

# Operation Hippocamp

## Investigation Report

### Introduction

The aim of Operation Hippocamp was to gather information on catch mix and fish size to determine the extent of dumping and high-grading in the South-eastern trawl and setnet fishery. Information on catch mix and fish size was to be gathered onboard inshore vessels at the time catch was brought onboard the inshore fishing vessel. This was to be contrasted with landed catch both at the wharf and in Licensed Fish Receiver premises. The difference between catch composition and fish size found prior to fish sorting and that found at landing and/or the LFR was to provide an indicator for the extent of the discard and high-grading issue in this fishery. The species targeted for the at-sea inspections were GUR and ELE with GSH and SPO as backup species. The IPV Pukaki was used as the platform for the inspections with the area of operation being defined as the East Coast of the South Island, south of the Waiau River, and the South Coast to Puysegur Point.

### Execution of Inspections

Two trips, each covering the East Coast, were fully dedicated to Operation Hippocamp. One trip covering the South Coast had a split commitment with about 50% for Hippocamp and 50% Stewart Island patrol (largely for recreational and hunting camp inspections). The three trips were completed in late February and early March 2012.

As a result of the three trips a total of seven vessel inspections were completed at sea that yielded information directly relating Operation Hippocamp's aim. This was a much smaller number of vessels than anticipated, however the Fishery Officers involved conducted other inspections as a contingency. The low number of Hippocamp inspections can be attributed to a number of factors as follows:

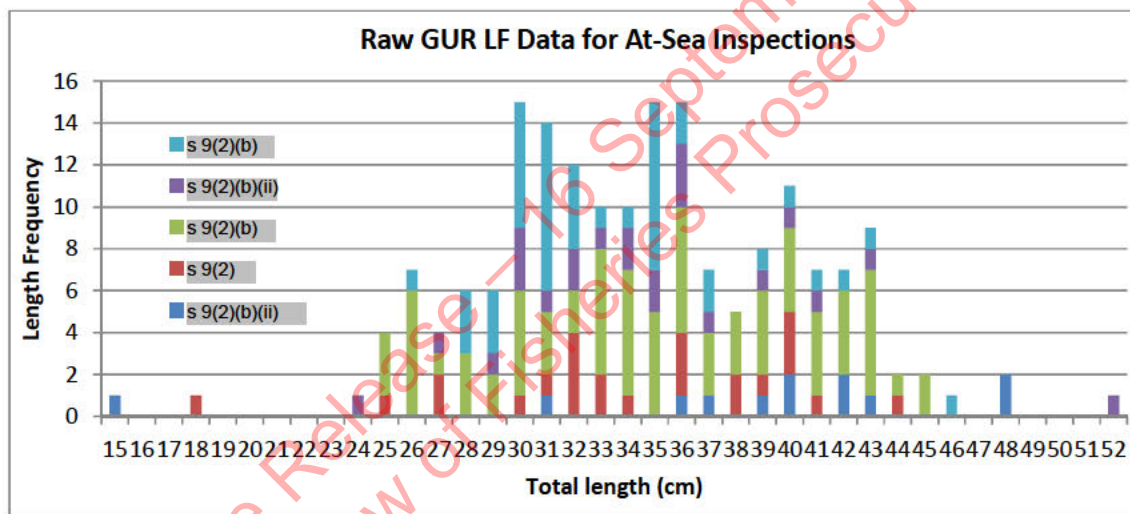
- Weather
- Timing
- Luck
- Murphy's law

Because there were fewer at-sea inspections conducted than anticipated there is limited data to work with. In addition, the low strike rate at-sea had the flow on effect of limiting the onshore response and inspection work. Fishery Officers from the Christchurch Office gathered a valuable package of length frequency data on catch landed by local vessels. Useful information on size specific payment schedules was obtained by the Dunedin Office for both s 9(2)(b)(ii) and s 9(2)(b)(ii) Timaru operations. Despite the unexpected limitations there was sufficient information to do some basic analysis and provide an indication of fisher behaviour.

