continued intermittently to the mouth. One site was found on Penny Creek, about 3 miles upstream from its confluence with the Big Quilcene. The owner had been controlling it for many years but had not succeeded in eliminating it. No knotweed was found further upstream on Penny Creek.

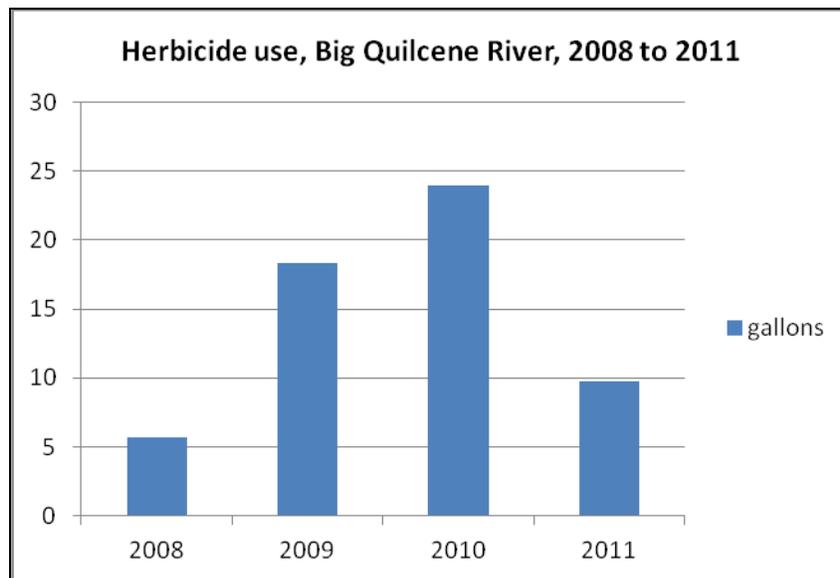
Knotweed on the Big Quilcene was treated by a Clallam County crew in 2008 and 2009.

In 2010 the East Jefferson WCC crew spent 19 days treating knotweed on the Big Quilcene. Some stands were still huge, having been “ringed” rather than fully treated in previous years. Others were large, being treated for the first time. Good progress was made in 2010, thanks to North Olympic Salmon Coalition, Hood Canal Coordinating Council and the Hood Canal Salmon Enhancement Group who jointly funded the WCC crew.

In 2011 the WCC crew re-treated all sites on the Big Quilcene, again thoroughly treating every site. JCNWCB assisted with landowner contacts. In addition to treatment, landowners were given the option of having native plants installed on their property. HCSEG (using a grant from the Salmon Recovery Funding Board) funded the WCC crew and the replanting.

Herbicide Use, Big Quilcene River (gallons)				
	2008	2009	2010	2011
Acres Treated	13	55.75	42.75	4.06
AquaNeat injected :	2.06	0	0	0
AquaNeat sprayed	3.6	18.291	31.43	9.77
Polaris AQ sprayed	0	0	0.94	0
Total Herbicide	5.66	18.291	24.1	9.77

“Acres Treated” were calculated simply by adding together the acreage on all of the Pesticide Application Records and may vary depending on whether the applicator recorded strictly the area treated or the whole infested area. The discrepancy between acres treated in different years may be due to different counting methods being used. In 2011 the crew recorded strictly the acreage covered by knotweed, not the total infested area, as they had done in previous years. This accounts for the greatly reduced acreage.



Herbicide use increased from 2008 to 2010 as more sites were treated, but decreased quite sharply in 2011, even though ALL sites were re-visited and fully treated, indicating that plant mass had declined because of previous treatments.

LITTLE QUILCENE RIVER

The Little Quilcene River drains a basin of approximately 40 square miles. Its headwaters originate above 4,400 feet on the north slopes of Mount Townsend and its runoff is derived from both rainfall and snowmelt. The upper watershed is within the Olympic National Forest and is steeply dissected with high gradient, confined stream channels. The lower valley and the flood plain have been developed for domestic and agricultural use and timber harvest. The lower 0.8 miles have been diked and the banks armored to protect property in the floodplain. The Little Quilcene River discharges to Quilcene Bay approximately one mile north of the mouth of the Big Quilcene.

The estuary supports populations of chinook, pink, chum, steelhead, coho, sturgeon and cutthroat. However, the dike system, put in place nearly 100 years ago, has disturbed tidal function in the estuary. Sediment washed downstream has caused the formation of a “delta cone”—a build-up of sediment in the estuary that can bury the salt marsh—important to young salmon because it offers food and protection from predators.

