redmap

SPOT. LOG. MAP.

Welcome to the summer edition of Redmap News.

Redmap has been in full throttle this summer with Redmap members logging many unusual fish and marine animals each week. And what a successful year 2011 was for Redmap: by the new year we had nearly 700 members, 350 + marine sightings and good exposure in the media and at festivals.

Redmap also won the University of Tasmania's Vice Chancellor Award for Outstanding Community Engagement. So thanks to all Redmap members for your support – and keep those sightings coming at www.redmap.org.au!

Remember: if you have any comments or suggestions for the site, we'd love to hear from you. Just email us at enquiries@redmap.org.au

Happy fishing, boating and diving,

The Redmap Team.

Inside this issue:

What is REDMAP?

If you encounter something not usually found in your favourite fishing or diving spot, then log on to the Redmap website and tell us about it. Redmap invites Tasmanians to report marine critters that are uncommon to parts of the Tasmanian coast. Sightings have included eastern rock lobster, yellowtail kingfish, King George whiting, Maori wrasse, zebra fish and the gloomy octopus in locations these species are not commonly found.

Over time, and with more sightings, Redmap will sketch a picture of fish and marine life that may be extending their distribution ranges southward as Tasmanian seas continue to warm at 3 to 4 times the global average. Put simply, Redmap is tracking which marine animals are 'shifting house' to follow their preferred climate and conditions.

Redmap allows Tasmanians to collect their own marine data; and upload and share photos of unusual catches on the website. Redmap is science created 'by the people for the people'. Log your sighting or become a Redmap member at:

WWW.REDMAP.ORG.AU

It's a whaaat?

King George whiting

This tasty dinner was caught off the coast of Dunalley by fisherman Bill Smedley. King George whiting is usually a popular catch on the mainland but more Tasmanian fishers are telling us they are finding them further south (Photo: B. Smedley).

IMAS INSTITUTE FOR MARINE AND ANTARCTIC STUDIES

UTAS

Redmap is a project of the Institute for Marine and Antarctic Studies (IMAS). Redmap has input from a large number of institutes, companies and organisations, and we thank these groups for their considerable contributions.

WHAT'S BEEN SPOTTED BY REMAPPERS?

It looks like the warm weather has tempted many Tasmanians to grab their fishing and diving gear this summer as Redmap is receiving a wave of sightings along Tasmania's coast.

What a beauuuty. A Ray's bream caught near St Helens. This fish is fairly common on the shelf break around Tasmania although not commonly caught (Photo: Michael Allen).

The oddly beautiful scultptured seamoth (*Pagasus lancifer*) found on the east coast. Although this species is common around Tasmania, Redmap still enjoys such sightings of weird and wonderful creatures—so keep them coming! (Photo: C. Cleary).

Yellowtail kingfish—75 of them, estimates Mick Baron—spotted near the Tasman Peninsula. This sighting is considered on the edge of their usual range, but not unheard of in this area (Photo: Mick Baron).

The eastern rock lobster (left) is much less common in Tasmania than the southern rock lobster (right). These young ones, called puerulus, were captured by IMAS scientists as part of their regular sampling (Photo: IMAS).

Log any uncommon fish or marine animals you come across in Tasmanian waters at ***www.redmap.org.au***

PROFILE OF A FISH EXPERT: ANDREW PENDER

Redmap has received more than 350 sightings of fish and marine animals over two years — but we sometimes need a little help identifying the species.

When Tasmanians send in photos of fish to Redmap, these digital pictures are sent straight to Andrew Pender for identification.

Andrew is a technical officer at the Institute for Marine and Antarctic Studies (IMAS) and has been fishing since he was able to hold a rod – about 25 years ago. Suffice to say, he's learned a thing or two about Tasmania's marine environment during this time. Andrew can usually identify a photo of a fish at first glance—if the photo is clear enough.

Andrew fishes and dives on the East Coast, the D'Entrecasteaux Channel and the Derwent River. Game fish are a favourite pursuit, and he's often chasing tuna and sharks on the weekends. During this time he's seen many changes in the availability and the types of fish around Tasmania.

