

BIG LAKE MITIGATION PLAN

Introduction

This mitigation plan supports the establishment of the Big Lake Water Bank (water bank), which will facilitate the exchange of mitigation water to support limited existing and new water uses in the Nookachamps subbasin of the Skagit River Basin. The water bank was seeded with three water rights that historically served the Big Lake Water Association (BLWA) and were placed into the Department of Ecology's (Ecology's) trust water program. In total, 15 acre-feet/year (afy) will be available for new and existing uses, including those homes built and reliant upon water reserved in the invalidated 2006 amendment to the *Instream Resources Protection Program – Lower and Upper Skagit Water Resources Inventory Area* (WAC 173-503).

This mitigation plan describes the Skagit River Basin water resources management context and drivers for water bank development and outlines how the water bank will be designed and operated within the Nookachamps subbasin.

Background

In 2001, Ecology established instream flow levels in rule (WAC 173-503) to help protect the ecosystem of the Skagit River. In 2006, the rule was amended in response to a Skagit County lawsuit claiming that the rule did not provide adequate guarantees of future water for Skagit property owners. The amendment established reservations of water, not subject to the instream flows, for future out-of-stream uses.¹ The reservations provided uninterrupted (year-round) water supplies for new domestic purposes, among others. They were effective as of the original date of the rule, April 14, 2001.

Ecology created the reservations under the theory that limited reservations would not substantially harm fish populations. In *Swinomish Indian Tribal Community v. Department of Ecology*, the Swinomish Tribe challenged the establishment of the reservations and on October 3, 2013, the Washington Supreme Court agreed with the Tribe and ruled that Ecology cannot set aside reservations of water through adoption of water management rules where water was previously set aside to support stream flows for fish. Therefore, the 2006 rule amendment was determined to be invalid by the court and the original 2001 rule was reinstated.

The ruling created legal uncertainty for the water use of many homes built between April 2001 and October 2013.² Moreover, the decision halted issuance of new building permits in much of Skagit County because mitigation was required to offset impacts to regulated surface water bodies and any groundwater withdrawals in hydraulic continuity with these surface waters. The Big Lake Water Bank offers a mitigation solution for a subset of those impacted by the court's ruling.

¹ A *reservation* of water is a finite amount of water set aside (on paper) for specific uses. They are a tool for helping balance the needs of people and those of the environment.

² As explained in the "Purpose" section, below, Skagit County does not agree or consent that mitigation to offset water use by existing landowners is legally required.

In 2013, Ecology acquired the three BLWA water rights and put them into trust water rights program for the purposes of groundwater preservation, instream flow augmentation, and mitigation for new groundwater uses. These three water rights seed this mitigation program.

Purpose

The purpose of this water bank is to mitigate for a limited amount of existing and new consumptive use stemming from residential well development in the Nookachamps subbasin. Specifically, this water is intended to mitigate for impairment to the Skagit River when instream flows drop below the minimums established in WAC 173-503. On average, instream flows on the Skagit River have not been met 95 days per year in each of the past 28 years. In practice, this bank will provide mitigation water year round, both when flows are met and when they are not. This will be a net benefit to Nookachamps Creek.

The water bank has goals for two subsets of water users: (1) provide mitigation to parcels that were issued a county building permit between 2001 and the court's decision in 2013 on the assumption that water was available³ and (2) offer a limited quantity of mitigation water to prospective new users within the subbasin, as defined in Figure 1 (Appendix A). These two subsets will be referred to as "existing users" and "future users."

Skagit County does not agree that mitigation is required for landowners who put water to beneficial use prior to October 3, 2013. Thus, Skagit County's involvement in this mitigation program is limited to providing assistance to Ecology in the context of potential new water users. However, Skagit County does not oppose Ecology working directly with the pre-2013 water users.

Water Bank Design

Available Mitigation Water

The water bank will be seeded with three water rights originally issued to the BLWA. Ecology purchased these water rights in 2013 and, per RCW 90.03.380 and 90.44.100, put the highest historically perfected quantity into the trust water rights program for the dual purposes of streamflow augmentation and future mitigation. As discussed in their respective Reports of Examination (ROEs), Ecology approved 15 afy for mitigation purposes (see Table 1).

