From:	Thomas Armitage
To:	Armitage, Thomas
Subject:	Fw: Project Sheet 12-20: Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence
Date:	Monday, July 28, 2014 6:19:07 PM

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Regular mail: USEPA Science Advisory Board (1400R), 1200 Pennsylvania Ave., N.W., Washington, D.C. 20460

Office location/Courier Address: USEPA Science Advisory Board, Ronald Reagan Building, 1300 Pennsylvania Avenue, N.W., Suite 31150, Washington, D.C. 20004

----- Forwarded by Thomas Armitage/DC/USEPA/US on 07/28/2014 06:18 PM -----

From: Angela Nugent/DC/USEPA/US
To: Vanessa Vu/DC/USEPA/US@EPA
Cc: Thomas Armitage/DC/USEPA/US@EPA, Thomas Brennan/DC/USEPA/US@EPA
Date: 04/23/2012 02:21 PM
Subject: Project Sheet 12-20: Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence

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Please see below

_____

Angela Nugent, Ph.D.
Special Assistant/Designated Federal Officer
EPA Science Advisory Board Staff Office

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US.Environmental Protection Agency
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----- Forwarded by Angela Nugent/DC/USEPA/US on 04/23/2012 02:20 PM -----

U.S. Environmental Protection Agency

EPA Science Advisory Board **Product database**

Project Sheet - 12-20

Date Submitted: 07/28/2014

Publish on the Web

Agency Request

1.	**Project Title**	Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence
2.	**Project Short Title**	Watershed Connectivity Report
3.	**Fiscal Year SAB Activity Desired to Begin**	2013
4.	**Quarter SAB Activity Desired to Begin**	1st Quarter
5.	**Assistant Administrator/Regional Administrator making request**	ORD
6.	**Requesting Office**	Office of Water Office of Research and Development *** Separate multiple Requesting Offices with commas**
7.	**Requesting Official (Division Director or above)**	Becki Clark/DC/USEPA/US
8.	**Requesting Official's Title**	Acting Director, NCEA
9.	**Program Contact**	Laurie Alexander/DC/USEPA/US
10.	**Program Contact's Phone**	703-347-8630
11.	**Program Contact's Mail Code**	8623-P

12. Background for this SAB Advisory Project:

The report titled "Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence" was requested by EPA's Office of Water. It provides a review and synthesis of the scientific evidence pertaining to physical, chemical, and biological connections from streams, wetlands, and open-waters to downstream waters such as rivers, lakes, estuaries, and oceans. The review is focused on connections from small or temporary streams, wetlands, and certain open-waters, evaluated singly or in aggregate, and the mechanisms by which they affect the function or condition of downstream waters. The goals of the report are to (1) provide a context for considering the evidence of connections between rivers and their tributary waters, (2) summarize current understanding about these connections and associated downstream effects, and (3) discuss factors that influence the degree of connectivity or the magnitude of a downstream effect.

13. Tentative Charge:

1. This report concludes that all streams, regardless of flow duration or size, are physically, chemically, and biologically connected to rivers; and these connections, individually or cumulatively,

exert a strong influence on the character and functioning of downstream waters.
a) Are these conclusions supported by the scientific evidence?
b) Does the report include the most relevant peer-reviewed literature on these topics, including evidence of connectivity and isolation? If not please indicate which references are missing.
c) Was the reviewed literature cited and summarized correctly? If not please indicate where correction or revision is needed.

2. This report concludes that open water and wetlands in riparian areas and floodplains of streams and rivers are physically, chemically, and biologically connected with the river network, and that their functions exert a strong influence on the character and functioning of downstream waters.
a) Are these conclusions supported by the scientific evidence?
b) Does the report include the most relevant peer-reviewed literature on these topics, including evidence of connectivity and isolation? If not please indicate which references are missing.
c) Was the reviewed literature cited and summarized correctly? If not please indicate where correction or revision is needed.

3. This report concludes that for non-riparian/non-floodplain wetlands that are not connected to the river network through a stream channel (i.e., geographically isolated wetlands and wetlands that spill into losing streams), connectivity and isolation vary within a watershed and over time, making it difficult to generalize about their connections to, or isolation from, downstream waters. The literature we reviewed does not provide sufficient information to evaluate the degree of connectivity (absolute or relative) of these non-riparian particular wetlands.
a) Are these conclusions supported by the scientific evidence?
b) Does the report include the most relevant peer-reviewed literature on these topics, including evidence of connectivity and isolation? If not please indicate which references are missing.
c) Was the reviewed literature cited and summarized correctly? If not please indicate where correction or revision is needed.

4. This report concludes that while the influence of a particular stream or wetland on downstream waters might be small, the aggregate contribution by an entire class of streams or wetlands (e.g., all ephemeral streams in the river network, or a cluster of small wetlands) might be substantial.
a) Is this conclusion supported by the scientific evidence?
b) Does the report include the most relevant peer-reviewed literature on this topic? If not please indicate which references are missing.
c) Was the reviewed literature cited and summarized correctly? If not please indicate where correction or revision is needed.

