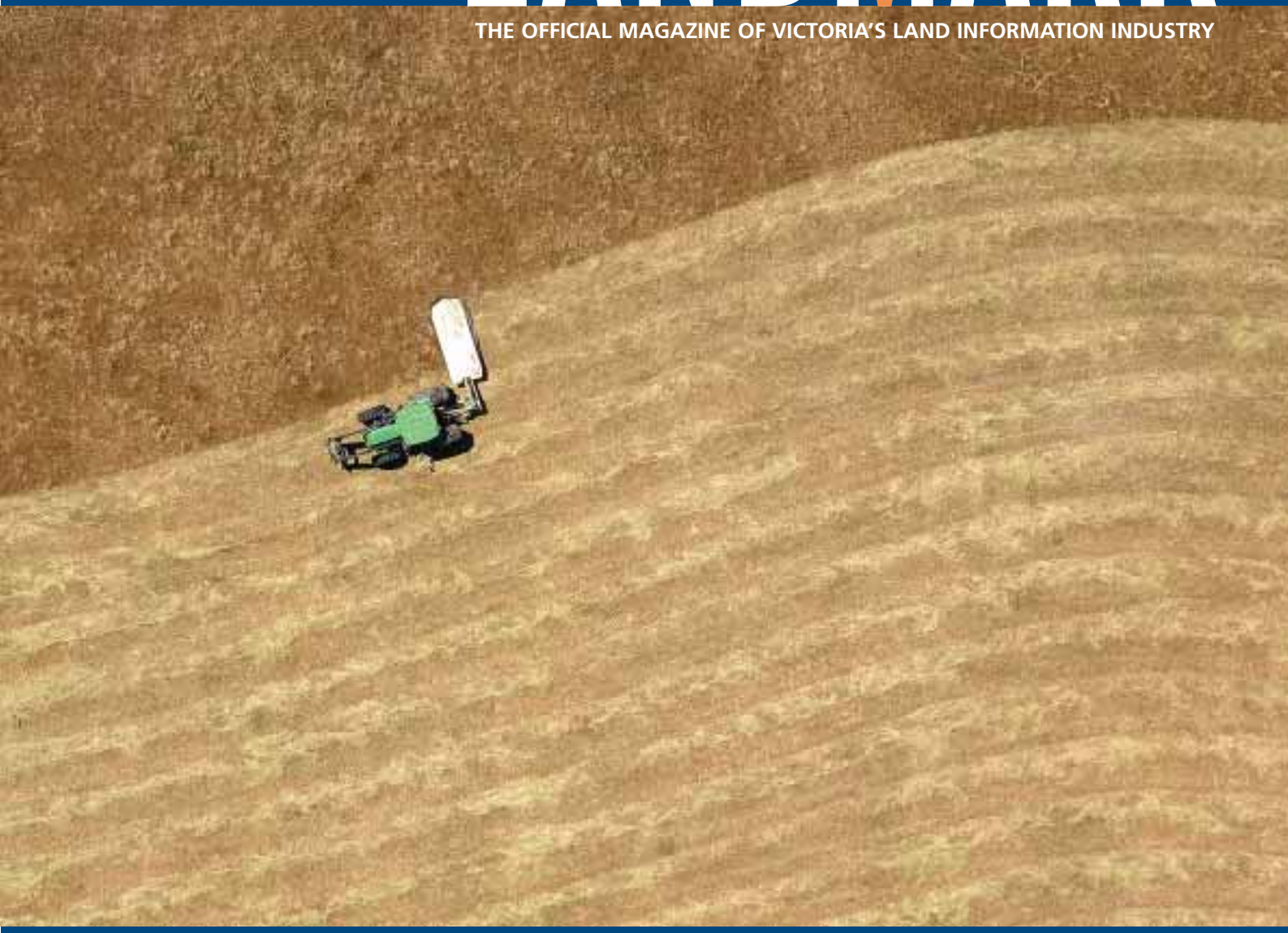
Department of Sustainability and Environment

# LANDMARK

THE OFFICIAL MAGAZINE OF VICTORIA'S LAND INFORMATION INDUSTRY



Issue 18 JUNE 2004

Victoria
The Place To Be

# Fishermen fill their nets with space

It's every commercial fisherman's dream ... the mother of all fishfinders! No more spending endless and expensive hours searching the ocean for the right spot to cast your net – just switch on your shipboard computer, use your satellite phone to download some satellite-based maps showing concentrations of plankton, water temperature, ocean currents and other data ... and you can see the spots where those elusive fish are most likely to be.

Perhaps you think it all sounds a little ... fishy!

Not so says Gerry Geen, a partner in a company, Seafish Tasmania Pty Ltd, that fishes a 20,000 square kilometre area of water off the southeast coast of Victoria stretching from Flinders Island south along the eastern and western coasts of Tasmania.

Gerry's crews are hunting two particular species – Mackerel and Redbait.

Both types often occupy the open waters between the coast and the edge of the continental shelf in depths from 20-300 metres. That's where Gerry Geen is focusing his efforts and, since last January, his trawler captains have been getting plenty of help from a novel fish-finder system called the SeaStar Fisheries Information Service (SFIS).

