

## EVOS ANNUAL PROJECT REPORT

All recipients of funds from the *Exxon Valdez* Oil Spill Trustee Council must submit an annual project report in the following format by September 1 of each fiscal year for which project funding is received, with the exception of the final funding year in which a final report must be submitted. Satisfactory review of the annual report is necessary for continuation of multi-year projects. Failure to submit an annual report by September 1 of each year, or unsatisfactory review of an annual report, will result in withholding of additional project funds and may result in cancellation of the project or denial of funding for future projects.

**PLEASE NOTE:** Significant changes in a project's objectives, methods, schedule, or budget require submittal of a new proposal that will be subject to the standard process of proposal submittal, technical review, and Trustee Council approval

**Project Number:** 01476

**Project Title:** Effects of Oiled Incubation Substrate on Pink Salmon Reproduction

**PI Name:** Ron Heintz

**Time Period Covered by Report:** Dec. 1, 2000 to Nov. 30, 2001

**Date of Report:** Dec. 16, 2002

1. **Work Performed:** Summarize work performed during the reporting period, including any results available to date and their relationship to the original project objectives. Describe and explain any deviation from the original project objectives, procedural or statistical methods, study area, or schedule. Also describe any known problems or unusual developments, and whether and how they have been or can be overcome. Include any other significant information pertinent to the project.

This project involves incubation and release of three generations of pink salmon and is aimed at determining if embryonic exposure to oil causes reduced reproductive capacity. The experiment began in 1998 when gametes were collected from wild pink salmon, transported into our hatchery and incubated in various concentrations of oil. In the spring of 1999 three groups of pink salmon were marked by excising various combinations of the pelvic and adipose fins and released, they represented the survivors of the control, low and high oil dose treatments. In September of 2000, the marked fish returned to the hatchery to spawn. Their exposure histories were identified and a second generation was spawned and their survival evaluated. When they emerged in the spring of 2001 they were marked to indicate the exposure history of their parents and released. They returned to spawn in September 2002, at which time their gametes were collected. The final generation incubated until they reached the eyed egg stage, and their survival was evaluated.

Through this procedure, we are able to evaluate the phenotypic effects of embryonic oil exposure on reproduction in 2000 and the genotypic effects in 2002. A previous reports described the dosing procedures, incubation, marking and releasing of the first generation. A separate report, submitted in 2001, found no impact of embryonic exposure on the reproductive ability of the exposed generation. This report describes the survival of the second generation

between eyeing and emergence and their release. A final report, which describes any genotypic impacts of embryonic exposure, is currently being produced.

In September 2000 we recovered adult salmon that had survived embryonic exposure to oil and approximately 16 months of migrating in the Gulf of Alaska. A total of 89, 93 and 35 fish were recovered representing the control, low and high dose exposure groups, respectively. Gametes taken from these fish were crossed producing a potential of 47,089, 37,138 and 11,399 fertilized eggs for the control, low and high exposure groups, respectively. Survival to the eyed stage was limited by relatively poor fertilization rates so that by eyeing 35,720, 30,064 and 8,881 live eggs represented the control, low and high exposures, respectively.

Emergence began on March 27, 2001 and continued through May 11, 2001. Emergence was volitional and each emergent fry was inspected and counted. Fish without visible lesions were ponded and those with visible lesions were inspected and all deformities were recorded. A total of 39,065, 29,537 and 8,602 fry emerged from incubators holding control, low and high exposure levels, respectively. Approximately 4,200 fry had visible lesions resulting in 31,307, 27,986 and 8,343 fry from the control low being transferred from incubators to holding nets where they reared until they had been marked and released. Fish were released between May 3 and May 16, 2001. During the period between transfer and release the fish were fed with commercial fish food and marked by excising a combination of the adipose and pelvic fins to identify the exposure history of their parents. All the fish in a holding net were censused during marking and only fish that appeared healthy were marked. The marked fish were retained for 3 days after marking and then released. Censuses developed during marking were corrected after release to account for mortality between marking and release. A total of 21,454, 19,816 and 7,387 marked fish representing the control, low and high exposure levels, respectively were released.

2. **Future Work:** Summarize work to be performed during the upcoming year, if changed from the original proposal. Describe any proposed changes in objectives, procedural or statistical methods, study area, or schedule. [PLEASE NOTE: Significant changes in a project's objectives, methods, schedule, or budget require submittal of a new proposal that will be subject to the standard process of proposal submittal, technical review, and Trustee Council approval.]

In September 2002 adult fish from these release groups returned to the hatchery to spawn. Gametes were collected and crossed in an effort to determine the average viability of crosses representing each of the exposure groups. Those data are currently being analyzed and a final report will be forthcoming in this fiscal year.

3. **Coordination/Collaboration:** Describe efforts undertaken during the reporting period to achieve the coordination and collaboration provisions of the proposal, if applicable.

Not Applicable

4. **Community Involvement/TEK & Resource Management Applications:** Describe efforts undertaken during the reporting period to achieve the community involvement/TEK and resource management application provisions of the proposal, if applicable.

Not applicable

5. **Information Transfer:** List (a) publications produced during the reporting period, (b) conference and workshop presentations and attendance during the reporting period, and (c) data and/or information products developed during the reporting period. [**PLEASE NOTE:** Lack of compliance with the Trustee Council's data policy and/or the project's data management plan will result in withholding of additional project funds, cancellation of the project, or denial of funding for future projects.]

No reports produced

6. **Budget:** Explain any differences and/or problems between actual and budgeted expenditures, including any substantial changes in the allocation of funds among line items on the budget form. Also provide any new information regarding matching funds or funds from non-EVOS sources for the project. [**PLEASE NOTE:** Any request for an increased or supplemental budget must be submitted as a new proposal that will be subject to the standard process of proposal submittal, technical review, and Trustee Council approval.]

No substantial deviations from proposed budget

**Report Prepared By:** \_\_\_\_\_

**Project Web Site Address:** \_\_\_\_\_

**SUBMIT ANNUAL REPORTS ELECTRONICALLY TO [katharine\\_miller@oilspill.state.ak.us](mailto:katharine_miller@oilspill.state.ak.us). THE REPORTS WILL BE POSTED ON THE TRUSTEE COUNCIL'S WEB SITE AND SHOULD ALSO BE POSTED ON THE PI'S WEB SITE. The subject line of the e-mail transmitting the report must include the project number and the words "annual report" (e.g., "035620 Annual Report"). Electronic reports must be submitted either as an Acrobat Portable Document Format (PDF) file or word processing document (Microsoft Word 2000 for Windows or lower or WordPerfect 9.0 or lower) with any figures and tables imbedded. Acrobat PDF 4.0 or above file format must be used, preferably in 'formatted text with graphics' (called "PDF normal" under Acrobat PDF 4.0) format. Minimally, "PDF searchable image" (called "PDF original image with hidden text" under Acrobat PDF 4.0) may be used if pre-approved by the Trustee Council Office. In either case, the PDF file must not be secured or locked from future editing, or contain a digital signature from the principal investigator.**