MARINE Life

A Magazine of Tasmania's Oceans
January/February 2011
Issue 11

- Abalone Virus
- Killer Whales in the Derwent
- Life of a Naturalist
- The Mighty Don Heads
- Tasmanian Giant Crabs
- Red Handfish Sightings
- Strange Happenings at Primrose

and much more…

Marine Life magazine

Our Goal

To educate, inform, have fun and share our enjoyment of the marine world with like-minded people.

The Editorial Staff

Michael Jacques, Editor, the other "survey monkey"

Emma Flukes, Sub-editor, a sun soaked hedonist

Regular Contributors:
John Smith
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And lots more. Thanks people!

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Cover Photo ; Yellow-striped leatherjacket at Primrose Sands by Michael Jacques

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News

Features

Activities

Local News

Correction to last edition- Out on the sand at Primrose Sands

In last edition there was a photo depicting a "marine flatworm". This was, of course, not an error on my part, but a trap to see who is on the ball out there. The photo was of course the proboscis of an echiurian worm. Professor Craig Johnson spotted it and was instantly onto us.

The worms are often seen at night. The proboscis can be 1m long and can pull back into the sand almost immediately when you touch it. Some seem to be light-sensitive and do the same thing when you shine your torch on them. Karen Gowlett-Holmes' book "Marine Invertebrates" says that it is a species of *Ikeda* and interestingly records its range as northern Tasmania only.

Third and Final Phase of the Crayfish Review

The final consultation phase for the rock lobster review will commence early in 2011 and not mid December, as indicated in some previous correspondence.

The delay is due to the Department not being able to finalise the new draft rules and associated policy and information documents. As well as some concerns it would clash with the most active recreational fishing period. It is still anticipated that the new rules will be implemented for the recreational fishery in November 2011, to coincide with the new recreational sea fishing guide and the new fishing season.

For the commercial fishery, changes may commence soon after the new rules take effect in mid-2011. The setting of the Total Allowable Commercial Catch (TACC) is a separate process to the management plan review and will continue in accordance with the annual processes.

Click here to goto the Rock Lobster Review Process and Update.

Southern Bluefin Tuna & Shark Species Listed

The Federal Minister for the Environment, The Hon Tony Burke MP announced on 24 November that Southern Bluefin Tuna (SBT) had been listed as conservation dependent. Minister Burke noted "The species has declined in the past, and while ongoing improvements in management measures are helping to stabilise the population, the breeding population is still considered to be less than 8% of unfished levels....This listing will **not** prevent or restrict fishing."

Two additional shark species, Dusky Whalers and Shortfin Mako's, have been nominated for listing as vulnerable under the Threatened and Endangered Species List. We have received copies of the nomination applications and will be making a submission to the Threatened Species Scientific Committee. Public submissions close on 10 December.

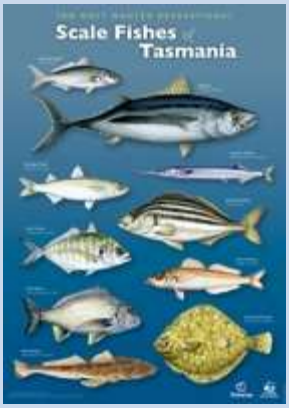
Redmap News

After the last attempt was rained out, Redmap and Marine Life Magazine will be that the "Life Be in it" display on Kangaroo Oval on Sunday 27th February, 10am-4pm. This will coincide with the Bellerive Jazz Festival. Come done some time and say hello.

New Fish Posters

Fishes of Tasmania is a set of 4 full-colour wall posters featuring more than 75 well known Tasmanian fish species, illustrated by renowned Tasmanian artist Peter Gouldthorpe.
The poster themes are:

- "Ten Most Wanted Recreational Scale Fishes of Tasmania";
- "Forty Recreational Sea Fishes of Tasmania";
- "Sharks, Skates and Rays of Tasmania"; and
- "Crustaceans and Molluscs of Tasmania".



Priced at $20 per set, the posters are available at all Service Tasmania shops. Proceeds will be used to fund future fisheries educational and awareness programs.
To view the posters go to www.fishing.tas.gov.au/fishposters

Black Urchin Pest now being Fished

I'm grateful to Peter Paulsen of Bay of Fires Dive for contacting me with some St Helens news. He has told me that commercial harvesting of long-spined urchins has commenced at St Helens. A local abalone diver and a local oyster grower have established a joint business operating from a shed at Moulting Bay. They have found a market for the urchin roes. They have taken 18 tonnes live weight from the Skeleton Rock area alone. Apparently only certain urchins are suitable, so they aren't cleaning out the whole barren. Even so, every little bit helps, Excellent news.

Recreational Fishing Survey gets the Thumbs Up

TARFish were successful last year in securing a Fishwise Community Grant for a project Recreational Rock Lobster Survey Methodology Peer Review. The project was developed to review the method used by the Tasmanian Aquaculture & Fisheries Institute (TAFI) to estimate the annual recreational catch of Rock Lobsters.

"TARFish have been pleased with the outcome of the review as it has reinforced our view that the method used by TAFI is nearing world's best practice and the areas identified for improvement were of only a minor nature". The Review Report is available on the TARFish website

Atlas of Living Australia

The Atlas team has been building infrastructure to bring together information about Australia's flora and fauna and combine it with maps, images, descriptions and connections to taxonomy and literature. The Atlas of Living Australia is now publicly accessible at www.ala.org.au . The website is a window into their ongoing work. We still have more to include - more functions, more datasets, and more tools to assist those studying and working with Australia's biodiversity.

IMOS – Eyes on the Ocean

Tasmanian scientists will soon have unprecedented access to data from high-tech equipment for monitoring coastal and ocean ecosystems.

The technology is being provided through the new Tasmanian science node of the Australian Integrated Marine Observing System (IMOS) which is being launched today at CSIRO in Hobart.

"The ocean waters and habitats surrounding Tasmania are important to the state's economic wellbeing, yet are poorly understood," IMOS director, Tim Moltmann, says.

"This complex environment has strong seasonal variation and many offshore islands, submarine canyons and seamounts that support unique biodiversity and productivity hot-spots.

"It is also a region where there has been rapid change in both oceanography and biodiversity, offering a great opportunity to characterise and understand how Australian marine ecosystems may respond to climate change."

"TasIMOS has planned the observing system in Tasmania's oceans so that these challenges can be addressed through joint research by CSIRO and the Institute of Marine and Antarctic Studies at the University of Tasmania."

The TasIMOS observing system will:

- provide real time data from the Maria Island National Reference Station;
- monitor water properties and seabed habitats using several types of autonomous vehicles;

- detect a range of tagged marine animals using curtains of acoustic receivers; and
- validate satellite remote sensing of ocean conditions.

"For example, repeat surveys at sites along the Tasmanian coast will track the progress of the spiny sea urchin, a serious threat to Tasmania's rock lobster industry."

Dr Thompson says IMOS data already show the Tasman Sea is warming much faster than other places in the world.

The datasets will help scientists underpin a whole-of-system approach to managing aquaculture and fisheries resources and biodiversity, including marine reserve management.

To read the ABC online news story click here.

Lonely Sentinel

Keeping a lonely vigil on the weather 600 kilometres southwest of Hobart in a depth of four and a half kilometres is a buoy that is a first for the Southern Ocean. The Southern Ocean Flux Station (SOFS) was deployed in March this year and has been transmitting data in real time back to the Bureau of Meteorology

The buoy measures meteorological elements of wind speed and direction, atmospheric pressure and temperature, sea temperature, relative humidity and precipitation. A "wing" on the buoy keeps the instruments into the wind so as they record undisturbed air.

