

Grunter's life choices chronicled in fisheries study

July 2 2015, by Shannon Verhagen



A western striped grunter (*Pelates octolineatus*). Credit: Murdoch University

Research into populations of the western striped grunter (*Pelates octolineatus*) on the lower west coast shows the species has a highly seasonal growth pattern and migrate between coastal and estuarine environments depending on their age.

Murdoch University Centre for Fish and Fisheries Research (CFFR) and

the Department of Fisheries scientists investigated the [species](#)' life cycle in what was the first study of a terapontid species to use individually aged fish.

"It is crucial to [age](#) fish individually in order to determine the age at which they typically become sexually mature or move from one habitat to another i.e. dense seagrass to sparse seagrass," Murdoch University Professor Ian Potter says.

"Or, in the case of individuals that enter estuaries, at which age this occurs and also at which they depart."

They determined the abundant grunter spends the first year of its life in nearshore or estuarine seagrass meadows before it migrates into deeper [coastal waters](#) with sparser seagrass to mature.

"Dense seagrass beds provide protection from predators and a rich food source," he says.

They conducted monthly species sampling from March 2009 to February 2011 in both nearshore and offshore coastal waters at Mangles Bay and offshore coastal waters at Safety Bay.

The researchers removed and analysed each fish's otolith (inner ear bones) and counted the number of opaque zones to determine their age and found fish collected from offshore waters ranged 1-10 years of age.

Summer months usher in peak growth

The study also found pronounced seasonal changes in the species' growth rates, peaking in the summer months with negligible growth in the winter months.

"Our results provide a particularly good example of how growth varies seasonally in response to temperature—greater metabolism in warmer months—and food availability," he says.

The species was also found to spawn from October to February.

"This is the period when productivity and thus availability of food for juvenile fish is greatest and when metabolism and thus growth of the juveniles is greatest."

Observations at the nearshore [seagrass meadows](#) at Mangles Bay found the grunter entered the Harvey-Peel Estuary in mid-summer soon after they matured.

Prof Potter says the estuaries' high productivity made them important nursery grounds and resulted in a higher individual growth rate as opposed to those in coastal waters.

"It illustrates very clearly the ways in which and how a species can use different habitats and environments—nearshore coastal waters and estuaries—as a nursery area," he says.

More information: "Age and size compositions, habitats, growth and reproductive characteristics of a terapontid (*Pelates octolineatus*) in coastal waters." *Marine and Freshwater Research* 66(6) 535-548
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