

Protecting Guemes Island Groundwater: Applicable County Codes and Strategy Options

The Guemes Island Planning Advisory Committee (GIPAC) prepared this draft to lay the foundation for GIPAC's upcoming work on protection of the island's aquifer. The proposed strategies represent the current thinking of the committee but should be considered a work in progress. Community input and/or questions about this draft paper are welcome and can be sent to the paper's author, Nancy Fox, at nancy@nancyfox.com or Hal Rooks, Chair of GIPAC, hsredfield@gmail.com.

Overview

The fragile nature of Guemes Island's groundwater supply is recognized in a variety of ways in the Skagit County Code. Special regulations apply to wells, alternative water supplies, land division, and land use permits—due to the designation of Guemes Island as a “sole source aquifer,” a “seawater intrusion area,” and an “aquifer recharge area.” In addition, the entire island is a “critical area,” as defined in the Critical Areas Ordinance (SCC 14.24) by virtue of its designation as both an aquifer recharge area and a seawater intrusion area. In 2016, the Guemes Island Planning Advisory Committee (GIPAC) proposed additional code provisions to enhance protections for the island's aquifer and to plug some gaps in the County's enforcement of its existing code.

The purpose of this paper is to identify and reassess the key code provisions that currently protect water resources on Guemes Island. In light of this reassessment, it seeks to review the status of code changes previously proposed by GIPAC and to identify possible directions for GIPAC to work on water issues with the County and the community in 2018 and beyond.

Summary of Key Sections of Existing Code

1. Designations that Affect Guemes Island

Sole Source Aquifer: In 1997, the U.S. Environmental Protection Agency (EPA) designated Guemes Island as a “sole source aquifer.” The EPA defines a sole source aquifer as one that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. The County code recognizes sole source aquifers as any area so designated by the EPA, in compliance with the Federal Safe Drinking Water Act. See SCC 14.04.020.

Aquifer Recharge Area: Guemes Island is designated as a Category 1 Aquifer Recharge Area in the County's Critical Areas Ordinance (SCC 14.24). In SCC 14.24.310(1)(a), “Category I areas are those so designated because of the need for protection due to a pre-existing land use, or because they are identified by the County, State or Federal Government as areas in need of aquifer protection where a proposed land use may pose a potential risk which increases aquifer vulnerability Category I areas include:

- (i) Areas served by groundwater which have been designated as a ‘sole source aquifer area’ under the Federal Safe Drinking Water Act; and
- (ii) Areas identified by the County as potential or existing sea water intrusion areas”

Seawater Intrusion Area: In section SCC 14.24.380(1)(b) of the Critical Areas Ordinance, “The entirety of Guemes Island...” is designated as a seawater intrusion area, where special requirements apply to **the drilling of new wells**, in addition to building permits, special and conditional use permits, shoreline development, variances, and land divisions.

Sensitive Area: Under the County’s Public Drinking Water code, areas where drilled wells have been known to have potential quantity or quality problems are defined as “sensitive areas” (SCC 12.48.030). In sensitive areas, the Public Health Department may require more extensive testing for new wells (SCC 12.48.260). Applications for land divisions in sensitive areas require a water system evaluation for each individual lot (SCC 12.48.240). All of Guemes Island qualifies as a sensitive area by virtue of its designation as a sole source aquifer, an aquifer recharge area, and a seawater intrusion area.

2. Unified Development Code

Within the County Zoning code, the Guemes Island Overlay (SCC 14.16.360) acknowledges the problem of seawater intrusion on Guemes Island. The code prohibits accessory dwelling units any time the water source contains chloride levels greater than 25 ppm. This threshold indicates the early stages of seawater intrusion.

Another key code section is SCC 14.10, which pertains to variances. While not directly addressing wells and water usage, the variance process allows reductions in development standards such as setbacks, which allow larger houses with a greater water demand than what strict application of the code would otherwise allow. Requirements include: the variance must be the minimum that will make possible “reasonable use,” must arise from special conditions of the property not ordinarily found in the same district, and must not confer special privilege to the property owner. Importantly: **“The granting of the variance will be in harmony with the general purpose and intent of this Title and other applicable provisions of the Skagit County Code, and will not be injurious to the neighborhood, or otherwise detrimental to public welfare.”** See SCC 14.10.040(1)(c).