The buoy also has many sensors on the mooring at different depths that measure sea water temperature and salinity to a depth of 200 metres. Other sensors on the buoy allow measurements of ocean surface properties such as salinity, carbon dioxide, oxygen, fluorescence and current. Wave recording technology is being developed and wave data will be a parameter in the future.
This buoy will give forecasters a weather observation in the sector where much of Tasmania's severe weather conditions originate. It is bit like have another Maatsuyker Island observing site but further away, giving a greater lead time on the approach of cold fronts or low pressure systems.

Data can be accessed at http://emii3.its.utas.edu.au/sofs/

Coastcare Week Seminars and Derwent Pests

I managed to rush over for only a few of the presentations on offer to celebrate Coast to Coast 2010. Personally, I found the Derwent Estuary Program presentation very informative. Reef Life Survey Program surveys have shown that in some areas of the Derwent Estuary (such as Geilston Bay), 100% of the animals found living on the rocky bottom in that area were introduced alien species. While the river itself is getting cleaner and things are looking up, the marine pest side of the report card was looking very poor. Here's hoping that as the river continues to improve in health, native species get a better chance to compete against the tourists.

Tasman Island Brochure coming soon

Friends of Tasman Island are currently working on publishing a booklet on Tasman Island (initially for the Wooden Boat Festival in February 2011 and then for tourist outlets on Tasman Peninsula) - due to funding guidelines it will be very similar to the booklet on Maatsuyker Island by Friends of Maat – stay tuned

Molluscs of Tasmania - Photographers wanted + beachcombing guide

Dr Simon Grove, "Perhaps in the next edition you could mention that I'm looking for photographers willing to contribute images of nudibranchs for the molluscsoftasmania web-site, since I don't stand much chance of taking photos of such molluscs myself."

Victorian Joan Hales has already kindly sent Simon some images which have been uploaded onto Simon's very comprehensive mollusc website. An example can be seen here.
"But this still leaves plenty of gaps, which I'm keen to progressively fill to help make the web-site more useful". Contributors will get a prominent acknowledgement on the photo itself.

Simon further writes…"By the way, the web-site now includes references to a 'beachcombers' list' of species, meaning that people with a casual interest in Tasmanian seashells can scroll through all the species that they're likely to come across as beachcombers, while avoiding having to scroll through rarer or smaller species. I've pretty much finished incorporating photos of these 'beachcombers' species', so most clicks of the mouse will lead to a page with an image on it. The starting-point for such a tour is can be found here (although one could start on any species and get to the nearest point in the beachcombers' list with a single click)."

ARC Funding grant

Climate change and ocean acidification: will southern ocean coccolithophorids be winners or losers? Implications for the global carbon pump.

This project to be done over 3 years brings skills on morphotaxonomy, microalgal culturing, physiology and biogeochemistry into the flurry of international activity focusing on consequences of ocean acidification. Increasing atmospheric carbon dioxide (CO2) is predicted to reduce calcification in the phytoplankton Emiliania huxleyi, notably in the Southern Ocean. In contrast, higher CO2 may stimulate photosynthesis and enhanced stratification may also select for E. huxleyi. These changes will affect foodwebs and the ability of the ocean to absorb CO2. Predicting the future success of this key organism is vital to understand the consequences of global change in Australian and Southern Ocean waters and to set targets for carbon emissions. *Chief Investigator: Professor Gustaaf Hallegraeff*

Ten Days on the Island 25 March – 3rd April

Some marine material is in there including a Korean folk group presenting the mythology of Jeju Island for Kids, a travelling arts show in coastal communities, Pacific Islands themed works, marine photographs in various exhibits. http://www.tendaysontheisland.com/

New Coles Bay Jetty completed

The project included construction of the new concrete jetty, remedial works to the rock groyne, increasing the height of the outer end of the wall to provide greater protection for berthing vessels and construction of a fenced path on the breakwater for the high number of tourists that visit the site. Worth more than $800,000, was managed by Marine and Safety Tasmania however the jetty is on land managed by the Parks and Wildlife Service.

Summer Activities with PWS

The program will run until 8 February. Activities will be held at the following parks/reserves and townships: Arthur-Pieman, Mt William, Bridport, Cradle Mountain, Lake St Clair, Freycinet, Maria Island, Mt Field, Narawntapu, north-west parks/reserves, South Bruny, Strahan, Lillico Beach and Tasman. Details of activities are available from park/reserve offices and on the PWS website at www.parks.tas.gov.au

Shearwater Walks at Cape Deslacs

Witness the wondrous sight of the evening arrival of the Short-Tailed Shearwaters. Meet at the top car park, follow the signs along Bicheno Street at Clifton Beach. Bring very warm clothing and a torch.

February 2nd, 9th, 16th, 23rd. 8:00pm – 9:30pm.

Download the poster here for more details!

Narawntapu

Tuesday 4th February

10am ~ Beached As (2 hours Approx)

Explore rock pools, create magnificent sand sculptures and have a whale of a time! Please bring buckets, spades and sun protection and meet at Griffiths Point.

World Heritage Listing for Darlington, Maria Island

The significance of the convict probation era at Darlington was recognised recently by World Heritage Listing as part of the five Australian convict sites. The sites include; the Cascades Female Factory, Port Arthur Historic Site, Coal Mines Historic Site, Brickendon and Woolmers Estates and the Darlington Probation Station.

Australian Coastal Society meeting

The Tasmanian Branch of the Australian Coastal Society (ACS) will be holding their inaugural AGM on Saturday 5th February 2011 at the Campbell Town Hotel starting at 11am. The Australian Coastal Society is dedicated to healthy ecosystems, vibrant communities, and sustainable use of coastal resources. Professor Bruce Tom, President of the ACS will talk about the role and activities of the ACS.

For more information or to RSVP for the 5th February meeting, please contact tas@australiancoastalsociety.org

CSIRO News

Scientists question using fisheries catch statistics as a measure of ecosystem health

Do changes in fishery catches reflect changes in the structure of marine food webs, and therefore are a suitable guide to assess the impacts of fishing on marine ecosystem health?

The CSIRO's Dr Beth Fulton, and Dr Sean Tracey from TAFI, were members of the international team involved in the study. "The most widely adopted indicator of biodiversity in the ocean at a global scale is the 'average trophic level' determined from fishery catches" ["trophic" means basically "feeding" and more exactly it is describing the relationships between the feeding habits of organisms in a food chain and also about their position in the food chain]. "This [trophic level measurement] is intended to detect shifts from high-trophic-level predators such as Atlantic cod and tunas to low-trophic-level fish, invertebrates and plankton-feeders such as oysters."

"In contrast to previous findings, which reported declines in catch average trophic level thought to be due to the loss of large fish and the increasing catch of small fish, we found that catches are increasing at most levels of marine food webs and that the average trophic level has actually increased in the past 25 years.

"We also found that average trophic level determined from fishery catches does not reliably measure the magnitude of fishing impacts or the rate at which marine ecosystems are being altered by fishing."

Dr Tracey says global fisheries are at a crucial turning point, with high fishing pressure being offset in some regions by rebuilding efforts. Relying on the average trophic level of catch could mislead policy development.

Dr Fulton said that, to target limited resources in the best way, researchers should focus on assessing species vulnerable to fishing that are not currently assessed effectively "We also need to develop and expand trend-detection methods that can be applied more widely, particularly to countries with few resources for science and assessment.

"Through such efforts we can better detect and convey the true impact of fisheries on marine biodiversity," Dr Fulton said.

Keen, Keen, Johnny Keane – Killer Whales in the Derwent

After seeing a whale born in the Derwent River for the first time in a couple of centuries, we were treated lately to the appearance of a pod of Killer Whales, probably chasing schools of Australian Salmon. John had the presence to take some snaps and better still, send them in, enjoy,

"Here are some pics that I took yesterday that you may find useful for the next edition of Marine Life. Cheers, Dr John Keane."