The Hood Canal Salmon Enhancement Group (HCSEG) owns land near the mouth of the Little Quilcene and has mounted a large restoration effort in the estuary. 35,000 cubic yards of soil have been removed and the shoreline has been moved back 400 feet. In 2009 HCSEG noticed knotweed growing near the mouth and asked JCNWCB for help in removing it. In 2010 the East Jefferson WCC crew sprayed the remaining knotweed near the mouth of the Little Quilcene River. Only a small amount remained.

No treatment took place on the Little Quilcene River in 2011

DOSEWALLIPS RIVER

Crew

Treatment—The East Jefferson WCC crew, led by Owen French.

The Dosewallips River is one of the largest rivers in Jefferson County. It flows east from the Olympic Mountains into the Hood Canal at the town of Brinnon. It drains approximately 130 square miles and includes close to 132 miles of streams and tributaries. Out of the 130 square miles, 93% is contained within the Olympic National Park and Olympic National Forest. Land use of the remaining 7% is rural residential, commercial, and private forested land. The Dosewallips River supports Chinook, steelhead and Hood Canal Summer Chum, the last of which are listed as Threatened under the ESA.



Bright green indicates knotweed sites surveyed and recorded in 2010. Blue indicates treatment in 2011.

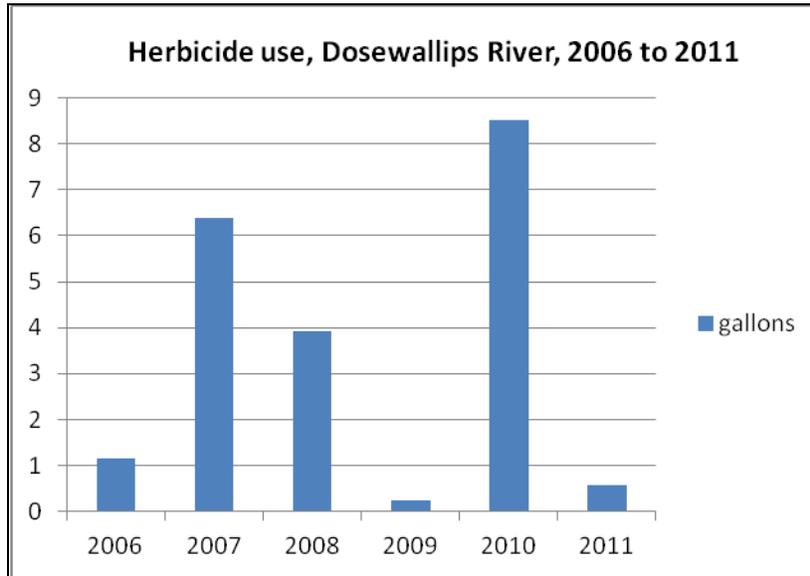
In 2006 Jefferson County Noxious Weed Control Board (JCNWCB) surveyed the Dosewallips. CCNWCB provided training, herbicide and equipment. They recorded eight knotweed sites and acquired seven Landowner Agreements. All sites with Landowner Agreements in place were treated, including a site at the Dosewallips State Park. More treatment took place from 2007 through 2009, using a combined JCNWCB/CCNWCB crew.

In 2010 the East Jefferson WCC crew began a new survey of the Dosewallips, finding more sites than previously, and more upstream sites. Most sites found in 2010 were treated by the same crew.

In 2011 the WCC crew continued to survey. Work on the Dosewallips is difficult because of high stream flow and steep banks, but progress was made; also, the majority of known sites were re-treated. 2010 treatments were so successful that only a few small plants remained on most sites that had been treated. Lack of time and bad weather precluded treatment of all known sites. The WCC crew was funded in 2011 by NOSC, using a Salmon Recovery Funding Board (SRFB) grant. In 2012 HCSEG will be the funding agency, again using a SRFB grant. As part of their planning process, USFS discovered knotweed at the site of a large woody debris project and called in the weed board to consult on best management practices. We will continue to collaborate to ensure the knotweed problem is addressed without delaying the project. We were very impressed by the FS timely recognition of this problem

Herbicide Use, Dosewallips River (gallons)						
	2006	2007	2008	2009	2010	2011
Acres Treated	2	5	7.75	5.5	14.05	0.3
AquaNeat injected	0.77	3.175	0.8	0	0	0
AquaNeat sprayed	0.375	3.2	3.12	0.234	8.48	0.58
Polaris AQ sprayed	0	0	0	0	0.02	0
Total Herbicide	1.145	6.375	3.92	0.234	8.5	0.58

"Acres Treated" were calculated simply by adding together the acreage on all of the Pesticide Application Records and may vary depending on whether the applicator recorded strictly the area treated or the whole infested area. The discrepancy between acres treated in different years may be due to different counting methods being used. In 2011 the crew recorded strictly the acreage covered by knotweed, not the total infested area, as they had done in previous years. This accounts for the greatly reduced acreage.