3. Public Drinking Water Code

This code primarily focuses on insuring that an individual house or development will be served by a water source of adequate quality and quantity. The “Sensitive areas” code (SCC 12.48.260) notes that the Skagit County Public Health Department “may require more extensive testing if a proposed well, or a well nearby the proposed well, is in an area where water quantity or quality is poor (e.g., seawater intrusion).”

The Public Drinking Water code (SCC 12.48.250) also addresses “alternative sources” such as rainwater catchment. It states: **“The Skagit County Public Health Department discourages alternative sources.”** It requires documentation of why a well or public water system cannot be used, requires County approval before construction begins, establishes treatment standards, and requires quarterly reporting.

4. Land Divisions Code

Sections of code from Land Divisions (SCC 14.18) apply several restrictions on Guemes Island that are specific to water concerns.

SCC 14.18.310 restricts density in Conservation and Reserve Developments (CaRDs) on Guemes Island. The code states that “there shall be no density bonus for CaRD developments in areas designated as a ‘sole source aquifer,’ except where the source of water is from a public water system whose source is outside the designated area or from an approved alternative water system pursuant to [SCC 12.48].” This is further bolstered by a recently approved code provision that states: “On Guemes Island, open space tracts other than Os-RSV [Open Space Reserve] must be permanently protected by a conservation easement that prohibits future residences or residential accessory uses within the open space tract.” See SCC 14.18.310(5).

SCC 14.18.000(5)(i) states: “A land division within a seawater intrusion area (as defined in SCC 14.24.380) may not propose to use a well where chloride levels are 200 ppm or greater.”

SCC 14.18.100(b)(v) requires an assessment: “If critical areas are present on the site or within 200 feet, a critical areas assessment pursuant to [SCC 14.24]” is required.

5. Critical Areas Ordinance

The Critical Areas Ordinance (SCC 14.24) provides the strongest provisions in County code relating to groundwater protection. All of Guemes Island is a “critical area” by virtue of its designation as both an aquifer recharge area and a seawater intrusion area.

Aquifer Recharge Areas

As noted above, Guemes Island, as a sole source aquifer, is designated a Category 1 Aquifer Recharge Area in the Critical Areas Ordinance. SCC 14.24.300, Aquifer Recharge Areas Intent, states: “This Section establishes areas determined to be critical in maintaining both groundwater quantity and quality.” The intent section further states: “Existing and future beneficial uses of groundwater shall be maintained and protected. Degradation of groundwater quality that would interfere with or become injurious to beneficial uses shall be avoided or minimized.”

Key provisions relating to Aquifer Recharge Areas include:

- Prohibiting “activities that the Administrative Official or Health Officer determines would significantly degrade groundwater quality or reduce the recharge to aquifers currently or potentially used as a potable water source or that may serve as a significant source of base flow to a flow-sensitive basin stream. The determination must be made based on credible scientific information.” See SCC 14.24.320(6).
- Requiring site assessment, (SCC 14.24.330(1)) states: “The level of study for a site assessment which will be required of the applicant by the Administrative Official for a given development will be based on an initial project review by Skagit County Planning and Development Services that may also include staff from the Health Department and a County staff hydrogeologist.” Note that the term

“development” includes drilling that requires County approval, per the Definitions section of the Unified Development Code (SCC 14.04).

- SCC 14.24.330(2)(b) and (c) requires: “A description of the site-specific hydrogeological characteristics regarding potential impact(s) to the quantity or quality of underlying aquifer(s). At a minimum this will include a description of the lithology, depth and static water level of known underlying aquifer(s), and depiction of groundwater flow direction and patterns on the appropriate map; and (c) Identification of the initial receptors of potential adverse impacts located hydraulically down-gradient and within 1,000 feet of the project or as otherwise directed by the Administrative Official or Health Officer.”
- Additionally, SCC 14.24.330(3) may require: “Aquifer characteristics including determination of recharge and discharge areas, transmissivity, storage coefficient, hydraulic conductivity, porosity, and estimate of groundwater flow direction, velocity and patterns for the affected aquifer(s)” and a detailed hydrogeological impact assessment.

