futurewise
Building communities
Protecting the land

November 24, 2010

Okanogan County Planning Commission
Okanogan County Office of Planning and Development
123 5th Ave N Ste 130
Okanogan, Washington 98840

Dear Planning Commissioners:

Subject: **Comments on the Draft Okanogan County Critical Areas Ordinance dated 10/15/2010 for the November 29, 2010 Okanogan County Regional Planning Commission public hearing on the Draft Critical Areas Ordinance**

Thank you for the opportunity to comment on the Draft Okanogan County Critical Areas Ordinance. Our mission at Futurewise is to promote healthy communities and cities while protecting working farms, working forests, and shorelines for this and future generations. Futurewise has members across Washington State, including Okanogan County.

Summary of Our Recommendations

Futurewise supports the update to the county's existing critical areas regulations because they are out of date, fail to protect people and property from natural hazards, fail to protect the fish and wildlife which contribute to the county's economy and help generate jobs, and fail to protect the county's drinking and irrigation waters from contamination. So we recommend they be updated. However, as our detailed comments document, the current draft fails to do these important tasks. Here of some of our recommended improvements:

- Please clarify that one of the purposes of the provisions are to meet the state law requirement that Okanogan County protect all of the functions and values of all critical areas. This will better protect people and property from harm and drinking and irrigation water sources. Please see page 2 of this letter for more detail.
- Please clarify that the critical areas regulations apply to all uses and activities that may adversely impact critical area functions and values and all critical areas. This will better protect people and property from harm and drinking and irrigation water sources. Please see pages 4, 9, and 21 of this letter for more detail.
- Please improve the process for identifying critical areas so they will be effectively protected. This will better protect people and property from harm and drinking and irrigation water sources. Please see page 4 of this letter for more detail.
- Please clarify that the critical areas maps are guides to the location of critical areas, but actual on the ground conditions control. Please also remove

inconsistencies in the treatment of critical areas maps in the proposed regulations. This will reduce confusion for county residents and make the critical areas regulations cheaper and easier to administer. Please see page 5 of this letter for more detail.

- Please clarify the definition of fish wildlife habitat conservation areas and protect all fish and wildlife habitats. The fish and wildlife that contribute to the county economy and support local jobs and businesses. Please see pages 5, 15, and 17 of this letter for more detail.
- Please clarify the definition of low-intensity use and adopt a definition of moderate-intensity use consistent with common practice. This will better protect critical areas functions and values, such as maintaining the water quality of the county's rivers and streams. Please see page 9 of this letter for more detail.
- Please designate and protect the important identified aquifers such as the aquifer in the Methow River Valley. This will protect the county's drinking and irrigation water sources from contamination. Please see page 12 of this letter.
- Please designate the areas identified in the Liquefaction Susceptibility and Site Class Maps as critical areas and adopt effective regulations to protect people and property from all geological hazards. Please see page 19 of this letter.
- Please adopt effective regulations to protect wetlands from adverse impacts. This will protect water quality and protect downstream residents and property owners from flooding by maintain flood storage. Please see page 21 of this letter.

Our detailed comments which also address additional topics follow.

Detailed Recommendations on the Draft Okanogan County Critical Areas Ordinance

Please clarify that the purpose of the regulations is to protect all of the functions and values of critical areas in "I. Purpose/Authority" on page 1

The Growth Management Act (GMA) requires all counties and cities in Washington State to designate critical areas and to adopt regulations to protect the critical areas[1] As the Court of Appeals has held "the GMA requires that the regulations for critical areas must protect the 'functions and values' of those designated areas. RCW 36.70A.172(1). This means all functions and values."[2] However, the purpose statement indicates that not all critical areas will be protected. It does this by including qualified statements such as "to strive for no net loss." The purpose statement needs to be revised to provide that all critical areas functions and values

[1] RCW 36.70A.060(2); RCW 36.70A.170; RCW 36.70A.172.
[2] *Whidbey Environmental Action Network [WEAN] v. Island County*, 122 Wn. App. 156, 174 – 175, 93 P.3d 885, 894 (2004) *reconsideration denied* July 12, 2004, *review denied Whidbey Environmental Action Network v. Island County*, 153 Wn.2d 1025, 110 P.3d 756 (2005).

will be protected. Our suggested revisions are shown below with our recommended additions double underlined and our recommended deletions are double struck through.

The purpose of these regulations include, but are not limited to, the following:

To protect those areas providing critical recharge to groundwater used for potable supply;
To minimize road building in all critical areas to the greatest extent possible and replacing any lost functions and values;
To promote innovative, efficient design of proposed projects wherever possible;
To recognize the economic value of wildlife;
To look for realistic opportunities to maintain and improve habitat ~~where feasible~~;
To communicate Okanogan County goals, policies, and strategies for critical areas regulation that are consistent with the goals and requirements of the Growth Management Act to local, state and federal agencies;
To reduce the risk of life and property loss as a result of avoidable flood damage;
To reduce the risk of life and property loss as a result of failure to avoid or mitigate development in geologically hazardous areas;
To avoid or minimize damage to ~~regulated~~ wetlands, fish and wildlife habitats, and aquifer recharge areas~~wherever possible~~;
To require activities not dependent on wetland location to locate at upland sites;
To achieve ~~strive for~~ no net loss of the functions and values of ~~regulated~~ wetlands, fish and wildlife habitats, and aquifer recharge areas by requiring restoration and / or enhancement of degraded wetlands, habitats, and other areas.
~~Recommend the C~~creat~~ion~~e ~~of~~ new wetlands or habitats in areas where they will succeed to fully offset unavoidable ~~and~~ losses due to development.
Only uses, activities, or developments that result in no net loss of critical areas functions and values will be allowed.

Please clarify that the purpose of the regulations is to protect all of the functions and values of critical areas in "I. Purpose/Authority" on page 2

Like page 1 of the draft regulations, the provisions on page 2 do not reflect the GMA requirement to protect all critical areas functions and values. Our suggested revisions are shown below with our recommended additions double underlined and our recommended deletions are double struck through.

Resource Critical Areas - Wetlands, areas with critical recharging effect on potable water, and fish and wildlife habitat conservation areas are critical areas that are regulated for the purpose of protecting these resources from human activity that

would cause ~~undue~~ damage to wetlands, wildlife habitat or wildlife movement; or would endanger public safety or health by adversely affecting aquifer recharge areas. Resource critical areas shall not be altered except as otherwise provided in this chapter ~~or subsequent administrative rules~~.