The Mercury (09/12/2010) reported "…there were probably six or seven, a couple of big males among them, a couple of young ones and others that could have been females or young males.

[Wildlife biologist Rachael] Alderman said they were not particularly dangerous but as a large wild animal should be treated with respect and kept at a safe distance.

She said when orcas came close to Boat Harbour beach in the North-West recently swimmers were told to leave the water, which was cautious but reasonable. "

Abalone Crisis – AVG found in Tassie waters

-info gratuitously stolen by Emma

Tasmania's abalone fishery is the largest contributor to the wild fishery of anywhere in the world, supplying more than 25% of the global market and worth more than $110 million in beach price alone. On 20th December, the fishery experienced a major scare when a virus was detected in routine testing at a processing plant.

The virus, Abalone Viral Ganglioneuritis (AVG), affects the nervous tissue of abalone and causes rapid death. Infected abalone may show signs of tissue necrosis, protruding mouth parts, or curling of the lip exposing the inside shell. The virus is highly virulent and can be spread through direct contact of infected abalone, through the water column without contact, or even by mucous that infected abalone produce before dying. AVG has already devastated wild abalone fisheries off Victoria since it was first detected in 2006. Tasmania's latest scare is only the second time the virus has been detected in our waters, and its presence poses a huge threat to this lucrative fishery.

Healthy greenlip abalone

Greenlip abalone showing symptoms of the disease

Timeline of events

15th December 2010 – Abalone mortalities detected by DPIPWE water sampling at the Margate processing plant.

20th December 2010 – Positive tests confirm the presence of AVG. A biosecurity plan is put in place for the plant, and 8 other properties linked the infected premises are tested.

6th January 2011 – Results from the Bicheno processing plant are unclear. Further testing is commenced. Destocking is completed at the Margate plant and decontamination commenced. Surveillance diving for infected wild abalone begins.

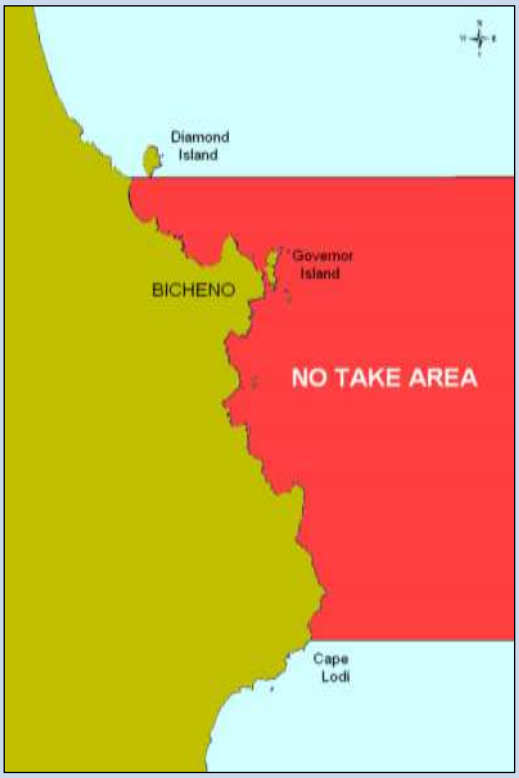
12th January 2011 – An abalone hatchery near the Bicheno farm reports unusual mortalities

14th January 2011 – Tests from the hatchery come back positive. Quarantine measures are implemented and tracing of fish to and from the farm started.

16th January 2011 – State Disease Control Headquarters are formally established to oversee the decontamination and management of infected properties.

18th January 2011 – The recreational abalone fishery in the area surrounding Bicheno is closed.

At this point in time (4pm Friday 21st Jan), 3 infected premises have been identified: a processor at Margate, a processor at Bicheno and a hatchery at Bicheno. A further 3 suspect premises have been identified. While it's not currently clear what has caused the outbreak, DPIW strongly suggest that it hasn't come from the wild fishery. Lab tests have revealed a low level of the virus in wild abalone at Bicheno, but there are no indications that any wild fish have fully developed the disease. It is possible that the virus is endemic to abalone and only kicks in when the animals are under stress (e.g. when they're exposed to long transport times and high-density holding in farms). The outbreak may be a result of infected outflow from the holding plant being discharged into the wild population.



Some misunderstanding surrounds the controls that have been implemented to control the spread of AVG, possibly stemming from an incorrect news report stating that the Primary Industries Minister had "banned recreational diving from Waubs Bay to Lodi Point near Bicheno". While the taking of abalone has been banned from this area, the Minister has said "…we're not stopping people from going into that area, but if they do, we'd ask them to disinfect their gear and make sure they clean their boats down." Again, this statement isn't very helpful in informing recreational divers and fishers as to how they might go about 'cleaning and disinfecting'. Fortunately, the DPIW site is a little more helpful (summarized below):

How to help halt the spread of AVG - cleaning

The AVG virus only survives a short time in the water, so the most likely method of disease spread in the wild population is by direct contact between infected abalone (including mucous, shells, contaminated equipment) and healthy abalone. Thorough cleaning of boats and equipment is therefore crucial if you have been diving or fishing recently in the affected area surrounding Bicheno. This involves removing all organic material including shell, weed and mucous from surfaces including ALL dive gear (plus ab irons and catch bags, even cameras if you were carrying them), fish bins, boats and deck equipment, gumboots and wet weather pants etc. Wetsuits should be washed with a specialized wetsuit preparation and freshwater, but if this is not available a mild liquid soap or shampoo will do just fine. All remaining gear should be soaked in soapy fresh water for half an hour and rinsed.

[Emma's note] *While you may consider this to be an overreaction to the current situation, it's what our scientists have advised at this point in time and is likely to have been given a lot more thought than any "stupid boffins" theory you might have concocted with your mates. Let's just go with what the professionals advise and see where it leads us. Who knows, washing your wetsuit every once in a while might even be a good thing.*

Critter Files

Article courtesy of Bicheno Dive Centre and John Smith
Photo; Geoff Rollins

Gurnard Perch

The common gurnard perch (*Neosebastes scorpaenoides*) ranges from NSW around the Victorian coastline to SA, and is particularly prevalent in Tasmania. Found at depths from two to 140 metres, gurnard perch can reach 40 cm in length and a kilo in weight. Older fish generally inhabit deeper water while youngsters keep to then shallows, and this appears to be the case at Bicheno where most gurnard perch encountered by divers would be younger fish around 20 cm or smaller.

The species belongs to the Scorpionfish family and like other members of this family possesses a powerful sting. Poison glands at the base of the dorsal, anal and ventral fins can inject venom via sharp spines and cause severe pain ... reason enough for divers to be wary of this sluggish little critter.

Like its cousin the stonefish, gurnard perch employ camouflage to lie in wait and ambush their prey. This consists of small fish, squid, crabs and other small crustacea as well as marine worms. And like many other predatory fish they have the ability to change their colour pattern to match the surroundings.

Many underwater photographers tend to give these critters a wide birth, firstly because there's a remote possibility of being stung, and secondly because they seem such an ugly little fish - large bony head adorned with small spines and big mouth, and dull reddish grey body with three irregular darker saddle-like bands. The fact is though that under the right circumstances these little critters make ideal photographic subjects. They're relatively unperturbed by the presence of divers and prepared to stand their ground, even when a camera is literally shoved in their face. Their red mottled colour pattern and big blue/black eyes are beautifully highlighted by strobes, and when approached they often raise themselves on their pectorals and erect their dorsal spines – the perfect pose for a great fish portrait!

