

**Submission
No 72**

**INQUIRY INTO CLOSURE OF THE CRONULLA
FISHERIES RESEARCH CENTRE OF EXCELLENCE**

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The Director,
Select Committee on Cronulla Fisheries
Parliament House, Macquarie Street, Sydney
NSW 2000

Subject: Closure of the Cronulla Fisheries Research Centre of Excellence

Dear NSW Legislative Council's Select Committee,

I am a post-graduate research student at the University of New South Wales. Currently, I am in my second year of my philosophical doctorate degree, having moved from Queensland, where I studied under the University of Queensland (majoring in Marine Biology and Neuroscience). Upon hearing that the Committee is calling for submissions, I believe that it is essential that the members hear the opinion of a student who is reliant on this facility for the entirety of their degree.

As a student, scientist and fellow human being, I am endeavouring to create non-lethal and non-invasive methods to tag stingrays, a cartilaginous fish related to sharks. These animals receive almost no attention, minus a couple of events in the media when humans have *negative* interactions with these animals. My research can be described as being ecology-based, although it has implications for use in fisheries. My research requires me to capture and hold live stingrays in captivity to run trials, experiments and/or tag and release. While it doesn't appear to be much, in order to retain stingrays captivity, an aquarium needs to fulfil a handful of necessities. Firstly, these animals require constant care and monitoring, which at times cannot always be provided by myself and university colleagues/volunteers. The first month in captivity is critical to their survival, as these animals are extremely sensitive to environmental changes (i.e. light, salt levels in water, suspended sediment in water). A minor change in some environmental factors can have catastrophic consequences. Cronulla Fisheries Research Centre of Excellence is the only facility that can provide constant monitoring and management of the aquaria set-up, and be able to act swiftly in a time of need. To give you an example, part of my research is located outside of Sydney. During a particularly heavy downfall of freshwater that occurred in the Sydney region, the salinity in the water dropped and suspended sediment levels in the water exploded in a matter of hours at Port Hacking (water is pumped into the facility from here). It was the actions of David Barker, the facility manager, who acted promptly with knowledge and experience in dealing with aquatic animals that inhibited any adverse effects on my research animals. Being outside of Sydney (in Jervis Bay) at the time, I was not able to tend to the incident, however by the time I attempted to notify the aquarium facility manager (D. Barker), he had already foreseen the issue and dealt with it accordingly.

Secondly, in order to ensure accurate results in the experiment, large quantities of animals need to be held in captivity. Stingrays are a large cartilaginous fish species (up to 40cm width), and require sufficient space to prevent stress resulting from over-crowding. Cronulla Fisheries Research Centre of Excellence is the only facility that has such a large aquarium

animal capacity. The facility has a very large pool (I currently occupy 40,000L of space), alongside multiple 4000L circular tanks (~14), in addition to a few of 1000L tanks (I occupy 2 of these tanks), and ~32 small, circular >160L tanks (I currently occupy 12). My research is ongoing, and I require my animals to remain here until next year. Furthermore, I have preliminary results that have prompted further investigation, inevitably meaning I am looking to use the facility continuously next year to perform this research. Without this facility, this research cannot be carried out.

Thirdly, Cronulla Fisheries Research Centre of Excellence is located within close proximity to my specimen collection sites (Port Hacking, Botany Bay). As I previously stated, stingrays are very sensitive creatures, and it is essential that they spend very short periods of time in small holding tanks after capture and during transport. Port Hacking and Botany Bay are well-known hot-spots for these animals, as well as others, and its location enables my research to minimize the amount of funding and effort that is required to meet the minimum research animal quota (both of which are already exceedingly high in my instance). I am covered by several Animal Care and Ethics Committees, whom have reviewed and accepted my applications; it is my duty to ensure the health and survival of these animals, which I cannot guarantee if I had to transport animals further, or relocate them to another facility. Fourthly, Cronulla Fisheries Research Centre of Excellence has a wide-range of staff and resources that cannot be secured elsewhere. I have a wealth of knowledge just a walk away if I need to confirm any queries that I have regarding my research. Some researchers in this facility have **over** two decades of experience. Their experience covers a time when the Ozone hole over the Antarctic was first discovered (just to name one event), all the way through to the modern tracking technologies of animals via satellite and acoustic-transmitting devices. This level of experience and knowledge can only be found in a selection of other institutions, in which researchers are generally over-loaded with work and almost impossible to get sound advice from.

