CORRECTION

Correction: Evaluating signals of oil spill impacts, climate, and species interactions in Pacific herring and Pacific salmon populations in Prince William Sound and Copper River, Alaska

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There are errors in Table 1, S1–S5 Tables, and Fig 6. A coding error uses recruits per spawner as a covariate instead of using spawning biomass as a predictor of ln (recruits per spawner). The correct code produces greater uncertainty in mechanisms responsible for variability in herring recruitment. Please see the corrected Table 1, S1–S5 Tables, and Fig 6 here.

There is an error in the second sentence of the first paragraph of the Results. The correct sentence is: Chinook and sockeye (Eshamy Lake and Copper River populations) exhibited strong evidence of increasing productivity at lower densities (Table 1, S1 Table), and pink salmon showed little support for the density dependent model, suggesting that variation may be better explained by other covariates (or that pink salmon escapements have been below thresholds needed to induce density dependence).
The following sentence should be included before the final sentence of the second paragraph of the Results: There was also some support for the inclusion of a pulsed EVOS effect in herring recruitment, though this model performed similarly to models with other covariates, or a simpler model without the EVOS effect included.

There is an error in the first sentence of the first paragraph of the Discussion. The correct sentence is:

We found no evidence supporting a negative EVOS impact on sockeye salmon, or pink salmon productivity, weak evidence of a slightly positive EVOS signal (in the press-recovery model) on Copper River Chinook salmon productivity, and weak evidence of a negative pulse effect on herring productivity.

There is an error in the first sentence of the third paragraph of the Discussion. The correct sentence is: In addition to the weak evidence relating herring productivity to EVOS, we also

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Table 1. Table of delta-AIC values used for model selection (S1–S5 Tables include raw values).

| Model | Pink | Chinook | Sockeye | Herring |
|-------|------|---------|---------|---------|
| Null (productivity constant) | 0 | 20.707 | 25.896 | 0.692 |
| 1 Ricker 'b' estimated | 0.113 | 10.689 | 21.405 | 2.23 |
| Ricker 'b' varies by population | | | | 10.581 |

**EVOS**

- EVOS pulse (lag 0) | 2.858 | 13.644 | 11.087 | 4.236 |
- EVOS press (lag 0) | 1.624 | 1.817 | 12.817 | 4.759 |
- EVOS pulse/recovery (lag 0) | 1.205 | 0 | 13.179 | 4.393 |
- EVOS pulse (lag 1) | 0.98 | | | 2.027 |
- EVOS press (lag 1) | 3.052 | | | 4.965 |
- EVOS pulse/recovery (lag 1) | 2.867 | | | 5.091 |
- EVOS pulse (lag 2) | 2.9 | 10.877 | 12.395 | 0.597 |
- EVOS press (lag 2) | 2.793 | 7.926 | 13.28 | 4.316 |
- EVOS pulse/recovery (lag 2) | 2.546 | 7.732 | 13.217 | 3.764 |

**Environmental**

- SST (lag 0) | 2.826 | 12.235 | | 3.38 |
- SST (lag 1) | 0.423 | 13.91 | | 3.288 |
- SST (lag 2) | | | | 12.875 |
- Upwelling winter (lag 1) | 3.104 | 11.469 | 13.018 | |
- Upwelling winter (lag 2) | 3.085 | 13.425 | 13.202 | |
- Upwelling spring (lag 1) | 3.088 | | | |
- Upwelling spring (lag 2) | 2.664 | | | |
- Upwelling summer (lag 1) | | 8.887 | | 4.8 |
- Upwelling summer (lag 2) | | 13.315 | | 3.91 |
- freshwater discharge (lag 0) | 2.346 | 13.327 | 12.582 | 0.372 |
- freshwater discharge (lag 1) | 2.459 | 12.405 | 13.435 | 4.848 |

**Juvenile competition**

- Hatchery pink releases | 0.304 | 8.311 | 13.14 | 4.97 |
- Hatchery chum releases | 2.764 | 11.195 | 13.039 | 1.425 |

**Competition and predation**

- Wild chum | 3.071 | 12.778 | 12.518 | 4.629 |
- Wild pink | 2.975 | 9.867 | 11.872 | 0 |
- Hatchery chum | 3.095 | 6.464 | 12.93 | 4.172 |
- Hatchery pink | 1.488 | 12.391 | 0 | 1.609 |
- Total pink run | 2.106 | 13.84 | 3.5 | 3.106 |
- Humpback whales | | | | 3.949 |

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found some evidence of a negative correlation between herring productivity and freshwater discharge into the Gulf of Alaska.

**Supporting information**

**S1 Table. Detailed results for models that only include density dependence.** Table of model selection values (AICc) comparing null models (constant productivity, or log(R/S) independent of spawners) to models that estimated density dependence via the Ricker stock-
recruitment relationship. For each species, the best model and all models within 1 log-likelihood unit are highlighted in bold (the best model only being defined for this particular table—all results are included in Table 1).

**S2 Table. Detailed results for models that only include effects of EVOS.** Table of model selection values (AICc) comparing models without covariates (i.e. models presented in S1 Table) to models that also estimate an impact of the EVOS event (pulse, press, pulse/recovery with various lags). All models that include an EVOS impact also include density dependence (the sockeye models with EVOS allowed density dependence to vary by population). For each species, the best model and all models within 1 log-likelihood unit are highlighted in bold (the best model only being defined for this particular table—all results are included in Table 1). Lag-1 impacts were not considered on Chinook and sockeye, as these species generally migrate to the ocean in their second year of life.

**S3 Table. Detailed results for models that only include environmental covariates.** Table of model selection values (AICc) comparing models without covariates (i.e. models presented in S1 Table) to models that also estimate an impact of environmental effects. All models that include environmental predictors also include density dependence (the sockeye models with environmental effects allowed density dependence to vary by population). For each species, the best model and all models within 1 log-likelihood unit are highlighted in bold (the best model only being defined for this particular table—all results are included in Table 1). Additional details included online, https://github.com/NCEAS/pfx-covariation-pws.

**S4 Table. Detailed results for models that only include effects of juvenile competition.** Table of model selection values (AICc) comparing models without covariates (i.e. models presented in S1 Table) to models that also estimate an impact of juvenile competition. All models with juvenile competition included also include density dependence (the sockeye models with juvenile competition allowed density dependence to vary by population). For each species, the best model and all models within 1 log-likelihood unit are highlighted in bold (the best model only being defined for this particular table—all results are included in Table 1).

**S5 Table. Detailed results for models that only include effects of predation and adult competition.** Table of model selection values (AICc) comparing models without covariates (i.e. models presented in S1 Table) to models that also estimate an impact of predation or adult competition on wild salmon productivity. All models with predation or adult competition included also include density dependence (the sockeye models with predation or adult competition allowed density dependence to vary by population). For each species, the best model and all models within 1 log-likelihood unit are highlighted in bold (the best model only being defined for this particular table—all results are included in Table 1). All salmon models used the estimated total run size of adult salmon.

**Reference**

1. Ward EJ, Adkison M, Couture J, Dressel SC, Litzow MA, Moffitt S, et al. (2017) Evaluating signals of oil spill impacts, climate, and species interactions in Pacific herring and Pacific salmon populations in Prince William Sound and Copper River, Alaska. PLoS ONE 12(3): e0172898. https://doi.org/10.1371/journal.pone.0172898 PMID: 28296895