## Results GUR

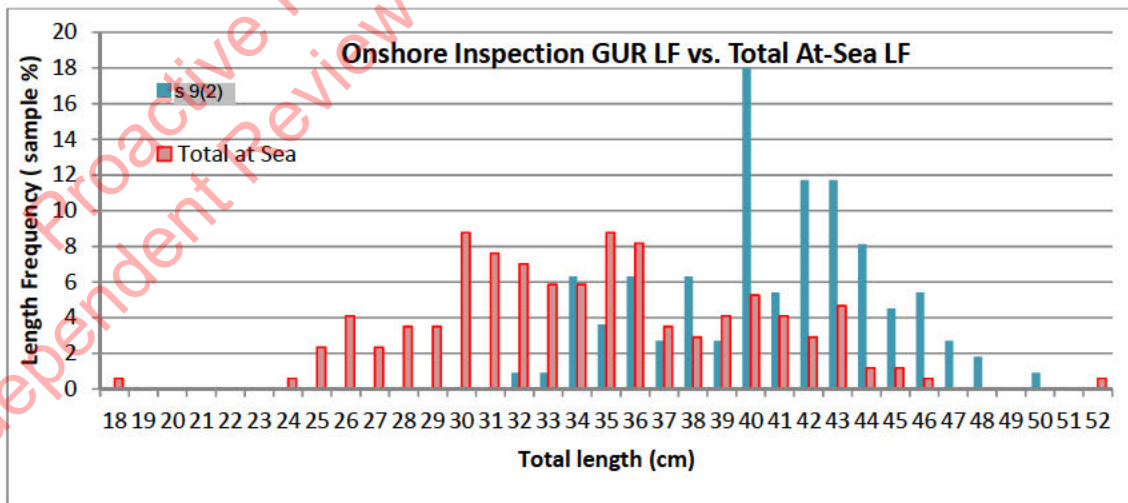
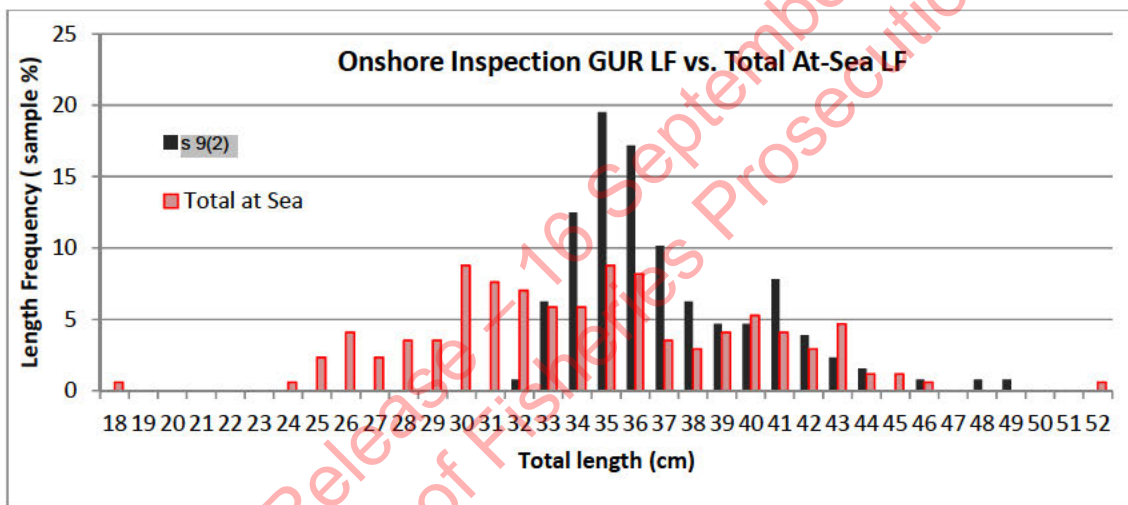
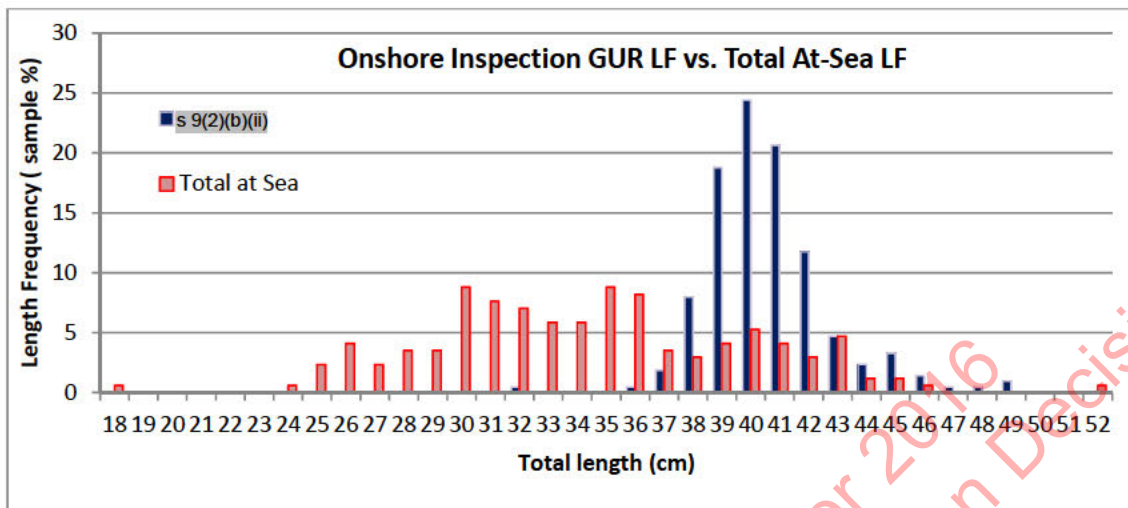
The best information gathered both at sea and onshore was for GUR. In total 171 GUR were measured during the at-sea inspections on 5 vessels. When combined, this length frequency information gives an indication of size profile for this species taken by commercial trawlers within this area. Although only a small numbers of fish were measured in each sample, each of the samples demonstrated a range of fish sizes across a shared range. When these samples are combined they give a “rough indication” of the fish length profile for the fishery.