There are plenty of these little critters around Bicheno just waiting to present some wonderful photo opportunities. You just need to take reasonable care when photographing them – don't attempt to touch them and be careful when you're taking your shot, there are occasionally two or three in the one area and they're sometimes hard to spot!

Favourites from your portfolio

We present to you Phil White, Aka Hector Crawfish. Accomplishments include collecting pocket lint and synchronising egg timers. Phil loves to dive around the Devonport area looking for a special shot that says something about the majesty of the area where he lives. He isn't trying to make the cover of National Geographic, just trying to be creative with his spare time while enjoying the ocean.

Phil is the northern reporter for this magazine, and he has kindly taken the time to tell us a little about a handful of his shots.

Blue Lined Leatherjacket

This was taken in 2006 at Sisters Bommie, just to the east of Sisters Island. I was diving with the Wynyard Scuba centre back in the days when they ran charters. I had just got a strobe for my UW camera and I think this was one of the first times I tried it out. The leatherjacket was a lucky shot, being a front on with eye contact, in focus and correctly exposed for a change.

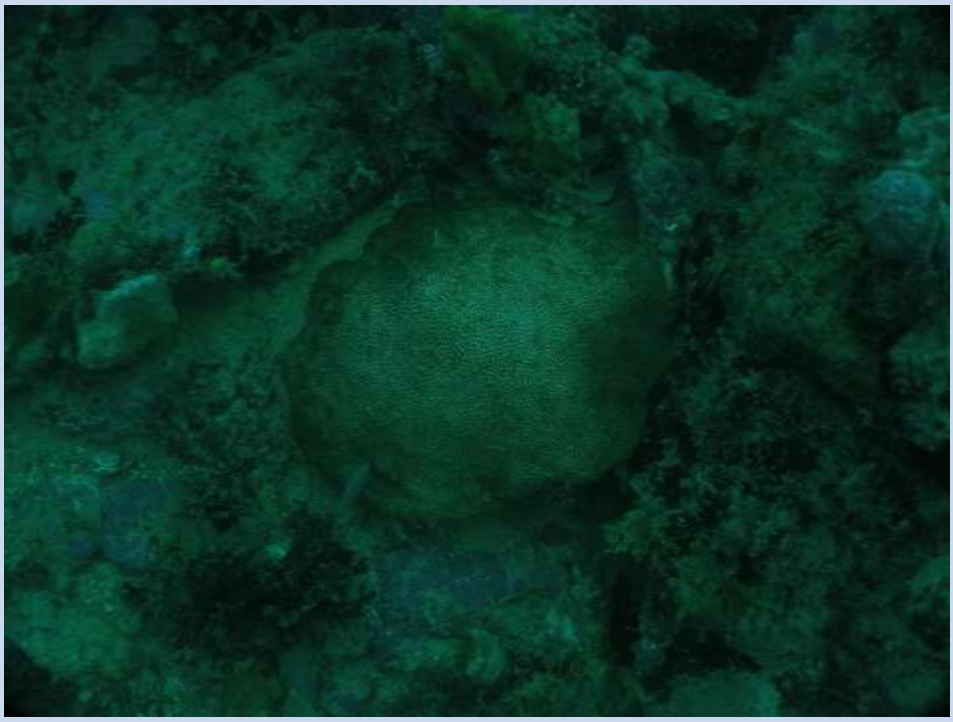
Catsharks

Taken at Bicheno a few years ago on a combined clubs weekend. The site is split rock (not the Waubs bay one) and I came across these small sharks sitting on the bottom looking as if they were engaged in some canoodling or so my dirty mind thought. Anyway out comes the camera and unfortunately the shots were a bit overexposed. I have never seen this variety of shark before or since.

Horseshoe Leatherjacket

Horseshoe reef off Devonport seems to have more than its fair share of these critters. Bright, colourful and aggressive I have wondered on more than one occasion if the reef is named after them but in actual fact it's the shape of the reef that gives it the name. For some reason These leatherjackets consider me to be a threat or worth eating and I have been attacked several times, once being bitten on a finger, drawing blood. This photo was taken as one was about to move in on me for the kill.

Stony Coral



Many leagues off Devonport there is a deep reef which lurks deep in the collective unconscious of the local dive club as a rich source of crays. One of our members expressed an interest in diving on it and off we went. Three of us went but one bailed out due to equalisation problems and I spent most of the dive chasing after the other diver at the 30 metre level with the pissy little tank. I did notice something out of the ordinary on the bottom as it looked like plating coral. It was hard and I took a photo for posterity but the strobe didn't fire and I didn't have much time left. Only time I have seen it locally and looks similar to the corals found around the Kent Grp

Twins

Not quite what they seem. It's hard enough to get a decent photo of one scalyfin let alone have 2 in the shot. In this case the stars lined up for some digital trickery and I took 2 photos of the same fish and merged them together. Taken at The Monument Georgetown Jan 2011

White Zoanthids

Not as common or prolific as the more ubiquitous yellow variety and if truth be told I have only ever seen them at Horseshoe reef. A good example of species concentration or whatever you want to call it. Oftentimes you can see stuff in only one or 2 particular places, even on the same reef.

Point of interest: The zoanthids only appear on isolated rocks and not like yellow ones which seem to inhabit walls. They are also a lot smaller than the yellow variety, the photo is not to scale. According to Edgar they are a separate variety.

Primrose Sands Adventures

The Stalked Hydroid *Ralpharia magnifica*

Recently Emma photographed some activity around big patches of Hydroids found along the Primrose reef.

"There were a whole bunch of weird growths in the crown of *Ralpharia magnifica*. I got a little excited and thought this might be something novel. Any ideas what the function of all these buds might be, or what they are?"

Resembling bunches of flowers, Stalked Hydroids are always found in groups of between two and 100 separate animals in the more sheltered sections of reefs. The large, cup-shaped feeding 'heads' grow on stalks up to 10 centimetres long. By growing off the seafloor, Stalked Hydroids rise above their competitors and the stinging tentacles trap small floating animals before they reach creatures beneath. Stalked hydroids are found in waters to 20 metres.

They grow on *Erythropodium hicksoni*, an alcyonacean soft coral host that looks like a sheet of rubber dotted with little coral polyps. This sheet like soft coral can sometimes spread for metres across the reef. The host species grows on shallow sheltered reefs in bays just like Frederick Henry Bay. The hydroids can't live without this sheet of soft coral for reasons that aren't clear. Their bases are embedded in the flesh of the alcyonacean.

The hydroids grow predominantly in late winter to spring, when they are produce their reproductive gonophores, as shown in the photos. Each colony is of a single sex. The gonophores first emerge at night, but this medusa stage is not allowed to swim free. The gonophores structures contain eggs which later hatch out with little crawling larvae, which move away to settle and begin another hydroid colony.

Some of the forum members from Tassie Divers had a bit more information to add. John Smith commented on the miniature shrimp-like animals seen on the hydroid, "Regarding the amphipods seen on them, I had a feeling they are present only when the polyps formed, but I

could be wrong". Why these little animals don't get stung and eaten is an even more interesting question.
Emma has noticed that after breeding the hydroids seem to be in poor condition and the stalks appear to die off.

Threats

Ralpharia pretty much succeeds or fails depending on what happens to its soft coral host *Erythropodium hicksoni*. This soft coral competes with seaweeds and other invertebrates for space. Little is known about the ecological needs of this host species. Processes that alter the habitat present threats to the soft coral/hydroid relationship. Potential threats include: pollution, water quality changes; physical disturbances and introduced pests.

