ISLAND COUNTY
PLANNING & COMMUNITY DEVELOPMENT

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TO: Island County Planning Commission

FROM: Jeff Tate, Assistant Director

DATE: August 30, 2005

RE: Natural Resource Conservation Service (NRCS) Best Management Practices (BMPs) – Best Available Science review

Background

RCW 36.70A.172 states the following:

> "In designating and protecting critical areas under this chapter, counties and cities shall include the best available science in developing policies and development regulations to protect the function and values of critical areas. In addition, counties and cities shall give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries."

When trying to determine if information is the "best available science" and how it should be used in the decision making process, there are several sources of guidance that can help local government including the following:

- WAC 365-195-900 thru 925 provides the most significant and detailed amount of guidance.
- Review of literature published by state agencies.
- Other jurisdictions who have already updated their regulations.
- The Western Washington Growth Management Hearings Board.

Overview of WAC 365-195-900 thru 925: Best Available Science

The following sections of Chapter 365-195 WAC are applicable:

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WAC 365-195-900 explains the statutory context and purpose of the best available science rules.

WAC 365-195-905 explains what is the "best available science"

WAC 365-195-910 offers recommendations as to where local governments can obtain the best available science

WAC 365-195-915 provides criteria for demonstrating that the best available science has been "included" in the development of critical areas policies and regulations.

WAC 365-195-920 explains what to do if a county or city cannot find enough scientific information applicable to its critical areas.

WAC 365-195-925 explains what it means to give "special consideration" to the protection of anadromous fisheries.

WAC 365-195-905 is of particular relevance when considering the question of what it takes to be best available science. Subsection (2) states that CTED will make available a list of resources that state agencies have identified as meeting the criteria for best available science. NRCS BMPs are not directly cited as best available science, however, no other alternative is listed either. The state agencies have not provided citations regarding which agricultural policies should be implemented that adequately protect critical areas and that were created using best available science.

The lack of a citation, however, should not to be construed as a lack of scientific data. WAC 365-195-905(5) provides guidance for producing scientific information. This section of the rule outlines detailed characteristics for what constitutes a valid scientific process and a list of the common sources of scientific information. The characteristics of a valid scientific process are as follows:

Peer review. Scientific information must be critically reviewed by other qualified scientific experts in that scientific discipline. Criticisms should be addressed.

Methods. Methods used to obtain information are clearly stated and able to be replicated. The methods are standardized in the pertinent scientific discipline.

Logical conclusions and reasonable inferences. Conclusions are based on reasonable assumptions. Any gaps in information and inconsistencies adequately explained.

Quantitative analysis. Data has been analyzed using appropriate statistical or quantitative methods.

Context. Information is placed in proper context. Assumptions, data, analytical techniques and conclusions are appropriately framed.

References. Assumption, analytical techniques, and conclusions are well referenced with citations to relevant, credible literature or other information.

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Common sources of scientific information are identified as:

Research. Data collected as part of a controlled experiment to test a specific hypothesis.

Monitoring. Data collected over time to determine a resource trend or evaluate a management program.

Inventory. Data collected from an entire population or population segment or an entire ecosystem or ecosystem segment.

Survey. Data collected from a statistical sample from a population or ecosystem.

Modeling. Mathematical or symbolic simulation or representation of a natural system. Generally used to understand and explain occurrences that cannot be observed.

Assessment. Inspection and evaluation of site-specific information by a qualified scientific expert.

Synthesis. A comprehensive review and explanation of pertinent literature and other relevant existing knowledge by a qualified expert.

Expert Opinion. Statement of a qualified scientific expert based on his or her best professional judgment and experience in the pertinent discipline.

Review of Published Literature

Island County is in the process of updating its critical area regulations which includes a review of how agricultural activities are regulated when they are located near wetlands and streams. The County first adopted a set of Best Management Practices in 2000 which were to apply to all existing agricultural activities irrespective of zoning. By December 1, 2006 the County is required to have updated these regulations using best available science.

