From: Sarah Gallagher - NOAA Federal <sarah.gallagher@noaa.gov>

**Sent:** Tuesday, May 28, 2019 8:42 AM

**To:** Rupert, Derek

Subject: Re: [EXTERNAL] Total amount of injection gravel in Clear Creek to date

Thanks Derek, one other thing I am hoping you can help me with- do you have a reference handy for interstitial flow changes in salmon redds -mechanisms that cause it?

## Sarah Gallagher | Fish Biologist

NOAA Fisheries | West Coast Region U.S. Department of Commerce 650 Capitol Mall, Suite 5-100, Sacramento, CA 95814 916-930-3712 | Sarah.Gallagher@noaa.gov

On Tue, May 28, 2019 at 8:34 AM Rupert, Derek < drupert@usbr.gov > wrote:

Thus far we have added 175,798 tons of gravel (1996-2018). This is for standard augmentations only. There was substantial amounts added during channel rehab, too.

On Tue, May 28, 2019 at 8:25 AM Sarah Gallagher - NOAA Federal < sarah.gallagher@noaa.gov > wrote: Can you provide me with the number? My recollection is 200,000 tons (this would include the floodway rehab channels~30K tons). Thanks.

## Sarah Gallagher | Fish Biologist

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