# CONTRIBUTION OF LIFE HISTORY CHARACTERISTICS TO LARVAL SETTLEMENT AND CONNECTIVITY OF *ACANTHURUS TRIOSTEGUS* IN WINDWARD O'AHU

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# ABSTRACT

Life history characteristics of larval fish may contribute to determining how likely they are to settle at the end of their pelagic existence. However, there is a general lack of knowledge on the contribution of these characteristics to settlement success in specific species. This research investigates the contribution of life history characteristics, specifically pelagic larval duration (PLD) and ontogenetic vertical migration (OVM) to settlement success of larval *Acanthurus triostegus* in windward O'ahu coastal waters and Kāneʻohe Bay. This is done through model simulations using the Connectivity Modeling System (CMS), which is a particle dispersal model with ocean current velocities supplied from the Regional Ocean Modeling System (ROMS). The simulations are compared and analysed using generalized linear models in R statistical software. The main findings of this study are that larval settlement success is specific to regions of larval release and that the effect of life history characteristics, specifically variations in PLD and OVM behaviour on larval settlement success, are region of release specific as well. Overall, settlement success was highest for larvae released within Kāneʻohe Bay. Additional biological factors such as larval orientation and swimming behaviour could be added to expand this study in the future.