

**From:** [Burck, Peter](#)  
**To:** [Stewart, David R](#); [Harris, Grant](#)  
**Cc:** [Harden, Tasha](#)  
**Subject:** Re: Water budget  
**Date:** Monday, May 11, 2020 12:56:23 PM  
**Attachments:** [20200511 SBR Draft Pond Water Requirements REVISED](#) (b) (5)

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Hi Randy,

Thanks for the question. (b) (5)

(b) (5) I've updated the table to include available, current flow values as of 3/9/2020. Tasha, am I correct in understanding that the 3/9/2020 values are measured or observed amounts? The sum of the known current flows is 284.3 gallons per minute (gpm). Some of these current flow values are for struggling (i.e., ponds not receiving enough inflow to maintain stable pond water levels or not receiving enough to keep downstream areas wet or both). (b) (5)

Taking a small step backward, it may be useful to confirm that the primary (two-part) question we are seeking to answer with this analysis is:

(b) (5)

Is this correct? Or does the question need to be revised?

(b) (5)

Please contact me with questions. Thanks.

Peter

(b) (5)

(b) (5)








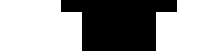
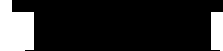










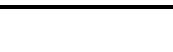














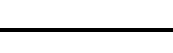
























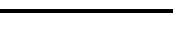









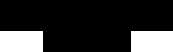
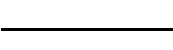



















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[REDACTED]

(b) (5)

15 JULY 2005



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David R. Stewart, Ph.D.  
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Google Scholar: <https://scholar.google.com/citations?user=9JDxrigAAAAJ&hl=en>

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**From:** Burck, Peter <peter\_burck@fws.gov>  
**Sent:** Monday, May 11, 2020 10:49 AM  
**To:** Harris, Grant <Grant\_Harris@fws.gov>; Stewart, David R <david\_stewart@fws.gov>  
**Cc:** Harden, Tasha <Tasha\_Harden@fws.gov>  
**Subject:** Re: Water budget

Hi Grant, Randy, and Tasha,

Thanks for the message, Grant. Please take a look at this table to see whether this is what you had in mind. (b) (5)

[REDACTED]

[REDACTED] In the meantime, I'll continue refining the estimate as discussed last week (to include estimates for infiltration/seepage, evapotranspiration, outflow and precipitation).

Randy and Tasha, please let me know if you see ways this can be improved. All, please contact me if you would like to discuss or if you have questions. Thank you.

Peter

(b) (5)

[REDACTED]

[REDACTED]

[REDACTED]

(b) (5)

(b) (5)

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	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

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**From:** Harris, Grant <Grant\_Harris@fws.gov>

**Sent:** Monday, May 11, 2020 8:19 AM

**To:** Burck, Peter <peter\_burck@fws.gov>; Stewart, David R <david\_stewart@fws.gov>

**Cc:** Harden, Tasha <Tasha\_Harden@fws.gov>

**Subject:** Re: Water budget

Peter,

Is there a second analysis that could be done by quantifying flow rates? We know the flow rates at a number of wells, right? (b) (5)

[REDACTED]

(b) (5)

[REDACTED]

Thoughts?

Grant

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**From:** Burck, Peter <peter\_burck@fws.gov>  
**Sent:** Friday, May 8, 2020 10:41 AM  
**To:** Stewart, David R <david\_stewart@fws.gov>  
**Cc:** Harris, Grant <Grant\_Harris@fws.gov>; Harden, Tasha <Tasha\_Harden@fws.gov>  
**Subject:** Re: Water budget

Hi Randy,

Yes, absolutely. The analysis is underway, but I'll share an early version as soon as I can. I'd very much appreciate any questions you have or thoughts on how to make the analysis more robust. I will aim to have something to you no later than the end of next week. Thanks.

Peter

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**From:** Stewart, David R <david\_stewart@fws.gov>  
**Sent:** Friday, May 8, 2020 10:33 AM  
**To:** Burck, Peter <peter\_burck@fws.gov>  
**Cc:** Harris, Grant <Grant\_Harris@fws.gov>; Harden, Tasha <Tasha\_Harden@fws.gov>  
**Subject:** Water budget

Hi Peter,

I appreciate you putting together the water budget analysis. I am very interested in this work. Do you have a report or something in writing regarding this analysis that you could send so

that I can read more about this work?

Many thanks,  
Randy

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Google Scholar: <https://scholar.google.com/citations?user=9JDxrigAAAAJ&hl=en>