WATER BANKING CASE STUDY: DUNGENESS WATER EXCHANGE

Amanda Cronin
Washington Water Trust
Rural Water Supply Work Group
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Washington Water Trust works to improve and protect stream flows and water quality throughout Washington, benefiting agriculture, fisheries and wildlife by using innovative, market-based transactions and building cooperative partnerships.
**WWT WORK IN THE DUNGENESS BASIN**

<table>
<thead>
<tr>
<th>Activity</th>
<th>When Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basin outreach and participation in local work group</td>
<td>2008-2014</td>
</tr>
<tr>
<td>Leasing program with DWUA commenced</td>
<td>Feb 2009</td>
</tr>
<tr>
<td>Phase 2 Contract with County- Formalizing mitigation strategy, Revisiting 2001 WUA memo, MOA w/County and WUA, cost benefit analysis, multi-criteria analysis</td>
<td>2010</td>
</tr>
<tr>
<td>Mitigation Plan submitted to Ecology</td>
<td>Dec 2013</td>
</tr>
<tr>
<td>Dungeness Water Rule effective</td>
<td>Jan 2013</td>
</tr>
<tr>
<td>First building permits approved with mitigation</td>
<td>February 2013</td>
</tr>
</tbody>
</table>
- 4 ESA Listed Fish
- Development Pressure
- 6,000 acres of irrigation
- 14 inches of rain annually
Water Challenges in the Dungeness

- Surface and groundwater rights are fully allocated
- SW flows insufficient for instream flow needs and economic growth
- New groundwater requests are threatening existing water users
- Late season low flows are limiting stream and fish health
- Economic growth potential is hampered by water scarcity
DUNGENCESS INSTREAM FLOW RULE
WAC 173-518

- Formally closes surface water allocations, with the exception of some high spring flows
- Sets instream flows on mainstem and small streams
- Requires new GW allocations to mitigate impacts to SW flows – including exempt wells
- Requires meters on all future uses
- Provides two choices for how to obtain mitigation:
  - submit your own plan to Ecology; or
  - use the Exchange
How Does A Water Bank Work?

Water Bank as Broker

Supply

*Sellers: water right holders*

Typical Functions

- Certifies validity of water rights
- Sets rules/criteria for bank
- Sets prices
- Matches buyers and sellers
- Determines priorities for banking transactions

Demand

*Buyers:*

- Mitigation for new water use
- Flow restoration
Dungeness Water Exchange: Scope of Trading

Potential Sellers
- Right holders
  - Irrigators
  - GW users
- Offsets
  - Reclaimed water
  - Recharge
  - Storage

Potential Buyers
- Restoration
- City
- PUD
- Small GW uses
- Exempt Wells
DUNGENESS WATER BANK OBJECTIVES

• **Restoration Goal** – Ensure a minimum flow of 105 cubic feet per second in the low flow season in the mainstem Dungeness River

• **Mitigation Goal**- Provide water for water mitigation to meet the needs of future individual exempt well holders and municipal water use as supply allows
Dungeness Water Exchange
As Envisioned by Local Leaders

Exchange Water Projects
- Water Right Leases
- New Water Storage
- Reclaimed Water
- Irrigation Efficiencies
- Water Right Purchases
- Shallow Aquifer Recharge
- Groundwater Well Retirement

Restoration Funds
- Public Sources
  - Watershed Implementation
  - State Appropriation
  - Salmon Recovery Board
  - Federal Grants
  - Puget Sound Partnership
- Private Sources
  - Individual Donations
  - Corporate Sponsorships
  - Tribal Donations

Mitigation Funds
- Private Sources
  - Builders/Homeowners
  - Property Developers
  - Other new GW Users
- Public Sources
  - City Payments
  - PUD Payments
  - State subsidies

Environmental Restoration
(Dungeness River flows)

Environmental Sustainability

Economic Development
(new groundwater uses)
Dungeness Subbasins

Dungeness Watershed, Clallam County, WA

Strait of Juan de Fuca

Port Angeles

City of Sequim

(Source Photo: 2009 NAIP)

Prepared by
WASHINGTON WATER TRUST

Working to restore rivers and streams in Washington state

April 11, 2011

[Map showing various subbasins with labels such as Cave Frontal, Dungeness Harbor, Matriotti Creek, and others.]
Questions That we Asked Prior to Designing the Mitigation Program

- What are the critical windows for flow for fish in the River? During and outside the irrigation system?
- What are the critical reaches for fish on the river?
- Is there a need to mitigate in tributaries? What about in small streams draining directly to the Straits?
- What type of mitigation is acceptable for impacts to the river, tributaries and small streams?
CONSIDERATIONS FOR IMPACTS TO MITIGATE IN THE DUNGENESS

- **Amount**: mitigate the consumptive impact of new use
- **Impact**: net change in the groundwater resource
- **Location**: at or above the point of impact across all subbasins
- **Timing**: domestic use must be mitigated on an annual basis but new nondomestic uses must be mitigated during the critical low flow period
## Mitigation Types Considered in the Dungeness Watershed

<table>
<thead>
<tr>
<th></th>
<th>On-Site Mitigation</th>
<th>Off-Site Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Kind Mitigation</td>
<td>Restoring flow in the Dungeness River for flow impacts on the Dungeness River</td>
<td>Restoring flow in the Dungeness River for flow impacts on a small stream</td>
</tr>
<tr>
<td>(Flow)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Out-of-Kind Mitigation</td>
<td>Habitat Restoration in McDonald Creek for flow impact in McDonald Creek</td>
<td>Habitat Restoration in Casselary Creek for flow impacts in Bell Creek</td>
</tr>
<tr>
<td>(Habitat)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
How Does the Exchange Generate Mitigation Credits?