Hazard Critical Areas - Frequently flooded areas and geologically hazardous areas are critical areas that are regulated for the purpose of protecting the public from human activities that would affect public safety because it would place residential or other permanent human structures in the hazard critical areas as further defined in this chapter. Such activity will only be allowed as provided in this chapter.

Please clarify that the critical areas regulations apply to all uses and activities in "II. Applicability" on page 3

Critical areas regulations can only protect all critical areas functions and values if they apply to all uses and activities. While we appreciate the changes to the applicability section, it still does not cover all uses and activities that may adversely affect critical areas functions and values. We recommend the following modifications with our additions double underlined and our deletions double struck through.

II. Applicability

All land use activities, whether or not a permit or authorization is required, shall comply with the requirements of this chapter. Responsibility for the enforcement of this chapter shall rest with the Director of Planning and Development or the Director's designee. For the purposes of this chapter, "land use activities" shall include but not be limited to any disturbance of land, water, or vegetation, any use of land or water, clearing, grading, excavations, dredging, fills, and the construction of any structures and any permit or approval including ~~subdivisions,~~ boundary line adjustments, building permits, any flood plain development permit, subdivision, short subdivision, binding site plan, zone reclassification, cluster subdivision, planned unit development, planned destination resort, and any other development or use permit that would require approvals under existing or subsequently adopted Okanogan County Codes and/or Ordinances, as administered by the Office of Planning and Development, unless expressly exempted from this chapter.

A related problem is the definition of "development" on page 7. This definition limits development to activities that require a construction or use permit. This may lead some to think that if a permit is not required, such as excavating land before an application is made for a building permit, that it is exempt from the critical areas regulations. But the applicability section, even without our proposed improvements, would apply the CAO to that activity. So the definition of development creates at least the perception of an inconsistency. We recommend that the definition of development either be deleted or the requirement that the activity need a permit be deleted. We think deleting the definition is best.

~~*Development* - Any activity upon the land requiring a construction or use permit by Okanogan County.~~

Site visits by planning staff cannot substitute for scientific study in "II. Applicability" "Preliminary Investigation / Site Visit," "Special Studies," and "Appeals" on pages 3 & 4

Many critical areas are quite subtle and would not be apparent to a non-scientifically trained person or even an agency scientist visiting a site. This maybe because the wetland has uncharacteristic vegetation, or does not have water at that time of the year or because the wildlife that occupy the site do so at a different time of day or time of year. So a staff visit or even a staff visit with an agency representative cannot confirm the presence or absence of critical areas. We recommend that the sections on pages 3 and 4 entitled "Preliminary Investigation / Site Visit," "Special Studies," and "Appeals" on pages 3 and 4 should be deleted. The county should substitute the State of Washington Department of Community, Trade, and Economic Development's (now Commerce's) *Appendix A: Example Code Provisions for Designating and Protecting Critical Areas* Sections X.10.170 through X.10.320 on pages A-17 through A-26.[3]

Section III. Critical Areas - Maps and Inventories on page 5 and Comprehensive Plan Critical Areas Map book (October 25, 2010) should be revised to recognize that these maps, while for the most part based on the best available science, are guides and the conditions on the ground control

We agree that maps of critical areas can be helpful and support including them. However, the actual conditions on the ground should control over the maps. For example, if any area meets the criteria for a wetland but it not shown on the map, then it must be regulated as a wetland. While the National Wetlands Inventory Maps on which the wetland maps are based, are helpful in identifying the general location of wetlands, the age of the aerial photographs on which they are based and other factors mean that they only include some of the wetlands within a jurisdiction and only their approximately location and extent.[4] Using the hydric soils shown on the Natural Resources Conservation Service's soil maps with the National Wetlands Inventory can help identify additional wetlands.[5] However, site specific investigations

---

[3] *Appendix A: Example Code Provisions for Designating and Protecting Critical Areas* is on the CAO on CD Data CD 1 included with the paper original of this letter in the "CTED CA Handbook\Appendices" directory with the filename "Appendix A - Example Code Provisions." Both "Word" and "PDF" versions of the files are included.

[4] Granger, T., T. Hruby, A. McMillan, D. Peters, J. Rubey, D. Sheldon, S. Stanley, E. Stockdale, *Wetlands in Washington State - Volume 2: Guidance for Protecting and Managing Wetlands* p. 8-7 – 8-8 (Washington State Department of Ecology, Publication #05-06-008, Olympia, WA: April 2005). On the CAO on CD Data CD 2 included with the paper original of this letter in the "Wetlands" directory with the filename: "0506008.pdf"

[5] *Id.*

are necessary to determine whether wetlands are location on a site and their precise location.[6]

Even the best data sources go out of date fairly quickly. For example, the best data sources for wildlife habitats are the Washington State Department of Fish and Wildlife's (WDFW) Priority Habitats and Species (PHS) Databases. This data is based on actual field research and is updated frequently.[7] So the Department of Fish and Wildlife recommends that databases older than six months not be used and the current versions should be obtained from the Department of Fish and Wildlife.[8]

Unfortunately, proposed Section III, Critical Areas - Maps and Inventories, treats these maps as zoning maps for critical areas requiring a map amendment to change them. This will burden property owners who must file a rezone to change the location of a wetland or habitat that has changed and the county will have to go through the rezone process too. This provision is inconsistent the nature of the maps, we have just documented, and with the references to nonregulatory maps elsewhere in this title. In addition, the wetlands regulations correctly recognize that the wetland map is a guide and that wetlands may exist in areas not shown on the maps. Again, this is inconsistent with the "Critical Areas - Maps and Inventories" section as it is currently written.

We recommend that proposed Section III, Critical Areas - Maps and Inventories, be revised so it is clear that the maps are aids to identifying critical areas but the on the ground conditions control and that as new information becomes available the maps will be updated. Further, Comprehensive Plan Critical Areas Map book indicates on the map legend each map an area that has "no critical areas." For most of the maps this is an area where no critical areas have been identified. For most areas there will likely not be critical areas on those lands, be some may have them. We recommend that this category be deleted or that it be changed to "no critical areas currently identified."

