Merrill, Hannah

From: pearl hewett [redacted]
Sent: Thursday, March 22, 2012 6:14 PM
To: zSMP
Subject: Fw: Dr. Robert N. Crittenden SMP comments, testimony, tables and reviews

----- Original Message -----
From: pearl hewett
To: smp@coclallam.wa.us
Cc: earnest spees ; harry bell ; Jay Petersen
Sent: Thursday, March 22, 2012 2:31 PM
Subject: Dr. Robert N. Crittenden SMP comments, testimony, tables and reviews

I submit the following as my
Clallam County SMP Comment
Pearl Rains Hewett Trustee
George C. Rains Sr. Estate
Member SMP Advisory Committee

Land use and water sheds
Selected letters and essays by
Dr. Robert N. Crittenden

Review of Kitsap County's
Second Draft Critical Areas Ordinance by
Dr. Robert N. Crittenden
June 2005
Crittenden Biometrical

Objections to Both the Majority and Minority Reports
of the Citizen Advisory Committee on Critical Areas Code Updates
by Dr. Robert N. Crittenden
March 28, 2007

With special emphasis on http://www.robertcrittenden.com/land_use_and_water.htm.
Inclusive of the Dr. Robert N. Crittenden SMP comments, testimony, tables and reviews of the following.

Bainbridge Island Marine Buffers (2002)

Skagit County Instream flow in the Samish River, WRIA's 2 & 3 (2002)

Elwha-Dungeness Watershed Management Plan, WRIA 18 (2004)

Pierce County Critical Areas Ordinance regarding Marine Buffers, (2004)

King County Critical Areas Ordinance (CAO) on rural buffers, clearing, grading, and stormwater (2004)

Kitsap County Salmonid Refugia Study (2000) Instream flows, WRIA 15

Draft Critical Areas Ordinance regarding wetlands (2005)

Jefferson County Critical Areas Code Amendments (2006 & 2007)

The following is taken out of context
complete copies are provided in
http://www.robertcrittenden.com/land_use_and_water.htm
or continue reading .

- Another problem with their best available science is that the Department of Ecology funds studies on those issues which they know will be on their agenda in the near future and they tend to provide funding to scientists that generally agree with their viewpoint. Consequently, the studies that are available when the issues arise are a biased sample

- The general approach proposed in both reports may reasonably be expected to result in the opposite of what they aim to achieve because **they penalize those property owners who have protected their critical areas and reward those who have degraded or eliminated them.** That may be expected to promote the further degradation or destruction of critical areas and to foster anti-environmental and anti-government sentiments among the public.

- **A buffer is a government-regulated area. That regulation deprives the property owner of his or her decision-power over that area. That is a penalty.** Jail is another example of that same general kind of penalty, that is, the deprivation of personal decision-power. **It is unjust and contrary to our heritage for people to be penalized when they have done nothing wrong; and it is even more unjust for them to be penalized when they have done the right thing rather than the wrong one. --- The proper approach is to penalize those individuals who do the wrong thing.** For example, those who have deliberately polluted water bodies. We have laws to do that and there is a lack of evidence that such acts have been a significant problem in Jefferson County.

- 13. **Much of what I have said above, is that many of the proposed regulations in both the majority and minority reports are unreasonable. In addition, in many cases they are also arbitrary and unduly restrictive or hurtful to the land owner. Two studies by Stanford Professor P.G. Zimbardo showed that the arbitrary, unreasonable, unpredictable and cruel application of power caused deindividuation among those upon whom it was applied.** That resulted in their depersonalization, emotionalization, group-membership, and irrational and/or anti-social behavior. There were also personality changes among about a third of those wielding the power, such that they come to devise creative ways to torment those who had the misfortune to be under their power.