The following graph illustrates the “rough indication” of fish size as seen caught by the trawler sampled. It shows the contribution of the individual catches sampled. Each of the vessel samples demonstrate a reasonably wide range of fish lengths, regardless of where the vessel was fishing.

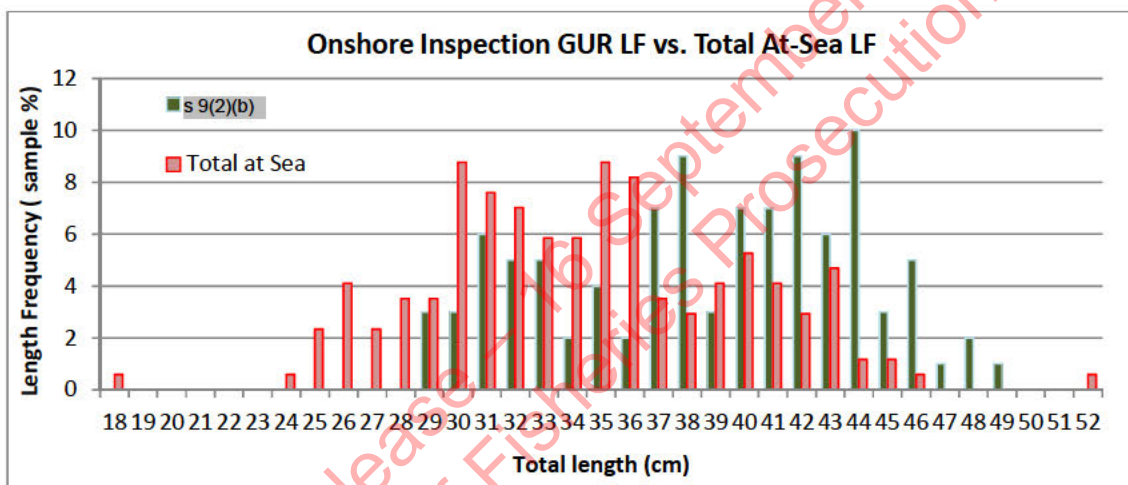
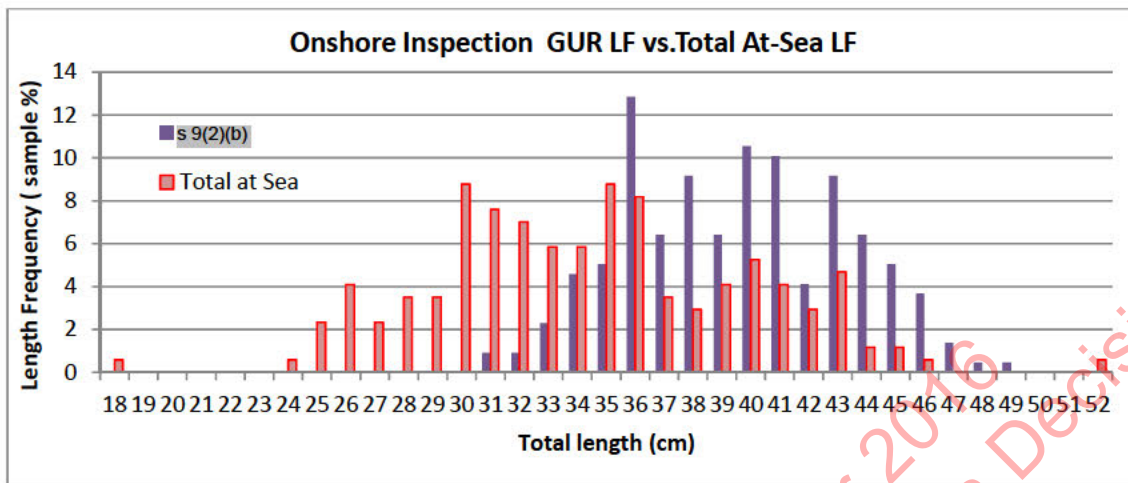