Please clarify the definition of Fish and Wildlife Habitat Conservation Areas in IV. Definitions on page 8

Wildlife protection regulations are important to county residents who hunt, fish, and view wildlife. They are also important to the tourism economy of Washington State and Okanogan County since birding, hunting, and fishing are important economic

---

[6] *Id.*
[7] Washington Department of Fish and Wildlife, *Descriptions of Standard Maps and Digital Data Products* p. 6 (March 2005). Included in the CAO on CD Data CD 1 enclosed with the paper original of this letter in the "Fish & Wildlife Habitat\PSH Management Recs" directory with the filename: "datasrc_jan1005.pdf."
[8] *Id.* at p. 3.

draws and sustain many businesses. In 2006, $904,796,000 was spent in Washington State by both residents and nonresidents on fishing, $313,134,000 was spent on hunting, and $1,502,311,000 ($1.5 billion) was spent on wildlife watching.[9] As the Mayor of Pateros says:

> Fishing, hunting and wildlife viewing "definitely have a major impact on our businesses and community," says Gail Howe, who for the past 15 years has served as mayor of the small town of Pateros in Okanogan County. Even a single fishery, such as the fall 2002 upper Columbia River steelhead fishery, can provide a giant boost to that town's handful of merchants, she says.[10]

We are concerned that definition of "Fish and Wildlife Habitat Conservation Areas," on page 8 will be read to only include "areas of local importance" that meet the qualifications in that definition. This will not be sufficient to protect the fish and wildlife species that help support the Okanogan County economy. We recommend that Okanogan County designate and protect priority species and habitats identified by the Washington State Department of Fish and Wildlife. This will help protect the full range of species that Okanogan County residents appreciate and the help support the county's economically important tourism industry.

If the county chooses not to designate and protect priority species and habitats, it must at a minimum designate and protect endangered, threatened, and sensitive species and habitats and species of local importance. As the Washington State Supreme Court has written:

> ¶ 14 The [Growth Management Act] GMA directs counties and cities to designate critical areas. RCW 36.70A.170. RCW 36.70A.030(5) lists types of critical areas: (1) fish and wildlife habitat conservation areas, (2) wetlands, (3) frequently flooded areas, (4) critical aquifer recharge areas, and (5) geologically hazardous areas. Fish and wildlife habitat conservation areas are at issue here.
>
> ¶ 15 Fish and wildlife habitat conservation areas include areas where ETS [endangered, threatened, and sensitive] species have a primary

---

[9] U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau, *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* p. 4 (2006). Accessed on Nov. 23, 2010 at http://www.census.gov/prod/2008pubs/fhw06-wa.pdf and included in the CAO on CD Data CD 2 enclosed with the paper original of this letter in the "Value of Ecological Services & Critical Areas" directory with the filename "fhw06-wa.pdf.pdf."

[10] Washington State Department of Wildlife, *Adding It Up* p. 1 (December 2002). Accessed on Nov. 23, 2010 at http://wdfw.wa.gov/publications/00970/wdfw00970.pdf and included in the CAO on CD Data CD 2 enclosed with the paper original of this letter in the "Value of Ecological Services & Critical Areas" directory with the filename "wdfw00970.pdf.'

> association, habitats and species of local importance, and waters of the state that provide fish and wildlife habitat.[FN7] WAC 365-190-080(5). Counties and cities should "classify seasonal ranges and habitat elements with which federal and state listed endangered, threatened and sensitive species have a primary association and which, if altered, may reduce the likelihood that the species will maintain and reproduce over the long term." WAC 365-190-080(5)(c)(i). Counties and cities must also determine which habitats and species are of local importance:
>
> > Counties and cities may use information prepared by the Washington department of wildlife to classify and designate locally important habitats and species. Priority habitats and priority species are being identified by the department of wildlife for all lands in Washington state. While these priorities are those of the department, they and the data on which they are based may be considered by counties and cities.
>
> WAC 365-190-080(5)(c)(ii).
>
> ¶ 16 Counties and cities are further required to adopt development regulations that protect designated critical areas. RCW 36.70A.060. "In designating and protecting critical areas ... counties and cities shall include best available science in developing policies and development regulations to protect the functions and values of critical areas." RCW 36.70A.172(1).
>
> FN7. This list does not include all of the fish and wildlife habitat conservation areas mentioned in WAC 365-190-080(5).[11]

So the definition of "Fish and Wildlife Habitat Conservation Areas" must be revised to protect priority species and habitats or endangered, threatened, and sensitive species and their habitats.

Please clarify the definition of Lek in IV. Definitions on page 9

A lek is defined as "[a]n area where sharp-tailed grouse gather to perform their courtship displays." While this is accurate as to sharp-tailed grouse, other grouse and certain other birds have leks as well. So we recommend that "sharp-tailed grouse" be deleted and birds be substituted. The operative provisions, later in the proposed regulations, are the place to identify the species that will be protected.

---

[11] *Ferry County v. Concerned Friends of Ferry County*, 155 Wn.2d 824, 832 – 33, 123 P.3d 102, 106 (2005).

Please change the definition of low-intensity land use on page 10 of IV. Definitions to moderate -intensity use and include a definition of low-intensity use consistent with common use

The definition of "Low-Intensity Land Use" on page 10 is actually the definition of moderate intensity use. So please change it to moderate-intensity land use and adopt a definition of low-intensity land consistent with *Wetlands in Washington State - Volume 2: Guidance for Protecting and Managing Wetlands* Appendix 8-D Guidance on Buffers and Ratios – Eastern Washington p. 5 (April 2005). This report is included on the CAO on CD Data CD 2 enclosed with the paper original of this in the "wetlands" directory with the filename "0506008.pdf."

Please change the definition of "wetlands regulated" on page 15 of IV. Definitions so that Category III wetlands larger than 2,500 square feet and Category IV wetlands larger than 10,000 square feet are protected

The Growth Management Act (GMA) "requires that the regulations for critical areas must protect the 'functions and values' of those designated areas. RCW 36.70A.172(1). This means all functions and values."[12] In *Swinomish Indian Tribal Community*, the Supreme Court of Washington upheld the holding of the Western Washington Growth Management Hearings Board "that the requirement under the GMA to 'protect' critical areas is met when local governments prevent new harm to critical areas."[13] The supreme court noted that "[t]he 'no harm' standard, in short, protects critical areas by maintaining existing conditions."[14]

Small wetlands provide important wetland functions. The Washington State Department of Ecology has summarized the science applicable to small wetlands:

- The studies of the correlation of wetland size to wildlife use conflict somewhat in their findings, but most generally conclude that small wetlands are important habitats (particularly where adjacent buffer habitats are available) and that elimination of small wetlands can negatively impact local populations.