His first study dealt with these phenomena in an open population, whereas, his second study, which was the more definitive, dealt with them in a simulated prison setting. However, the difference between land-use regulation in Jefferson County and his mock-prison study are not all that great, as buffers are penalties that deprive the victim of decision-power. Although, that is less severe and is in an open setting, instead of a prison, that is the same kind of penalty as a prison sentence. In addition the volunteers who participated in his study were college students and, thus, were the same class of people as enter government. A short quote from his 1982 paper goes a long ways towards explaining what he found: **"The counterpart of the mastery and control [exhibited by the guards] was the depression and hopelessness witnessed in the prisoners." --- We have heard in public testimony or have personally experienced these types of behaviors among government employees, involved in land-use regulation. So, we should not fail to recognize that these phenomena are applicable to land use regulation in this County.**

----- Original Message -----
From: robertc@harpub.com
To: pearl hewett

Sent: Thursday, March 15, 2012 5:08 PM
Subject: RE: Fw: WETLANDS NOT ON SMP MAPS

Pearl,

I first encountered Washington's wetlands assessment methods when I was working in Kitsap County. I have attached my comments on those methods below.

Later, when I was on the critical areas committee for Jefferson County, we also discussed that methodology. I have included a few exerpts from those comments, too.

Their methods came from the Federal Government, so, it may be the same as Oregon's method, or quite similar. However, I don't recall its having a remote or aerial sensing method. However, the methods we can expect are the ones described in the literature available on Ecology's website and cited below.

Here is what I said about those methods. (You will find these comments at http://www.robertcrittenden.com/land_use_and_water.htm. You may freely use them whether whole or in part. --- I have released the copyright for everything on that webpage, because, everything there is already a public document.) :

Generally, the areas that they identify as "wetlands" exist and usually are identifiable. However, there are various different types of wetlands, with different ecological functions. The main questions that arise are in how to combine scores from the various types of wetlands; how best to protect their various functions (that is different protections are needed for different types of wetlands, if any protection is needed at all); and the "science" that they used to create consent for their methods was not science but a political process.

Robert Crittenden

Review of Kitsap County's Second Draft Critical Areas Ordinance

by

Dr. Robert N. Crittenden
June 2005
Crittenden Biometrical

Prepared for the Kitsap Alliance of Property Owners

Section 1: Executive Summary

This report raises serious concerns about the validity of Department of Ecology's (DOE's) recommended regulations, studies and assessment method for wetlands.

1. Kitsap County's wetlands buffers generally follow one of the recommended options that DOE published in Volume 2 of *Wetlands in Washington State.* Specifically they follow option 3 in their Appendix 8C.
2. The key study upon which those recommendations are based, for Western Washington, is the report published by Hruby et al., in 1999.

3. That report presents a new assessment method for Wetlands in Western Washington.
4. Their new method is based on a mechanistic model. That is a decision-making model instead of being one of the conventional approaches for environmental modeling.
5. In developing that new method, they made decisions on which factors should be considered and their relative importance. These decisions are imbedded within their assessment method.
6. Thus, they become imposed, implicitly, upon any jurisdiction which accepts their assessment method. This deprives those jurisdictions of the opportunity to consider these key underlying issues.
7. The local jurisdictions should explicitly address these issues and not accept the new assessment method without considering the possibility of amending it to incorporate local views, concerns and conditions.
8. Their new assessment method should be relatively easy to amend to reflect different views and values. This can be done by changing the weights assigned to each of the variables in their assessment method.
9. If that is done, the County should still be able to rely on DOE for the training and certification of wetlands specialists, as only the computations would differ, not the field measurements, although additional variables could be measured if they are desired.
10. Changing the weighting in the assessment method will change many of the County's required buffer widths, because they reflect the current weighting.
11. Hruby's 1999 report is not a scientific study but reports the conclusions reached by a committee.
12. The objective of that committee was to adapt a national rating system for wetlands to local conditions.
13. They used group processes to reach their decisions: In particular, these appear to have included the Delphi and consensus processes.
14. Those processes can be controlled so that they produce a desired outcome, DOE has expertise in managing those group processes, and they organized and managed the meeting of this committee.
15. Having a familiarity with these methods conducted by DOE, I have little doubt that they obtained the results they desired.
16. The committee field tested their new assessment method, but only to determine whether its results were generally compatible with the old method, not to evaluate its scientific validity.
17. Their new assessment method is partially based on qualitative judgments instead of value-free science.
18. Their new assessment method is also partially based on variables that are correlated with the environmental processes or qualitative values that they considered to be of interest. But, correlation does not prove the existence of a causal relationship between the variables measured and those they predict from them. Thus, their use of these variables lacks scientific support.
19. DOE presented the supporting Best Available Science (BAS) for their assessment method and recommended regulations in Volume 1 of *Wetlands in Washington State.*
20. Their publication of the supporting BAS followed their publication of their assessment method and recommended management options, rather than the BAS being assembled first and the assessment method and management recommendations being based upon it.
21. Although they do not state it explicitly, it appears that this reversal of the order of publication may have occurred because they were following the principles of conservation biology. In particular, Noss and Cooperrider, who laid out these principles, in 1994, recommended that policy goals be established, first, and the science that supports them should be found, subsequently. When this approach is followed, the goals are not based on the science, but the "science" on the goals.

