

SAP 4.2 Public Review Comments 10-24-08

Chapter	Responder	Page	Line	Comment	Reviewer	Notes
General	Charles			want emphasis, or case study, on Great Lakes ecosystem with 20% of freshwater	Victoria Peebles-GLC	Rejected - insufficient literature to support this
General	Charles			The draft is selective and illustrative as if written for lay readers, so it will not be a literature review to which ecologists will likely turn. But the language and detachment from human consequences will not provide much access or stimulus to lay readers.	John Weiner	Noted
General	Charles			This is certainly worth serious editing and clarification throughout, and warrants guides such as tables of comparison and "sign-posting" about what is being done and why. The only graphics are actually rather technical and fail in black and white.	John Weiner	Accepted - done
General	Charles			Therefore, I wish to make quite plain that my criticisms are actually directed at the process management which seems clearly to have demanded a review draft before it was ready; having read the work of some of the authors, it is clear to me that this is not where they would have stopped. I hope these comments are helpful and that the authors will be given enough time to do what they would like to do with this work.	John Weiner	Noted
General	Jellison	6		Cite fishery disasters as examples of threshold failures with important local and regional consequences.	John Weiner	Noted - Exec Summary must mirror content of report
General	Jellison	12-13		Add description of maximum economic yield versus maximum biological or "sustainable" yield (short non-technical explanation and references in in Wiener, J.D., 1995, Common property resource management and northern protected areas. In: Peterson, D.L. and Johnson, D.R. (eds.), <u>Human Ecology and Climate Change -- People and Resources in the Far North</u> . 207-218. Taylor and Francis, Washington, D.C)	John Weiner	Noted - Exec Summary must mirror content of report
General	Jellison	12-13		Add reference and note on Clark and Munn, Eds., 1986 – several relevant chapters, E.g. Holling, C.S. 1986. The resilience of terrestrial ecosystems; local surprise and global change. In: W.C. Clark and R.E. Munn (eds.). Sustainable Development of the Biosphere. Cambridge University Press, Cambridge, U.K. Chap. 10: 292-317.	John Weiner	Noted - Excellent reference, but references removed from Exec Summary to comply with CCSP and agency guidelines

General	Jellison	12-13		Add reference to Clark, (this is Colin, not William); most relevant may be the following. Relevance is that current valuation with positive discount rates is critical in inability to manage sustainably.	John Weiner	Noted - Excellent reference, but references removed from Exec Summary to comply with CCSP and agency guidelines
General	Jellison	12-13		Clark, C., 1991, Economic biases against sustainable development. In: Costanza, R. (ed.), <u>Ecological Economics -- The Science and Management of Sustainability</u> . 319-330. Columbia University Press, New York.	John Weiner	Noted - Excellent reference, but references removed from Exec Summary to comply with CCSP and agency guidelines
General	Jellison	12-13		Clark, Colin, 1973, Profit Maximization and the Extinction of Animal Species The Journal of Political Economy, Vol. 81, No. 4 (Jul. - Aug., 1973), pp. 950-961.	John Weiner	Noted - Excellent reference, but references removed from Exec Summary to comply with CCSP and agency guidelines
1	Charles	14	10	Wording confusing here; increase in energy balance? Not what you mean, I think.	John Weiner	Noted - clarified
1	Charles	15		Cite Lewis et al. National Research Council report on Klamath.	John Weiner	Accepted
1	Charles	16		Cite Turner, B.L. II, et al. Eds., 1990, The Earth as Transformed by Human Action. Cambridge: Cambridge University Press, and Thomas, W.L., Ed., 1956, <u>Man's Role in Changing the Face of the Earth</u> . University of Chicago Press, Chicago.	John Weiner	Noted
1	Charles	17	1	Policy makers should want objective sources of information, but using here the word "need" inadvertently affirms claims that without information that meets the demands of some policy maker, no action is appropriate. This has been heard too often for reasons of evasion.	John Weiner	Noted
1	Charles	18	6-7	The intergovernmental nature of IPCC is not causally linked to policy neutrality. Neutrality was achieved by design of an extensive and laborious review practice and often sacrifices of information too new to be so thoroughly reviewed.	John Weiner	Noted