- Small wetlands provide habitat for a range of species that are not a subset of the species found in larger, more permanently inundated wetlands. Small wetlands do not just provide a smaller area for the same array of amphibian species found in larger wetlands.

---

[12] *Whidbey Environmental Action Network [WEAN] v. Island County*, 122 Wn. App. 156, 174 – 175, 93 P.3d 885, 894 (2004) *reconsideration denied* July 12, 2004, *review denied Whidbey Environmental Action Network v. Island County,*. 153 Wn.2d 1025, 110 P.3d 756 (2005).
[13] *Swinomish Indian Tribal Community v. Western Washington Growth Management Hearings Bd.*, 161 Wn.2d 415, 427, 166 P.3d 1198, 1205 (2007).
[14] *Id.* at p. 430, 166 P.3d at 1206.

- Small wetlands are very important in reducing isolation among wetland habitat patches. Smaller wetlands provide significant habitat for wildlife and affect the habitat suitability of larger wetlands by reducing isolation on the landscape.

- The presence of small wetlands reduces the distance between wetlands and thus increases the probability of successful dispersal of organisms. This, in turn, likely increases the number of individuals dispersing among patches in a wetland mosaic, thereby reducing the chance of population extinction.

- Isolated wetlands provide the same range of wetland functions as non-isolated wetlands. Isolated wetlands provide important water quantity, water quality, and habitat functions.[15]

Allowing the filling, draining, or other adverse impacts to smaller Category III and Category IV wetlands will result in a loss of wetlands functions and values. This violates the Growth Management Act requirements to maintain the existing conditions of those wetlands. So we recommend either deleting the definition of "wetlands, regulated" and regulating all wetlands or deleting the size qualifications for Category III and Category IV wetlands as shown below with our deletions double struck through.

Wetlands, regulated - All Category I and II wetlands, Category III wetlands ~~larger than 2,500~~ square feet, and Category IV wetlands~~ larger than 10,000 square feet~~.

Emergency permits should require the restoration of all critical areas adversely impacted, XII. Emergency Permit on page 19

The emergency permit provisions require the restoration of adverse impacts to wetlands, which we support. However, Okanogan County, as we have previously documented, must protect the existing functions of all critical areas. So the restoration of impacts to all critical areas must be required for emergency permits.

The Administrator should not be required to institute a legal action to collect on a performance bond, proposed XIII. Bonding on page 20

The county should require that any performance bond or other financial guarantee is sufficient and economical to administer. Since bonds typically cover several years and the cost of work is often greater than the developers estimate, bonds should be for

---

[15] Sheldon, D., T. Hruby, P. Johnson, K. Harper, A. McMillan, T. Granger, S. Stanley, and E. Stockdale, *Wetlands in Washington State - Volume 1: A Synthesis of the Science* pp. 5-12 – 5-13 (Washington State Department of Ecology Publication #05-06-006 Olympia, WA: March 2005). On the CAO on CD Data CD 2 included with the paper original of this letter in the "Wetlands" directory with the filename: "0506006.pdf"

150 percent of the estimated cost of the required work. In all cases, the county will want a financial guarantee that does not require a lawsuit to levy on the bond to save the county time and money. So we recommend that the performance bond provisions on page 20 be revised as shown with our additions double underline and our deletions double struck through.

XIII. Bonding
Performance Bonds
The Administrator shall require the applicant of a development proposal to post a cash performance bond or other security acceptable to the Administrator in an amount and with surety and conditions sufficient to fulfill the requirements of this Code. The amount and the conditions of the bond shall be consistent with the purposes of this chapter and be in an amount equal to at least 150 percent of the cost of the work it is to guarantee. In the event of a breach of any condition of any such bond, the Administrator shall enforce, negotiate, or collect on the bond using any lawful means ~~may institute an action in a court of competent jurisdiction upon such bond and prosecute the same to judgment and execution~~.

The Administrator shall release the bond upon determining that:

a. all activities, including any required compensatory mitigation, have been completed in compliance with the terms and conditions of the permit and the requirements of this chapter; and

b. upon the posting by the applicant of a maintenance bond.

Until such written release of the bond, the principal or surety cannot be terminated or canceled.

Maintenance Bonds
The Administrator shall require the holder of a development permit issued pursuant to this chapter to post a cash performance bond or other security acceptable to the Administrator in an amount and with surety and conditions sufficient to guarantee that structures, improvements, and mitigation required by the permit or by this chapter perform satisfactorily for a minimum of two (2) years after they have been completed or any longer period required by this title. The amount shall be equal to at least 150 percent of the cost of the work it is to guarantee. The Administrator shall release the maintenance bond upon determining that performance standards established for evaluating the effectiveness and success of the structures, improvements, and/or compensatory mitigation have been satisfactorily met for the required period. For compensation projects, the performance standards shall be those contained in the mitigation plan developed and approved during the permit review process pursuant to the Mitigation Plans section. The maintenance bond applicable to a compensation project shall not be released until the Administrator determines that performance

standards established for evaluating the effect and success of the project have been met.

The aquifer recharge areas regulations in XV. Aquifer Recharge Areas on pages 22 to 24 should designate and protect known aquifers and wellhead protection areas in addition to permeable soils.

The Growth Management Act requires all counties and cities to protect ground water based drinking water sources on which many Okanogan County residents and businesses depend.[16] While the ground water quality in Okanogan County is generally good, the ground water has become contaminated in some locations. For example, as of October 1999 there were 25 toxic cleanup sites in the Okanogan River watershed that were adversely impacting ground water.[17] We need to do a better job of protecting our drinking and irrigation water sources.

Local regulations are needed to protect the aquifers. As the Washington State Department of Ecology recommends:

> Federal and state laws and rules do not replace local planning, ordinances, and programs. Local jurisdictions should maintain the ability to protect ground water under their own authority. Local government can focus on local conditions in a way that the state cannot.
>
> * * *
>
> Local government planning can influence the types of future developments that occur in various areas and may be able to encourage potentially contaminating facilities to locate in areas where the aquifer has a lower susceptibility if contaminants are released. In this way the potential for aquifer pollution is lowered and the public is protected. Land use planning at the local level is the most effective way to influence where facilities choose to locate.[18]

---

[16] RCW 36.70A.060(2).