2: Wetlands

2.1 DOE's Wetlands Studies

The Washington State Department of Ecology (DOE) recently completed several coordinated major works on wetlands science, assessment and regulation:

Dyanne Sheldon et al. March 2005. *Wetlands in Washington. Volume 1: A Synthesis of the Science* Washington State Department of Ecology, Lacey WA. --- This is their review of the Best Available Science for Wetlands.

Teri Granger et al. April 2005. *Wetlands in Washington, Volume 2: Guidance for protecting and Managing Wetlands.* Washington State Department of Ecology, Lacey WA. --- This lays out their recommendations for

the regulation of wetlands, particularly in setting buffer widths. Kitsap County is essentially following option 3 in Appendic 8-C. Jefferson County will probably also do this.
Thomas Hruby et al. August 2004. *Washinton State Wetland Rating System for Western Washington (Revised).*Washington State Department of Ecology, Lacey WA. --- This lays out DOE's new rating system for wetlands, based upon the study done by Hruby et al. in 1999.
Thomas Hruby et al. 1999. *Washington State Wetlands Assessment Project for Western Washington.* Washington State Department of Ecology, Lacey WA. #99-115 --- **This is the key study upon which the others rest.**
All four of these works are available online, at ecology's website, www.ecy.wa.gov/programs/sea/pubs. and free printed copies of the first three are available from Ecology upon request.

2.2: The New Assessment Method is a Decision Model

In his 1999 report, Hruby presented a new assessment method for wetlands in Western Washington. It is a "mechanistic model" and he stated that models of that type are decision-making models. That is, they are a standardized or synthetic decision-processes.
This should be contrasted against the two leading conventional forms of mathematical modeling of environmental or ecological processes. These are empirical modeling and realistic modeling. In empirical modeling, an equation or equations are fit to a set of data and are then used to make predictions, whereas, in realistic modeling the form of the equations is derived from the processes they model. Modeling, is conventionally done using either one or the other of these two approaches, depending upon which is appropriate for the particular circumstances.
But, the new assessment method is neither of these. It is a decision-process.
Technically, what that they did. instead of using a mathematical modeling approach, was to use a Baysian-like approach or, perhaps, it would be better to call it a "pre-Baysian" approach. --- In the early or initial stages of a Baysian approach, the decisions are often based upon qualitative judgments and values instead of on hard scientific evidence. That is the stage their method is at and Hruby explicitly stated in several places in his 1999 report that the new assessment method is partially based on qualitative judgments. For example he says on page 15 of his study, in describing his approach of mechanistic modeling, that:
Mechanistic Models are Decision-Making models ... Decision-making models represent "the acquisition and merging of subjective, expert knowledge ... Often several persons with varying backgrounds are to be taken into the analysis, e.g., engineers, ecologists, economists, managers, and politicians" (Varis et al. 1994). Each variable in a model represents a decision criterion used to establish a level of performance, rather than an independent variable that estimates the rate of an environmental process. These decision criteria are bused on the judgments and experience of the Assessment Teams and on the research that has been done to date.
By "performance" he appears to have meant the social or political performance of the assessment method, which he contrasted against the rate of an environmental process. So, when they field-tested their new assessment method, they examined its predictions relative to the old method, presumably, as a similarity would be desirable from a political and social perspective because that would maintain continuity with existing regulations, instead of evaluating its accuracy in estimating the environmental functions and values of wetlands. Thus, the new assessment method was focused and guided by social and political concerns, not by science nor by a concern for protecting or restoring the environment.