³ After the 2001 rule was announced, approximately 475 residences and eight businesses applied for and received county approval to develop new water uses in the Skagit River Basin. Of these, 17 residences fall within the Nookachamps subbasin mitigation area and may impact Nookachamps Creek. When the 2006 rule amendment was overturned, these water users faced uncertainty regarding the availability of a legal water source. Ecology committed to securing a mitigation source for these subset of water users to ensure a legal water use.

Table 1. BLWA Trust Water Rights and Available Mitigation Credit

Water Right Control Number	Source Right	Instantaneous Rate (gpm)	Annual Quantity (Qa in afy)		
			Mitigation	Groundwater Preservation and Instream Flow Augmentation	Total
CG1-22387C	G1-22387C	13	4.50	5.57	10.07
CG1-22388C	G1-22388C	14	4.95	6.12	11.07
CG1-22389C	G1-22389C	16	5.55	6.87	12.42
Totals		43	15.00	18.56	33.56

Future Mitigation Water

Opportunities to add mitigation water to this bank will be assessed on a case-by-case basis. The extent and validity of any future water rights would be evaluated as part of the trust water right process and Ecology would make a determination on where future credits could be applied. This mitigation plan will be amended if additional water is added to the bank.

Approved Mitigation Area

Ecology conducted a hydrogeological investigation and developed an area approved for future mitigation for the BLWA water rights. This water can be used as mitigation in the Nookachamps Creek subbasin, down-gradient of the former BLWA points of withdrawal, for wells completed in the advance outwash deposits⁴ or in the Skagit alluvium near the Nookachamps Creek delta. The investigation and corresponding map show that only the portion of the subbasin downstream of Big Lake can be satisfied from the mitigation available from the water bank (Figure 1, Appendix A).

The delineated area includes 17 existing water users who relied on water set aside in the now invalidated Skagit Instream Flow Rule reservations. These parcels are eligible for mitigation from the water bank. Ecology and Skagit County are aware of 18 other properties in the mitigation area that have made inquiries about building permits.

Mitigation Credit Allocation

As discussed above, 15 afy is currently available for mitigation. This total quantity will be allocated for existing and new residential uses, based on reasonable assumptions about average indoor and outdoor use and the consumptive rates of each in this subbasin.

Indoor Use. Absolute indoor water use varies across households based on the number of individuals per residence, water use habits, appliance efficiencies, etc. In addition, the consumptive quantity varies significantly based on whether a residence is connected to sewer or a septic system. To determine a reasonable average indoor use calculation for this subbasin, this mitigation plan looked at a 2012/13 metering study conducted in this subbasin, and the historical per residence allocation in the BLWA change ROEs.

⁴ The physical characteristics, lateral extent, depth and thickness of the advance glacial outwash are described in [United States Geological Survey Scientific Investigations Report 2009-5270](#).

In 2012, Skagit County, Ecology, and the City of Anacortes funded an exempt well metering study within the Upper Nookachamps and Fisher-Carpenter subbasins of the Skagit River watershed. The goal of the study was to track indoor and outdoor water use within these subbasins. The study found that average annual daily water use of the 18 volunteer properties was 176 gallons/day (0.197 afy), including indoor and outdoor use. A smaller subset of the volunteers separately tracked indoor and outdoor use and the average annual indoor use for 12 properties was 131 gallons/day and 33 gallons/day for outdoor use (see Golder Associates’ October 2013 Technical Memorandum on the Skagit County Exempt Well Metering Program).

The study also evaluated a range of property characteristics among volunteers to determine how representative they were in relation to other properties within the two basins. The study concluded that the 18 volunteer parcels were, as a whole, representative of properties within the subbasins that were not monitored.