Predators

Also from John, "...there's another interesting thing I've noticed about these particular hydroids. When I used to dive in NSW I'd often see Blue dragon nudis (*Pteraeolidia ianthina*) climbing up the stalk. I took a few pics (slides in those days) and they seemed to be eating them. A bit of reading back then suggested the nudis could store hydroid stinging cells in their fluffy bits (cerata?) and use it for their own protection. I just googled it now though and the latest revelation seems to be that they extract zooxanthellae from the hydroid, microscopic plants that produce sugars via photosynthesis, and continue to do so in their new host thus providing it with energy…so, solar-powered nudis. Nifty hey? "

For more details on this nudibranch behaviour read Greg Closes' article in our last edition.

Photo: The soft coral with a colony of hydroids, note the white nudibranch laying eggs at the bottom.

Gifted Amateurs – Naturalist Robert Brown

This Scottish botanist made important contributions to botany largely through his pioneering use of the microscope. He also made numerous contributions to plant taxonomy, including the description of a number of plant families that are still accepted today.

In 1798, Brown was short-listed for a voyage to the South Seas after the original naturalist dropped out,

"Science is the gainer in this change of man; Mr Brown being a professed naturalist. He is a Scotchman, fit to pursue an object with constance and cold mind."

In 1800, Joseph Banks wrote to Brown offering him the position of naturalist with the Matthew Flinders expedition.

For three and a half years Brown did intensive botanic research in Australia, collecting about 3400 species, of which about 2000 were previously unknown. A large part of this collection was lost, however, when the ship carrying the collection was wrecked *en route* to England.

Robert Brown visited the Kent Group, King Island, the Tamar estuary and the environs of Hobart, published an important overview of Tasmanian plants.

Following the circumnavigation of the Australian continent, and after *Investigator* was condemned as unseaworthy. In 1803 he took the opportunity to sail south on the *Lady Nelson.* They sought shelter at East Cove, Deal Island, in the Kent Group, Bass Strait. They were on fire at the time so he couldn’t go inland. There he discovered numerous marine algae.

Arriving on the mainland, Brown was one of the first Europeans, if not the first, to climb Mount Wellington and to penetrate the Derwent River above the New Norfolk rapids. Passing through the suburb of Kingston, south of Hobart, he collected botanical samples from the banks of a small river that was later named Brown's River in his honor.

Brown remained in Australia until May 1805. He then returned to Britain where he spent the next five years working on the material he had gathered. He published numerous species descriptions. In 1810, he published the results of his collecting in his famous *Prodromus Florae Novae Hollandiae et Insulae Van Diemen*, the first systematic account of the Australian flora.

Brown's name is commemorated in numerous Australian species such as *Eucalyptus brownii*.

NUDE PHOTO OF THE MONTH

Photo Mike Jacques

I snapped this tiny nudibranch (marine sea slug) at Primrose Sands (not very well apparently – its my eyes not the camera). Nudibranch enthusiast Greg Close of Devonport writes,

> *"Mike, The pics are not sharp enough to get a definite ID but I suspect the fellow is a Madrellid. – Cheers, Greg C. "*

Could this be Madrella ferruginosa ? see http://www.nudibranch.com.au/specieslist.html
(And notice their photos are fuzzy too, so there!)

> *"Madrellids have an elongate shape which tapers to a pointed tail and a broad mantle with a distinct brim. The cerata are long, containing branches of the digestive gland and they have a globose distal end. They are arranged as a fringe all around the body including the anterior margin of the head (never seen in aeolids) and are capable of independent movement. This can give them the appearance of a sea anemone at times. Cnidosacs are absent, but glands producing a vivid yellow or orange fluid when an animal is disturbed, are present at the base of the cerata and over the whole body surface. The cerata can be cast off when the animal is distressed.*
> *There is a large oral veil.*
>
> *The rhinophores are non-retractile and are characteristic, each having a separate stalk and club. The club is covered with many papillae. They feed upon encrusting bryozoans. "*

And Quietly Flows the Don - Under and Around Don Heads

A basalt headland has crumbled into the sea, leaving behind a sculptured river opening that has attracted people for thousands of years.

The Don starts its life as a small watershed close to Sheffield. It has the name of a mighty Russian river, but it rarely exists as more than a deep creek until it empties into an expansive estuary just to the West of Devonport.

The Don before History

We are only the recent inhabitants of the Don River watershed. The fertile agricultural land was once covered in trees and a habitat for game including the Tasmanian emu. The forest was regularly fired by Aboriginal people to encourage game, so it had a park-like appearance of occasionally clear areas studded with huge trees.

The Aboriginal people lived here relatively undisturbed until European settlers and their Bengali cattle began to arrive on the plains in the 1820s. A long antagonism over land encroachment and loss of game ended after a 7 year war that resulted in the local population being killed or exiled. The end to regular firing of the vegetation saw the ground covered in impenetrable fields of thin saplings that made overland movement extremely difficult for a fresh wave of permanent settlers that arrived much later. In the North West there were as many as 3500 trees to the acre with an average height of 50 feet.

The 'Yeoman Farmer'

The 1840's saw the establishment of a pattern of outward expansion based on coastal footholds. Farmers arrived by boat and earned a living by timber-felling and bark gathering while they cleared their farms. The early pioneers, spent backbreaking hours ringbarking and burning the forests to make way for potato farms and shortly after, the Tasmanian Emu became extinct.

The growth of settlement in the hinterland depended on a good port. Access to the coast through a network of rivers made it cheaper to ship from the North West coast than to transport goods overland to Melbourne from Victorian farms. However, none of the ports were really adequate. Most North-West ports had sandbars, strong tides and were very exposed to rough weather. The Don was no different. Vessels with draughts of more than 6-10 feet could not use the primitive facilities, so goods often had to be lightered out in barges to larger vessels waiting offshore.

The Don Heads Company

Don Heads settlement originally started around 1840 as Milton-on-Don. It was operated as a company-owned town run by the Canadian Cummings brothers. They made their money by shipping timber to the growing Melbourne markets. The port consisted of a breakwater and small wooden jetties built close to the river mouth. Further upstream they built a sawmill on the western bank of the river. In 1842 the company was bought out by John Henry who added thousands of acres of farmland to the company's assets, making it second biggest private landowner in Van Diemens Land. They owned a fleet of ships which included the 270 ton steamer "Argyle".

These settlements grew slowly until the 1850's when demand for timber and potatoes soared after the Victorian gold discoveries. The Waste Lands Act of 1858 allowed settlers to buy 320 acres each at one pound an acre on credit. This opened up a rush of settlement. In the 1860's the Don company diversified. A lime kiln and quarry were established at Melrose, and a furniture factory were also built to use some of the finer timber. They also and built a shipyard on the eastern bank of the Don. Coal had also been discovered and in 1864 a small coal mine was opened within 5 kms of the heads. By 1870 the settlement boasted a school, hotel, large sawmill, 2 churches and a regular agricultural show.

Rusty sawmill boiler

The port faded after 1885 when the government railway reached Devonport. Much of the old settlement has rotted away. The old church and store still stand along with a few of the old cottages. The location of the old sawmill can be determined from the rusty old boiler lying in the river. Across the river a low clay wall shows the excavations for the shipyard. At the Don Heads a few rotted wharf piles and stone training walls still survive along with the ruins of the breakwater constructed near Cube Rock. This area has some nice snorkelling and is often visited by interesting bird life.

Diving the Breakwater

A dive in the shelter of Cube Rock breakwater is a worthwhile and easy dive in good weather. Entering here the bottom drops away quickly onto rock in 5 metres. The small drop-off contains crevices that are home to Bullseyes and Hula Fish, Wrasse, Leatherjackets, Magpie

Perch. Even the odd cuttlefish, can be found amongst the weed. The bottom is a mixture of short seaweeds with no particular species dominating. Well offshore in 6-9 metres the reefs are capable of supporting a variety of invertebrate life such as lace bryzoa and a few small sea fans. Red algae is also much thicker on the deeper reefs. A popular turning point for the dive is an old anchor, probably a remnant from one of the many shipping mishaps that occurred at this exposed and shallow port. My guess is that its from the old "Helen Marquis" in which case there may be another one out there. This anchor needs to be measured and sent to an archaeologist for confirmation.