Above: Seafish Tasmania's lead trawler, the Ellidi, is finding better fishing grounds with the help of location-based data provided by satellite. Left: These Blue Mackerel prove the system works!

> The satellites are backed up by a worldwide integrated image receiving, processing and distribution network.

The commercial service is provided by a US-based company, ORBIMAGE Inc, which operates two earth-orbiting satellites to provide its customers throughout the world with a range of Earth imagery products and services.

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One of the satellites, OrbView-3, which was launched last year, provides one-metre resolution panchromatic (black and white)

CONTENTS

COVER PIX

Precision farming is a booming business. Brendan Williams gives us his views on the progress of the industry (see page 12). Picture by Shannon Shumski.

and four-metre resolution multispectral (color) imagery used for a wide range of commercial, government and consumer applications

The company's second satellite, OrbView-2 which is a multispectral imaging satellite launched in 1997, provides imagery of the world's oceans to fishing customers worldwide.

> "I sent the boat up there – as soon as we got there, the fish were there.

The SeaStar Fisheries Information Service is used extensively throughout the world including the Pacific and Indian Oceans, the Mediterranean, Arabian Sea, the Caribbean and the Atlantic and is also popular with commercial fishermen searching for tuna, swordfish and pilchards off many parts of the Australian coastline.

How does it work?

"It's relatively simple and very user friendly," says Geen.

"We use the on-board satellite phone to download satellite imagery showing the amount of plankton in the water, surface and sub-surface temperatures, wave height and current information and a lot of other data, including the weather.

"Our OrbMap on-board computer software program overlays this data on local area maps and, coupled with local knowledge, we have a very useful decision-making tool to help us decide the best places to fish.

"Downloads are fast – they take only about ten minutes and the latest software we use gives us up to 250 grades of density of plankton in the water."

Sounds good, but does it find the fish?

"Although we have only been operating it for the past few months, we have had excellent results already," says Gerry Geen.

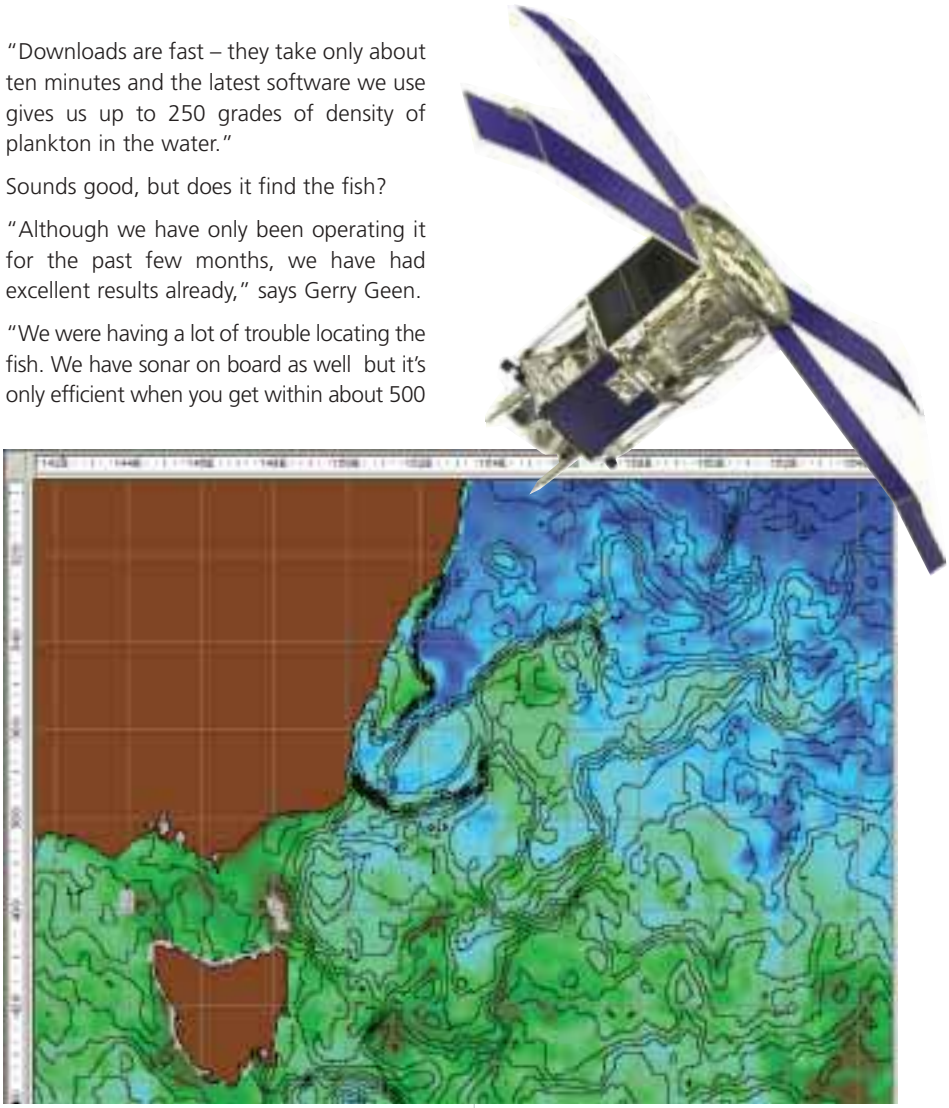
"We were having a lot of trouble locating the fish. We have sonar on board as well but it's only efficient when you get within about 500 metres of the fish – anything further away than 500 metres and we are virtually blind.