Seawater Intrusion Areas

The seawater intrusion policy (SCC 14.24.380) sets well pumping rate limits, monitoring, and conservation requirements, based on the level of chlorides (which is an indicator of seawater intrusion) detected in groundwater samples, for applicants proposing to use wells for building and land division projects.

Key provisions include:

- Applicability. “This Section applies to wells and applications for building permits ...and land divisions in ... the entirety of Guemes Island” See SCC 14.24.380(1).
- “For Wells. **An application proposing use of a well** must include all of the following, **which must be submitted for review prior to drilling any new well ...**” specifying a well drilling plan, land elevation, estimated depth of well, etc. See SCC 14.24.380(2).
- Development standards include: installing a wellhead source meter and sounding tube, restricting pumping rates per code requirements based on distance from the shoreline, and documentation of land elevation as surveyed by a licensed surveyor. See SCC 14.24.380(4).

Critical Areas Review for Hydrogeological Impacts

SCC 14.24.060 requires a review for hydrogeological impacts for all of Guemes Island: “With the exception of activities identified as allowed without standard review under SCC 14.24.070, any land use activity that can impair the functions and values of critical areas or their buffers, including suspect or known geologically hazardous areas, through a development activity or by disturbance of the soil or water, and/or by removal of, or damage to, existing vegetation, shall require critical areas review and written authorization pursuant to this Chapter. Authorizations required under this Chapter overlay other permit and approval requirements of the Skagit County Code. **Regardless of whether a County development permit or approval is required, any proposed alteration that can adversely affect a critical area or its standard buffer must comply with the substantive and procedural requirements of this Chapter.** Critical areas review pursuant to this Chapter shall be conducted as part of the underlying permit or approval, where applicable. It is the responsibility of the landowner, or designee, who conducts or proposes to undertake land use activities that can adversely

impact critical areas or their buffers to obtain County authorization prior to commencing such activities.” **The exempt activities in SCC 14.24.070 specifically reference modification of single family homes not involving an expanded footprint and routine maintenance or repair of potable water systems, but otherwise do not exempt wells in Aquifer Recharge Areas from critical areas review.**

Description and Status of Code Changes Proposed by GIPAC in 2016

In 2016, GIPAC proposed three code amendments relating to water limits on Guemes Island for inclusion in the “docket” of code amendments to be enacted in 2017. One code amendment was included in the docket and adopted by the Board of Commissioners in 2017—the requirement for a conservation easement on CaRD open space. Neither of the other two code amendments was deemed sufficiently developed to be incorporated in the code amendment packet for 2017. However, in both cases the Planning and Development Services Department indicated its intent to consider the proposals in its 2017 work program and to address GIPAC’s issues in County code and/or department practice in 2017. These are the two outstanding proposals:

1. Rainwater Catchment

GIPAC proposed: “Revise code standards and requirements to allow and encourage rainwater catchment systems for potable water on Guemes Island.” This proposal identified various glitches in existing code that represent roadblocks or significant disincentives to the use of rainwater catchment systems for potable water, and sought to resolve these conflicts.

In the one and a half years since GIPAC made this proposal, County staff have expressed their support for rainwater catchment on Guemes Island and have undertaken work to refine the County review process to facilitate approval of rainwater catchment systems. The County has contracted with Western Washington University (WWU) to determine best practices and to develop a template that homeowners could follow in preparing plans for a potable water catchment system. This WWU contract is expected to be completed by mid-2018. GIPAC hopes this will enable the County to facilitate and expedite applications for rainwater catchment systems.

2. Approval Requirement for New Wells

GIPAC proposed: “Amend SCC 14.24.380 (Critical Areas Ordinance, Seawater Intrusion Areas) to require, prior to drilling, a permit application and County approval for any new well to be drilled on Guemes Island. In addition to requiring that plans for new wells be submitted to the County for review and approval prior to drilling, in areas of known seawater intrusion the applicant should be required to conduct a hydrogeologist well impact assessment.”

This proposal was intended to plug an enforcement gap in the Critical Areas Ordinance. Although the seawater intrusion code requires approval of well drilling plans before drilling occurs in seawater intrusion areas, in practice, the County does not review wells until and unless a building permit application is submitted. History on Guemes Island shows that new wells have been drilled without any relationship to a building permit application. This means the County does not “review” the well until after it is drilled, if at all. Hydrologic impacts cannot be mitigated after the fact.