Slightly fewer sites were treated in 2011, but the main reason for such a decline in herbicide is that knotweed populations had been MUCH reduced by the 2010 treatment.

DUCKABUSH RIVER

The Duckabush is one of the major waterways in Jefferson County, flowing into the Hood Canal a little south of the town of Brinnon.

In 2006 windshield and foot survey was conducted on the Duckabush River, starting within the U.S. Forest Service boundary where a vehicle had access on Duckabush River Road. Further downstream, a foot survey was conducted at the mouth. No knotweed plants were found.

In 2007 a landowner near the mouth of the Duckabush called to say he had knotweed. He signed a Landowner Agreement and JCNWCB treated the knotweed. This site was re-treated in 2008 and 2010.

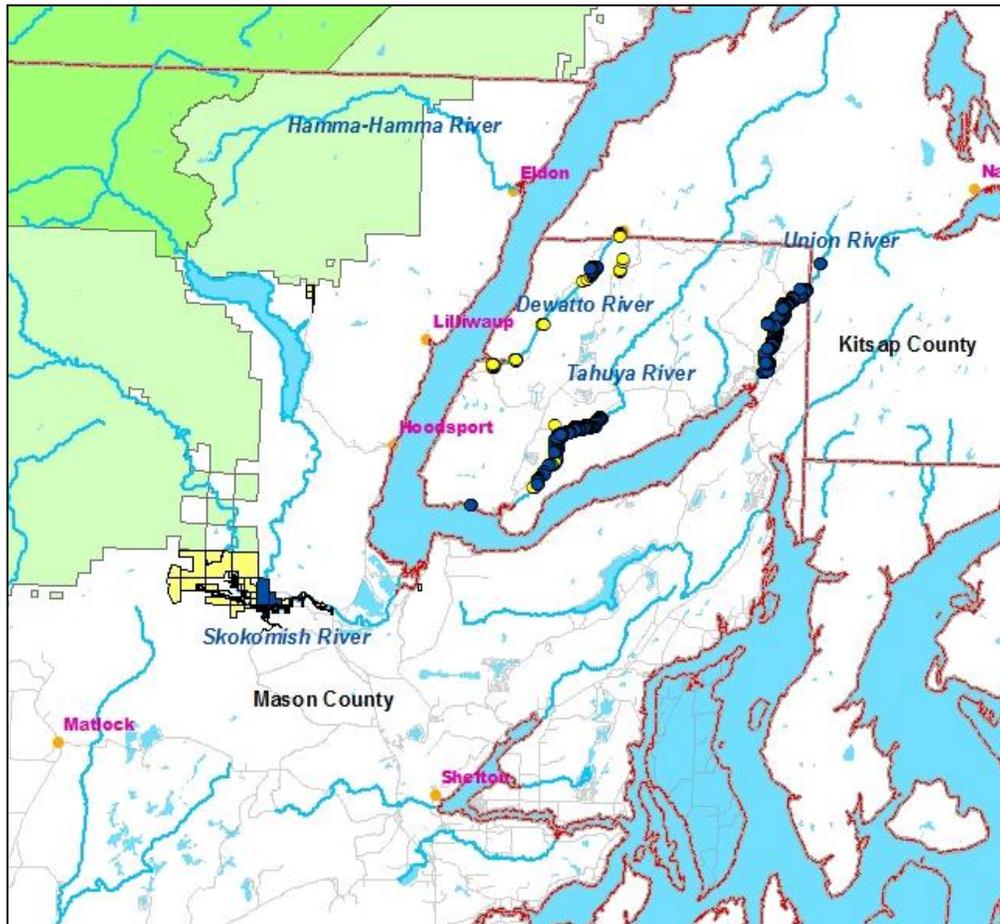
No work was done on the Duckabush in 2011, but **HCSEG will fund a survey in 2012.**

FULTON CREEK

In 2009 a landowner on Fulton Creek who had heard about our program called to ask if we could treat their knotweed. The landowner was, of course, happy to sign an agreement and the crew spent half a day treating it.

In 2010 the patch was much reduced and we re-treated. This is one infestation that can safely be turned over to the landowner for control because remaining plants can be sprayed without herbicide getting into water. No work was done on Fulton Creek in 2011.

PROJECT ACTIVITIES BY WATERSHED IN MASON COUNTY



Yellow indicates 2011 surveys. Blue—2011 treatment.