For example, he used to reliably catch tiger or king flathead off Shepherds Point in the Channel, but rarely finds them now. On the other hand, he's seen increases in other, warmer water species such as yellowtail kingfish near Bruny Island and mahi mahi near St Helens.

"These are definitely more a tropical species, so their presence is certainly interesting," he said. "It is in the pelagic fish community – the kingfish, and mahi mahi, tuna and certain shark for example – where I think we're likely to observe the first obvious changes associated with increasing water temperatures."

Andrew has also noticed changes while diving.

"I remember when you could easily dive from shore off any of the points around the Gordon area and find a diverse algal community with crayfish. Nowadays, a lot of the reef is barren and all you will find now is rocks with urchins on it."

But Andrew is hesitant to attribute all changes to the range of species to warming waters alone. For example, he points out that marine communities can change due to marine pests or changes in fishing.

"The harder we look however, the more questions get asked rather than explained. I guess the next 20 years will clear things up for us."

Alongside Andrew is a group of scientists from IMAS, CSIRO and the University of Tasmania who help Redmap confirm the photos of uncommon or out-of-range marine life that Tasmanians send in.

For more information visit: www.redmap.org.au

When he's not fishing, Andrew Pender helps Redmap identify and confirm logged sightings. This makes Redmap sightings data more robust, and helps us to sketch a picture of which species may be shifting their distribution south as the waters around parts of Tasmania warm at 3 to 4 times the global average (Photo: IMAS).

This sea snake was spotted by a guide on Maria Island. Yellow-bellied sea snakes are not often seen in Tasmania—this photo was identified by CSIRO scientist Peter Last who helps us with the more unusual marine animals (Photo: C. Kube).

This southern fiddler ray at Pirates Bay was logged this January on Redmap as an uncommon species. This close-up photo allowed the markings to be identified by Andrew (Photo: Mick Baron).

GLOBAL MOVEMENTS

(AND WE DON'T MEAN OCCUPY WALL STREET!)

Research around the globe is showing creatures great and small are moving their homes further towards the poles in search of a 'better climate'. Redmap's Yvette Barry trawled a few publications and the media for some of these range extensions.

The well-armoured king crabs have a voracious appetite which may threaten Antarctic ecosystems (photo: Katrien Heirman/Ghent University, used with permission).

Invasion of king crabs in Antarctica?

King crabs have been excluded from Antarctic shelf waters for millions of years because it was just too cold for them – but that's changing, according to research published in the *Proceeding of the Royal Society B (Sept 2011)*. Dr Craig Smith and his researchers found 42 king crabs living at temperatures above 1.4 degrees off the western Antarctic Peninsula. The study predicted that as water temperatures rise in Antarctic shelf waters - at an estimated 0.01 degrees Celsius a year - so too will the number of king crabs over the next few decades. Why's this an issue? King crabs are voracious skeleton-crushing predators that feed on animals like sea urchins and starfish and the research showed there were very few of these species in areas patrolled by these crabs. As Antarctic seas warm, king crab numbers may threaten Antarctic biodiversity and even wipe out species.

The snake pipefish is hard to swallow for many seabirds in Europe (Photo: Rebecca Nason, www.rebeccanason.com, used with permission).

Fish in the North Sea

One of the more obvious changes in fish distributions in Europe has been the northern shift of the snake pipefish - and a massive increase in their numbers. According to a number of studies, the northward push of pipefish not only displaces other fish but also impacts the breeding of seabirds. Research published in *Marine Biology* showed that seabirds are struggling to eat the pipefishes' spiky, crunchy, long bodies; and chicks may choke to death trying to swallow them. Other research in northern European seas revealed iconic species like haddock shifting a whopping 216km further north; and fish like megrim, anglerfish, cod and saithe, all moving into deeper (and therefore cooler) waters than previously recorded. Of course, a range of factors could be at play here including changing water temperatures, water currents and ocean acidification, to name a few.