2.2 It has Decisions Imbedded Within It

Their new assessment method has values and judgments imbedded within it and imposes them on whoever uses the method. For example, the committee who constructed it made decisions on which functions and values should be considered and the merit of each of them relative to the others.
For a simple example, filtration and wildlife habitat are two such variables but, wildlife habitat often requires much larger buffers than filtration. So, what weight should each of these factors receive?[29]--- Let F stand for the buffer width needed for filtration, H for its width for habitat, W(f) for the statistical weight for filtration, W(h) for the statistical weight for habitat, and B for the recommended buffer width; then if the recommended buffer width is obtained as a weighted mean, it follows that $B=\{W(f)\ F + W(h)\ H\} / \{W(f)+ W(h)\}$. Thus, the recommended value for the buffer width will depend upon the relative value of the two W's. --- That is what

they have done: They have set the weights. By doing this, they have determined the relative importance of these two factors. This has deprived the counties and cities of the opportunity to make the decisions on these important issues.

In particular, they decided to consider habitat for amphibians, including tree frogs and salamanders. Some of these species migrate long distances from the water in which they breed. For some species, that may be as much as half a mile. In contrast, ten meters of buffer may be sufficient to remove more than half of the dissolved nitrogen and phosphorous. So, by giving these two factors equal weight, the recommended buffer becomes effectively determined by the habitat needs of tree frogs and salamanders. At the same time, the value of human uses of the land, which is another variable which might have been considered, but wasn't, received a weight of zero.

Thus, the issue of which factors should be considered and their relative importance were decided by the committee who formulated the new assessment method. Some of the decisions they reached, such as preferring tree frogs and salamanders over land owners, are not ones that a public process would ever be likely to reach. Therefore, this might be seen as a subtle way for removing the decision-power over those issues from the local jurisdictions in order to achieve goals which would otherwise be unachievable.

2.3 This Can be Corrected

The relative values they imposed upon the assessment method can be determined by doing a sensitivity analysis of the equations in their assessment method. Those equations are simple enough that this can probably be done analytically. However, if that is not possible, computer methods are also available. The point is that they made some set of assumptions and each of them should be critically reconsidered to determine whether it is appropriate for Kitsap County. If they are not, a different set of weights can be used, instead. By changing the weights, the County can readily incorporate local views, needs and concerns into the assessment method in place of the decisions which were implicitly imposed upon them.

However, the DOE representative who presented this new assessment method to the Jefferson County Planning Commission, suggested that Jefferson County could change the suggested buffer widths for the various categories, but that they should not change the assessment method. --- Perhaps, she understood the role the assessment method plays in imposing DOE's views and objectives upon the Counties.

If the County chooses to modify the equation used in the assessment method, it should, nevertheless, still be possible for them to rely on DOE's training and certification of wetlands specialists, as only the computation would differ. The field data collected would be the same, although, addition variables could also be measured if they were desired.

However, if the County does not have the time, manpower or technical ability to develop a new equation for the assessment method, they could facilitate it's being developed at some future date, by explicitly giving that equation in their code, instead of adopting it by reference from DOE. At the very least, the County should be more specific where it adopts DOE's assessment method by reference. In particular, the County Code should include the publication dates for the documents describing that method, so that it is clear that the County Code refers to that specific method, rather than whatever DOE's current wetlands assessment method may be, should they change their method at some time in the future. But,. if the County explicitly gives the assessment method in its ordinance, they might also insert a neutral set of weights into it and define their values as a separate item in their code. That would make it easy to change them at some later date.

However, changing the weighting in the assessment method will raise many other issues as that will probably necessitate changing many, if not all, of the buffer widths in the County Code, for they appear to reflect the weighting which is implicit to the new assessment method. For example, their assessment method places a high value or heavy weight on wildlife habitat relative to filtration, but if this situation were reversed, the recommended buffer widths would be markedly reduced.

