Queensland **the Smart State**

Fisheries Long Term Monitoring Program

Syngnathids and their associated communities

Supplementary report to:
Syngnathids in the East Coast Trawl Fishery: a review and trawl survey

August 2006

Queensland Government
Department of **Primary Industries and Fisheries**

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Natalie Dodt

Department of Primary Industries and Fisheries
Queensland

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Contents

Acronyms

BRD	Bycatch Reduction Device
CRW	Catch Rate - Weight
CRN	Catch Rate - Numbers
MDS	Multidimensional Scaling
PRIMER	Plymouth Routines in Multivariate Ecological Research
SIMPER	Similarity of Percentages
TED	Turtle Exclusion Device

Introduction

This document presents the data collected to address the fourth objective of the initial report (Dodt 2005), to "investigate the relationship between syngnathid distribution and abundance, and assemblages and habitat characteristics".

Methods

Dodt (2005) details the survey design, field sampling protocols and laboratory procedures for collection and processing of the syngnathid samples from the trawl survey. The location of the survey shots and the stratified grids sampled during the survey are shown in Figure 1. From each trawl shot a 10 kg sub-sample of the catch was collected from the middle net to evaluate community composition[1]. The latitude and longitude, depth and strata information for each shot was recorded. Large individuals (including sharks, rays, sponges and habitat characters (i.e. rubble)) caught in the middle net that could not be accurately sub-sampled, due to their size, were identified to the lowest taxonomic level achievable, number of individuals and their weight were recorded on board the vessel and released. These individuals are referred to as "monsters" in this report. Syngnathids were removed from the catch prior to collecting the sub-sample. The details of syngnathid processing are in the initial report (Dodt 2005).

In order to calculate catch rates of the species and habitat characters in each sub-sample the following information was collected from each trawl:

- total weight of catch in the middle net (full net weight - empty net weight)
- wet weight of the sub-sample (sum of weights of all the contents as processed in the laboratory)
- total weight of each species (including habitat characters) in the sub-sample
- number of individuals of each species in the sub-sample.

The sub-sample from each trawl shot was sorted to lowest taxonomic level. Species[2] were identified according to protocols outlined in the Department of Primary Industries and Fisheries species register (Roy *et al.* 2005).

The lengths of up to 20 randomly selected individuals were recorded for each species in each sub-sample. Only maximum and minimum sizes are presented in this report.

[1] *Community Composition* refers to all catch (including rubble or sediment, yet excluding syngnathids for this survey) trawled by nets without excluder devices such as TEDs and BRDs.
2 In order to be consistent with terminology throughout this section, we use the term species (plural form) even when referring to groupings at the higher taxonomic level

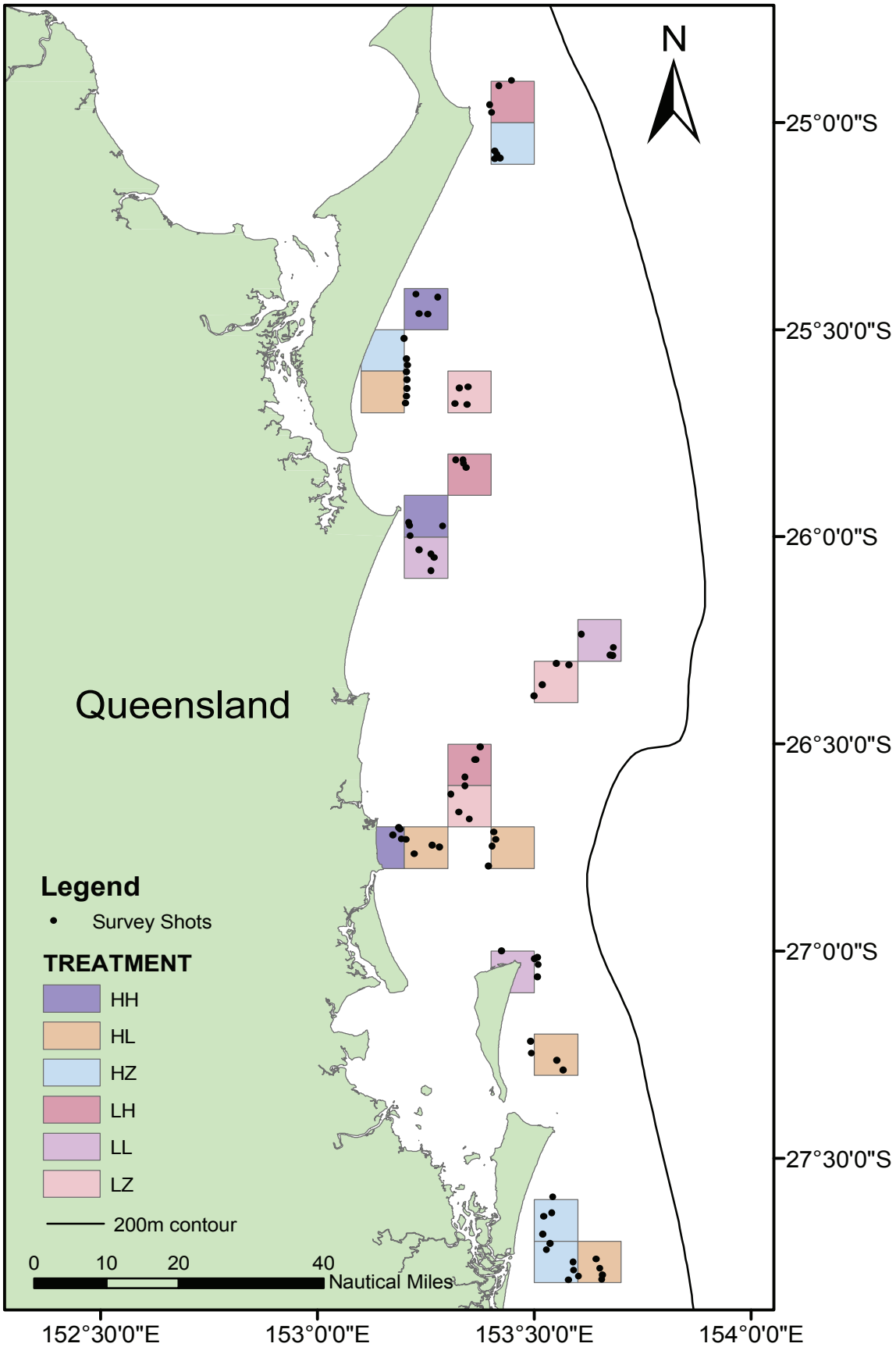

Figure 1. The location of the survey shots (mid-point of trawl) and the stratified grids sampled for the syngnathid survey (April - May 2005). HH = high trawl effort, high syngnathid CPUE, HL = high trawl effort, low syngnathid CPUE, HZ = high trawl effort, zero syngnathid CPUE, LH = low trawl effort, high syngnathid CPUE, LL = low trawl effort, low syngnathid CPUE, LZ = low trawl effort, zero syngnathid CPUE (CFISH February 2005).