Skokomish River

The Skokomish River drains a basin of about 247 square miles. It empties into Annas Bay in southern Hood Canal near Potlatch, Washington. The upper reaches of the Skokomish River lie within the Olympic National Park. The North Fork basin includes Lake Cushman, a reservoir maintained for hydroelectric power generation. The entire basin is sparsely populated and rural; it provides important habitat to a variety of terrestrial wildlife such as elk, deer, beaver, and waterfowl. Wildlife, shellfish, and finfish are important cultural and economic resources for the Tribe. The Skokomish River system provides valuable habitat for important species of fish such as chinook, coho, and chum salmon; steelhead; and various trout.

Mason Conversation District and Mason County Noxious Weed Control Board surveyed 2,190 acres and treated 1.97 acres on the Skokomish in 2011. This was the second year of treatment, funded through the Salmon Recovery Funding Board.

For more information about the Skokomish River please contact Evan Bauder at the Mason Conservation District, 360-427-9436 ext 13 or evan@masoncd.org or Pat Grover, 360-427-9670 ext 592 or PatriciaG@co.mason.wa.us

Tahuya River

The Tahuya River is the largest stream on the Kitsap Peninsula, draining 45 square miles of land. The mainstem is 21 miles long with an additional 65 miles of tributaries. The numerous tributaries are an important factor in the Tahuya's ability to produce large numbers of coho salmon. The first knotweed survey on the Tahuya was in 2010; small intermittent patches were found and treated. Survey and treatment continued in 2011. Landowners in general were very willing to give permission and a total of 56 properties were treated.

Union River

The Union River enters Lynch Cove at the terminus of the east arm of Hood Canal, draining 24 square miles of land. The mainstem is 10 miles in length with 30 miles of tributaries. The Union Reservoir supplies up to 5 million gallons of water per day to the City of Bremerton and the Puget Sound Naval Shipyard. The Union River is the only watershed in west WRIA 15 and north WRIA 14 to support a healthy run of summer chum salmon. Knotweed survey and control on the Union River began in 2009 and has continued each year since. In 2011 89 properties were treated, totaling 2.5 acres. Considering that 55.8 acres were treated in 2010, there was obviously much decline in plant mass.

Dewatto River

The Dewatto River enters Hood Canal about 5.5 miles north of the Great Bend of Hood Canal, draining about 23 square miles. The mainstem is 8.7 miles in length with about 30 miles of tributaries. Several wetlands are present near the mouth, providing quality rearing habitat for juvenile salmonids. Although logging was historically the dominant land use and much of the watershed is still managed for timber production, the estuary remains relatively undisturbed. Knotweed survey and control on the Dewatto River began in 2009 and has continued each year since. Less knotweed was found there than on the Union—patches were smaller and more intermittent. All properties that were treated in 2009 and 2010 were given a third treatment in 2011. 5 properties were treated; the treated area was 0.1 acre.

Work on the three above-mentioned rivers has been undertaken by the Hood Canal Salmon Enhancement Group, using grant funding from different sources, mainly the Salmon Recovery Funding Board. Because of the large number of parcels treated on the Tahuya and Union Rivers, much time has had to be spent on landowner contacts.

10.98 gallons of herbicide were used on the Tahuya, Union and Dewatto Rivers in 2011