Birds shifting breeding areas towards the poles

In North America, birds have been recorded as shifting their breeding areas further north towards cooler regions and also retracting their southerly range edges. Birds on the move include the Nashville warbler, the pine siskin, red-bellied woodpecker, and the Carolina wren. Much of the data that allowed this large-scale study came from the Breeding Bird Atlas census (www.pwrc.usgs.gov/birds.html), which engaged thousands of volunteers to observe and report the birds they could identify. *Just goes to show how observations from everyday people can reveal important patterns!*

Spanish grapes

It's not just animals heading to cooler climes. *TIME Magazine* (Sept. 4, 2011) interviewed Spanish winemakers about the impacts of climate change on their grapes: average temperatures in Spain have risen one degree Celsius since 1880, and that means some farmers have to harvest their grapes as many as 25 days earlier in the season compared to even 25 years ago. Warming weather can change the taste of a wine, make sparkling wines flatter, reduce tannins in red wine and may leave the wine more susceptible to microbial infections, according to the article. One of the world's largest wine producers, Miguel Torres, told *TIME* he's buying hillside land "as a climate insurance" and will replant on higher ground as temperatures warm. Good news, then, for lovers of cooler-climate wine like pinot noir. But the article suggests other vintners may have to change the type of wines they produce, and increase shading and watering.

Beetle battle

The *Washington Post* reported in December 2011 how swarms of bark beetles have killed some 30 billion conifers since the 1990s from Alaska to Mexico. And no, you didn't misread that sentence: an estimated 30 *billion* trees have died. Bark beetles are 5-mm insects that bury into the bark of pine trees, eventually killing the tree. To add insult to injury, some beetles also carry a fungus that clogs up the trees' water-conducting vessels. A century-old tree can be killed within a year of bark beetle infestation. *The Climate Institute* reported that the beetle battle was going on long before climate change entered the scene, but warmer weather over the last few decades now means beetle outbreaks in Northern America are moving further north and to higher elevations than previously recorded. Regions like Alaska, reports the Climate Institute, have experience a lot of warming and have been particularly affected: bark beetles have wiped out between 70-80% of the spruce trees in the Kenai Peninsula of Alaska. This means less water can be retained as snow pack and there's less food for wildlife dependant on the seeds or bark of spruce trees.

Sources (in order of topic):

Smith, Grange, Honig, Naudts, Huber, Guidi, Domack. A large population of king crabs in Palmer Deep on the west Antarctic Peninsula shelf and potential invasive impacts. Proceedings of the Royal Society of Biological Sciences. 7 September 2011.

Harris, M. P., Beare, D., Toresen, R., Nøttestad, L., Klppmann, M., Dörner, H., Peach, K., Rushton, D. R. A., Foster-Smith, J. & Wanless, S. (2007) A major increase in snake pipefish (*Entelurus aequoreus*) in northern European seas since 2003: Potential implications for seabird breeding success. *Marine Biology,* 151**,** 973-983.

Perry, Low, Ellis & Reynolds (2005) Climate change and distribution shifts in marine fishes. *Science* 308, 1912-1915.

Dulvy, Rogers, Jennings, Stelzenmüller, Dye & Skjoldal (2008). Climate change and deepening of the North Sea fish assemblage: a biotic indicator of regional warming. *Journal of Applied Ecology*, 45, 1029–1039.

Stephan Faris and Vilafranca Penedes. Heading for the Hills: Spanish Winemakers Adapt to Global Warming. *TIME magazine*. Sept. 4 2011.

Breeding bird atlas centre: http://www.pwrc.usgs.gov/birds.html

Andrew Nikiforuk, Bark bettle, aided by climate change, are devastating U.S. pine forests. *Washington Post,* December 6, 2011.

http://www.climate.org/topics/ecosystems/beetle-battle.html

Winegrowers may have to head for the hills if the climate gets any warmer (Photo Y. Barry)

Redmap's citizen research

The eastern rock lobster is Redmap's most logged species— most were sighted in areas along the Tasmanian coast where this NSW species is not common. Could this lobster be on the move towards Tasmania? It's too early to tell— small numbers of eastern rock lobster have always been found in Tasmania. More Redmap sightings, and other scientific research, is needed to show if their numbers are consistently rising over time and whether more eastern rock lobsters are starting to call Tassie home.

This eastern rock lobster was spotted by a Redmap member at Bicheno (Photo: E. Flukes).