This GUR length frequency profile can then be contrasted against the larger sample of catch landed to Lyttelton as assessed in the onshore inspections. Christchurch Fishery Officers measured a total of 780 GUR from the landings of 6 local vessels. Due to the large number of fish in those samples this information is compared with the at-sea profile as a percentage length frequency for each of the samples.

The following graphs show the 5 largest landed GUR samples contrasted with the at-sea GUR size profile.







These comparisons illustrate that the individual onshore GUR length profiles fit within the size profiles of at-sea catch sampled (before sorting). There appears to be a significant difference between the total at-sea sample and the onshore samples. Although the onshore samples generally fit the profile for medium and larger length GUR there appears to be a large portion of fish missing at the smaller end of the profile. The difference between the total at-sea sample and the individual onshore samples indicates vessel specific differences in the landing of small GUR.

The price difference shown for landed GUR is relevant to the onshore size profiles. § 9(2)(b)(ii) and § 9(2)(b)(iii) pay a port price for GRE GUR over 32cm of \$1.90 and \$1.80 per kg respectively. § 9(2)(b)(ii) does not list a price for GUR under 32 cm but § 9(2)(b)(iii) lists a port price of \$1.00 per kg for GUR 28 – 32 cm. If we assume these companies are representative of others receiving GUR then any fisher landing GUR would have a strong commercial incentive to land only GUR over 32cm. The onshore (landed catch) vessel profiles suggest that these commercial vessels are largely landing GUR over 32cm in length. The sample taken from the § 9(2)(b)(ii) (213 GUR measured) shows that they landed few GUR less than 37 cm in length.