2.4 Hruby et al., 1999, Presents the Results of a Committee Meeting.

Hruby's 1999 publication was not a scientific study. It was a report of the results reached by a committee. Their objective in meeting was to adapt a national system for wetlands to local conditions. In particular, he stated on page 7 that "The highest categories (that is, classes) for wetlands in a region are defined nationally (Table 1). Subclasses for each of these classes are defined regionally by experts within the area. The wetland

experts in each region can, therefore, tailor the subclasses to address differences in the performance of functions by different wetland types in their region."
They gathered together a group of wetlands scientists to do this. The principle event was a four-day workshop. It was conducted by group processes and, in particular, it appears to have been an application of the consensus and Delphi processes. That is, the scientists were broken into several sub-committees each responsible for a section of the overall project. There was also a central committee of appointed members which gave them their initial direction and afterwards assembled their results. Each of these sub-committees was conducted by the consensus process and had a facilitator to direct and coordinate their efforts. --- The Delphi process was developed by Rand, during the 1950's, and they said that by applying this method they could obtain any desired result from a committee of scientists, whereas the consensus process originated in Elton Mayo's study of industrial psychology. Its purpose was to induce workers to more readily accept top-down control. --- Those of us who have gained a familiarity with the watershed and water resource inventory area (WRIA) processes are well aware of DOE's expertise in the application of the consensus and Delphi processes and their ability to direct these groups' decisions towards whatever outcome they desire.
Nevertheless, whether you believe that DOE deliberately influenced the outcome of that committee towards the one they desired or not, it is clear that Hruby's 1999 report was not a report of the results of a scientific study but gives the results of a committee meeting, instead.

2.5 What the New Assessment Method Measures

Although, they did field test their new assessment method on 122 wetlands in Western Washington,[30] their objective in doing this was to demonstrate that the new assessment method produced wetland classifications which were similar to those provided by the current method.
They did not address questions such as whether their assessment method is reasonable, whether it accurately estimated the level of activity of the various functions and values it purports to assess, nor how much protection which might be needed. In fact, Hruby states on page 21 of his 1999 report that the, "assessment methods do not reflect the degree to which different functions or subclasses should be protected." And on page 15 of that report, he states that the assessment methods "rely on easily observed characteristics that are correlated with the actual environmental processes... When it is not feasible to use a variable because it cannot be rapidly assessed, it is sometimes possible to use an indicator as a surrogate for that variable. Indicators are easily observed characteristics that are correlated with quantitative or qualitative observations of an environmental variable."
That latter statement raises several concerns. The most alarming of these is his "qualitative observations of an environmental variable." Science should be value-free, instead. But, no less alarming is his statement that these qualitative variables are not being measured directly, but some other variable that is correlated to them is measured, instead. The problem with that, is that correlation does not prove the existence of a causal relationship between the measured variable and the other variable it is used to predict. Thus, the substance of what he said is that they were in some cases measuring variables which are not necessarily causally related to the qualitative variables they are trying to predict. --- That is not a valid scientific method.

2.6 DOE's General Approach

One of the reasons for the County's not meeting the deadline, of December 2004, for completing their CAO update may have been that they were waiting for DOE to publish Volume 2 of*Washington Wetlands.* That was not published until April of 2005 and the final draft of Volume 1, which presents the supporting Best Available Science was completed a month later.
Notice that that sequence of events is backwards from what it should be: That is, they completed the suggested regulations first and the review of the supporting science afterwards. They should have completed the review first and then based their regulations upon it. Furthermore, the key study is their new assessment method and that was completed during 1999, five to six years before the supporting science was found.
The explanation for this peculiar sequence of publication dates appears to be that DOE has been following the strategy of conservation biology, as it was enunciated by Noss and Cooperrider, in their 1996 book, *Saving Nature's Legacy.*[31] The principle in question, here, is their recommendation that the science should be found that supports whatever program they desire, rather than basing the program upon the science. In particular, they

say on their page 89, "Conservation biology,..., is not value-free science. Rather it is mission-oriented,... Goal-setting must be the first step in the conservation process, preceding scientific, technical, and political questions."[32] DOE's use of group processes fits well with this general approach because, by using them, a committee of scientists can be induced to provide the desired "scientific" support or, as in this case, the desired assessment method.[33]