SPOT ON FISHING TIPS OF THE SEASON

Spot On's Andrew Large says "grab your rods, lures and pots" and enjoy the warmer water temperatures with these fishing tips:

Albacore are being captured in the south east since Christmas – anywhere from the edge of the Continental Shelf to the 100m line. From our observations, these fish tend to sit in mid-18 degree waters. Tip: Albacore are biting about 1km off the Sisters Islands in the north east, and 1 km behind the Hippolytes off the Tasman Peninsula.

Mako sharks – albeit small sized ones – are being seen inshore with regularity. The old adage of "if the temperature is right and the food is there – then so are the predators" is holding true: 300- to 350kg fish have been seen cruising up burley slicks. One even played with the marlin board and broke some teeth off the back of a very popular charter boat at Pirates Bay. Mid-January has seen fish in the vicinity of 250 kg caught and landed.

Yellowfin tuna will not be too far away, with rumours of two beauties already caught in the 50kg-bracket. Tip: the arrival of striped tuna will be a good indicator of the higher water temperatures more likely to hold good numbers of yellowfin.

Rock lobsters are potting well in most areas at the moment – my diary indicates that most of my rock lobsters were caught when temperatures hit 15.5 to 18.5 degrees. Maybe this gets their metabolisms running faster and they tend to move and feed easier? Tip: use fresh baits and pull your pot within an hour or so of daylight.

Yellowtail kingfish** are taking chrome silver lures cast by spin anglers intending to catch Australian salmon. These large fish do at times feed on juvenile salmon. Reports of yellowtail kingfish have come in from as far away as Musselroe Bay and more recently Bellerieve Bluff. Anglers up north tend to do well at the mouth of the Tamar. Tip: use some heavier gear, like larger lures that look like (and are the same size as) 'cocky salmon' and don't be afraid to use a small live calamari under a float.

Bream are still spawning in some areas and good catches are being made on bait, lure and fly. A new trend of fishing technique is to "topwater fish" – that is to cast out tiny popper-style lures over shallow sand flats and entice the bream to the surface to take the bait off the top. Bream are generally not the best eating fish so, if you can, this is a good fish to practice catch and release. Tip: pause your lure after every small retrieve - 5 to 6 seconds is not too long. If using bait, try the freshest of prawns, or fresh crab or sandworm.

This is what's left of an Albacore after a Mako shark got to it. Spot On's Andrew Large is the bloke on the right .

Sand whiting are always a popular target and quite tasty as pan-seared fillets or used as the main ingredient in "Thai fish patties". Tip: These fish can be targeted over any sand flat in the state – simply use a two-hook paternoster rig and a tiny size 8 or 10 hook and small sinker and the smallest piece of mussel or squid as bait.

Extra tip: be on the lookout for King George whiting**, a fish most-commonly caught in mainland waters. Fishers are telling us they've hooked King George whiting from the Musselroe Bay, St Helens and Orford areas. Fishing techniques are the same as for sand whiting - add burley for best results.

*** these fish are uncommon along parts of Tasmania—if you see them please log your sighting on www.redmap.org.au*

A GUIDE TO FISHING WITH YOUNG KIDS

If your other half has hoisted the kids onto you for a day of fishing, don't expect to fill the eski with fish or beer, writes Redmap's Rebecca Brown.

Tip One: Training.
Use your spare evenings to prepare yourself for fishing with young children. The key is to take up knitting or crochet. Unravelling wool is great training for untangling fishing lines.

Tip Two: Emotional preparation.
Forget the beer, the newspaper and the thought of relaxing. In fact, if you go fishing with young children then be prepared to not, actually...fish.

Tip three: Snacks.
It's a sure bet you will need to replace lost bait, cast the line umpteen times and apply bandaids. And as sure as eggs is eggs, you'll at some point hear a child cry "I'm hungry". Snacks are the key to lasting on the fish for longer than 10 minutes.