As another indoor use data point, the BLWA change ROEs estimated historical indoor and outdoor use within the service area. Based on a series of assumptions discussed in the three BLWA change ROEs, indoor use within the BLWA service area was estimated at 198 gpd per household (0.222 afy). These numbers are based on reasonable assumptions on historical use; however, no metering data exist.

Ecology believes that 0.196 afy or an average of approximately 175 gpd per household is a conservative (i.e., high) indoor use allocation that is protective of the water resource and accounts for variability in water use across residences in this watershed over time. For the purposes of accounting, the annualized quantity will be rounded to 0.2 afy. The actual quantity of water that would be debited for indoor use depends on the water disposal system and is found in Table 2.

Table 2: Indoor Consumptive Use by Method of Disposal

Metric	Septic⁵	Sewer
Pumping Volume	175 gpd	
	63,875 gallons/year	
	~0.2 afy	
Consumptive Portion	10%	100%
Consumptive Use	6,387.5 gallons/year	63,875 gallons/year
	~0.02 afy	~0.2 afy

⁵ For houses on septic systems, Ecology used a 10 percent consumptive rate for indoor use. This is the rate that was used in the Elwha-Dungeness instream flow rule (WAC 173-518) and is the standard consumptive use rate used by Ecology. See Culhane and Nazy (2015): <https://fortress.wa.gov/ecy/publications/documents/1511006.pdf>

Outdoor Use. This mitigation plan relies on the U.S. Department of Agriculture’s Natural Resources Conservation Service-produced Washington Irrigation Guide (WAIG)⁶ to calculate consumptive irrigation use for outdoor irrigation, and relies on the following assumptions:

- The Sedro-Woolley weather station is generally reflective of precipitation and temperatures within the Nookachamps subbasin.
- The crop irrigation requirements for pasture/turf irrigation (11.12 inches) represents the highest likely residential outdoor water use.
- Pop-up impact sprinklers with an average irrigation efficiency of 75 percent are a reasonable proxy for the average residential irrigation system.

Based on the WAIG variables and calculations, this mitigation plan uses 85 percent as the outdoor use consumptive rate.

Table 3 shows that to meet the requirements for irrigating a 0.13-acre lawn in the Nookachamps subbasin, the water bank should allocate approximately 0.16 afy (~143 gpd) towards outdoor irrigation. Based on aerial photographs and parcel information for lots in this subbasin, Ecology believes that this lawn size is a reasonable estimate for a fully-irrigated lawn size.

Table 3. Calculation of Total Irrigation Requirement for Turf near Sedro-Woolley

Area irrigated	0.13 acres (5,625 ft ² or ~75ft x 75ft)
Irrigation Application Efficiency	75%
Crop Irrigation Requirement	11.12 in (0.93 ft)
Consumptive Rate	85%
Total Consumptive Use	~0.14 afy
Return Flow Rate	15%
Total Return Flow	~0.02 afy
Total Irrigation Requirement	~0.16 afy (143 gpd)

Ecology believes that 0.36 afy is a reasonable and generous per residence allocation from the water bank, with the assumption that approximately 0.2 afy or 175 gpd would be allocated for indoor use and 0.16 afy or 143 gpd allocated for outdoor use. Thus, for the purposes of mitigation credit accounting, 0.36 afy will be used as the mitigation credit allocation and the actual consumptive quantity debited from the bank will be the fully consumed portion of indoor use (10 or 100 percent based on septic or sewer) and outdoor use (85 percent, based on the average irrigation efficiency of a pop-up sprinkler system).

Based on this allocation and accounting for the varied consumptive rates of septic vs. sewer, the Big Lake Water Bank can mitigate up to 96 existing and future uses within the described mitigation area.

⁶ U.S. Department of Agriculture, Natural Resources Conservation Service Washington Irrigation Guide (updated 1997): https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_035205.pdf

Implementation

The water bank will prioritize mitigation water for existing users. Once existing users are accounted for, the water bank can provide mitigation water to offset new residential development within the mitigation area. By partnering with Ecology on implementing this Mitigation Plan, Skagit County neither implicitly nor explicitly, agrees that “existing users” have any uncertainty regarding the legal status of their water use.