The ketch Julie Burgess which is awaiting restoration in the Mersey is not unlike the type of small coaster that would have frequented the Don in its heyday.

List of Wrecks and Mishaps at Don Heads

10 October 1856 Mayflower. Brigantine, 76 tons. Built at the River Forth, Tasmania, 1854; reg. Stranded at Don Heads damaging her keel but she was later refloated.

22 April 1873 Helen. Schooner, 39 tons. Built D'Entrecasteaux Channel, 1851; Stranded and Refloated. Another account says it wasn't refloated but the "Isabel" was built from the wreckage.

9 July 1880 Waverley. Brig, 216 tons. Built at Garmouth, UK, 1863; From Williamstown in ballast for the Don River, she entered the treacherous bar harbour without a pilot at half tide, and was wrecked on the sands. In September, after much effort, the wreck was moved out of the channel by the ketches Welcome Home and Penguin and two lighters and abandoned. In the 1980s a large section of the keel was recovered for display at the Tasmanian Maritime and Folk Museum, Devonport. Due to confusion between this vessel and a barque of the same name associated with emigration campaigner Caroline Chisholm, the Waverley appeared on the first Australian $5 note.

6 July 1883 Helen Marquis. Schooner, 128 tons. Built at Port Adelaide, 1875, Unfavourable conditions prevented entry into the Mersey, so the master decided to anchor off the Don. However, the vessel dragged both anchors in heavy weather and stranded on the eastern side of Don Heads. All hands landed safely.

22 July 1892 Enterprise. Schooner, 58 tons. Built at Williamstown, Victoria, 1876; ran ashore on the western bank. Refloated and towed to Devonport, three months later, but the damage was such that it was uneconomical to repair and she lay in the river for several years. In October 1897 she was hauled onto an improvised slip where repairs were to be carried out.

The estuary

The mix of marine and freshwater influences on estuarine systems result in these areas being highly productive. Estuaries are essential for the survival of many flora and fauna species, in particular, birds and fish. Some migratory wader birds also rely on estuaries as resting and feeding grounds during their long journeys.

In Australia, estuaries are often selected as settlement areas. Accordingly, estuaries often suffer from significant human impacts. Estuaries are frequently used as disposal areas for urban and industrial waste. This can cause deterioration of water quality, increased siltation and habitat loss. Catchment impacts that affect rivers, such as land clearance and agricultural activities, also filter down to their estuaries.

In terms of overall naturalness, the high population density in the Don catchment has contributed to it being one of the estuaries rated as very highly impacted with a very low 'naturalness' classification. Despite this, it is considered one of the best bird watching areas on the NW Coast. It is still an important habitat, the more so because it is a natural oasis in a sea of sprawling suburbia. This gives the Don estuary a high educational and recreational value.

Photo

It still has some pretty amazing fauna. It has a small population of the Central North Burrowing Crayfish, *Engaeus granulatus*, which was listed in 2005 as endangered. The burrowing crayfish are not particularly mobile and if their habitat is destroyed they will struggle to survive. Over the years this creature's habitat has been affected by such things as vegetation clearance, weed invasion, fire and development. With the habitat *of Engaeus granulatus* disappearing, those habitats remaining will become even more precious. The Central North Burrowing Crayfish is endemic to central northern Tasmania. It occupies seeps, wetlands and stream banks in relatively undisturbed habitats. They are rarely seen by humans but you can tell they are there by the burrowing chimneys they leave in the mud.

Recently Friends of Don Reserve environmental volunteer group have been working at on the Don. The environmental clean up work and tree planting they do is helping to improve the condition of this struggling estuary.

Don River Railway

Courtesy Don River Railway website

The sawmill operators at Don Heads built a wooden tramway into the forest. Originally, it was drawn by bullocks. As they denuded the countryside an increasing length of line snaked through the countryside to reach the best stands of timber. A steel line began to replace the wooden rails from 1877. Steam locos were used, but predominantly the timber wagons were horse-drawn. This line was later extended to the lime pits at Melrose and then to Barrington in 1879. Finally the line was 13 miles long, consisting of 7miles of steel rail and six miles of wood.

In 1916 the line was taken over by government and converted to a standard 3ft 6in gauge as far as Paloona, then extending it to Barrington in 1935. In the 1920's and 30's the main customer was the BHP quarry at Melrose. The whole line closed after World War II when the quarry ceased.

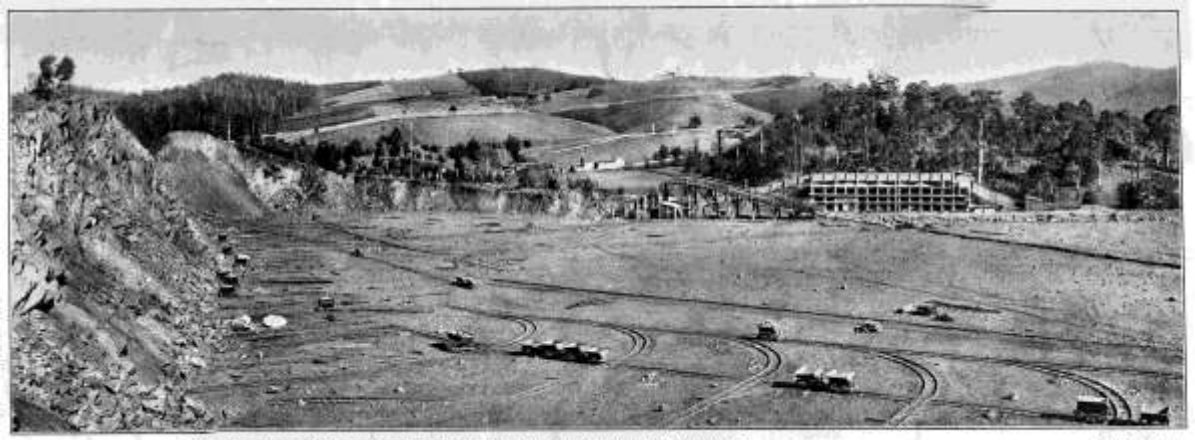
In the late 1970's the line along the river bank was reconstructed and used as a vintage railway museum. Every weekend steam locos tear along the short section of track beside the Don River. This is one of the best railway museums in Australia and has some very rare and interesting exhibits, most of relevance to the early transport history of Tasmania. The entire operation is run by volunteers who obviously love being involved with it, making it a very worthwhile experience for the whole family.

Eugenana Quarry

The earliest settlers had scratched at the limestone deposits found in the Don hinterland for fertiliser and construction materials. Lime kiln ruins can still be seen at Melrose from these early operations. In the 1860s the Don Trading Coy tried quarrying on a larger scale, but the local limestone wasn't mined on a regular basis until BHP took an interest in the deposits after

World War I. They spend a lot of time trying to develop Australian limestone supplies to ensure security of flux supplies to the new iron smelter at Newcastle.

The quarry supplied increasing amounts of limestone, shipped out on the new iron railway to the port of Devonport where loading still takes place today, but now for the limestone from Railton. Production peaked at Melrose during the rearmament rush leading up to the Second World War. With the war over the mine closed in 1947. The low grade limestone tailings were worked over for a couple more years for agricultural fertiliser until 1963, then the railway closed and the mine flooded and was abandoned.



THE BROKEN HILL PTY. LTD. LIMESTONE QUARRIES AT MELROSE (Sporting photo.)

The quarry is now the only all year round, all weather dive site on the NW Coast.