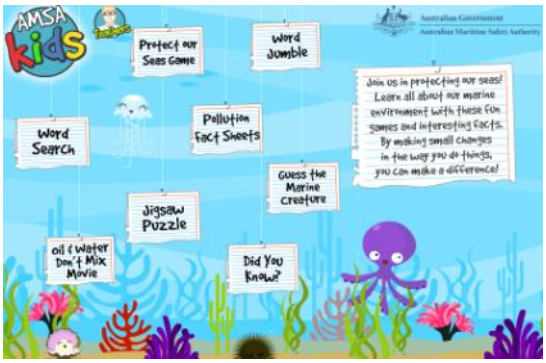
Tip four: Kids want to see action.
Use a coloured float so kids can see it bobbing in the water and are able to respond to any nibbles. If the enthusiasm is waning, throw some bread or burley off the pier or boat: kids love to see even the smallest of fish come to the surface.

Tip five: Smile.
It really doesn't matter if you don't catch a thing; you'll still be a fishing legend to a little one.

Tip six: Remember your wallet.
If all else fails, stop in at the fish and chip shop on your way home.

Not. Happy. Catching seaweed off Blackmans Bay.
(Photo: Y.Barry)

RESOURCES FOR KIDS & SCHOOLS: AMSA'S KIDS WEBSITE



(Photos: Australian Maritime Safety Authority)

The Australian Maritime Safety Authority (AMSA) website has an exemplary page for kids and teachers with games, puzzles, hands-on experiments, fact sheets and videos.

The children's games and cartoons show how oil spills and rubbish can impact marine environments. This may sound rather somber for kids, but the content is infectiously positive and interactive.

Redmap road-tested the site on a few 6- and 7-year olds, and it passed the funometer. "Cool – where's the next level?" was the main question about the 'Protect our Seas' game, where you have to find beers bottles, plastic bags and other hidden rubbish in the sea and drag them to a bin.

Kids, check out: www.amsa.gov.au/kids/
or teachers:
www.amsa.gov.au/kids/teachers/index.html

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REDMAP PRIZE WINNER

LOUISE was one of four prize winners for signing up as a Redmap member at the Bellerive Seafarer's festival last October. On receiving her marine book prizes she wrote to us: "I am a keen boating and fishing enthusiast and have a general interest in our marine environment. The Bellerive Seafarers Festival was fantastic: great food, wine and informative fun displays. Well done to the Redmap Team for creating a really interesting stand and I look forward to receiving future newsletters!"

Seafarers' Festival

WWW.REDMAP.ORG.AU

If you have any comments, suggestions or questions about Redmap, please email us: **enquiries@redmap.org.au**

Redmap is on **Facebook**.

Become a fan of our page at

www.facebook.com/pages/Redmap-range-extension-database-mapping-project/121764204502516

From time to time we'll post videos and photos that aren't on the Redmap site.

CSIRO'S OCEAN TRACKS FISH TAGGING WEBSITE

THE CSIRO has developed a website called Ocean Tracks, which might just get the internet generation interested in fish behaviour and ecology. Ocean Tracks is a science-meets-game website that displays the paths swum by tagged fish. The website follows coastal and open-ocean fish from its database, such as Mirella the gold spot trevally, Hitomi the bigeye tuna, Papa the whale shark, and Galileo the tiger shark. The web application has lifelike, three-dimensional animations of the fish and show the swim paths of the tagged fish, as well as information about the animals. Log onto: www.oceantracks.csiro.au

The tracks of a Southern bluefin tuna (www.oceantracks.csiro.au)

REDMAP NEWS: REDMAP OZ

Redmap is going national... Researchers and representatives from around Australia recently travelled to Hobart to begin setting up a ***Redmap Australia*** website and program. The expansion of Redmap was enthusiastically embraced: a Redmap Australia website and the inclusion of other states are planned for late 2012! The business-end of the workshop saw the formation of the Redmap National Steering Committee and advisory panels to help launch Redmap into the national limelight.

But what does this all mean for Redmap? Fishers, boaters, divers and scientists all around Australia – from Hobart to Broome to Sydney to Melbourne— will soon be able to report on the ***Redmap Australia*** website any uncommon fish and marine life they don't usually see in their coastal area. Potentially thousands of Australians will become 'citizen scientists': collecting their own data about the changes in Australia's oceans; as well as sharing their fish photos, tips and information.

Redmap just got super-sized…

This project is supported by the Australian National Data Service (ANDS) and the Institute for Marine & Antarctic Studies at UTas. If you want to know more about Redmap Australia, please email *enquiries@redmap.org.au*

Thanks to our major sponsors:

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