In 2016, the Board of County Commissioners agreed to take up this proposal in the Planning and Development Services Department’s work program, rather than incorporating GIPAC’s suggested code language in the 2016 docket of code amendments. Since that time, staff have

indicated that this issue would need to be addressed in a larger overhaul of the County's Drinking Water Code. To GIPAC's knowledge, no work has yet begun on this topic.

Proposed Strategy

A close reading of the existing Skagit County Code shows that the County already has the authority, and arguably the legal obligation, to review and mitigate the hydrologic impacts of new wells on Guemes Island. While code revisions specifying this and establishing review procedures would be beneficial, they are not required before the County can and should implement a review process that includes impact assessment for any new wells on Guemes.

Protecting groundwater resources on Guemes Island for existing and future users will require a multipronged effort involving proactive action by the County, GIPAC, and the Guemes community. The following are suggested as possible elements of an updated strategy for GIPAC to undertake in 2018 and in following years.

1. Ask the County to **undertake critical areas review beginning immediately for any new well** on Guemes Island, as required by the Critical Areas Ordinance, which designates the entire island as a critical area, an aquifer recharge area, and a seawater intrusion area. The County must establish review procedures and reach out to well drillers in the area to ensure enforcement of this code. The County's hydrogeologist will need to detail the standards for hydrologic review of new wells. The County's Critical Areas Checklist—the first step in development review—should be amended to ask, "Is the project served by a sole source aquifer and/or located in a seawater intrusion area?"
2. Continue to pursue a code amendment clarifying that **new wells on Guemes Island require a permit application and County approval**. While it appears that County approval is already required, a clear statement in the code appears necessary to ensure enforcement.
3. Promote collaboration between the County and the Guemes community to **develop and collate data on island wells and undertake data analyses** to better understand trends affecting the aquifer. Continue the Guemes Island monitoring network that was started by the Skagit County Health Department's Seawater Intrusion Committee in 1996, adopted by the Guemes Island Environmental Trust, and kept going by volunteers. Strive to bring in data from the State Health Department and expertise from the State Department of Ecology. The County's ability to regulate new wells is compromised without an established database to clearly delineate problem areas on the island with regard to well-water quality and/or quantity.
4. Look for opportunities to promote further **research to understand better the process of aquifer recharge on the island**. Investigate possible support from the State Department of Ecology.
5. Seek to collaborate with researchers at Western Washington University (WWU) in their work to **develop a template for rainwater catchment systems**. Review their proposals and provide input to Skagit County in its development of requirements for potable catchment systems. Work with the County to support their development of a workable rainwater catchment program.
6. Continue to pursue **code amendments and administrative procedures needed to remove barriers to rainwater catchment systems**. While current County staff have expressed support for rainwater catchment and ways to work with the current code, in the long run, the code should

be revised so that code conflicts do not impede future systems. After WWU completes its report, GIPAC could take the next step in drafting specific proposed code language to help facilitate and encourage rainwater catchment systems.

7. Initiate public education and community dialogue on the subject of how homeowners can conserve water and help protect the aquifer. Seek community engagement in sharing well data and helping to identify trends and problem areas. Find ways to make sure that new property owners on Guemes have good information about water limitations and the need for careful management of their water systems and usage. GIPAC should work toward publication of a public information brochure that describes water constraints on the island and the need for water conservation.

8. Undertake a comprehensive review of County code and current County practice relating to the review and approval of variances and “reasonable use exceptions.” Work with the County Planning and Development Services Department to improve variance code language and staff interpretation of existing code to better take into consideration water limitations on Guemes Island. In assessing variance applications and determining the scale of buildings needed to achieve reasonable use, County staff should review potential hydrological impacts, particularly where building lots are substandard in size. The County must consider all elements of existing code that reflect the need for groundwater protection on Guemes Island (aquifer recharge area, seawater intrusion area, sole source aquifer, and sensitive area) in determining whether a variance meets the requirement to be **“in harmony with the general purpose and intent of this Title and other applicable provisions of the Skagit County Code, and will not be injurious to the neighborhood, or otherwise detrimental to public welfare,”** as prescribed in SCC 14.10.040(1)(c).