1	Charles	Sec 1.1		There is a startling lack of anthropology, historical geography and allied studies in this section. The case for the importance of ecosystem changes is not absent in the literature, but it may be necessary to engage appropriate scholars on this. An example of a short summary is in SAP 3.3 on Climate and Weather Extremes. It seems irresponsible to limit the power of this document by overlooking the relevance of these issues to human catastrophes on many scales, past and present.	John Weiner	Taken into account - not within purview of document
2	Fagre	23	3	The risk is not to the managers, but to the resources and those adversely affected by their degradation.	John Weiner	Accepted - removed risk
2	Fagre	23	17	The term "phenomenology" refers to the epistemological and psychological methods developed by Edmund Husserl and his successors; this is not the word you want here.	John Weiner	
2	Fagre	24	9	Maybe a place here for citation of the older work and the long development of these ideas, or some historical treatment of their development.	John Weiner	
2	Fagre	25		THANKS for the mention of the very unfortunate Magnusson mess, and the failure of the maximum sustained yield idea in a complicated very poorly monitored situation.	John Weiner	Noted
2	Fagre	26	15-23	This is not clear, and has grammatical errors; please revise.	John Weiner	Noted - done
2	Fagre	31		Nice synthesis job here; thanks!	John Weiner	Noted
2	Fagre	33	4	after "...carrying capacity can ADD: DIFFERENTIALLY ADVANTAGE SOME SPECIES AND provoke a rapid..."	John Weiner	Accepted
2	Fagre	33	15	Not 'species as a whole', "system as whole" (typo mentioned since might be missed)	John Weiner	Accepted
2	Fagre	33-35		Please consider the principle that humans are astoundingly, perhaps unfortunately capable of input substitution, so that human-influenced resource exploitation systems are subject to cascading and synergistic failures, as when excessive marginal costs of overused resources result in increased pressure on substitute resources, as demonstrated in the destruction of fishery after fishery.	John Weiner	Noted
2	Fagre	34	19	Triage is not a good substitute for prioritize; later discussion makes a useful distinction but not this part and it is not helpful here unless clarified. I would omit it.	John Weiner	Accepted

3	Fagre	55	10-15	Excessive density (up to 400% of sustainable levels) in mature forest growth in the Southwest also has increased vulnerability to climate-induced water stress contributing to die-offs from disease, infestation and drought, and to increased intensities of forest fires. Human mismanagement of these forests is a likely contributing factor.	Thomas Carter	Accepted
3	Charles	36		In opening paragraph, please clarify the intention of these case studies as distinct from the examples in chapter 4; the idea is not developed and this complicates the discussion in Chap. 4 where the comparisons and references could be clearer.	John Weiner	Noted
3	Charles	36	13	Spell out Prairie Pothole Region as first use here.	John Weiner	Accepted
3	Charles	37	8-9	Editing needed.	John Weiner	Noted
3	Charles	42	11-15	Also needs editing	John Weiner	Noted
3	Charles	49		Please add short paragraph spelling out sequence of effects up to fisheries and mammals, so that most readers can appreciate how important this is for humans as well as ecology.	John Weiner	Accepted
3	Charles	55		Also here, please add a short paragraph on the potential effects of these changes.	John Weiner	Noted
3	Charles	60		Please add sentence on soil erosion in this situation; seems unclear in the draft.	John Weiner	Noted
3	Charles	61		Diagram is excellent but here and in the other use it loses legibility in black and white.	John Weiner	Noted
3	Charles	64-65		Please add short paragraph on why everyone should care about this, and how important this is for the human indigenous and current populations.	John Weiner	Noted
3	Charles	66	7	Please explain "bioerosion".	John Weiner	Noted
3	Charles	68	1-4	editing, "Carbonate" in line 4 looks like a typo.	John Weiner	Accepted
3	Charles	68	21	"Buffered" seems to be the wrong word, since it has a meaning in chemistry which is not the same as "somewhat protected".	John Weiner	Noted
3	Charles	69		Somewhere, I would add a sentence about the interactions of the changes of chemistry and temperature	John Weiner	Noted
3	Charles	74		Please add more here on the great importance of corals in support of their ecosystems and ultimately also the humans who exploit (or over-exploit) them.	John Weiner	Noted

