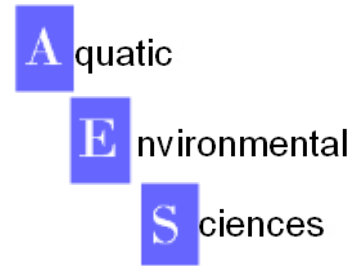


# Memo



**To:** Nicholas Woodley (Watercare)  
**From:** Mark James  
**CC:**  
**Date:** 18-Aug-17  
**Re:** Fish populations in the Whangateau

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## **INTRODUCTION**

Watercare Services Ltd (Watercare) is in the process of preparing an Assessment of Environmental Effects (AEE) for renewal of their consent for operation of the Omaha Wastewater Treatment Plant. The existing consent expired in May 2014 and a replacement application was lodged in October and placed on hold.

A recent review of the existing information on the receiving environments (James 2014) identified a number of gaps in knowledge and some areas that would require further work before a more detailed consent application is lodged. This was further refined following discussions with the Consultative Group and an Investigation Plan is being reviewed by the Auckland Council (AC).

Potential gaps in knowledge that were identified as requiring more work for a robust AEE included collating and reviewing data/information on the bird and fish life with a focus on the Waikokopu Arm. A report on the shorebirds found in the Waikokopu Arm has been prepared by Wildlands (Goldwater 2015).

This memo addresses the Stage One components of the workstream on fish in the Harbour which was to discuss any new work with Dr Mark Morrison (NIWA) and Dr Roger Grace (Whangateau HarbourCare).

## **BACKGROUND**

The fish species found in the Whangateau Harbour, their habitats and a qualitative score of abundance were provided in Grace (1971) and updated in 1972 (Grace 1972). The information from those studies and unpublished information from Mark Morrison (NIWA) are summarised in Kelly (2009). The reefs and mangroves in the Harbour provide important nursery habitat for parore with the Harbour being the only known significant parore nursery ground in the Hauraki Gulf. Parts of the Harbour where there are reefs and mangroves are also important nurseries and feeding grounds for a number of other species including snapper, trevally, spotty, yellow eye and grey mullet (Grace 1972, summarized in Kelly 2009). Grace (1972),

Grogan (1982) and Managh (1999) describe the prey species for octopus, eagle ray and flatfish in the Harbour. Observations of fish species in the Harbour are regularly posted on the Whangateau Harbourcare website.

### **NEW INFORMATION**

Based on discussions with Dr Mark Morrison (NIWA) and Dr Roger Grace (HarbourCare) and other marine scientists there is little new information available on the fish populations in the Whangateau that is not covered in Kelly (2009) and James (2014).

Morrison et al (2014) provided a comprehensive document reviewing the links between marine fisheries and biogenic habitats. In that review the importance of the Whangateau Harbour as a nursery for parore was used as an example. The majority of parore in summer were found along reef crests and associated microhabitats in close association with *Hormosira banksi* patches (Neptune's Necklace) where juveniles were observed feeding on zooplankton. At the end of summer large populations of parore were observed on brown kelp beds just inside the Harbour entrance still feeding on zooplankton. Over the next 9 months they shifted down through the kelp canopy and started feeding on small hydroids and small red algae. They then disappeared from these habitats and were found at Leigh and along the coast.

Subsequent to this work juvenile parore have also been found in seagrass meadows and mangrove forest. (Morrison et al. 2014). Juveniles of other species observed associated with small reefs in the Whangateau as part of this work included trevally in the adjacent water column, spotties on the reef edge and snapper on the reef-sand interface.

Morrison (pers. comm.) has also observed small pockets of juvenile grey mullet in the "Arms" of the Harbour but they only appeared in very low numbers.

The only other new observation is the presence of the Australian bridled goby which is now common in the harbour (Roger Grace, pers. comm.).

### **REFERENCES:**

Goldwater, N. (2015) Desktop review of wading bird diversity and abundance within the Waikokopu Creek Arm, Omaha. Report to Watercare, Wildlands Contract Report No. 3605.

Grace, R. V. (1971). A checklist of fishes from the entrance to the Whangateau Harbour, Northland, New Zealand. *Tane* 17:129-136.

Grace, R. V. (1972). Additions to the list of fishes from the entrance to the Whangateau Harbour, Northland, New Zealand. *Tane* 18:186.

Grogan, E. (1982). Activity patterns of two flounder species of the Whangateau Harbour. Thesis MSc, University of Auckland.

James, M.R. (2014). Existing state of knowledge and potential gaps for receiving waters for the discharge of wastewater from the Omaha Wastewater Treatment Plant. Report prepared for Watercare Services Ltd.

Kelly, S. (2009). Whangateau Catchment and Harbour Study. Review of Marine Environment Information. Report prepared for Auckland Regional Council.

Managh, N. (1999). A comparison of the feeding ecology of two New Zealand shallow-benthic octopus. Thesis MSc, University of Auckland.

Morrison, M.A.; Jones, E.G.; Consalvey, M.; Berkenbusch, K. (2014). Linking marine fisheries species to biogenic habitats in New Zealand: a review and synthesis of knowledge. Ministry for Primary Industries Report No. 130.