Mitigation Costs

Ecology does not currently have the legal authority to recover costs for the water rights purchased or administration of the water bank in this watershed. This water bank will operate differently from other water banks in the state. The Washington State Legislature provided funds aimed at developing water solutions in the Skagit Basin and these funds have covered some but not all of the funding necessary to seed, design, and manage the water bank.

While Ecology cannot recover capital or operating expenses related to work on this water bank, it can require that future users pay for water right processing through Ecology’s cost reimbursement program. At this time, Ecology reserves the right to require future users to pay a one-time permit processing cost. Existing users will not be required to pay for processing.

Existing Users

The 17 existing users included in Table 4 will be allocated 0.36 afy and debited 0.156 afy from the water bank. Ecology, in consultation with Skagit County, has tracked building permits that were issued between the adoption of the Skagit Instream Flow Rule in 2001 and the *Swinomish v. Ecology* decision in 2013. In the water bank mitigation area, there are approximately 17 residential parcels eligible for immediate mitigation.⁷ Information on these parcels, including the parcel number and associated mitigation allocation based on the water disposal system, are shown in Table 4.

Ecology will issue a “Proof of Mitigated Water Supply” to each existing user (17 residential parcels). Ecology will recommend that the user record this document on the property title and provide a copy of the recorded document to Skagit County Planning & Development Services.

⁷ Additional parcels in this category may be identified after this document is issued. If a property owner within the approved mitigation area can show, to the satisfaction of Ecology, that they fall into the “existing user” category, Ecology will debit their use from this bank and provide the water user with a “Proof of Mitigated Water Supply.”

Table 4. Mitigation Accounting for Existing Water Users

Skagit County Parcel Number	Mitigation Allocation (afy)		Disposal System	Debited Quantity (afy)
	Indoor	Outdoor		
P124168	0.20	0.16	Septic	$(0.20 \times 0.1) + (0.16 \times 0.85) = 0.156$
P119250	0.20	0.16	Septic	0.156
P121051	0.20	0.16	Septic	0.156
P124169	0.20	0.16	Septic	0.156
P27815	0.20	0.16	Septic	0.156
P27632	0.20	0.16	Septic	0.156
P124328	0.20	0.16	Septic	0.156
P121035	0.20	0.16	Septic	0.156
P27825	0.20	0.16	Septic	0.156
P130850	0.20	0.16	Septic	0.156
P121564	0.20	0.16	Septic	0.156
P27753	0.20	0.16	Septic	0.156
P127062	0.20	0.16	Septic	0.156
P27751	0.20	0.16	Septic	0.156
P27680	0.20	0.16	Septic	0.156
P27714	0.20	0.16	Septic	0.156
P118342	0.20	0.16	Septic	0.156
Total AFY Debited from Water Bank				2.652 AFY

Future Users

Properties within the delineated mitigation area that are not currently served by Skagit County Public Utility District No. 1 are eligible for mitigation from the water bank.⁸ Skagit County will contact the owners that have previously inquired about available water in the mitigation area. These landowners will be given priority for processing their request for a mitigated water supply. Applications will be accepted from all landowners on a first come, first served basis for individual residential use only. One “Proof of Mitigated Water Supply” will be issued per legal lot.

Ecology will coordinate with Skagit County and outline the mitigation area, quantity of water available, and process for water bank accounting. As part of the building permit process, Skagit County and Ecology will work together to assure that mitigation water is available and properly accounted for at the county and state levels. The steps include:

1. Ecology sends Skagit County a technical assistance transmittal letter along with this Big Lake Mitigation Plan.

⁸ Skagit County Code has certain requirements to connect to a public water supply for projects relying on a domestic groundwater system, located within a half mile of Nookachamps Creek. These specific conditions for future users are outlined in Skagit County Code 14.24.340(3).