[17] R. Garrigues & B. Carey, *Groundwater Data Compilation for the Okanogan Watershed* p. 4 (Washington State Department of Ecology Publication Number 99-342: Oct. 1999). Accessed on Nov. 22, 2010 at: http://www.ecy.wa.gov/pubs/99342.pdf and is included on the CAO on CD Disk 1 enclosed with the paper original of this letter in the "Okanogan Aquifer Info" directory with the filename "99342.pdf"

[18] Laurie Morgan, *Critical Aquifer Recharge Areas Guidance Document* p. 31 (Washington State Department of Ecology, Water Quality Program: January 2005 Publication Number 05-10-028). Accessed on October 25, 2010 at: http://www.ecy.wa.gov/biblio/0510028.html and included on the CAO on CD enclosed with the paper original of this letter on Data CD 1 in the "CARA" directory with the filename "0510028.PDF."

Indeed, there are no state and federal laws that protect aquifers from many common pollutants. So county requirements are necessary.

The proposed aquifer recharge provisions say that no mapping is available to identify aquifers in Okanogan County. However, there are several sources of information that identify or map aquifers in Okanogan County with sufficient detail to properly designate and protect them. The U.S. Geological *Survey's Ground Water Atlas of the United States Idaho, Oregon, Washington* HA 730-H contains generalized information on the county's ground water resources including a generalized map of the Washington State that identifies the various aquifers.[19] The U.S. Geological Survey and Okanogan County worked together on a study that mapped and developed a significant amount of information for the unconsolidated aquifer in the Methow River Valley. A copy of that study, *Hydrogeology of the Unconsolidated Sediments, Water Quality, and Ground-Water/Surface-Water Exchanges in the Methow River Basin, Okanogan County, Washington*, is included on the CAO on CD Disk 1 enclosed with the paper original of this letter in the "Okanogan Aquifer Info" directory with the filename "wri034244rev1.1.pdf."[20] The "plate" showing the geological strata making up the aquifer and many of the wells that rely on the aquifer is in the same directory with the filename "wri034244_plate1.pdf" and a copy of the plate is attached to the paper original of this letter. The *Groundwater Data Compilation for the Okanogan Watershed* provides a listing of the groundwater data, including data on aquifers, available from the Washington State Department of Ecology that can be used to designate additional aquifers for protection.

In addition to protecting these identified aquifers, we also recommend that the well head protection areas around community water system wells be designated as aquifer protection areas. These areas are relatively small, but if they are contaminated their adverse effects on wells can be rapid and significant. Protecting these areas is important to maintaining the water supplies for homes and business. This approach is recommended by the *Critical Aquifer Recharge Areas Guidance Document* and maps of the wellhead protection areas are available from the state agencies.[21]

We also recommend that proposed regulations be improved to include the following requirements:

---

[19] Accessed on November 22, 2010 at: http://pubs.usgs.gov/ha/ha730/ch_h/H-text12.html. The generalized map, Figure 95, is included on the CAO on CD in Disk 1 enclosed with the paper original of this letter in the "Okanogan Aquifer Info" directory with the filename "USGS Figure 95.pdf."

[20] Christopher P. Konrad, Brian W. Drost, and Richard J. Wagner, *Hydrogeology of the Unconsolidated Sediments, Water Quality, and Ground-Water/Surface-Water Exchanges in the Methow River Basin, Okanogan County, Washington* (U.S. Geological Survey, Water-Resources Investigations Report 03-4244 Version 1.1, August 4, 2005) Accessed on November 22, 2010 at: http://pubs.usgs.gov/wri/wri034244/

[21] Laurie Morgan, *Critical Aquifer Recharge Areas Guidance Document* p. 22 – 23 (Washington State Department of Ecology, Water Quality Program: January 2005 Publication Number 05-10-028).

- Direct the most polluting uses away from the aquifers, especially the shallower aquifers in the river valleys.
- Require an evaluation and the incorporation of safety measures for other uses with the potential to pollute the aquifers and wellhead protection areas. For common uses, such as septic tanks, the county could chose to adopt standards that would protect the aquifer from pollutants.
- Include as part of Level One Hydrogeologic Assessments requirements for monitoring wells and springs in the vicinity of a proposed activity and reporting the results.
- Include as part of all hydrogeologic assessments requirements that uses and activities that would increase contaminate loading to the aquifer are to participate in programs to remediate the increased contamination attributable to the use or activity.
- A requirement that unused wells shall be decommissioned using methods that would prevent irrigation and other potentially contaminated water from going down a well bore or along a casing and contaminating the aquifers.

We are also concerned that exemptions on page 22 exclude from designation and protection "artificially diverted or stored water." Several important aquifers, such as the duck lake groundwater management subarea, include artificially stored water.[22] The farmers and residents who rely on that water for irrigation and to recharge domestic wells need this water to be protected from contamination.[23] This exemption should be deleted.

Please clarify the third exemption on page 25, XVI. Fish And Wildlife Habitat Conservation Areas

It is unclear what the third exemption allows. It should allow the continuation and maintenance of the structures and activities if not otherwise allowed by the county's nonconforming use provisions. Our recommended additions are double underlined.

> Structures and activities that currently and legally exist within fish and wildlife habitat conservation areas at the time of adoption of this Chapter <u>may continue and be maintained.</u>

[22] WAC 173-132-010(5) on the CAO on CD in Disk 1 enclosed with the paper original of this letter in the "Okanogan Aquifer Info" directory with the filename "173-132 WAC Duck lake groundwater management subarea.pdf."

[23] That wells in this are used for domestic water supplies is documented by the well log enclosed for Well Tag ALF 123. Included on the CAO on CD in Disk 1 enclosed with the paper original of this letter in the "Okanogan Aquifer Info" directory with the filename "Well Log Well Tag ALF 123.pdf."

The county must designate and protect fish and wildlife habitats page 25, XVI. Fish And Wildlife Habitat Conservation Areas

As we have documented, fish and wildlife and their habitats are an important part of the Okanogan County economy, generating income and jobs. We also recommend that the county designate and protect all priority habitats species and habitats. This will help protect the full range of species that Okanogan County residents appreciate and the help support the county's economically important tourism industry. If the county chooses not do that, it is required to designate and protect all endangered, threatened, and sensitive species and species of local importance.[24] All of these species must be protected.

The existing provisions do not designate sensitive species and have no provisions for species of local importance and are also unclear. We recommend the following revisions with our additions double underlined and deletions double struck through.