Lastly, I would like to address the issues with the facility suggested by the government; Sydney Institute of Marine Science (SIMS). Whilst this facility pumps water directly from Chowder Bay, similar to Cronulla pumping seawater in from Port Hacking, it lacks a few major features; (1) space, (2) staff directly responsible for animal-care and (3) time. Space is by far the greatest issue with the SIMS aquarium facility. This facility only has the ability to hold very small amounts of medium-size animals (no larger than 40cm). The aquarium set-up is unique in that it has a flow-through and recirculation system, which is both heated and chilled. Regardless, the facility is restricted to purely invertebrates and small fish species (often species like clownfish/damselfish) as they require minimal space and can be maintained in small tank set-ups. In addition to this, the facility relies entirely on equipment and tank donations from its associate institutions (i.e. Macquarie University, University of New South Wales, etc). Once a tank or piece of equipment is in SIMS possession, the institution which purchased the item of concern receives no preference over other institutions when trying to use the particular item in the SIMS aquaria facility. To put it simply, I cannot use tanks that were once purchased by my university to carry out research unless they are not booked by any institution. This part of the system needs to be fixed

immediately if this facility is looking to expand their current level of users. At the Cronulla facility, all tanks were purchased by the NSW-DPI, and therefore the current space booking system is justified. I would also like to take the time to point out the difference in space between the institutions; Cronulla >14 4000L tanks, a >160,000L pool, ~3 1000L tanks, ~32 160L tanks, compared to; SIMS 4 1000L tanks, plus space (not tanks) to hold 2 half rooms of ~1800kg of equipment, tanks and water with recirculated water, 2 half rooms of ~1800kg of equipment, tanks and water with flow-through water in a control temperature rooms, plus 7200kg in non-temperature control.

The SIMS facility lacks staffs that are at least partly responsible for the well-being and management of animals retained in the facility. Most animal care and ethics committees have stringent recommendation and guidelines to adhere to, preventing unnecessary stress and death to research animals. While most committees require the researcher to be the predominant animal-carer, in certain circumstances (particularly in research that is field and lab-based) an additional person to look after and monitor the health of animals is required. Research students, like all other people in the work-force, are required to work a set number of hours (35 hrs per week). Once a student breaches the agreed working schedule, research may become affected, or the student's health/safety may be at risk. Without a staff member designated to aid in monitoring animal health and well-being, research students simply cannot have sufficient time-off during research at this facility without organising a colleague or volunteer to fulfil all Animal Care and Ethics requirements to which they *must* always abide by (at least one person that is willing, and also has the access to do so). This adds another potential risk to students that are already over-worked, and may also place research animals in jeopardy.

Lastly, time is another fundamental factor in attempting to run research at the SIMS facility. As space is currently lacking, the addition of time available between research adds to the escalating problems. If a researcher is to secure time at the SIMS facility, it is supposed to run accordingly to a scheduled period, however, more often than not, users encounter countless problems with the aquaria system, experimental procedures, or animal collection, and subsequently the entire research-booking-time schedule is delayed. This is an inconvenience to those that have followed the protocol to securing space. Further, it is not uncommon for users to book space, and not use the space for the entirety of the period booked. Quite often users can have a delayed experimental start time (up to months!), which in a space and time-limited facility could have been used by another institution.

I thoroughly believe it is in the best interest of all research-institutions for Cronulla Fisheries Research Centre of Excellence to remain open. If shutdown, other facilities, in particular the Sydney Institute of Marine Science, will become flooded with more users, creating more issues with their currently problematic system. Cronulla Fisheries offers far more than other institutions, and with its ability to hold large aquatic animals, it can produce research valuable to fisheries science (inc. management). Moreover, this facility has been around for decades, allowing the management staff to deal with the onslaught of issues regarding space, time and research users, and they have created a protocol that works efficiently in my experience. I

cannot continue my future research plans for my degree unless this facility remains open. All I ask of you in this letter is that you please consider researchers and students like myself, as we have a very important role in safe-guarding our environment for the future.

Yours sincerely,

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