4	Charles	75-78		<p>This chapter presents examples of past threshold changes in ecosystems, and yet makes no mention of the Great Lakes. A report by Bails et al.<sup>2</sup> discusses specific instances of these kinds of ecosystem changes. These, taken directly from the report, include:(1) persistence of the anoxic/hypoxic zone in the central basin of Lake Erie and other stresses in the eastern and western basins; (2) continued symptoms of impairment (including eutrophication) in Saginaw Bay and Green Bay; (3) well-documented rapid disappearance of the once abundant amphipods in the genus Diporeia in sediments of large areas of all the lakes (except for Lake Superior) and concomitant food web disruptions; (4) recent declines in growth, condition and numbers of lake whitefish in Lake Michigan and portions of Lake Huron; and (5) elimination of the macrophyte (i.e. rooted plant) community and simplification of the benthic food web, in Sandusky Bay on Lake Erie and Cootes Paradise in Hamilton Harbour on Lake Ontario, due to sediment and other pollutant loads. Any or all of these examples could be used to bolster the findings of this report.</p>	Victoria Peebles-GLC	Taken into account - section rewritten
4	Charles	77	13	<p>This section focuses primarily on marine and terrestrial ecosystems, but a more pronounced attention to freshwater systems is warranted. For example, here there can be a direct reference to water temperatures in the Great Lakes. Suggest: "...organisms. <i>Warmer temperatures in freshwater systems such as the Great Lakes tend to favor the reproduction and spread of non-native invasive species while having a detrimental impact on native species.</i>"</p>	Victoria Peebles-GLC	Taken into account - section rewritten
4	Charles	77	15	<p>This section focuses primarily on marine and terrestrial ecosystems, but a more pronounced attention to freshwater systems is warranted. For example, here there can be a direct reference to precipitation events in the Great Lakes. Suggest: "...for aquatic biota. <i>Increased severity of precipitation events can lead to increased runoff, which carries larger loads of sediments, nutrients and contaminants that can alter foodwebs and cause hypoxia, as is the case in Lake Erie and the Gulf of Mexico.</i></p>	Victoria Peebles-GLC	Taken into account - section rewritten

4	Charles	77	17	<p>This section focuses primarily on marine and terrestrial ecosystems, but a more pronounced attention to freshwater systems is warranted. For example, here there can be a direct reference to ice cover in the Great Lakes. Suggest: "...melting ice cover. <i>In the Great Lakes, on the other hand, warmer temperatures that have led to reduced winter ice cover on the lakes are resulting in decreasing lake levels and more severe winter storm events in the region.</i>"</p>	Victoria Peebles-GLC	Taken into account - section rewritten
4	Charles	78	22	<p>This section focuses primarily on marine and terrestrial ecosystems, but a more pronounced attention to freshwater systems is warranted. For example, the latter portion of the paragraph deals with salt marshes, but a reference to changes in equivalent freshwater wetlands is warranted, both by the Alaska and PPR case studies and by ongoing change events in the Great Lakes region. Suggest: "...has been described as ecosystem state change (Milleret al. et al. 2001). <i>In freshwater systems, changing water levels also produce changes in wetland type and/or the outright disappearance of large tracts of wetland as a whole, with accompanying ecosystem impacts.</i>"</p>	Victoria Peebles-GLC	Taken into account - section rewritten
4	Charles	79	15	<p>This section focuses primarily on terrestrial ecosystems, but a more pronounced attention to larger freshwater systems is warranted. For example, the paragraph makes mention of wetlands impacted by changes to snowpacks, but a reference to impacts caused by other factors is also warranted. Suggest: "...Diminished snowpacks that melt earlier in the spring <i>and warmer waters that evaporate at higher rates</i> have affected the timing and extent of seasonal wetlands where amphibians breed."</p>	Victoria Peebles-GLC	Taken into account - section rewritten
4	Charles	79-80		<p>This section places most of its emphasis on the potential positive impacts of increased moisture availability in terrestrial ecosystems. For better balance, more emphasis could and should be placed on potential negative impacts, such as improving conditions for species not native to the region. Examples can be found in both the terrestrial systems already used and in freshwater systems such as the Great Lakes, as well as in marine ecosystems.</p>	Victoria Peebles-GLC	Taken into account - section rewritten
4	Charles	81-86		<p>Although this section focuses on the issue of drought, increased flooding events should also be noted as an issue. For example, increased flow will tend to increase runoff of nutrients and sediment, which can lead to phytoplankton blooms and ecosystem changes, as has been the case in Lake Erie.</p>	Victoria Peebles-GLC	Taken into account - section rewritten

