
From: Noble Hendrix <noblehendrix@gmail.com>
Sent: Thursday, December 22, 2016 1:18 PM
To: Brycen Swart - NOAA Federal
Cc: Garwin Yip
Subject: Re: April water temps and winter-run spawn timing

Hi Brycen,

I think that you will be able to cite to the LCM model documentation for the statement

"They then looked at a correlation between spawn timing and monthly water temperatures below Keswick from January through July. There is a negative relationship between April temperatures and proportion of fish spawning in May or June, and there is a positive relationship between April temperatures and proportion of fish spawning in July or August."

We didn't explicitly test the effect of flows Dec - May on spawn timing in the LCM documentation, so I don't have a reference for that statement.

Best,
Noble

On Thu, Dec 22, 2016 at 9:24 AM, Brycen Swart - NOAA Federal <brycen.swart@noaa.gov> wrote:
Hi Noble,

I wanted to follow up to see if there was a paper, presentation, or figure that I could cite on the relationship between April water temperature and winter-run spawn timing. Here's the following paragraph I've drafted:

"Through the development of their life cycle model, NMFS-SWFSC examined the relationship between spawn timing from April to August, and peak monthly flow between December and May, but found no correlation. They then looked at a correlation between spawn timing and monthly water temperatures below Keswick from January through July. There is a negative relationship between April temperatures and proportion of fish spawning in May or June, and there is a positive relationship between April temperatures and proportion of fish spawning in July or August. This means that cool water in April results in earlier spawning, while warm water in April results in later spawning. If winter-run Chinook are optimizing for emergence timing of fry, fish will spawn later in warm water temperatures as warmer temperatures lead to faster egg development, and will spawn earlier in cool water temperatures as cold temperatures lead to slower egg development."

Thanks for your assistance.

Brycen

Brycen Swart
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On Tue, Nov 29, 2016 at 2:40 PM, Brycen Swart - NOAA Federal <brycen.swart@noaa.gov> wrote:
Hey Noble,

Good to meet you the other week at the Bay Delta Science Conference. In follow up to our discussion, do you have anything that I can cite on the relationship between April water temperature and winter-run spawn timing? Thanks,

Brycen

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