While it is not the sort of dive you would want to do every day, it is a welcome break from regular ocean diving. Someone has filled the lake with feral goldfish and local divers have sunk boats and cars in the lake. One old car has been filled with fully clothed dummies in a not so convincing attempt to make you think that you are looking at crash victims. Special features of the lake are freshwater eels, and even freshwater jellyfish! There are also the remains of the old mine facility clinging to the Western rock face. The floor of the quarry is filled with silt and only the tops of the old telegraph poles can be seen.

The Arboretum

A relatively newly created arboretum and gardens complex exists in the junction of the Don River and Melrose Creek. Part of it covers the old quarry and railway, so it isn't a bad way to enjoy a picnic and get a look at some of the historical features in the area. There are over 4100 exotic plants in the collections, besides the indigenous species. Collections are mainly of temperate Tasmanian plants. The arboretum opens daily from 9am to sunset and requests a small donation from visitors. The picnic area contains shelters with coin operated bbq's and outdoor wood fired ones.

A walk along the tracks can be rewarding with up to 65 species of birds recorded from the site.

Upriver to Mt Roland

The Don River is unique in that it is cleaner in its estuary than at the headwaters. Most rivers become more polluted as they get further from their source. A combination of the aerating effect of passing through Bott's and Denny's Gorges and good land management practices along the lower part of the river have helped to clean up the estuary.

The 'kidneys' of the river seem to be the remnant forest in the upper gorges. Even in the 1930s the upper catchment could still boast large areas of rainforest, but this has been almost completely subdued in more recent times.

Under the shadow of the impressive escarpment of Mt Roland the rich rainfall and volcanic soil has made the area a valuable agricultural breadbasket. Here the Don starts to disappear. It gradually succumbs to the shrinking watershed as well as the effect of thirsty irrigation sprinklers, choking weeds and erosion along its now cleared banks. The marine and riverine environment are intertwined. It is these eroded banks that appears as choking mud in the marine estuary of the river.

Lots of useful Landcare work has been done in the area. For more details http://www.rivercare.org.au/projects.htm

Friends of the Don Reserve

This group encompasses a variety of activities including planting of native trees and shrubs, weeding and general maintenance within the Don Reserve area. New members are always welcome to join with the regular working bees.

Council's Bushland Coordinator, Phil Murray supervises the activities and provides detailed information on identifying native plants and how best to propagate and grow natives and importantly how to undertake work in our local bushland. Activities regularly occur each Wednesday.

Contact Phil Murray on (03) 6420 2700 (wk) or 0438 002620 for general information and to confirm location for each upcoming working bee.

A Case of Giant Crabs

The Tasmanian Giant crab *Pseudocarcinus gigas* is the second largest crustacean in the world after the Japanese Giant Crab. They usually live in very deep water near the edge of the continental shelf.

Much of what we know about them is simply what we have learned as a consequence of catching them for food. Giant Crabs have been collected as bycatch of the rock lobster fishery since the late 1800's. A royal commission into the state of Tasmanian fisheries in 1882 concluded that though they were a splendid animal, they not of much commercial importance.

Crabs collected by rock lobster fishers were often smashed so that they could be removed more easily from the wicker lobster pots and also because they were considered to interfere with the entry of rock lobsters.
Initially very large crabs- usually male - kept turning up in lobster pots set in rocky environments in shallow coastal waters. As the crab fishery expanded, crab fishermen moved into deeper water, setting purpose-built crab pots on the silty sea floor at the edge of the continental shelf. In this environment, the catch consists predominantly of medium sized female crabs.

By the late 1990's, giant crab fisheries off South Australia, Victoria and Tasmania had stabilised to become small operations with most catch taken by only a handful of fishers in each state. Fishers targeting giant crabs operate in deep water around the shelf break at 150-350m.

In certain areas, the crabs have a fairly mundane diet of slow-moving prey like molluscs and starfish although the data on this is very limited.

Females probably spawn two or three times between moults - and perhaps more than once a year - using stored sperm from mating. It is thought that egg-laden female crabs move from deeper water up the continental slope. In any given year, only about half the females carry eggs. I'm guessing from the larger males being often found in the shallower water, that they sometimes locate a mate in the shallows.

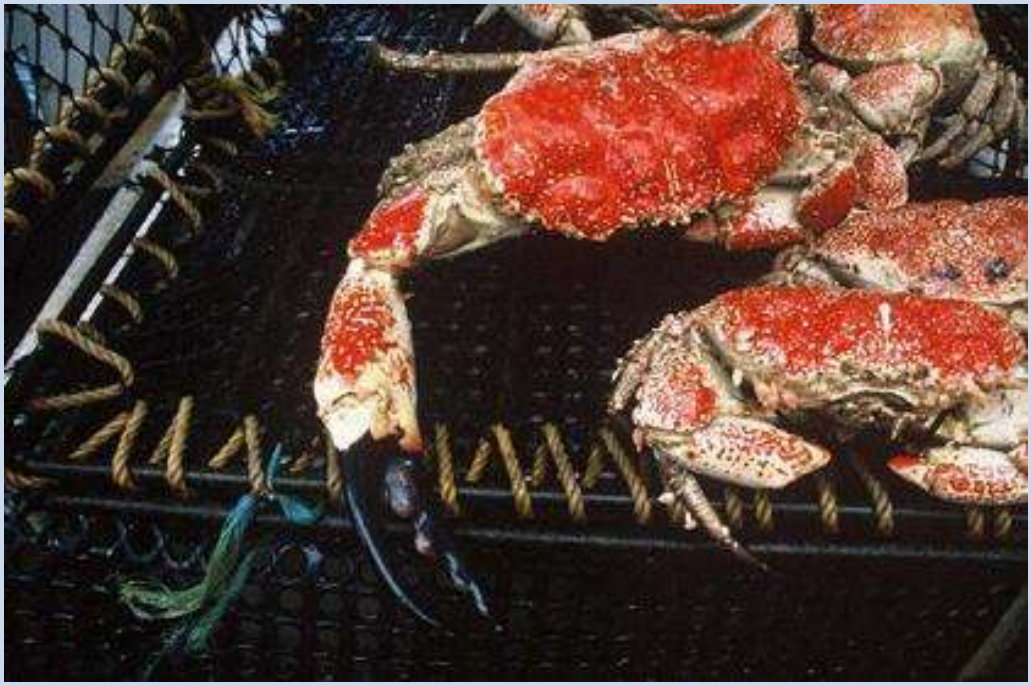
It is suspected that the females dig themselves a foxhole in the mud while their eggs develop, ventilating the eggs until they are ready to hatch. The eggs hatch into free-swimming larvae that probably feed on plankton. The larvae seem to grow more rapidly in this shallower environment, where there is a large amount of nutrients and food. After settling to the bottom and starting to grow into little crabs, they crawl slowly downslope into deeper water.

As they grow, things get too tight in their old shell, and like other crabs they have to moult. The adult animals probably moult every 2 to 3 years. If they are like other crabs they will try to hide among rocks on the bottom to avoid predators while their shell is changed. When the crab moults, its old shell splits and the animal takes on water. The crab then swells to give itself more room in the new soft shell, increasing their size by as much as 50 to 80 per cent. The soft shell then hardens and the crab again heads off across the sea floor. It was originally thought that Giant Crabs were very long-lived, but it seems they may gain size relatively quickly.

Models indicate that due to past excessive fishing the Tasmanian giant crab stock has declined to as low as 27.87% of the unfished biomass, "which for such an unproductive species appears to be quite heavy depletion". With an average weight of over 2.5kg, the fishery is currently catching approximately 24,000 individual crabs. The new total allowable commercial catch (TAC) of 62.1 t in Tasmania appears to be now sustainable under the present conditions.

