

## **Project Closure SP 2018-028**

# **Stock enhancement of western school prawn: evaluation recruitment limitation, environment and release strategies**

**Rivers and Estuaries Science**

### **Project Core Team**

<b>Supervising Scientist</b>	Kerry Trayler
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### **Project status as of July 1, 2020, 11:08 a.m.**

Closure pending approval of closure form

### **Document endorsements and approvals as of July 1, 2020, 11:08 a.m.**

<b>Project Team</b>	granted
<b>Program Leader</b>	granted
<b>Directorate</b>	required

# Stock enhancement of western school prawn: evaluation recruitment limitation, environment and release strategies

## Closure goal

completed

## Closure reason

All project deliverables finalized

## Key publications and documents

In total, work from this project was used to produce 8 papers on the Western School Prawn, 5 research theses (- four Honours and one PhD, with another PhD thesis in preparation) and three reports to funding bodies.

Papers with DBCA scientist:

Poh, B., Tweedley, J.R., Chaplin, J.A., Trayler, K.M. & Loneragan, N.R. (2018). Estimating predation rates of restocked individuals: the influence of timing-of-release on metapenaeid survival. *Fisheries Research*. 198: 165-179. DOI: 10.1016/j.fishres.2017.09.019.

Poh, B., Tweedley, J.R., Chaplin, J.A., Trayler, K.M., Crisp J.A. & Loneragan, N.R. (2019). Influence of physico-chemical and biotic factors on the distribution of a penaeid in a temperate estuary. *Estuarine, Coastal and Shelf Science*. 218, 70-85. DOI: 10.1016/j.ecss.2018.12.003

Reports to funding bodies

Jenkins, G.I., Trayler, K.M., Tweedley, J.R., Stagles, I. & Loneragan, N.R. (2015). Production and release of Western School Prawns into the Swan-Canning River park over a three year period to enhance the community values of the recreational prawn fishery. Report for the Recreational Fishing Initiatives Fund. Western Australian Fish Foundation, Perth, Western Australia. 192 pp.

Jenkins, G.I., Tweedley, J.R. & Trayler, K.M. (2017). Re-establishing recreational prawning in the Swan-Canning Estuary. Report for the Recreational Fishing Initiatives Fund. Report for Recfishwest. Western Australian Fish Foundation, Perth, Western Australia. 126 pp.

Tweedley, J.R., Loneragan, N.R., Crisp, J.A., Poh, B. Broadley, A.D., Bennett, A.L., Hodson, K.P., Trayler, K.M., Jenkins, G.I., Chaplin, J.A. (2017). Stock enhancement of the Western School Prawn (*Metapenaeus dalli*) in the Swan-Canning Estuary; evaluating recruitment limitation, environment and release strategies. Report for the Fisheries Research and Development Corporation. Murdoch University, Perth, Western Australia. 546 pp.

Tweedley, J.R., Loneragan, N.R., Crisp, J.A., Poh, B. Broadley, A.D., Bennett, A.L., Hodson, K.P., Trayler, K.M., Jenkins, G.I., Chaplin, J.A. (2017). Restocking of the Western School Prawn (*Metapenaeus dalli*) in the Swan Canning Riverpark. Report for the Department of Biodiversity, Conservation and Attractions. 60pp.

Tweedley, J.R., Poh, B., Crisp, J.A., and Loneragan, N.R. (2019). Changes in the abundance of the Western School Prawn (2013-2018) in association with a restocking program. Supplementary report to Department of Biodiversity, Conservation and Attractions. 538pp.

## Knowledge Transfer

This project was linked to a citizen science project over 3 years, which involved 8 community forums over 4 year 2013-2016 and community engagement in prawn monitoring. Prawn Watch included the development of log books and a logging app and web pages. There was an extensive media campaign and presence at festivals and events promoting sustainable fishing and river stewardship.

The science was used to provide Dept Fisheries and RecfishWest with advice on sustainable limits and approaches to managing this fishery into the future.

There were 22 conference presentations, 5 conference posters including the following involving DBCA scientist.

Poh, B., Tweedley, J.R., Chaplin, J.A., Loneragan, N.R., Trayler, K.M. (2014). Monitoring the restocking of the Western School Prawn (*Metapenaeus dalli*) in the Swan-Canning Estuary. 12th Australian Marine Science Association (AMSA) Marine Science Student Workshop 2014. Rottnest Island, Australia.

Tweedley, J.R., Loneragan, N.R., Jenkins, G., Trayler, K.M., Chaplin, J.A. (2014). Assessing the decline in western school prawn (*Metapenaeus dalli*) abundance in a temperate Australian estuary: evaluating the effectiveness of prawn releases and the impacts of environmental change. 2014 Annual Symposium of the Fisheries Society of the British Isles. Hull, United Kingdom.

Trayler, K., Onton, K., Giroud, M., Smith, K. (2015). Snapshots of Citizen Science in the Swan Canning. National Estuaries Network Forum: Mini-Workshop on Barriers and Bridges to Citizen Science in Estuaries: Managing volunteers, data, expectations and outcomes. Perth, Australia.

Trayler, K., Tweedley, J.R., Jenkins, G.I. (2015). "Prawn Watch: Engaging fishers in science, restocking and sustainable management of an iconic species that has declined in abundance. Australian Citizen Science Conference: Maximising the Capacity of Citizen Science for Science and Society. Canberra, Australia.

Trayler, K., Giroud, M., Shedwari, G. (2015). What makes good citizen science projects 2015 Department of Parks and Wildlife Conference. Perth, Australia.

Poh, B., Tweedley, J.R., Trayler, K.M. & Loneragan, N.R. (2017). Calculation of predation rates of restocked individuals: the influence of timing-of-release on survival. 15th Australian Marine Science Association (AMSA) Marine Science Student Workshop 2017. Rottnest Island, Australia.

Poh, B., Tweedley, J.R., Chaplin, J.A., Trayler, K.M. & Loneragan, N.R. (2018). Don't feed the fish: time-at-release influences predation rates of restocked prawns. 16th Australian Marine Science Association (AMSA) Marine Science Student Workshop 2017. Rottnest Island, Australia.

Poh, B., Tweedley, J.R., Chaplin, J.A., Trayler, K.M. & Loneragan, N.R. (2018). Importance of estimating predation rates to increase the success of aquaculture-based enhancements. Estuarine & Coastal Sciences Association (ECSA) 57: Changing estuaries, coasts and shelf systems - Diverse threats and opportunities. Perth, Western Australia.

Tweedley, J.R., Loneragan, N.R., Poh, B., Crisp, J.A. & Trayler, K. (2019). Restocking and atypical climatic conditions markedly influence the abundance of an obligate estuarine penaeid. Australian Marine Science Association (AMSA): Marine Science for a Blue Economy Conference. Fremantle, Australia.

Poh, B., Tweedley, J.R., Loneragan & Trayler, K. (2019). Could biotic interactions inhibit the recovery of an obligate estuarine penaeid? Australian Marine Science Association (AMSA): Marine Science for a Blue Economy Conference. Fremantle, Australia.

## Dataset links

[https://data.dbca.wa.gov.au/dataset/western\\_school\\_prawns](https://data.dbca.wa.gov.au/dataset/western_school_prawns)

## Hardcopy location

[\\corporateict\dfs\shareddata\671-River](#) System Management\Shared Data\Prgms\REScience\2. Projects\Addressing decline of WSP\Research\data