



Illinois Wesleyan University
Digital Commons @ IWU

John Wesley Powell Student Research
Conference

2011, 22nd Annual JWP Conference

Apr 9th, 2:35 PM - 3:35 PM

Evaluation of DOM Uptake by Spionid Polychaete Larvae from Antarctica

Travis Rosenkranz
Illinois Wesleyan University

William Jaeckle, Faculty Advisor
Illinois Wesleyan University

Follow this and additional works at: <https://digitalcommons.iwu.edu/jwprc>



Part of the [Biology Commons](#)

Rosenkranz, Travis and Jaeckle, Faculty Advisor, William, "Evaluation of DOM Uptake by Spionid Polychaete Larvae from Antarctica" (2011). *John Wesley Powell Student Research Conference*. 19.

<https://digitalcommons.iwu.edu/jwprc/2011/posters2/19>

This Event is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by faculty at Illinois Wesleyan University. For more information, please contact digitalcommons@iwu.edu.

©Copyright is owned by the author of this document.

Poster Presentation P40

**EVALUATION OF DOM UPTAKE BY SPIONID POLYCHAETE LARVAE
FROM ANTARCTICA**

Travis Rosenkranz and William Jaeckle*
Biology Department, Illinois Wesleyan University

Thorson (1946, 1950) hypothesized that polar invertebrate species avoid a pelagic larval phase and instead favor direct development (“Thorson’s Rule”) and proposed an inverse relationship existed between latitude and the number of species with planktonic larval stages. Recent studies, however, suggest that a decrease in invertebrate larval abundance, not diversity, is correlated with an increase in latitude. The oceans surrounding Antarctica are nutrient rich, especially during late spring and early summer. Larvae of Antarctic spionid polychaetes feed using a dual-band system of cilia whose activities concentrate and then capture food particles. We evaluated the ability of spionid larvae from Antarctica to process seawater and absorb dissolved organic materials (DOM). Collected larvae were exposed to the iron-containing polysaccharide iron-dextran (1 mg / mL) for 12 to 24 hours at 0 °C. The presence of the iron (from iron-dextran) in larval tissue was detected using the “Prussian Blue” reaction. We found that the label was localized solely in the digestive system; there was no evidence of uptake by the epidermis. Control larvae, not exposed to iron-dextran, showed no label in tissue. Antarctic spionid larvae transport seawater through their digestive system and can potentially exploit DOM as an alternate source of food.