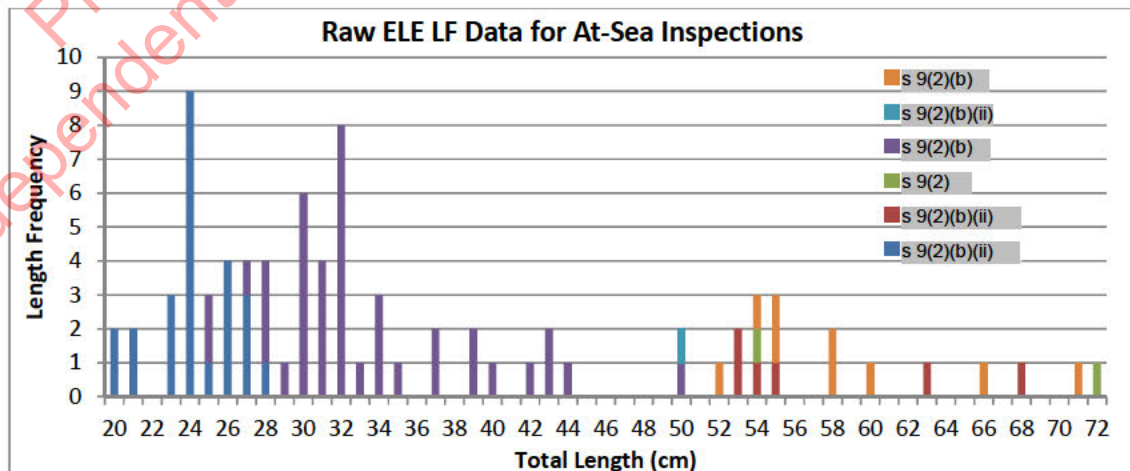
It is important to note that each of the individual at-sea samples contained GUR less than 32cm in length and these fish accounted for over 33% of the total GUR measured at sea. A further 35% of the total at-sea sample measured between 32cm and 36cm (inclusive). If the s 9(2)(b)(ii) is catching GUR that generally fits the at-sea size profile it would follow that they are illegally discarding over two thirds of their GUR catch (by fish number). The remainder of the landings sampled suggest that over one third (by number) of GUR is discarded.

## Results ELE

The results for ELE rely on less data and provide a different picture of what is going on out there. The first vessel inspection conducted was of the vessel s 9(2)(b)(ii) fishing just outside the “no trawl line” north of Banks Peninsula. The Fishery Officers found a bin of small ELE and a bin of LSO (over the legal size limit) onboard awaiting discard. These were the only ELE found on the vessel and they were all small. A total of 83 ELE were measured on 6 at-sea inspections. In contrast to the GUR size profile seen at sea, the different vessels had catches of ELE that varied substantially. The s 9(2)(b)(ii) and the s 9(2)(b)(ii) provided most of the ELE samples at sea and all of the fish less than 50 cm. Smaller samples of larger fish (50cm and over) were found on the other vessels. The size variety in the various samples means that the samples cannot be grouped; however they do prove that small ELE (less than 50cm) are caught by some inshore trawlers operating in some areas.