Classification / Rating System
Fish and Wildlife Habitat Conservation Areas:
~~Level I Habitat consists of Threatned and Endagered Species as idendtified on the Federal Register and /or the Washington State Listing as designated on the maps on file in the Office of Planning and Development.~~ Fish and Wildlife Habitat Conservation Areas shall include:

(1) Areas with which State or Federally designated endangered, threatened, and sensitive species have a primary association.

(2) State priority habitats and areas associated with State priority species.

(3) Habitats and species of local importance designated by Okanogan County. Okanogan County shall accept and consider nominations for habitats at any time and process any applications within a year of receiving them.

(a) Habitats and species to be designated shall exhibit the following characteristics:

(i) Local populations of native species are in danger of extirpation based on existing trends:

(A) Local populations of native species that are likely to become endangered; or

(B) Local populations of native species are vulnerable or declining;

[24] *Ferry County v. Concerned Friends of Ferry County*, 155 Wn.2d 824, 832 – 33, 123 P.3d 102, 106 (2005).

(ii) The species or habitat has recreation, commercial, game, tribal, or other special value;

(iii) Long-term persistence of a species is dependent on the protection, maintenance, or restoration of the nominated habitat;

(iv) Protection by other county, state, or federal policies, laws, regulations, or nonregulatory tools is not adequate to prevent degradation of the species or habitat in Okanogan County; and

(vi) Without protection, there is a likelihood that the species or habitat will be diminished over the long term.

(vii) Areas nominated to protect a particular habitat or species must represent either high-quality native habitat or habitat that has a high potential to recover to a suitable condition and which is of limited availability, highly vulnerable to alteration, or provides landscape connectivity which contributes to the integrity of the surrounding landscape.

(b) Habitats and species may be nominated for designation by any person and no fee shall be charged for a nomination.

(c) The nomination should indicate whether specific habitat features are to be protected (for example, nest sites, breeding areas, and nurseries), or whether the habitat or ecosystem is being nominated in its entirety.

(d) The nomination may include management strategies for the species or habitats. Management strategies must be supported by the best available science, and where restoration of habitat is proposed, a specific plan for restoration must be provided prior to nomination.

(e) The Administrator shall determine whether the nomination proposal is complete, and if complete, shall evaluate it according to the characteristics enumerated in subsections (i) and (ii) and make a recommendation to the Planning Commission based on those findings.

(f) The Planning Commission shall hold a public hearing for proposals found to be complete and recommend approval or denial of the application based on the characteristics in subsections (i) and (ii).

(g) Following the recommendation of the Planning Commission, the Board of County Commissioners shall decide whether designate a Habitat or Species of Local Importance based on the characteristics in subsections (i) and (ii).

(h) Approved nominations shall be subject to the provisions of this Title.

(4) Naturally Occurring Ponds Under Twenty Acres. Naturally occurring ponds are those ponds under twenty (20) acres and their submerged aquatic beds that provide fish or wildlife habitat, including those artificial ponds intentionally created

from dry areas in order to mitigate impacts to ponds. Naturally occurring ponds do not include ponds deliberately designed and created from dry sites, such as canals, detention facilities, wastewater treatment facilities, farm ponds, temporary construction ponds, and landscape amenities, unless such artificial ponds were intentionally created for mitigation.

(5) Waters of the State. Waters of the state include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington, as classified in WAC 222-16-031 (or WAC 222-16-030 depending on classification used).

(6) Lakes, ponds, streams, and rivers planted with game fish by a governmental or tribal entity.

(7) State Natural Area Preserves and Natural Resource Conservation Areas. Natural area preserves and natural resource conservation areas are defined, established, and managed by the Washington State Department of Natural Resources.

(8) Areas of Rare Plant Species and High Quality Ecosystems. Areas of rare plant species and high quality ecosystems are identified by the Washington State Department of Natural Resources through the Natural Heritage Program.

(9) Land useful or essential for preserving connections between habitat blocks and open spaces.

~~Level II habitat consists of fish and wildlife of local concern including but not limited to Mule Deer habitat, Riparian habitat, etc. which is essential to sustaining fish and wildlife populations. Level III habitat consists of other important habitat and species such as white tailed deer, long-billed curlew, chuckar, blue grouse, etc.~~

The county must protect fish and wildlife habitats pages 25 – 31, XVI. Fish And Wildlife Habitat Conservation Areas

The proposed performance standards do not protect fish and wildlife habitats because they exempt certain structures, do not apply to uses, do not apply to activities and structures that do not require a permit, and do not apply to vegetation removal, clearing, grading, and dredging unless it is associated with certain structures. All of these activities can harm fish and wildlife habitats.[25]

---

[25] Jeff Azerrad, John Carleton, Jennifer Davis, Timothy Quinn, Chris Sato, Michelle Tirhi, George Wilhere, and Suzanne Tomassi, *Landscape Planning for Washington's Wildlife: Managing for Biodiversity in Developing Areas (A Priority Habitats and Species Guidance Document)* pp. 2-2 – 2-7 (Washington State Department of Fish and Wildlife, Olympia, Washington: December 2009). Accessed on October 29, 2010 at: http://wdfw.wa.gov/conservation/phs/mgmt_recommendations/ and included on the CAO on CD Data CD 1 enclosed with the paper original of this letter in the "Fish & Wildlife Habitat" directory with the filename "wdfw00023.pdf." Supporting data is included in the files "app_b_species_development_database.xls," "app_c_stressor_tables.xls," and "app_d_metric_tables.xls" in the "Fish & Wildlife Habitat" directory of the CAO on CD Data CD 1 enclosed with the paper original of this letter.

In addition by way of an example, while parts of Okanogan County are the habitat of the Western Gray Squirrel which is designated as a threatened species by Washington State the proposed regulations in proposed chapter XVI Fish And Wildlife Habitat Conservation Areas lack the necessary measures to protect these habitats.[26] The Department of Fish and Wildlife recommends "a clearly-marked, permanent year-round buffer" of 50 feet around each nest tree, along with other protective measures.[27] The department also recommends a seasonal buffer of 400 feet around a nest.[28] None of these provisions are included.