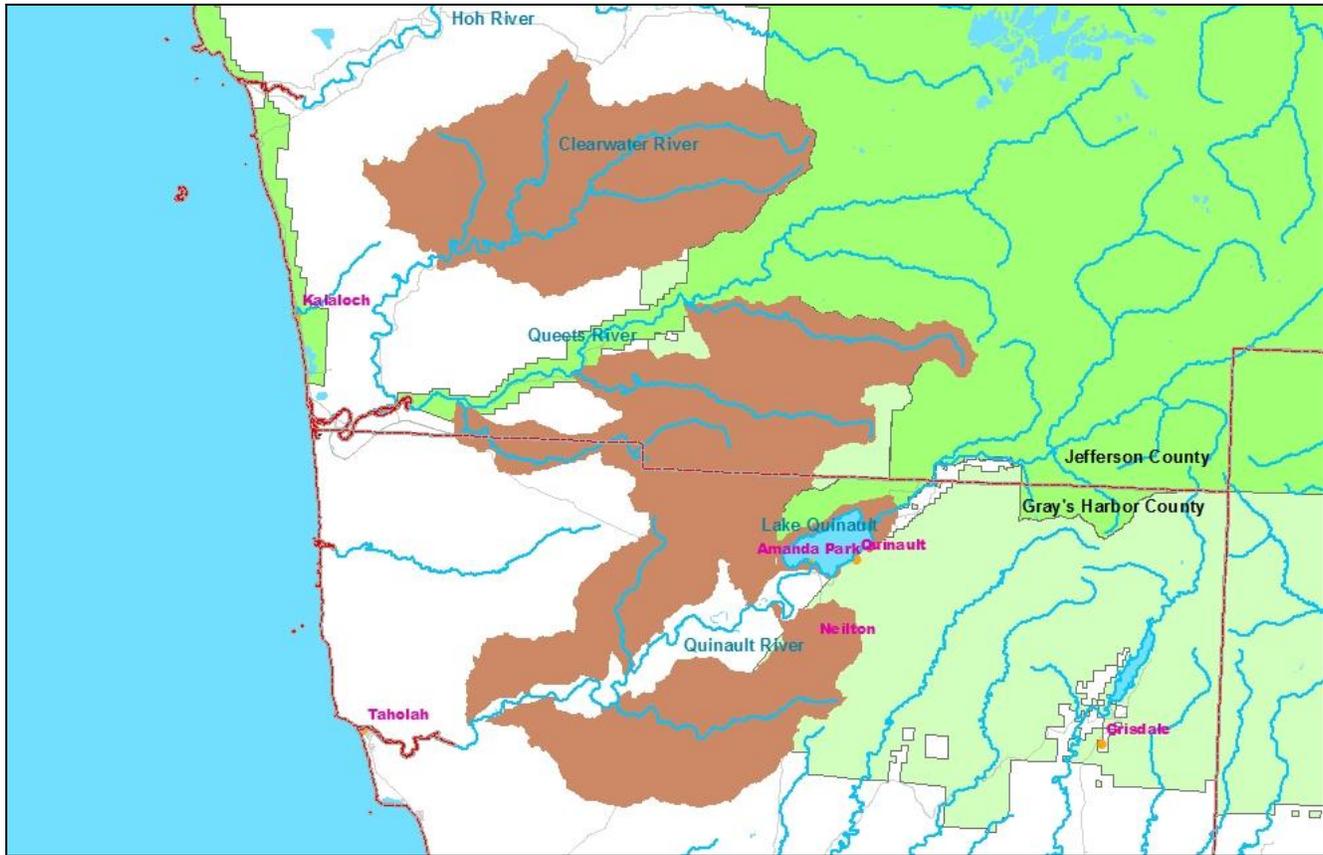
For more information about the Tahuya, Union or Dewatto Rivers please contact Mendy Harlow, 360-275-9722 mendy@hcseg.org or Pat Grover, 360-427-9670 ext 592 PatriciaG@co.mason.wa.us

PROJECT ACTIVITIES BY WATERSHED IN WEST JEFFERSON COUNTY AND GRAY'S HARBOR COUNTY

QUINAULT RIVER, LAKE QUINAULT, QUEETS AND CLEARWATER RIVERS

TREATMENT

The Quinault Indian Nation crew, led by Jill Silver (licensed aquatic applicator), Grays Harbor NWCB and the North Cascades EMPT with NPS.



The brown area indicates the Quinault Indian Nation's Project Area. Shape files of treatment are not available. The entire project encompasses 227,774 acres.

The Quinault River, Lake Quinault and the Queets-Clearwater watershed are all included in WRIA 21. This WRIA contains some of the last remaining free-flowing large rivers in the lower 48 states. It contains areas of habitat that are relatively pristine (especially those within the Olympic National Park), as well as areas that have been greatly affected by logging and other activities over the last century. The entire WRIA is included in the Quinault Indian Nation's (QIN) Usual and Accustomed Fishing and Hunting Area. It is a rural, sparsely-populated area where land ownership is dominated by ONP, USFS, Washington Department of Natural Resources and large timber companies. Unlike the protected marine and estuarine environments of Puget Sound and the Hood Canal, these streams drain directly into the Pacific Ocean. Ocean survival is less for fish leaving these coastal streams, making in-stream parr and smolt survival more significant.

- **The Quinault River, Lake Quinault and Prairie Creek**

The Quinault River is 69 miles long and originates in the Olympic National Park. It flows into and out of Lake Quinault and empties into the Pacific Ocean at Taholah. The Quinault River has healthy stocks of sockeye and also supports chinook, chum and coho. The upper reaches offer spawning and rearing habitat for federally-listed bull trout. Prairie Creek is located near the outfall from Lake Quinault and is a source of knotweed infestation in the lower Quinault River.

In 2007 the Quinalts received a SRFB grant for five years of knotweed control on **Prairie Creek** and work has taken place each year since. 2011 was the final year and the grant was amended to include the North Shore of Lake Quinault and Amanda Park. The Prairie Creek treatments have been successful and natural vegetation is establishing. This grant originally covered work over 8,400 acres, but was amended in 2011 to include the North Shore of Lake Quinault and Amamnda Park, for an additional 3,374 acres.