In an effort to ensure that the agricultural and environmental policies of Island County are based on best available science, one option that should be considered is the use of NRCS BMPs. NRCS BMPs are developed at the federal level, but may be modified at the state level to account for regional differences in agricultural and environmental characteristics. Because NRCS BMPs are developed at the federal level the best available science protocols outlined in WAC 365-195-900 thru 925 are not required to be considered. Therefore, in order to consider the NRCS BMPs as an option in Island County it is necessary to determine if they are consistent with the best available science requirements.

Review of Other Jurisdictions

Prior to evaluating the NRCS BMPs against the best available science standards of Chapter 365-195 WAC, staff conducted a search of existing information to determine whether or not this question or evaluation has already been conducted. Our review has concluded that a number of jurisdictions are relying upon the NRCS BMPs as the set of regulations that

protect critical areas from agricultural activities. Skagit, Whatcom, Jefferson, San Juan, Clallam, King and Snohomish all rely upon the NRCS standards for protection of critical areas.

While reliance upon NRCS standards was a common approach, there was very little information available that showed how those jurisdictions concluded that these standards are the best available science. King County prepared a document entitled Best Available Science, Volume II Assessment of Proposed Ordinances in which Appendix A evaluates the effects of agricultural operations on critical areas. King County's written review is focused on evaluation of two types of best management practices, (1) Vegetated Filter Strips, and (2) Cover Crops. The focus of the review of Vegetated Filter Strips centers primarily upon determining the appropriate width. In their review, a number of sources are cited which evaluated appropriate widths. One of those sources includes the NRCS. The following excerpt is taken from that review:

> *"The method to determine filter strip width for the FHWCA is based on this literature review and uses multiple factors to determine the appropriate width of VFS. This approach is generally consistent with recent NRCS methods and applications in other states and in Europe although it produces VFS widths somewhat larger than the NRCS method. The NRCS recommendations are based on considerable research into the effectiveness of filter strips and provide guidance for proper design and implementation of VFSs in many situations. The recommendations of the NRCS are quite general, however, and should be considered minimums. Other slope-based methods yield slightly different values depending on conditions."*

In terms of evaluating specific NRCS BMP standards, this is the only citation offered in the best available science review conducted by King County. Additionally, King County is the only jurisdiction in which there is discussion of how NRCS BMPs do, or do not, comply with the best available science rule.

Review of State Agency Literature

The State Department of Community, Trade and Economic Development has published the "Critical Areas Assistance Handbook" which is intended to provide local government with a guide for updating critical area regulations. Chapter VII is titled "Protecting Critical Areas." The following excerpts from the CTED Handbook are provided:

> *"In developing a critical area protection program, counties and cities need to recognize that different types of agriculture have different types of impacts...Local government needs to understand the types of impacts generated by each type of operation to determine what rules or best management practices will apply to protect the types of critical areas identified in that jurisdiction."* Page 53

> *"Some agricultural uses are regulated by state or local government, usually because of a particular environmental concern related to ground or surface water or air quality. For example, Whatcom County regulates pre-existing agricultural activities that impact wetlands, fish and wildlife habitat conservation areas, and aquifer recharge areas or their buffers in conformance with an adopted conservation program. The conservation*

program is developed to be consistent with the Whatcom Conservation District's best management practice manual and requires the containment of livestock waste. The plan is then filed with both the conservation district and the county, to ensure that the agricultural practices are being implemented." Page 53

"Best management practices have been developed to control water and soil erosion both on the farm and off...Working with the local conservation district, Washington State University Extension Service, or the Natural Resource Conservation Service (NRCS) on identifying the best management practices for the site through a federal program is encouraged." Page 54

"Local governments that include federal programs in their critical areas protection programs need to understand how federal programs fit with local protection goals and requirements, as farmers are very familiar with them. Local governments should work closely with federal agencies and local conservation districts to understand these programs. For example, NRCS can explain how the field office technical guides are used as a basis for best management practices." Page 55

The manual also sites the USDA – NRCS as a source for technical assistance.