The important shoreline functions of lakes, rivers, streams and the functions of riparian vegetation are detailed in the Washington State Department of Fish and Wildlife's *Management Recommendations for Washington's Priority Habitats: Riparian* and *Crafting a Lake Protection Ordinance*. The maintenance of large woody debris requires 100 to 150 foot wide buffers.[29] This is needed to maintain the structure of lakes, rivers, and streams especially pools which are necessary to maintain fish populations.[30] This applies to S, F, NP waters all of which may have fish living in them. Sediment removal requires 100 feet.[31] Wildlife habitat generally requires buffers of 100 to 200 feet wide, with wider buffers needed for some wildlife.[32]

---

[26] Jeff Azerrad, John Carleton, Jennifer Davis, Timothy Quinn, Chris Sato, Michelle Tirhi, George Wilhere, and Suzanne Tomassi, *Landscape Planning for Washington's Wildlife: Managing for Biodiversity in Developing Areas (A Priority Habitats and Species Guidance Document)* (Washington State Department of Fish and Wildlife: December 2009) Appendix B: Species and Development Database species list extract for Okanogan County p. *8. Accessed on September 23, 2010 at: http://wdfw.wa.gov/publications/pub.php?id=00023 and enclosed with this letter. The filename is "app_b_species_development_database Okanogan WA.pdf."

[27] M. J. Linders, W. M. Vander Haegen, J. M. Azerrad, R. Dobson, and T. Labbe, *Management Recommendations for Washington's Priority Species: Western Gray Squirrel* p. 9 (Washington Department of Fish and Wildlife, Olympia, Washington: 2010). Accessed on Nov. 23, 2010 at: http://wdfw.wa.gov/publications/pub.php?id=00027 and on the CAO on CD Data CD 1 enclosed with the paper original of this letter in the "Fish & Wildlife Habitat\PSH Management Recs\Mammals" directory with the filename "western_gray_squirrel_final.pdf."

[28] *Id.*

[29] K. L. Knutson & V. L. Naef, *Management Recommendations for Washington's Priority Habitats: Riparian* p. 164 (Wash. Dept. Fish and Wildlife, Olympia WA: 1997) accessed on November 5, 2009 at: http://wdfw.wa.gov/hab/ripfinal.pdf and on the CAO on CD Data CD 1 enclosed with the paper original of this letter in the "Fish & Wildlife Habitat\PSH Management Recs" directory with the filename: "ripfinal.pdf". For buffers and other measures necessary to protect lakes, please Karen Cappiella and Tom Schueler, *Crafting a Lake Protection Ordinance* Urban Lake Management, Watershed Protection Techniques 3(4) p. 756 (2001) accessed on November 24, 2009 at: http://www.cwp.org/Resource_Library/Center_Docs/special/lakes/ulm_lakeprotectionord.pdf and included in the CAO on CD Data CD 1 enclosed with the paper original of this letter in the "Fish & Wildlife Habitat\Lake Habitats" directory with the filename: "ulm_lakeprotectionord.pdf."

[30] K. L. Knutson & V. L. Naef, *Management Recommendations for Washington's Priority Habitats: Riparian* p. XI (Wash. Dept. Fish and Wildlife, Olympia WA: 1997).

[31] *Id.* at p. 164.

[32] *Id.* at pp. 165 – 67.

Given these widths, we are concerned, for example, that the Shoreline Residential buffers range from 50 to 20 feet. That buffer will not effectively filter sediments. Commerce's recommended ordinance has buffers we recommend the county adopt.

It is also important to note that only replace agricultural structures fall under the regulatory timeout for agricultural activities required by RCW 36.70A.560. So new agricultural structures must comply with the critical areas regulations. In short, the proposed habitat protection regulations fail to protect existing fish and wildlife habitats and so fail to comply with the Growth Management Act.

We recommend that the county substitute the State of Washington Department of Community, Trade, and Economic Development's (now Commerce's) *Appendix A: Example Code Provisions for Designating and Protecting Critical Areas* Sections X.60.010(B) through X.60.040 on pages A-99 through A-112 for the provisions on pages 25 through 31.[33] These measures will meet the minimum requirements of the Growth Management Act.

Delete the exemption on page 32 of XVII. Frequently Flooded Areas

The frequently flooded areas regulations contain an exemption for existing structures and activities. However, the flood plain regulations have provisions that apply to existing structures and activities, such as limits on the remodeling that can be done before an existing structure must be elevated or the provisions applicable to existing residences in floodways. If Okanogan County fails to adopt and enforce flood plain regulations consistent with or more restrictive than the Federal Emergency Management Agency minimum requirements, the property owners in the county will lose their eligibility for flood insurance and federally regulated and guaranteed mortgages and loans. So we recommend that exemption be deleted to avoid confusion and maintain the flood insurance eligibility for county residents and property owners.

Update XVIII. Geologically Hazardous Areas on pages 53 and 54 to incorporate the Washington State Department of Natural Resources' Liquefaction Susceptibility and Site Class Maps.

The geological hazards provisions should be updated to incorporate the Washington State Department of Natural Resources' Liquefaction Susceptibility and Site Class Maps. In 2004, the Washington State Department of Natural Resources completed a set of liquefaction maps and maps identifying where the geology is likely to amplify ground shaking, referred to as "Site Class" maps. These maps represent best available

[33] *Appendix A: Example Code Provisions for Designating and Protecting Critical Areas* is on the CAO on CD Data CD 1 included with the paper original of this letter in the "CTED CA Handbook\Appendices" directory with the filename "Appendix A - Example Code Provisions." Both "Word" and "PDF" versions of the files are included.

science on the occurrence of these hazards which the Growth Management Act requires to the county to include in the development of critical areas regulations.

Adopting these maps and protective provisions for these areas will protect people and property from hazards resulting from earthquakes. Liquefaction occurs when earthquake shaking causes a soil to rapidly loose its strength and behave like quicksand. The soils most likely to liquefy are artificial fills and areas of loose sandy soils saturated with water. The movement of liquefied soils can rupture pipelines, move bridge abutments and roads, and damage buildings. Liquefaction has damaged many buildings during earthquakes including Alaska's Good Friday earthquake, California's Loma Prieta earthquake, and the Kobe, Japan earthquake.[34] We recommend that areas classified as having a liquefaction susceptibility of "moderate," "moderate to high," "high," and "peat deposit" be identified as geological hazards.

The Site Class Map identifies areas where the underlying geology is likely to amplify shaking on the ground surface. This is the most damaging effect of an earthquake. So buildings constructed on areas more susceptible to strong shaking area are more likely to be damaged or destroyed in an earthquake.[35] By identifying these areas and engineering and constructing buildings to withstand this shaking, people and property will be better protected from earthquake damage. We recommend that areas classified as having a site class of "D," "D to E," "E," and "F" be designated as geological hazards.