If I had only the rather slim evidence provided by just DOE's sequence of publications, I would not have suggested that DOE did this. However, I know from several other sources that this approach has, over recent years, been followed by various parts of DOE. However, rather than belaboring the point, I will merely suggest this as a possible explanation for the peculiar order of their publications.

2.7 Conclusions

Under critical examination, the fabric of DOE's suggested regulations and its supporting "science" falls apart. The key flaw is the study by Hruby et al., in 1999. It is not science but reports the results of a committee meeting and a socio-political process. Unfortunately, basing studies on political doctrine and social processes is not a reliable way to do science. So, it is not all that surprising to find that that study is not scientifically valid and contains serious errors both in scientific methodology and substance. As DOE's three other wetlands studies are based upon that study and their proposed regulation are, too, they do not have a valid scientific basis.

These wetlands studies from DOE also provide a significant part of the basis for the other types of buffers proposed by the County in their second draft Critical Areas Ordinance. That is, its their buffers on streams, lakes and marine shorelines.

Consequently, a thorough reconsideration of the underlying studies is needed and that should be expected to result in corresponding major changes to the County's draft ordinance.

Jefferson County Critical Areas Committee

- 9. " Jefferson County's proposed buffers on wetlands appear to be based on option 3 in Appendic 8C in Volume II of *Washington Wetlands.* The key study on which that is based in a report by Hruby et al. in 2004. However, it is merely a modification of an earlier study by Hruby et al in 1999. That earlier study was a report done by a committee, which appears to have been conducted by the Delphi and Consensus processes. These processes provide a means for directing a committee's conclusions to a pre-determined outcome. Therefore, the results presented in their report should be considered to be dubious.
- 10. That committee repeatedly reached the conclusion that the scores provided by the various elements of their scoring of the quality of a wetland could not be combined to provide an overall score for that wetland. --- Thus, although the first committee's results may be dubious, because of the process, if they are to be regarded as being valid, we should at least respect their repeated conclusion that the individual scores should not be combined. Nevertheless, the purpose of the second report was to combine them to provide overall scores.
- 11. Furthermore, the supporting scientific literature, provided in Volume I of Washington Wetlands, was published after the recommendations made in Volume II, that they support. Thus, Volume I bears the appearance of providing support for a predetermined outcome, instead of the outcome being based upon the science."
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At another place I say,

- "The definition of "wetlands" employed in their delineation in the processes laid out in both the majority and minority reports is so broad that few members of the public would recognize many of them as wetlands nor can large parts of those areas be assumed to have the same functions and values as marshes or bogs. Consequently, the buffers and other policies designed to protect wetlands, under the misapprehension that they are marshes or bogs, are in many cases inappropriate. Furthermore, those regulations will not be likely to be accepted by the public, as they do not appear to serve any legitimate purpose for those large areas of the "wetlands" that are not marshes or bogs.

"

1. Department of Ecology's new wetlands rating system is primarily based on two reports by Dr. Hruby et al. These are not scientific studies but reports of the results of two meetings convened for the purpose of obtaining support for the adoption of a new wetlands rating system based on some ideas that were, at that time, being promoted by the Federal Government. However, the attendants at the first of those meetings repeatedly rejected the idea that an overall score for the value of a wetland could be obtained by combining scores from the various functions. So, in order to achieve their predetermined outcome (that is, obtaining support for the acceptance of their new wetlands rating system) the department convened a second meeting for the purpose of obtaining support for combining the scores from the various functions. I presume that they did not invite those individuals who had objected strenuously to the combining of scores during the first meeting and that, had they failed to obtain their desired outcome in the second meeting, they would have held yet another meeting. Thus, by the evidence of their own supporting literature, their rating system was not supported by the scientific community.