14. Applicable GPRA Goal Objectives:	Goal 2: Protecting America's Waters

15. Description of and citation for any legal obligation/directive for SAB Review:
Not applicable

16. Principal interested and affected parties; information to be considered by SAB Staff Office in determinations of conflict of interest and impartiality.	Trade associations (e.g., National Association of Homebuilders, National Association of Manufacturers) and environmental groups (e.g., American Rivers, National Wildlife Federation) are following this report. Media interest in this report expected to be moderate. There is also Congressional interest.
17. Type of SAB advice requested	Peer Review
18. Why should the SAB advise on this Project?	This report is classified as a Highly Influential Scientific Assessment (HISA)
19. Disciplinary expertise requested	Freshwater Sciences; Hydrology of large rivers and small streams; Wetland hydrology; Surface-groundwater interactions; Stream ecology; Stream ecosystem function; Wetland ecology; Wetland ecosystem function; Biogeochemistry; Nutrient dynamics; Population dynamics of freshwater organisms;

	Fisheries; Aquatic entomology; Amphibian biology; Wetland plant sciences; Hydrologic connectivity; Biological connectivity; Water quality

20. Yearly budget for development of project or review document:

FY	2011
Extramural Budget	75,000.00
FTE	6

21. Past Peer Reviews:

In February 2011, the internal review draft underwent peer consultation by peer reviewers from federal agencies (EPA, USGS, USDA, the Army Corps of Engineers), academia and consulting groups. This was followed by internal review by scientists from the Office of Water. A second and revised internal review draft was developed in July 2011 and was reviewed by EPA scientists from OW and the Regions as well as scientists from the Army Corps of Engineers.

Eastern Research Group, Inc. (ERG) organized an independent peer review under Task Order 121, contract EP-C-07-024. The panel meeting was held on January 31, 2012. The purpose of the review was to identify any problems, errors, or necessary improvements to the report prior to being published or otherwise released. ERG was responsible for identifying and selecting the expert reviewers, managing the review, organizing and facilitating a one-day peer review meeting, and preparing the peer review summary report.

ERG identified and secured the services of eleven nationally recognized experts to conduct this review:

· David J. Cooper, Ph.D., Colorado State University
· William G. Crumpton, Ph.D., Iowa State University
· Kenneth W. Cummins, Ph.D., Humbolt State University
· Walter K. Dodds, Ph.D., Kansas State University
· James W. La Baugh, Ph.D., U.S. Geological Survey
· Mark C. Rains, Ph.D., University of South Florida
· John S. Richardson, Ph.D., University of British Columbia
· Joel W. Snodgrass, Ph.D., Towson University
· Arnold van der Valk, Ph.D., Iowa State University
· Mark S. Wipfli, Ph.D., U.S. Geological Survey
· William R. Wise, Ph.D., University of Florida
-- Since Dr. Wise was unable to attend the workshop, only his pre-meeting comments were recevied.

ERG provided the reviewers with a letter of instruction and the technical charge. In the first stage of the review, the experts worked individually to prepare written pre-meeting comments, which were provided to all reviewers and EPA prior to a one-day peer review meeting. In the second stage, ERG convened the one-day meeting on January 31, 2012, at a venue in Washington, DC. Ten of the eleven reviewers participated in the workshop; Dr. Wise was not able to attend.

The meeting was closed to the public and considered an internal EPA deliberative process. Observers from EPA and the U.S. Army Corps of Engineers attended to listen to the discussions. The meeting process was facilitated by Ms. Kate Schalk, of ERG, and the technical discussions were led by Dr. Walter Dodd. At the close of the meeting, the reviewers developed some brief highlights of their discussions, which follow this introduction. After the meeting, reviewers revised their pre-meeting comments to reflect their views as they had evolved based on the meeting discussions. The reviewers' final post-meeting comments are provided in this report. These comments reflect the individual opinions of the reviewers.

	Comments received from the panel review and the public are being used to prepare a second External Review Draft for SAB review.	
22.	**Description of Quality Management/Quality Assurance used in development of this program or project:**	
23.	**Entered by:**	Laurie Alexander
24.	**Phone for Person Entering Project Sheet:**	703-347-8630

SAB Staff Office Project Management

1.	**Comments:**	
2.	**SABSO Background Statement**	
2a.	**SAB Topic**	Ecological Assessment/Methods
3.	**Senior Management memo requesting project**	
4.	**Assignment of Responsible Tier 1 or Tier 2 FACA Committee**	Ad Hoc Panel Being Formed
	Tier 1 Parent Committee	BOARD
5.	**Assigned to SAB Staff**	Thomas Armitage 202-564-2155
	Email	armitage.thomas@epa.gov
	SAB Management Lead	
6.	**Overall Project Status**	Inactive
	SubCategory Status	Project in Queue for Planning Phase
	Project Status Comment	
7.	**Fiscal Year SAB Staff Expects Activity to Begin**	2013
8.	**Quarter SAB Staff Expects Activity to Begin**	
9.	**Date OD Discussed Charge with Program Office**	
	Planning Memorandum:	
	Date attached to Project Sheet	
10a.	**Request for nominations:**	
	Display Web based form	No
10b.	**Publication of List and Biosketches of Candidates:**	
	Status of List and Biosketches of Candidates:	single
	List and Biosketches of Candidates:	
	Date posted to SAB website	
	Deadline for public comments	
10 c.	**List of Candidates memorandum**	

Date attached to Project Sheet

10d. Determination Memo

Date attached to Project Sheet

11. Draft Reports:

12. Reports:

13. Agency Charge:

14. Agency Review Document PDFs:

Name(s):

*** Separate multiple Names with semicolons**

PDF file(s):

14a. Agency Review Background URLs:

Name(s):

*** Separate multiple Names with semicolons**

URL(s):

*** Separate multiple URLs with semicolons**

History

SAB Staff who Accepted Project Sheet: Angela Nugent
Accepted on: 04/23/2012