In 2010 the Quinalts were awarded a SRFB grant for knotweed survey and control in the **lower Quinault River**. The lower watershed has 68,000 acres of tributaries, 600 miles of roads, 300 miles of streams and many harvest units and gravel mines. It also includes the town of Neilton, which was found to have large knotweed infestations that were being spread by mowing, cutting or dumping and was obviously another source for the lower Quinault River infestation. Most of the sub-watersheds were surveyed and treated in 2010. Gray's Harbor County Noxious Weed Control Board helped with landowner contacts and permissions and partnerships were formed with Rayonier Timberlands and USFS. Treatment continued in 2011 and there was a marked reduction in size of plants in previously treated areas. The Lower Quinault project area encompasses 63,000 acres.

The upper Quinault River, above the lake, was surveyed and treated by the North Cascades EPMT with NPS and by Gray's Harbor NWCB.

- **Queets-Clearwater Watershed**

The Queets River is 53 miles long and is mainly within the boundary of the Olympic National Park. The last four miles, outside the Park, are within the Quinault Indian Reservation. The Queets supports stocks of Chinook, coho, chum and steelhead; additionally, the upper reaches offer spawning and rearing habitat for federally-listed bull trout. The Clearwater, which is 39 miles long, is one of the main tributaries. It joins the Queets at approximately RM 4, as the Queets leaves the National Park. It also supports stocks of most salmon species. Conservation efforts are underway on the Clearwater--The Nature Conservancy recently purchased 3,088 acres.

In 2011 the Quinalts received a **3-year EPA grant** (2 seasons of knotweed control) for detection and treatment on the Queets and Clearwater. Jefferson County NWCB was contracted to get landowner permissions. The project area covers 153,000. The survey was 2/3 completed in 2011, the source of knotweed on the Clearwater River was located and only one site was found on the Queets.

The Quinalts are aware that knotweed is being spread by activities such as timber harvest, gravel mining, road construction and recreation and think that their biggest challenge is to connect with each industry or individual companies within each industry to prevent re-infestation of areas already treated. They were able to treat source populations in towns close to Quinault River tributaries, before they moved downstream. Landowner cooperation and interest in the project has been high in developed parts of the project area—Neilton, Amanda Park, the North Shore and Lake Quinault.

For more information about knotweed treatment on Quinault, Queets and Clearwater Rivers, please contact Jim Plampin, at 360 276-8215 ext.290 or jplampin@quinault.org .

Hoh River



Green dots show where knotweed was found in a 2007 survey. Shape files for 2011 treatment are not available.

The Hoh watershed consists of 300 square miles and is famous for wild stocks of winter steelhead, fall coho, and spring/summer and fall run Chinook salmon. Loss of large woody debris in the mainstem river channel and tributaries has contributed to numerous riverine habitat impacts including sedimentation from riverbank erosion, as well as reduction of large pools. Restoration and maintenance of a functional mature riparian forest is considered a primary component of a salmon recovery strategy by the WRIA 20 salmon recovery and watershed planning groups.

The Hoh River knotweed infestation initiated from a single source in 1999. By the end of 2003, 18,585 canes in 1,247 sites widely dispersed over 20 river miles had been documented and treated, and more canes documented in the 10 river miles to the mouth. Subsequent follow-up surveys and re-treatments of the entire 30 mile river corridor in 2004 were conducted by the 10,000 Years Institute in partnership with the Hoh Tribe, and the Olympic National Park (ONP), with access provided by private landowners, the USFS and Department of Natural Resources.

Treatment has taken place each year since **2006**. Plants are now small and widespread and much time is spent searching for ever-fewer plants.

In 2011 treatment continued. 2950 acres (22 river miles) were surveyed, out of 4500 that needed to be surveyed. Lack of funding was an obstacle which was partially solved through donations from two of the partners in the project – Hoh River Trust and Pacific Coast Salmon Coalition. 0.16 acres in that 2950 acres were treated for knotweed. More treatment took place in the lower three miles of river than in river than in previous years, resprouts were still occurring in September or October, and there was a marked decrease in size of plants in previously-treated areas. Unfortunately, a few new plants were found near an old homestead.

Herbicide Use, Hoh River, (gallons)				
	2008	2009	2010	2011
Acres Treated	1093	1000	Data not available	0.16
AquaMaster or AquaNeat Injected	0.0151	0.188	0.25	0.13
AquaMaster or AquaNeat Sprayed	0.5645	0.13	0.78	0.73
Polaris AQ Sprayed	0.06382	0.043	0.206	0.02
Total Herbicide	0.64342	0.361	1.247	0.88

For more information about knotweed treatment on the Hoh River, please contact Jill Silver, 10,000 Years Institute, at (360) 385-0715 or jsilver@10000yearsinstitute.org.

