

NATIVE CRAYFISH IN WASHINGTON CLASSROOMS

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Investigators

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Collaborating organizations

Mountain Home Biological, Washington Department of Fish and Wildlife, Washington Sea Grant

Overview

The University of Washington in cooperation with the Pacific Education Institute and Washington Sea Grant is conducting a pilot study evaluating the feasibility of using native crayfish in the classroom. We are soliciting help from school districts and teachers across western Washington to use native crayfish in the classroom during the 2010/2011 school year. This research study is intended to determine if the survival and behavior of native crayfish in the classroom is equivalent or even superior to the survival and behavior of a non-native crayfish commonly used in biological supply and Washington classrooms (the red swamp crayfish *Procambarus clarkii*). Establishing the viability of native crayfish in the classroom is an important first step to replacing non-native crayfish in biological supply in Washington.

Background

Live crayfish are important laboratory animals in many science curricula used in Washington schools. Crayfish are useful in the classroom as hardy, charismatic organisms with complex behaviors that can help engage students with the life sciences and environment. Unfortunately, crayfish most commonly used in the classroom are often non-native species that have high potential to become invasive in freshwaters of Washington. In addition, the non-native crayfish species currently available in biological supply are regulated as prohibited invasive species by the Washington Department of Fish and Wildlife (WDFW). As a result, these species are only available for this use by special WDFW permit this year and will not be allowed for use in Fall 2011.

Limited information exists on how native crayfish will perform compared to the non-native species currently used in the classroom. Therefore, this pilot study has been initiated and

your participation is very important to determining the feasibility of substituting native crayfish for non-native crayfish in classrooms. The study will focus on the survival, behavior, and general suitability of this crayfish in the classroom.

Washington has a single native crayfish (the signal crayfish *Pacifastacus leniusculus*) that is also commercially harvested as a food species, and as a result regional biological supply companies will be able to provide this species to schools. Developing a supply chain of native crayfish that can meet the needs of Washington schools, including desirable sizes of crayfish and timing of availability, is another important, but separate part of this pilot study.



Native signal crayfish



Non-native red swamp crayfish

Research Design

Participants

The research study comparing native to non-native crayfish in the classroom will involve schools in the Olympic (114), Puget Sound (121) and Northwest (189) Educational Service Districts (ESDs). The Pacific Education Institute (Margaret Tudor) will help coordinate between University of Washington researchers (Eric Larson, Julian Olden), school district administrators, and teachers involved in the study. Our aim is to have an adequate number of participants to allow for a reasonably large assessment of native crayfish in the classroom, incorporating diverse experiences and needs of teachers and districts across grades and curricula.

Organisms

Native crayfish will be supplied to teachers participating in the study through a regional biological supply company, Mountain Home Biological. As the intent of the study is to compare native to non-native crayfish in the classroom, we will assign non-native red swamp crayfish to half of the teachers involved in the study or provide teachers with both species if willing to take on the extra data collection. Non-native red swamp crayfish are available to teachers through their normal procurement processes. Non-participating teachers may use either native signal or non-native red swamp crayfish under the WDFW statewide permit for the 2010/2011 school year .

Data Collection

Teachers will record performance of crayfish in the classroom using a provided research protocol and data sheet. Priorities for data collection include: type of science kit and species used, arrival date in the classroom, classroom conditions (e.g., container type, room temperature, aeration, frequency of water changes), daily survival status, and notes on crayfish behavior and suitability for science curricula. We recommend that teachers consider assigning one or more dedicated students to be responsible for recording daily crayfish observations. Data sheets must be returned at the termination of crayfish use following the instructions in the protocol document. Protocols for humane euthanasia of crayfish are also provided. **NOTE: regardless of native or non-native status, laboratory animals may not be released to the wild or provided to students as pets.**

Time Line

The pilot study will be conducted over the autumn semester of the 2010/2011 school year, with preliminary data analysis and interpretation during winter 2011. Modifications to the research protocol will be adopted for a spring semester continuation of the pilot study. Full results of the pilot native crayfish study (availability in commercial harvest, survival through shipping, performance in the classroom) will be applied in making recommendations and regulations for exclusive use of native crayfish starting with the 2011/2012 school year.

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