The Department of Ecology has published the document Wetlands in Washington – Volume #2: Guidance for Protecting and Managing Wetlands. The following excerpts are provided:

"given that existing, ongoing agricultural activities take place in already drained and/or actively manipulated wetlands (such as grazed wetlands), impacts from bona-fide ongoing agricultural activities are most effectively managed through best management practices." Page 8-18

"The departments of Ecology and Fish and Wildlife recommend the use of best management practices (BMPs) and/or conservation plans for ongoing agricultural activities in wetlands." Page 8-18

The document states that there are two basic approaches that local government should consider. The first approach is the voluntary use of BMPs with monitoring. The second approach is to require BMPs and/or farm conservation plans. In both instances the Conservation Districts are sited as a resource in providing technical assistance to landowners. This document also cites the Whatcom County approach as described above.

While the DOE document does not cite NRCS BMPs as the best available science or the recommended approach, there is a clear emphasis on the use of BMPs for existing, ongoing agricultural activities.

Western Washington Growth Management Hearings Board

The Western Board has concluded that in order to make a determination whether a local government has included the best available science it would examine each case individually, applying three factors:

1. The scientific evidence contained in the record.
2. Whether the local government's analysis of the scientific evidence and other factors involved a reasoned process.
3. Whether the local government's decision was within the parameters of the GMA as directed by the provisions of RCW 36.70A.172(1).

NRCS BMPs and Best Available Science

It is not the intent of this review to evaluate each NRCS BMP and determine if it is compliant with the best available science rule. The intent of this review is as follows:

- Determine whether or not the NRCS BMP program on balance is the best available science, and
- Determine if there is evidence that suggests that the NRCS BMPs are not the best available science.

A literature review of whether NRCS BMPs constitute the best available science does not yield a definitive answer.

- **The Department of Community, Trade and Economic Development (CTED)** identifies NRCS as a resource that should be consulted when developing and/or implementing policies that intend to protect the environment from agricultural uses.
- **The Department of Ecology** supports the use of BMPs for existing, ongoing agricultural activities and has indicated a general support for using Conservation Districts (who utilize NRCS BMPs) for farm planning. Both DOE and CTED cite Whatcom County as an example when reviewing/developing environmental policies that strive to protect the environment. Whatcom County is utilizing NRCS BMPs.
- **The Department of Fish and Wildlife** also states that they support the use of BMPs for existing, ongoing agricultural activities.
- **The Washington State Conservation Commission** has provided Island County with the opinion that NRCS BMPs are the best available science.
- With respect to vegetated filter strips, **King County** has concluded that NRCS standards are based on considerable research but that the buffer widths should be considered a minimum standard.

In order to determine whether NRCS BMPs are the best available science, Island County must apply the principles provided for in WAC 365-195-905(5) which states that "scientific information can be produced only through a valid scientific process." Island County has directed the following questions to NRCS which will aid in this best available science determination:

1. Are the NRCS BMPs produced through a valid scientific process?

2. Is peer review conducted when BMPs are developed? What type of peer review is conducted, e.g. internal or external?

3. Are peer reviewers qualified scientific experts? What kind of qualifications do they have?

4. Are the methods used to obtain information clearly stated and able to be replicated?

5. Were the methods used to obtain information standardized in the pertinent scientific discipline or, if not, were the methods appropriately peer reviewed?

6. Were the conclusions presented based on reasonable assumptions supported by other studies? Are gaps identified and explained?

7. Is data analyzed using appropriate statistical or quantitative methods?

8. Was information placed in proper context? Were the assumptions, analytical techniques, data and conclusions appropriately framed with respect to the prevailing body of pertinent scientific knowledge?

9. Are the citations to references relevant and to credible literature?

Conversations with Frank Easter, State Resource Conservationist for NRCS in Washington State have provided some insight regarding the NRCS BMPs, how they are developed, implemented and monitored. A summary of a conversation with Mr. Easter on August 24, 2005 follows:

There are about 170 different conservation practices e.g. Best Management Practices that are utilized by NRCS each with a different purpose. These practices are established at the national level and provided to each field office who has responsibility for oversight of that region's Field Office Technical Guide (FTOG). The state can accept the adopted practice or, within one year of its adoption, it may proceed through a process of modifying the standard. Standards may be made more restrictive but not less restrictive. Additionally, the state is not permitted to modify any definitions or the name of the standard and it cannot delete any of the purpose statement that has been adopted. The state may add to the purpose statement, clarify the standard or make the standard more restrictive.

