

WHAT & WHO: Energy storage vs. energy use in oysters as a measure of health, to determine oyster stress & how to reduce it

(Jill Bartlett from the Institute for Applied Ecology at the University of Canberra)

BACKGROUND: The transfer, storage and use of energy by all living things is key to growth, reproduction and survival. An organism's ability to store and use energy effectively and respond to dynamic environmental conditions can be used as a measure of stress. Currently, measuring energy stores in the form of proteins, glycogen and lipids (fats) and energy usage are expensive, time consuming and difficult to access.

WHAT WAS FOUND: Jill is looking into new approaches to improve the time and cost of undertaking such measures. Using a technique called Near Infra-red Spectroscopy (NIRS), Jill has been able to achieve reliable results for measuring energy storage in oysters quickly and efficiently while reducing the potential cost. Jill has also adapted methods for understanding the energy expenditure of oysters and combined this information into an "energy score" of how stressed or healthy an oyster is. Future effort will now go into setting up a reporting approach for what these energy scores mean and how they can be applied to assess oyster aquaculture practices. Additional projects on different oyster aquaculture methods such as baskets versus trays and oyster density stocking rates are planned for the next phase of her work.

HOW WILL THIS HELP THE OYSTER INDUSTRY: Having a rapid, cost effective and quantitative measure to understand the energy and stress status of oysters will allow the oyster industry to measure the effect of a given farming method or changing environmental conditions on their oysters. Understanding early stress responses of oysters to their environment will allow improved efficiency in farming techniques and improved oyster quality. An understanding of the energy composition of oysters could also be of benefit to the health-conscious consumer in giving them greater access to the composition of their food.

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