

Hindmarsh Island Monitoring

Spring 2015 and Summer 2016

Frog Monitoring

Frog surveys are performed by recording the distinctive male frog calls on a digital voice recorder at night. As each species of frog has a unique call, it is possible to estimate the number of calling males for a given species.

Two frog survey events took place in spring 2015, the first on 22 September 2015 and the latter on 12 November 2015. On each survey event a total of five sites with varying habitat characteristics were surveyed.

The September survey recorded four species: brown tree frog (*Litoria ewingii*), common froglet (*Crinia parinsignifera*), eastern banjo frog (*Limnodynastes dumerilii*), and spotted grass frog (*Limnodynastes tasmaniensis*), whilst the long-thumbed frog (*Limnodynastes fletcheri*); also known as the barking marsh frog, was also recorded on the November survey. The long-thumbed frog starts calling in late September around the Lower Lakes but becomes most vocal in late spring and early summer.

As its name suggests, the common froglet was the most common species recorded, present at every site surveyed in both September and November, often in high abundances. Following the common froglet, the most to least common species were the brown tree frog (recorded at seven of 10 sites), banjo frog and spotted grass frog (five sites each), and lastly the long-thumbed frog (two sites).

Frogs were most abundant and diverse at sites that offered complex habitat. An ideal habitat for frogs consists of significant cover by submerged aquatic plants and emergent vegetation; such as typha and phragmites, while also offering areas of open water.

In addition to the five species of frog heard in spring 2015, a further four species have been recorded on Hindmarsh Island: the painted frog (*Neobatrachus pictus*), peron's tree frog (*Litoria peronii*), bibron's toadlet (*Pseudophryne bibronii*) and southern bell frog (*Litoria raniformis*). The southern bell frog is nationally listed as endangered, and can vary in colour between olive and bright green. They also have a unique growling call that has been likened to the revving of a motorbike.



Figure 1. Long-thumbed frog



Figure 2. Brown tree frog



Figure 3. A diverse and complex habitat on Hindmarsh Island, which supports an array of frogs and the threatened southern pygmy perch



Fish monitoring

Fish are surveyed biannually at four locations on Hindmarsh Island to determine how changes in water quality and removal of flow-impeding reeds influence species assemblages. Fish are captured using fyke nets; specialised nets with a long 'wing' which guides the fish down a passage of hoops and funnels which progressively become smaller before arriving at the end. The fyke nets are set overnight and are hauled in the following morning. Fish captured are subsequently identified and measured, before being returned to the water, with the exception of introduced species.

The most recent fish surveys at Hindmarsh Island occurred on 29 September 2015 and 2 February 2016, with four sites surveyed along the length of Hunters Creek and its connecting channels. A total of 11 native species were caught in September and February, while two introduced species were caught in September and four in February. The total catch on both of these surveys were moderate (383 individuals and 390 individuals), and comprised predominantly of native fish (99% native in September and 78% native in February).

The number of introduced fish caught since 2013 has been low compared to monitoring results at other wetlands in the region. This is important as introduced fish can negatively impact freshwater environments and their inhabitants. For example, eastern gambusia (*Gambusia holbrooki*) will fin-nip and consume eggs of frogs and fish, redfin perch (*Perca fluviatilis*) are voracious predators of native fish, and common carp (*Cyprinus carpio*) stir up wetland sediments which impedes growth by submerged aquatic plants.

Over the past two surveys, the most common species caught was the common galaxias (*Galaxias maculatus*), a native fish species which spends their first six months of life at sea. On the February 2016 survey, there were record catches of the jumping mullet (*Mugil cephalus*) (40 individuals), a coastal marine species that is also able to enter freshwater, and the southern pygmy perch (*Nannoperca australis*) (44 individuals); a threatened freshwater species.

The southern pygmy perch suffered greatly during the millennium drought due to habitat desiccation and fragmentation. As a consequence, a re-stocking program was initiated to promote their long-term survival. The strong hold for southern pygmy perch on Hindmarsh Island occurs within channels connecting to Hunters Creek, which are well vegetated and have flowing water.

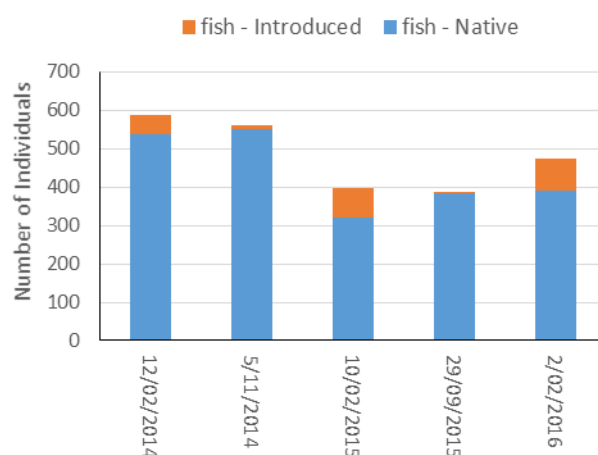


Figure 4. The abundance of native and introduced fish caught over the four sites monitored on Hindmarsh Island since 2014



Figure 5. Above - juvenile southern pygmy perch caught in February 2016 and below - a mature southern pygmy perch caught in November 2015

Want to get involved?

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