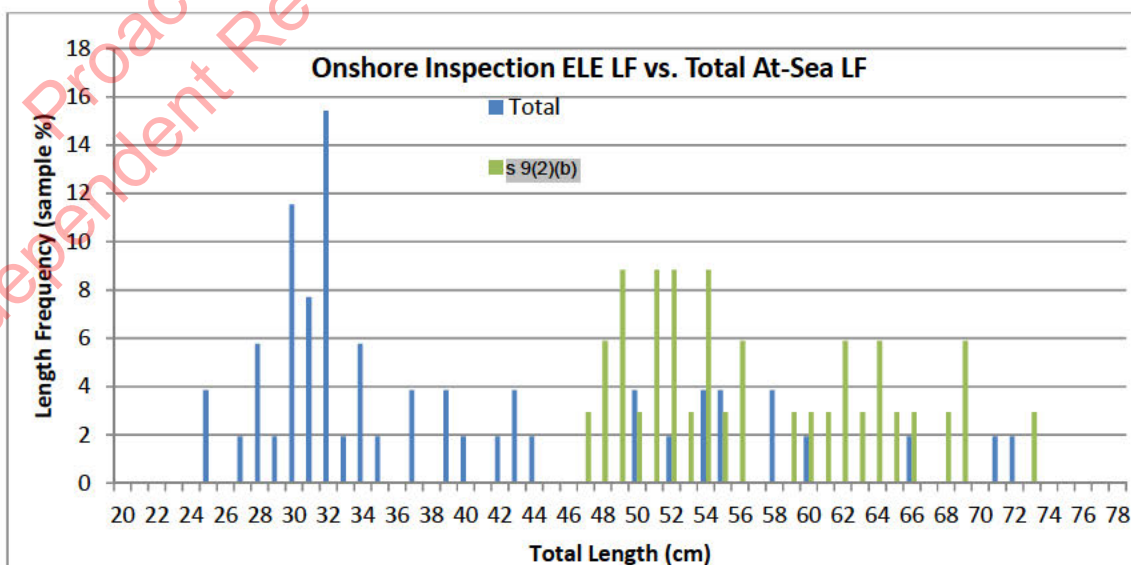
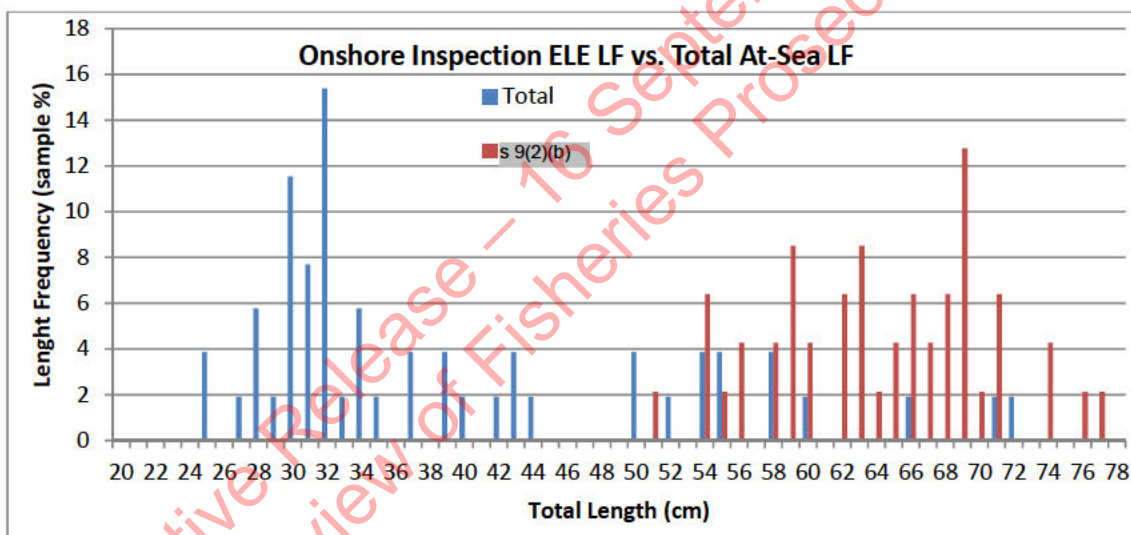
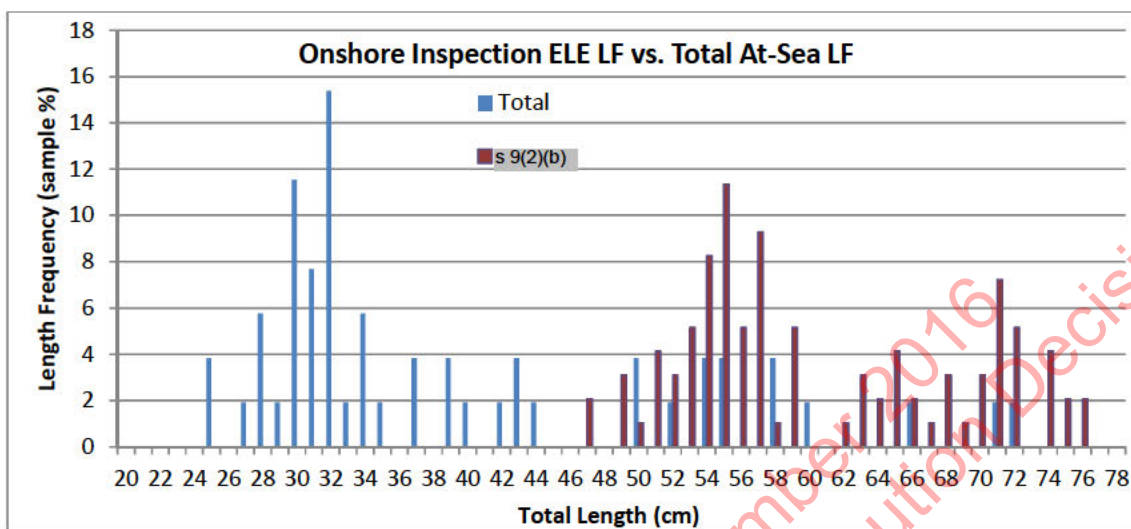
It is interesting to note that 2 of the 4 vessels sampled at sea in close proximity to Banks Peninsula yielded the catches with the smallest ELE. Pegasus Bay and The Canterbury Bight both contain known ELE nurseries that are designated “no trawl” areas to avoid the catch of juvenile ELE. It may be that trawling nearby these known nursery areas results in a high by-catch of ELE less than 50cm.