Every practice adopted is assigned a technical review person who is responsible for monitoring of the practice. Each practice is reviewed at least every 5 years, if not more frequent. The technical person who reviews the practice is required to conduct a literature review of advancements in technology and science that are applicable to the standard. The technical person that is assigned may either be an NRCS employee or an employee of a university which NRCS has partnered with. Upon completion of the review, draft findings/amendments are circulated around the country for peer review. Peer review is conducted by other NRCS technicians and/or university researchers. If amendments are proposed they are placed in the federal register for additional review and comment. Once adopted, the approved standard is forward to the states who may accept or choose to modify due to local considerations.

While some practices are reviewed and modified based on literature research, others are modified as a result of field experimentation. For untested modifications to existing practices or for the creation of new practices, 2 to 3 years of field experimentation is first conducted. Experimentation and testing is conducted for 2 to 3 years and mandates that a report be prepared at the conclusion of each year documenting success, failures, observations, etc. At the end of the experiment a final report is prepared along with a recommendation as to whether or not it should be accepted as a national practice. The proposal is routed to all other parts of the country where the standard would apply for peer review. Prior to adoption of the standard, it is published in the federal register for review and comment.

There is no standardized protocol for BMP review, both in terms of the frequency in which they are reviewed (save for the fact that all BMPs are reviewed at least every 5 years) and method in which review and update occurs. Some BMPs are assigned a single individual, others are assigned a full team; some are reviewed more frequent than others; each BMP will vary in the amount of peer review – but all receive peer review; some involve review by NRCS staff only, others include researches from universities. A file for all practices is maintained in Washington D.C. that contains all of the supporting scientific literature.

Mr. Easter makes the point that BMP creation and implementation is fluid, but grounded in science. And that it is not the single BMP that provides the protection, rather it is the combination of many BMPs, applied on a farm unit, that provide protection to the natural resource systems. The emphasis of NRCS farm planning is to build a system of practices that work for the farmer and protect the natural resources. The natural resources shouldn't be considered individually as much as they should be considered as an entire system. With a wide and diverse variety of BMPs to choose from all interests can be protected and preserved. He references the Field Office Technical Guide which outlines 76 quality criteria that need to be considered when a farm planner is working with a farmer in the development of a conservation plan. Threshold criteria are developed which compare the current state of the resource versus its desired state. Factors such as water, wildlife, plants and air are evaluated. Each farm unit will have its own thresholds that will trigger certain BMPs intended to achieve the desired state. It is an adaptive management approach that provides the most site specific method of protecting natural resources.

NRCS has had an opportunity to review WAC 365-195-900 thru 925 and has indicated that they believe that the development, implementation and monitoring of the NRCS BMPs are produced through a valid scientific process.

Results of Research

The literature research did not yield any information that would indicate that something other than the NRCS BMPs constitutes the best available science. Therefore, NRCS BMPs do, in fact, constitute best available science.

Furthermore, the NRCS BMPs are developed using scientific methods and therefore exhibit the characteristics of scientific information that has been produced through a valid scientific process. While each BMP is developed, implemented and monitored in a different manner, they have all been done so through a valid scientific process. All NRCS BMPs are peer reviewed. NRCS BMPs were developed using methods that are clearly stated and that can be replicated. NRCS BMPs were developed using logical conclusions based on reasonable assumptions. NRCS BMPs were developed using data that been properly analyzed. NRCS BMPs were developed using information in it appropriate context. The NRCS BMPs were developed using techniques, assumptions and conclusions that reference relevant, credible literature.

Attachments:

August 15, 2005 memo from the Washington State Conservation Commission
February 8, 2000 memo from Steve Nissley, NRCS commenting on I.C. Ag BMPs