2. For each prospective project, Skagit County works with Ecology or with Ecology-developed tools to evaluate mitigation suitability for residential development and permit applications within the approved mitigation area.
3. Ecology and Skagit County issue a “Proof of Mitigated Water Supply” and Skagit County requires the user to record the document on the property title and provide a copy of the recorded document to Skagit County Planning & Development Services before a building permit is issued.
4. Ecology tracks these new uses and issues an annual accounting report (see “Accounting” section below).

Future users, like existing users, will be allocated a flat annual quantity of 0.36 afy per residence. The actual debited quantity will differ based on the water disposal method. The property owner must submit a complete building permit application to the County within one year of recording the Proof of Mitigated Water Supply. A water meter must be installed and inspected as part of the plumbing inspection within one year of the date that the building permit is issued. If these actions do not occur, Skagit County and Ecology will credit this quantity back to the water bank and a document will be recorded on the property owner’s title stating that the Proof of Mitigated Water Supply is no longer valid. No extensions or renewals will be granted, but future users may reapply.

Accounting

Pursuant to RCW 90.42.170, the Department of Ecology will use an online platform that is transparent and enables the public to track the Big Lake Water Bank mitigation accounting. In addition to quarterly website updates, Ecology will issue an annual report that: (1) shows the balance of available mitigation credits, (2) identifies any new water that has been added to this water bank, and (3) accounts for any changes in consumptive use (e.g., a residence switches from septic to sewer). This information will be available on Ecology’s *Tracking Washington Water Banks* website: <https://ecology.wa.gov/Water-Shorelines/Water-supply/Water-rights/Trust-water-rights/Water-banks/Tracking-water-banks>.

Other information about this bank will be available on Ecology’s Skagit River water solutions website: <https://ecology.wa.gov/Water-Shorelines/Water-supply/Protecting-stream-flows/Instream-flow-implementation/Skagit-River-basin-projects/Developing-solutions>.

Metering and Monitoring

As a condition of this mitigation program, Ecology will require all new users to install a remote read meter (e.g., cellular based telemetry) and report water use. Ecology will collect and manage the metering data unless another public entity performs this work under agreement with Ecology. Ecology or Skagit County may add terms to the metering provisions, including outlining meter specifications and reporting requirements.

Existing users will not be required to meter for uses established between April 14, 2001 and October 3, 2013. Any requested new domestic water use (e.g., additional plumbed building) beyond uses established between April 14, 2001 and October 3, 2013, will require installation

and maintenance of a remote-read metering system at the approved well location, to show compliance with the per connection allocation allowed under this Mitigation Plan and the water use assumptions described therein.

Compliance and Enforcement

Ecology's compliance priority is to balance the water bank rather than to enforce at the individual level. If Ecology determines that a water user is willfully and significantly exceeding their allocated quantity, Ecology will pursue escalating levels of enforcement: (1) technical assistance, (2) warning letter, (3) compliance order / penalty.

Conclusion

This mitigation plan outlines how the Big Lake Water Bank will operate and how mitigation credits will be allocated and processed. Ecology reserves the right to amend elements of or to suspend this mitigation plan. In addition to adding new water rights to this bank, other events that may lead to an amendment or suspension include, but are not limited to:

- Mount Vernon annexes areas approved for future mitigation from this water bank. An annexation could result in affected areas being removed from the area approved for future mitigation.
- Sewer lines are extended in the area approved for future mitigation, thereby changing the consumptive rate for indoor use (i.e., 10 percent would change to 100 consumptive). Ecology may suspend the mitigation program while it assesses whether additional water is available for future mitigation purposes.
- Ecology reviews aggregate metering data and determines that the allocation assumptions used in this Mitigation Plan do not align with actual use. After collecting one year of metering data from each of at least ten new users, Ecology may adjust the per connection allocation to better reflect actual use.

YOUR RIGHT TO APPEAL

You have a right to appeal this decision by filing a petition for review in Superior Court under the Administrative Procedure Act, RCW 34.05 (APA). This decision constitutes “other agency action” under RCW 34.05.570(4). To challenge this decision by filing a petition for review you must comply with all applicable requirements in the APA.

Appendix A: Big Lake Water Bank Approved Mitigation Area