4	Charles	76		This section needs work for better accessibility. The “contagious” nature of erosion is a technical term from spatial analyses, but without knowing that it looks confusing at best. A large percent of the readers may be just boggled by the linkage of desertification to establishment of woodlands; the sources of this section are working with terms that are not widely used in the same way.	John Weiner	Taken into account - section rewritten
4	Charles	77		Cite IPCC as elsewhere	John Weiner	Noted
4	Charles	77	20	Another example of editing needed; at the least, explain landward movement of the wetlands to provide a sense of the meaning of “transgressive” and better yet, omit the term as it adds so little for readers not already versed in the area. The only good reason for retaining such technical terms is to facilitate searching for keywords, where the document will not serve as technical source in itself.	John Weiner	Accepted
4	Charles	81		Similarly, lotic is a fine term, and so is lentic and so is benthic, but what does it add here? Readers would probably prefer to have at least a cursory definition.	John Weiner	Noted
4	Charles	83	8	Given the availability of many credible sources on water withdrawals, including those in the USGCRP, World Resources Institute, and USGS, using EPRI seems unfortunate, especially given its history and very purpose of industry advocacy vis-à-vis regulation and government science such as this very document. EPRI service as technical source for many years of energy industry claims has established its role.	John Weiner	Taken into account - section rewritten
4	Charles	86		Controls on riparian vegetation are complex and relate to successional change influenced by all aspects of the hydrograph (short summary in Wiener et al. 2008, Water Resources Impact 10(3)). It is not feasible to go into great detail here but the remarkable degree of human influence on almost all riparian environments should be acknowledged. Due to inability to link at this moment to sources, I apologize for being unable to cite the nice example from recent publication on the extent of sediment change and mill-pond structural change in New England riparian areas, but it should be easily discovered; it had some press coverage, I believe.	John Weiner	Taken into account - section rewritten
4	Charles	87		Cite Gunderson and Holling here? Also, Schimel and others (again, my apology for inability to provide citations) work on carbon sequestration and balances may be valuable for claims regarding the different lags and pool behavior.	John Weiner	Taken into account - section rewritten

4	Charles	88		Please add paragraph summary highlighting multiple stressors, synergy, and complexity, particularly as affecting predictability and therefore carrying strong pressure for management capacity improvements (and a segue to chapter 5).	John Weiner	Taken into account - section rewritten
5	Charles	90		If you are interested in such things as hierarchy theory, see Feibleman, James K., 1954, Theory of Integrative Levels. British Journal for the Philosophy of Science, 17: 59-66 for an early logical approach.	John Weiner	Noted
5	Charles	91		Odum is not mentioned, perhaps in keeping with general omission of historical development, but flows and fluxes are at the roots of contemporary understanding.	John Weiner	Noted
5	Charles	93		Allan source? Again, diagram fails in black and white, but could be redrawn.	John Weiner	Noted
5	Charles	94	16-22	Logic here seems inverted. But more importantly, this may confuse more than help in explaining continuum of active intervention to passive observation, because in all cases of adaptive management the emphasis is on intensive observation and development of institutional capacity to respond when appropriate and to respond flexibly.	John Weiner	Noted
5	Charles	97	2	Please revise this sentence. Land user involvement is especially important at this scale because local management may include responses to degradation or other external conditions which may offer short-term advantage but further decrease resilience. Especially, please, omit "mitigate" here, since it is so freighted with current uses for other purposes.	John Weiner	Accepted
5	Charles	100, 102	10, 17-19	Please re-think this idea that water storage may be a simple answer, without consideration of critically important problems, including lack of water to store due to the conditions creating the shortfall in supply, as well as the other impacts of storage and further deformation of the pre-development hydrograph and riverine hydrology.	John Weiner	Noted
5	Charles	94		One very important aspect of Adaptive Ecosystem Management is that it considers management an <i>iterative</i> process. We suggest appropriate language be added to this section to reflect this necessary and important element.	Victoria Peebles-GLC	Noted - authors feel the iterative process is addressed
5	Charles	95	10	Generally, once invasive species become established, removal is impossible. We suggest the following addition: "removing introduced invasive species, and preventing the introduction of other non-native species."	Victoria Peebles-GLC	Noted



5	Charles	101	19-20	This section emphasizes that regional-scale approaches are necessary because climate change may affect different ecosystems in similar ways. In addition, it should be noted that an ecoregion-based approach to ecosystem management may be more effective than, say, a state-by-state approach or one using other administrative boundaries.	Victoria Peebles-GLC	Noted
5	Charles	102	11	This section continuously references adaptation, which is presumably covered in Section 5.2: Adaptive Management. We suggest merging sections 5.2 and 5.3, or else re-writing to make the difference between them more apparent.	Victoria Peebles-GLC	Noted
6	Fagre	110		Conclusion should clearly state that threats to many ecosystems are threats to long-term sustainability of human users as well as biodiversity and biological adaptive capacity, and that these threats are also frequently realized in locally very destructive fashion from the perspective of local and regional economies as well as environments. Again, the earlier noted call for human historical impacts of ecosystemic degradation and abrupt change would support this conclusion that people should care about this stuff – if that discussion were available above	John Weiner	Accepted - text added