

Grey Nurse seminar – recent findings

- It is 50 years since a GNS has been seen in Japanese waters
- 40 eggs in 2 uteruses but interuterine cannibalism means a max of 2 born
- Only breed every two years, most born Winter/Spring but some in Summer
- The largest number seen from diver surveys was 292 in Winter
- South NSW is mostly females and north more males.
- Males more prominent in Winter
- Recent unnatural mortality was 1 shark per month
 - at this rate, then if population is 300, it will be quasi-extinct in 13-16 years
 - if population is 1000, it will be quasi-extinct in 84-98 years
 - if population is 3000, it will be quasi-extinct in 289-324 years
- Are east and west coast GNS genetically isolated?
 - East coast shows that all 23 sharks were descendent from a single female
 - West coast shows that the 23 were descended from only 2 females
 - As a comparison, a sample of 30 southern right whales showed they were descendent from 6 females
 - No evidence of east and west coast mixing (via DNA samples)
 - Therefore east coast population is isolated
- 75% of unnatural deaths female, mostly males
 - Death rate appears to have dropped from 12 per year to 3 per year in past 2 years (perhaps showing effect of latest actions)
 - 24 tagged at 5 sites
 - if a large population, then a low likelihood of ever seeing these animals again, if low population, a high likelihood
 - annual resight was 88.9%!!
 - they moved 25-800 km some stayed at 1 site for 1 week to 6 months
 - In June 2003, 16 out of 24 seen
 - This gives a population of 416 to 466 sharks with a 95% with 541 to 766 as an absolute maximum
- Spoke about electronic tags
 - Objective to see how far they range day and night and when and how long they use aggregation sites. Also habitat use and swimming behaviour day and night
 - Using two types, pop up and acoustic. Pop up stay on shark for long periods recording depth, water temperature and time. After a determined period of 3, 4 or 6 months, tags

come free of shark and float to the surface and send data via satellite to CSIRO. Three done so far, one had yet to come free and was due any day

- Female 2.4 m, water temperature 14-26C, max depth 61 m, 73.1% of time shallower than 30 m and only 26.9% deeper
- Male 2.26 m, water temperature 14-26C, max depth 98 m, 87.9% of time shallower than 30 m and only 12.1% deeper
- Acoustic tags give out a signal every minute
 - There are 5 locations, Pimpernel Rock, North Solitary Island, South Solitary Island, Fish Rock, Tollgate Islands
 - 17 GNS tagged and data shows they move a lot around the island whilst most leave the island for up to 6 hours a day/night. The sharks also move a lot between the various locations (eg going from Fish Rock to Sol Is to Fish Rock to Tollgates)
 - Noel Hitchins, owner of SWR Dive Centre, also has been wearing a tag, to gauge reaction to his entering the water with divers and it is hoped to see if there is any great change in GNS behaviour while and after he is in water (eg see if sharks that were near one station move away and stay away)
- The underwater surveys showed 2% of GNS had visible hooks in 1991, 6% in 1999 and 12% in 2001
 - Autopsies show that of the six dead sharks he has opened up, all had hooks
 - 2 were visible, 4 were internal