- Acquire water rights from Dungeness Water Users Association: 175 acre feet
  - 30 AF instream late season
  - 145 AF aquifer recharge
- Implement aquifer recharge projects
Mitigating Impacts in Small Streams

- Small independent streams in the Dungeness present a challenge.
- Finding water for water mitigation in small streams is very difficult due to lack of beneficially used irrigation water rights as a source of supply.
- Consideration of other water management strategies to enhance flow is key to successful mitigation or restoration programs.
Aquifer Recharge Projects

- To be implemented 2014/2015
- Divert flow during spring runoff (2.2 cfs), convey via irrigation ditches
- 2 sites, east and west of the Dungeness River
- Possible use of perforated pipe for infiltration
- Use groundwater model to select sites and predict impacts
## Using the Groundwater Model as a Tool
### Predicting the Amount of Surface Water Capture

<table>
<thead>
<tr>
<th>Parcel #</th>
<th>Bagley Creek</th>
<th>Bell Creek</th>
<th>Cassalery Creek</th>
<th>Dungeness River</th>
<th>Giering Creek</th>
<th>Matriotti Creek</th>
<th>McDonald Creek</th>
<th>Meadowbrook</th>
<th>Siebert Creek</th>
<th>Impact (Shallow Aquifer)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>430123400501000</td>
<td>0.002%</td>
<td>0.65%</td>
<td>21.3%</td>
<td>66.32%</td>
<td>9.8%</td>
<td>0.88%</td>
<td>0.044%</td>
<td>0.874%</td>
<td>0.002%</td>
<td>92.580%</td>
<td></td>
</tr>
</tbody>
</table>
## Available Domestic Mitigation Packages

<table>
<thead>
<tr>
<th>Package Description</th>
<th>Average Amount of Indoor Use (GPD)</th>
<th>Average Amount of Outdoor Use (GPD)</th>
<th>Amount of irrigated lawn Area (Square Feet)</th>
<th>Amount of irrigated lawn Area (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor Only Package: $1000 (minimal incidental</td>
<td>150</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>outdoor use only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indoor with Basic Outdoor Package: $2000</td>
<td>150</td>
<td>89</td>
<td>2500 sq. ft. (approx. 50x50 ft)</td>
<td>.06 acres</td>
</tr>
<tr>
<td>Indoor with Extended Outdoor Package: $3000</td>
<td>150</td>
<td>200</td>
<td>5625 sq. ft. (approx. 75x75 ft)</td>
<td>.13 acres</td>
</tr>
</tbody>
</table>
Steps for Obtaining Mitigation Through the Exchange

1. Start the County building permit application process.

2. If you want to use outdoor water, contact the Exchange directly.

3. Contact a well driller and drill well (if one is not already drilled) to demonstrate adequate water is physically available.

4. Record all Mitigation Certificates on the specific parcel with the County Auditor.
   - The Mitigation Certificate will be attached to the specific parcel and cannot be transferred.

5. Deliver a copy of the notarized Mitigation Certificate to DCD.

6. Install a meter (as required by Ecology) as part of the plumbing system.
MITIGATION ISSUED SO FAR

Since January 2013

• 50 Mitigation certificates
  – 42 Indoor Only
  – 2 Indoor with basic outdoor mitigation certificates issued
  – 6 Indoor with extended outdoor mitigation certificates issued

• One mitigation certificate sold to the local PUD to mitigate for a POD change

• Stock water mitigation certificates also available
EXCHANGE ADVISORY COUNCIL

WWT will be responsible for day-to-day management. A local advisory board will include:

- Dungeness Water Users Association
- Clallam County
- Jamestown S’Klallam Tribe
- Ecology
- Clallam PUD
- City of Sequim
- WA. Dept of Fish and Wildlife
- Clallam Conservation District
LESSONS LEARNED

- Net instream benefit results from linking flow restoration and groundwater mitigation for exempt wells
- Finding water for water mitigation in western WA requires creativity
- Living and dying by the groundwater model has advantages and disadvantages
- Involvement of key players = critical to success (State & local)
- Start-up cost, time, effort = significant
- Integrating mitigation into the building permit process is key to success
Thank you! Questions?

Amanda Cronin
amanda@washingtonwatertrust.org

Western WA Office
1530 Westlake Ave N, Ste 400
Seattle, WA 98109
206.675.1585 x100

Eastern WA Office
222 East 4th Ave, Ste 109
Ellensburg, WA 98926
509.925.5600