Appendix I—Herbicide Use-

Organization	River or Location	Gallons Used 2006	Gallons Used 2007	Gallons Used 2008	Gallons Used 2009	Gallons Used 2010	Gallons Used 2011
Quileute Nation & NCEPMT with NPS	Quillayute, Dickey, Calawah & Bogachiel Rivers	101.5	43.97	43.125	98.63	69.55	118.2
CCNWCB & NCEPMT with NPS	Big River and Hoko-Ozette Road	65.39	5.14	2.181	5.12	3.174	0.646
CCNWCB	Sekiu River	10.98	0.3	1.767	0.609	2.35	0.475
CCNWCB	Hoko River	2.6	4.23	2.516	1.541	0.56	0.285
CCNWCB	Sekiu, Clallam Bay and Hwy 112	17.9	9.79	3.28	0.605	0.5	0.185
CCNWCB	Clallam River	0	35.09	3.28	2.58	0.93	1.87
CCNWCB and Merrill and Ring	Pysht River	1.2	0.72	0.005	0.005	0.01	0
CCNWCB & NCEPMT with NPS	Sol Duc River (mid)	14.05	12.725	7.636	1.627	0	0
CCNWCB	Lake Creek, Lake Pleasant and Beaver	0	27.09	0.82	1.062	0	0
Quileute Nation	Sol Duc River (lower)	0	9.656	6.67	0.945	1.26	0
CCNWCB	Forks	2.5	4.25	1.662	0.468	0	0
CCNWCB	Valley Creek	2.3	1.52	0.063	0.023	0.01	0
CCNWCB	Peabody Creek	0	0	0	1.98	0.14	0
NCEPMT with NPS	Ennis Creek	0	0.68	1.34	1.91	3.641	<1
CCNWCB	Lees Creek	0	0	0	0	0	0.48
CCNWCB	Bagley Creek	0	0	0	0	0	0.97
Jamestown S'Klallam Tribe	Dungeness River	30	<2	1.5	0	0	0
JCNWCB & CCNWCB	Snow Creek and Salmon Creek	0.745	0.408	1.33	1.714	0.43	0
JCNWCB	Port Townsend and other Jefferson County sites	0	0	2.212	0.49	1.047	5.96
East Jefferson WCC Crew	Big Quilcene River	0	0	5.66	18.291	32.37	9.77
East Jefferson WCC Crew	Little Quilcene River	0	0	0	0.6	0.1	0
JCNWCB, CCNWCB & East Jefferson WCC Crew	Dosewallips and Duckabush Rivers,	1.145	6.375	3.92	0.234	8.503	0.58
JCNWCB & CCNWCB	Fulton Creek	0	0	0	0.5	0.11	0
Mason Conservation District and Mason County NWCB	Skokomish River and others	N/A	N/A	N/A	N/A	17.57	N/A
Hood Canal Salmon Enhancement Group	Union, Dewatto and Tahuya	N/A	N/A	N/A	25.56	27.16	10.98
Quinalt Indian Nation crew and NCEPMT with NPS	Queets, Clearwater, Prairie Creek, Lake Quinalt and the Lower Quinalt watershed	N/A	N/A	N/A	N/A	12.652	N/A
10,000 Year Institute & NCEPMT with NPS	Hoh River	2.36	1.23	0.643	0.361	1.247	0.88
TOTAL		260.49	169.66	92.331	165.6	186.864	152.28

NCEPMT with NPS = North Cascades Exotic Plant Management Team with the National Park Service.

The overall herbicide appears reduced, but since figures for the Quinalt Indian Nation's work are unavailable, this is misleading.

Appendix II—Table of all Landowner Agreements with Clallam and Jefferson NWCBs

Watershed	Existing Agreements	New Agreements, 2011	Number of Parcels	Note
Big River and Hoko-Ozette Road	5	6	35	Several parcels have changed hands, some agreements have expired, most have been renewed but some not.
Sekiu River	6	0	10	
Hoko River	8	0	34	The large number of parcels is because two timber companies and Washington State Parks all hold multiple parcels
Sekiu, Clallam Bay and Highway 112	49	0	68	
Clallam River	11	0	20	
Pysht River	1	0	2	
Sol Duc River	39	0	93	
Lake Creek, Lake Pleasant and Beaver	10	0	25	
Forks	22	0	30	
Elwha River	3	0	4	
Valley Creek	1	0	1	
Peabody Creek	15	0	25	
Ennis Creek	14	14	49	
Lees Creek	0	19	27	
East Fork Lees Creek	0	11	13	
Morse Creek	0	28	48	
Bagley Creek	0	24	43	
Siebert Creek	0	12	25	
Snow Creek	9	0	10	
Port Townsend	1	0	7	
Lake Leland	5	0	6	
Big Quilcene River	20	2	31	
Little Quilcene River	4	0	4	
Tarboo Creek	0	2	3	
Spencer Creek	1	2	3	
Dosewallips River	19	0	33	
Fulton Creek	1	0	1	
Queets/Clearwater	0	14	150	The large number of parcels is because timber companies and Washington State Department of Natural Resources all hold multiple parcels
Total	244	134	800	

