

Student 2: High Merit

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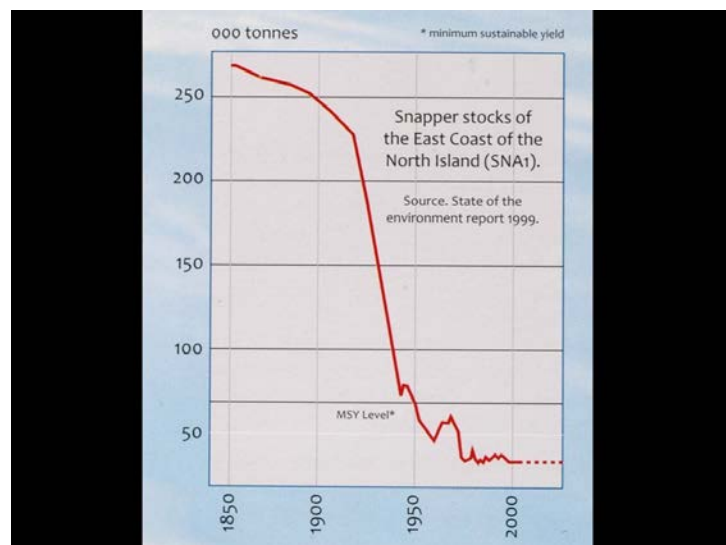
The Poor Knights Islands Marine Reserve has now become a tourist attraction, since it became fully protected. Businesses such as restaurants/cafes, accommodations and snorkelling/diving have become very abundant over the years due to the attractions provided by the islands. Although most of these businesses are there for the attraction, others, such as [local business] aim at **showing the importance of the marine reserve**. On their website they state, *'We have won awards for sustainable business practice...yes we are a business, but we believe in what we are doing, and we believe that we should be doing it "right". We pride ourselves in making your day a happy, friendly one, with great diving, impeccable service, full of smiles and laughter and streamlined professionalism.'* **These businesses aim at creating awareness around the problems facing our oceans, allowing all visitors to see the potential of having these no take zones. Creating amazing biodiversity within the waters and beautiful, thriving ecosystems.**

Marine reserves are important in the reestablishment of biodiversity in our waters. Evidence towards the encouragement of these reserves have been strenuously collected, but there are a insignificant number of these reports found.

A report done in 1999 shows the rapid decline in snapper numbers in northeastern New Zealand. The study shows there were approximately 270,000 tonnes of snapper found in this area, before fishing at a large scale began. We can see that around the 1920s through to the 1950s there was a large decrease in numbers, leaving around 28% of it original population. That's a decrease of about

2.4%, 6480 snappers, each year from its original estimated population in the 1850s. Even from the 1950s until the early 2000s, the numbers continued to drop. With very minimal happening in this country concerning the introduction of no take marine reserves, I expect this number to be much lower in the 18years since this report was published. Most of the fish have gone, affecting their ecological role on our marine and shallow reefs. The only area that fish are protected from fishing are those in fully protected, no take marine reserves.

With recreational fishing still allowed in partial reserves, with some restrictions, there is still a decline in numbers of certain species. An example of this is the numbers of crayfish and snapper at the Goat Island Marine reserve were lower last year (2016) than when the reserve was established in 1975. Initially when the reserve was first created, numbers of crayfish recovered quickly with snapper also becoming more common and bigger. This is not the only reserve to experience this, with a similar pattern found at marine reserves at Tawharanui and Hahei. It is believed that this is due to fishing



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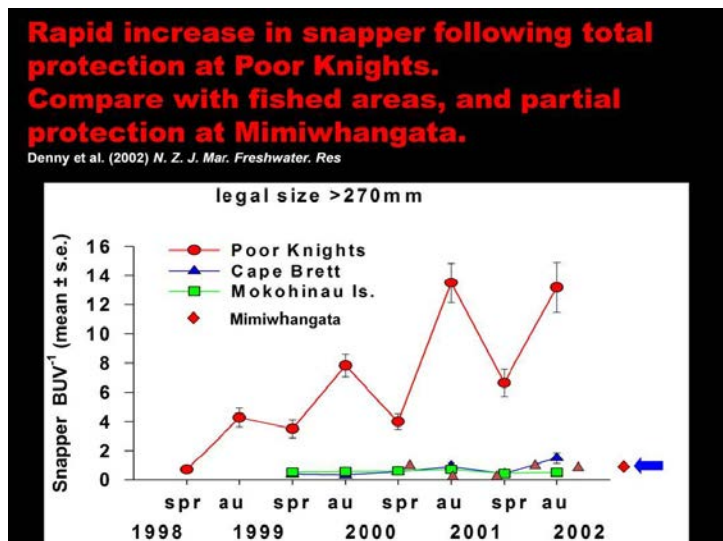
pressures on the offshore boundary of the reserve is so intense that animals stray outside it are being caught faster than those being returned. Since the introduction of a full protection reserve at the Poor Knights Islands there has been a rapid increase in snapper numbers.

In the graph on the right we can see that the snapper numbers increased from 4 BUV^{-1} in autumn 1998 to 13 by 2002.

As for the future of the Poor Knights Island, if the marine reserve is maintained or improved, the biodiversity and numbers of already existing organisms should continue to grow. With evidence seen above we can see that in less than 10 years the numbers of snapper (just one of the many fish species found within the reserve) had almost tripled. Also increasing is the size and/or age of the snapper. From observation

while snorkelling in the reserve, I was able to witness the biggest snapper I've seen since I was a little girl, probably even bigger.

Due to the rapid increase of snapper at the Poor Knights, it has caused the decline of Kina barrens as the snapper are able to combat the high numbers of Kina. By slowly eating away at the high number of Kina, natural kelp and seaweed forests are slowly restored. This decline of Kina barrens is just one example of how marine reserves and, more specifically, the Poor Knights marine reserve work to improve the biodiversity and biophysical environment.



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