Update XVIII. Geologically Hazardous Areas on pages 51 and 55 to incorporate the State of Washington Department of Community, Trade, and Economic Development's (now Commerce's) Appendix A: Example Code Provisions for Designating and Protecting Critical Areas Chapter X.50 Geologically Hazardous Area with the addition of the Liquefaction Susceptibility and Site Class Maps discussed above

While we appreciate and support the designation of geological hazards and including regulations to protect people and property from these hazardous areas, both the designation criteria and protection measures lack specify and standards that would be enforceable. We recommend that the county substitute the State of Washington Department of Community, Trade, and Economic Development's (now Commerce's)

---

[34] Stephen P. Palmer, Sammantha L. Magsino, James L. Poelstra, Eric L. Bilderback, Derek S. Folger, and Rebecca A. Niggemann, *Liquefaction Susceptibility Map of Okanogan County, Washington* (Washington State Department of Natural Resources, Sept. 2004). In the CAO on a CD Data CD 1 enclosed with the paper original of this letter in the directory: "Geo Hazards\Earthquake Hazards\Liquefaction Maps by County\okanogan" filename: "Okanogan Liquefaction Susceptibility.pdf"

[35] Stephen P. Palmer, Sammantha L. Magsino, Eric L. Bilderback, James L. Poelstra, Derek S. Folger, and Rebecca A. Niggemann, *Site Class Map of Okanogan County, Washington* (Washington State Department of Natural Resources, Sept. 2004). In the CAO on a CD CD 1 enclosed with the paper original of this letter in the directory: "Geo Hazards\Earthquake Hazards\Liquefaction Maps by County\okanogan." Filename: "Okanogan Site Class.pdf"

Appendix A: Example Code Provisions for Designating and Protecting Critical Areas Chapter X.50 Geologically Hazardous Areas along with the Liquefaction Susceptibility and Site Class Maps discussed above.[36] These measures will meet the minimum requirements of the Growth Management Act and protect people and property from these significant hazards.

Commerce's Example Code Provisions for channel migration zones are included in the Frequently Flooded Areas chapter starting on page 59 and in the Fish and Wildlife Habitation Conservation Area chapter in X.60.040(D)(3)(c) on page 107. The county could either include the provisions in those chapters of Okanogan County's regulations or move them to the county's geological hazards chapter.

Delete the exemptions for category II and III wetlands with a total area of less than 2,500 square feet and category IV wetlands with a total area of less than 10,000 square feet on page 56 in XIX Wetlands Exemptions

As we document beginning on page 9 of this letter, Okanogan County is legally required to protect existing critical areas functions and values including the functions and values of wetlands. And as that same section of our letter documents, small wetlands have important functions and values. So the exemptions for category II and III wetlands with a total area of less than 2,500 square feet and category IV wetlands with a total area of less than 10,000 square feet on page 56 violate state law and must be deleted because the destruction of these wetlands will result in a loss of these functions and values. Some of those functions include reducing peak flows that cause flooding and helping to recharge aquifers that provide drinking and irrigation water.[37] While small wetlands store smaller amounts of water than large wetlands, the loss of their storage and recharge functions can still adversely impact downstream property owners. And the cumulative loss of these functions can be very significant, leading to floods especially in narrow valleys.

Substitute Wetlands in Washington State - Volume 2: Guidance for Protecting and Managing Wetlands *Appendix 8-B Recommendations for Wetland Language in a Critical Areas Ordinance for proposed chapter XIX Wetlands on pages 56 to 66*

While we appreciate the proposed wetlands language in proposed chapter XIX Wetlands, we recommend that the Washington State Department of Ecology's suggested language in *Wetlands in Washington State - Volume 2: Guidance for Protecting and Managing Wetlands* Appendix 8-B Recommendations for Wetland

---

[36] *Appendix A: Example Code Provisions for Designating and Protecting Critical Areas* is on the CAO on CD Data CD 1 included with the paper original of this letter in the "CTED CA Handbook\Appendices" directory with the filename "Appendix A - Example Code Provisions." Both "Word" and "PDF" versions of the files are included.

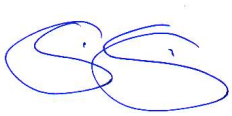
[37] Sheldon, D., T. Hruby, P. Johnson, K. Harper, A. McMillan, T. Granger, S. Stanley, and E. Stockdale, *Wetlands in Washington State - Volume 1: A Synthesis of the Science* p. 2-30 (Washington State Department of Ecology Publication #05-06-006. Olympia, WA: March 2005).

Language in a Critical Areas Ordinance be adopted in its place as this language is clear and well grounded in the science.[38] For example, because of the costs of mitigation to applicants and its failure rate,[39] there should be clear standards in critical areas regulations for when wetland alterations are allowed. These standards should also recognize that certain wetland types, for example bogs, fens and mature forested wetlands, are difficult or even impossible to restore.[40] This means that for high value, difficult or impossible to restore wetlands alterations should be rarely allowed. The difficulty of restoring or replacing other wetlands also means that they should be given significant protections. To do otherwise will mean the loss of wetland functions and values; this is contrary to the Growth Management Act as we have documented above. The proposed chapter XIX Wetlands does not contain any of these standards, but Ecology's recommended language does.

Thank you for considering our comments. If you require additional information please contact me at telephone 206-343-0681 or email tim@futurewise.org

Also, please notify me of any upcoming public involvement opportunities for the county's critical areas regulations, the shoreline master program update, or the designation of agricultural lands of long-term commercial significance.

Sincerely,



Tim Trohimovich, AICP
Co-Director of Planning & Law

Enclosures

---

[38] A copy is included on the CAO on CD Data CD 2 provided with the paper original of this letter in the "wetlands" directory filename: "0506008.pdf" and also available at: http://www.ecy.wa.gov/pubs/0506008.pdf

[39] Sheldon, D., T. Hruby, P. Johnson, K. Harper, A. McMillan, T. Granger, S. Stanley, and E. Stockdale, *Wetlands in Washington State - Volume 1: A Synthesis of the Science* pp. 6-8 – 6-9 (Washington State Department of Ecology Publication #05-06-006. Olympia, WA: March 2005).

[40] *Id.* at pp. 5-13 – 5-14.