Note that because some of our agreements cover multiple watersheds we have tried not to enlarge the record by counting agreements twice. For example, if Rayonier has parcels in both the Big River and the Hoko River, that agreement has been counted only once.

This table summarized agreements held by Clallam and Jefferson NWCBs. Agreements held by other programs are not included.

Appendix III—Contact Information

This list encompasses agencies treating knotweed. Please see our website for past and present working group attendees and their contact information—www.clallam.net/weed

Clallam County

Cathy Lucero—Noxious Weed Control
Coordinator
360-417-2442
clucero@clallam.co.wa.us

Jefferson County

Eve Dixon—Noxious Weed Control
Coordinator
360-379-5610 ext 205
edixon@jefferson.wa.us

Mason County

Pat Grover—Noxious Weed Control
Coordinator
360-427-9670 ext 592
PatriciaG@co.mason.wa.us

Gray's Harbor County

Nancy Ness—Noxious Weed Control
Coordinator
360-482-2265
nancy.ness@wsu.edu

Mason Conservation District

Evan Bauder
360-427-9436 ext 13
evan@masoncd.org

Quileute Tribe

Frank Geyer
360-374-2027
frank.geyer@quileutenation.org

Makah Tribe

Rob McCoy
360-645-3058
makahwildlife@centurytel.net

Lower Elwha Klallam Tribe

Mike McHenry
360-457-4012 ext 14
mike.mchenry@elwha.nsn.us

Jamestown S'Klallam Tribe

Hilton Turnbull
360-681-4603
hturnbull@jamestowntribe.org

Quinault Indian Nation

Jim Plampin
360-276-8215 ext 290
jplampin@quinault.org

North Cascades Exotic Plant Management Team with the National Park Service

Dan Campbell
360-565-3076
dan_campbell@nps.gov

US Forest Service (Olympic Region)

Cheryl Bartlett
360-956-2283
cbartlett@fs.fed.us

10,000Years Institute

Jill Silver
360-385-0715
jsilver@10000yearsinstitute.org

Hood Canal Coordinating Council

Luke Cherney
360-301-9565
lcherney@hccc.wa.gov

Hood Canal Salmon Enhancement Group

Mendy Harlow
360-275-9722
mendy@hcseg.org

Cascade Land Conservancy

Elsa Sargent
206.905.6954
esargent@forterra.org

North Olympic Salmon Coalition

Sarah Doyle
360 379-8051
sdoyle@nosc.org

Pacific Coast Salmon Coalition

Carl Chastain
360-374-8873
pacsac@olyphen.com

Appendix IV—Workshop Poster

GOT KNOTWEED? WANT TO GET RID OF IT?

Clallam County is offering FREE workshops to help you

Knotweed is one of the toughest, nastiest weeds around and it is VERY hard to get rid of. It crowds out native plants, destroys fish and wildlife habitat, interferes with recreation, can ruin your septic or other structures, and can lower land values. Fighting it without the right equipment can be frustrating. This workshop will give you the knowledge and tools you need.



Dates and Locations:

June 30, 2-4 pm
Brinnon Community
Center
306144 Hwy 101
Brinnon WA 98320

July 14, 2-4 pm
Quilcene Community
Center
294952 Hwy 101
Quilcene WA 98376

August 11, 4-6 pm
Commissioners' Meeting
Room
Clallam County Courthouse
223 E Fourth Street
Port Angeles WA 98362

July 28, 2-4 pm
Sequim Prairie Grange
290 Macleay Road
Sequim WA 98382

August 18, 2-4 pm
Sportsman's Club
Sportsman's Club Road
Forks WA 98331

Find out:

- How knotweed grows and spreads and what its impacts can be
- What methods you can use to control knotweed
- How to borrow tools and get supplies for controlling knotweed on your own land

This is a hands-on workshop with practical knotweed control tips. Participants will be able to borrow stem injectors or backpack sprayers, and to receive supplies for knotweed control on their property. Two pesticide licensing credits will be given.

Please contact us if you are interested in attending, or if you would like more information:

360-417-2442
edixon@co.clallam.wa.us