The following graph shows the total at-sea sample for ELE length frequency with the individual vessel samples identified. It demonstrates that a reasonably wide range of fish lengths are caught but that ELE length could be an area specific or vessel specific issue. The small sample size makes it difficult to draw many conclusions from this data.





The following graphs show the onshore samples contrasted with the total at-sea sample.



Although the total at-sea sample is limited for use as a comparison it is interesting to note that the onshore samples show that few ELE less than 50 cm were landed. It is also worth noting that these are all Lyttelton based vessels that fish around Banks Peninsula. The § 9(2)(b)(ii) provided much of the ELE less than 50cm in length in the at-sea sample but landed few for the onshore sample earlier in Operation Hippocamp.

As with GUR, the price difference shown for landed ELE is relevant to the onshore size profiles. § 9(2)(b)(ii) and § 9(2)(b)(ii) both pay \$2.65 per kg port price for GUT ELE over 50cm in length. Both list a port price for GUT ELE under 50 cm of \$1.70 per kg. Again, the connection between port price and landed length is likely to be a factor influencing the size of fish landed. There is much more money to be made from available ACE per kg by only landing larger fish.

## Conclusion

Although the number of inspections and at-sea data available was lower than expected the exercise has provided some very useful information. The results of the Operation Hippocamp data analysis suggest there is a significant GUR discarding and high-grading problem in the East Coast inshore fishery. The analysis suggests between one third and two thirds of GUR may be dumped by inshore trawlers. The analysis also suggests some Lyttelton based trawlers are catching small ELE but none are landing it.

Operation Hippocamp found one experienced fisher preparing to discard all small ELE and small FLA North of Banks Peninsula and found that another vessel took considerable small ELE in the Banks Peninsula area. The onshore inspections found few ELE under the commercial threshold of 50cm. There was insufficient data gathered for ELE, SPO and GSH to make further conclusions on the scale of discarding for these species.

Operation Hippocamp seemed like a good idea at the time and the analysis of the available data shows that it probably was just that. Although it was disappointing to inspect so few vessels at sea and then onshore, the operation suggests that this approach has potential. One of the main constraints for the project was the use of the Defence Force assets as a platform. These must be ordered many months in advance and once scheduled, there is little flexibility. It has been suggested to me since the completion of the patrols, that we could probably achieve as much, if not more, with our own vessels.

## Recommendations

I think that Operation Hippocamp was a valuable exercise but I would hesitate before repeating the operation in the same way. I recommend that we look at gathering the same type of information again in late spring 2012 to late summer 2013 but suggest we use our own vessel/vessels. Using our own vessels to conduct the boardings, when we know the target vessels are out fishing, is likely to result in more data for more species. In addition, I

suggest we use inshore trawl survey information and observer program information to supplement the at-sea data gathered. A more complete picture of commercial sizes and size-based payment schedules could easily be achieved by further investigation.

I think that Operation Hippocamp was an attempt to scope an issue that we have known about for a long time but has generally been considered in the too hard area. I think that Operation Hippocamp shows that this approach is likely to work but failed to gather enough information this time round. I think that size and species high-grading in the inshore fishery is a problem we must confront and address, so I am keen to give it another go in the future.

I would also like to take this opportunity to thank those people who conducted the inspections for their great work measuring fish, both at sea and onshore. The at sea team get a special thanks due to the obvious difficulty factor involved, while the onshore team get extra credit for the volume of fish measured.

I am happy to discuss the issues raised in this report at any time with anyone.

Regards

s 9(2)(a)