Sources

FRDC DEVELOPMENT OF THE TOOLS FOR LONG TERM MANAGEMENT OF THE GIANT CRAB RESOURCE *Caleb Gardner, Malcolm Haddon, David Hobday and Rick McGarvey November 2007*
http://www.research.deakin.edu.au/performance/pubs/reports/cd/1998/stories/story1.htm



Serious Kids Stuff

By AMY

Ideas for the Best Beach Day

Build the biggest sandcastle ever

Bring a loyal friend

Take a dip and chill

Guard your ice cream

Check out the marine life

Finally, Beware of cracks at the beach!

Portfolio

Red Handfish Encounters
Primrose "Adopt a Reef" Team

The Primrose Sands/Frederick Henry Bay "Adopt a Reef" project is a broad plan to record information on all sorts of marine animals in the area. One of the reasons for focusing on the area was the chance of learning more about Red Handfish. We have completed a large number of dives in a small handfish colony.

What did we discover about the Red Handfish? Well the first thing is that they aren't really red as such. The first one photographed in the 1980s by Graham Blight was pretty red, but every fish we have seen has been a variety of colours and only really has red 'bits' here and there. They vary so much in size and colour that we can easily recognise them and have named 7 unique fish. Anyone finding a new fish got it named after them. Three fish were found with eggs, two sets survived, the other one was laid on a fragile species of weed that washed away.

Martha with her eggs – photo Emma Flukes

Emma, by Emma

The handfish seem to like the more delicate seaweeds that flourish best in the winter and they race against time to get their eggs hatched before the reef is overgrown with faster growing species of tougher seaweeds and fouling epiphytes. We were surprised how much the reef changed during the year it was like watching a horse paddock dry up and turn brown over the summer.

The females don't feed while they are guarding the eggs and get very thin. When the eggs hatch they come out one at a time when the reef is full of tiny shrimps and worms which seems to be their main food. It looks like timing is everything for the Handfish mother. The handfish seem to love eating all these crustaceans and put on weight easily, spending the rest of the day doing not very much.

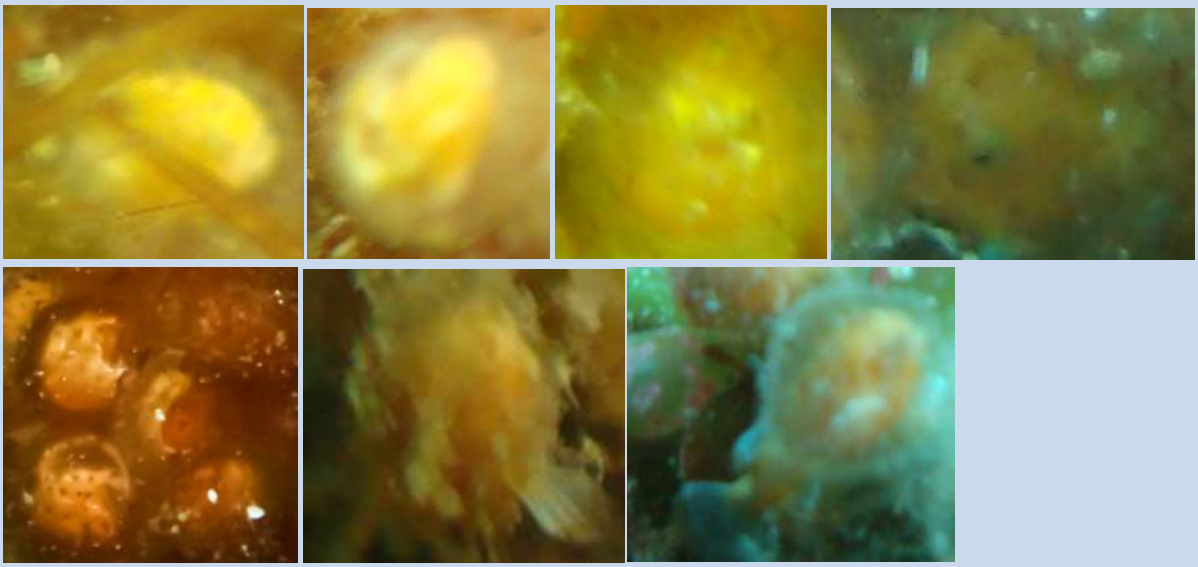
"Mick"– Photo Emma Flukes

"MARK" - M. Jacques

Big "India" loves her food – M. Jacques

"Jemina" a lazy teenager that rarely moves – Photo E. Emma

We were lucky enough to catch some of the eggs on film as they were hatching, can you notice the faces of the little handfish developing inside the egg?



After one dive we were approached by a man who knew all about handfish. He said that in the old days they were finding them all around the local area and once counted 30 in one dive. About 5 years ago the kelp disappeared from the local area and a plague of urchins became obvious. They ate down the weed to bare rock. They got commercial divers in to harvest the urchins and smashed some of them with tomahawks. He is pleased to see the kelp is slowly coming back and divers are finding Handfish in the region once again.

We found the area still very urchin infested and the handfish very patchy and confined to very tiny areas of reef in very low numbers. No reason there to strike them off the threatened species register. In fact, their status is being reviewed and we might find them reclassified as critically endangered. If you hear of any stories about handfish spots, tell a researcher, but don't spread the news around. While they are great fun to look at with your friends, they can be exposed to aquarium poaching if too many people catch on. Even 'handfish friendly' divers can swarm over these small patches of reef and do lots of harm with their fins, effectively 'loving them to death'. If you did take the opportunity to do a handfish dive and find out where they are, we ask that you tell no-one else.

I'm looking now at doing something different and now trying to learn a bit more about their surrounding habitat and where else they might be located in the area. We are keen to hear from anyone willing to do some exploratory dives, in the general area. We warn you we could be doing lots of dives before discovering any new sites, but it will still be fun anyway in nice rocky reef.

Red Handfish Colour and markings variation – Here is a list of photos from the internet, see any that look the same?

G. Blight's original shot – yes that looks red to me, now compare with the following;

WHAT'S ON in Feb-March 2011

Amalgamated club calendars

Like to get in touch with someone for a dive or day out, email us and we'll forward your message. If you would like to advertise your club calendar also drop us an email.

January 2011

TUDC – Saturday 29th – The Lanterns, Fortescue

February

TUDC – Saturday 5th – MV Lake Illawarra
TUDC – Sunday 6th – MV Lake Illawarra
TUDC – Monday 7th – Night dive at Kingston Beach
TUDC – Friday 11th to Monday 14th – Bicheno long weekend
TUDC – Saturday 19th – Fortescue Bay kelp forests

March

TUDC – Sunday 6th – Clean Up Australia Day at the Hobart Waterfront
TUDC – Friday 11th to Monday 14th – Bicheno long weekend

Leven Scuba Club may also have ad hoc dives planned and go out most calm weekends.

TUDC dives Register online at http://www.tudc.org.au/diving/dive_calendar.php

How to help us get the message out

We are asking people and organisations to help circulate the newsletter. Please ACTIVELY distribute Marine Life amongst your interest group, friends and colleagues so we can get the message out there, or give us email contacts (after asking your people for any objections to release of email contacts) so that we can distribute it for you.

How to make a contribution

This involves sending us an article by email, preferably not too long and with a photo or two. Sorry, no money, its all a love job and just for the glory. We'll use your contribution for the purpose for which it was given, for non-commercial uses and with attribution. *Contact Us; marinelifetassie@gmail.com*

Back Issues

We have been gathering together a lot of information and stories since November 2009, so if you are new and interested, please log on our back issues page which has been generously hosted by the Tasmanian University Dive Club,

http://www.tudc.org.au/news/marinelife.php