"This technology gives us the additional information we need about likely locations.

"On one occasion recently, our trawler captain noted an area of high plankton density and colder water temperatures off the east coast of Flinders Island. I sent the boat up there – as soon as we got there, the fish were there. It was very striking evidence and gave us a lot of confidence in the system.

"One of the main characteristics of pelagic fish is that they are mobile or migratory. Most are strongly influenced by water temperature and other factors such as current strength, direction and moon phase.

"So you are always trying to figure out where the fish are. The particular types we



Top: The OrbView-2 satellite. Above: A false-color "plankton" image shows the concentration of chlorophyll-a, the green pigment in plankton. The colors range from high chlorophyll-a (dark green) to low chlorophyll-a (dark blue). The black lines are surface temperature contour lines at 0.5 degree Celsius intervals. Left: Packing fish at Seafish Tasmania's plant at Triabunna.

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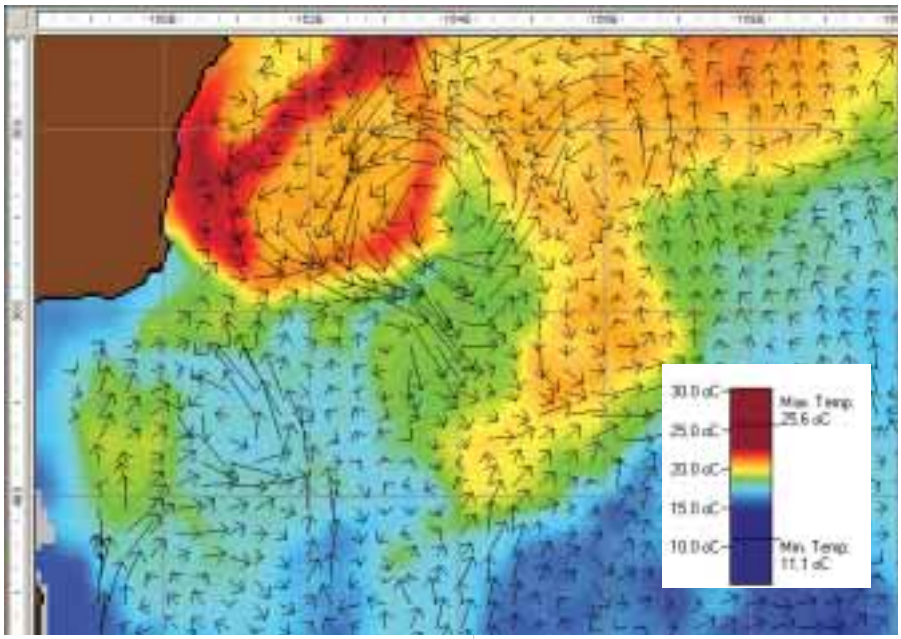
*From February 2004, Land Information Group (LIG) became part of the Strategic Policy and Projects Group within the Department of Sustainability and Environment. A key priority of the group is to develop a sustainability framework for Victoria. The group will also develop the department's capacity in urban and regional analysis, manage core spatial datasets and the application of advanced techniques for spatial analysis for better informed policy making.




A false-color surface temperature chart with surface current vector arrows. Images courtesy of ORBIMAGE Inc.

are looking for are very 'clumpy' and as a result are often hard to find. Anything that can provide you with their likely location is extremely helpful.

"From January to middle February, the water mass off the eastern coast of Tasmania was reasonably stable – we didn't have to look very hard to find fish. But after February 20, a big slug of warmer water came down and the fish took off. We were looking particularly for patches of cold water, which the fish prefer.

> If the imagery and data saves us just a few hours searching a month... then we are ahead.

"One day, the skipper noticed a small patch of cold water that appeared quite close inshore on the continental shelf – he turned around and went back to it and we found fish."

Seafish Tasmania employs 50 people and operates from Triabunna, a small port on Tasmania's east coast, one hour north of Hobart. It has two ships; its principal vessel, a 50 metre purpose-built pelagic trawler, was imported from Iceland.

Its catch is processed at two plants at Triabunna; one which produces fish oil and fish meal which are used to make feed pellets for Tasmania's own salmon farming industry; and a freezing plant that produces blocks of frozen fish which are also mainly used as feed in commercial tuna growing farms in South Australia.

Geen says the economics of the new technology are excellent.

"We pay a fee of around US$500 a month for the system, plus our download costs," he said. "Our trawler burns about seven tonnes of fuel a day, – that's about $4000 worth. If the imagery and data saves us just a few hours searching a month, and it certainly has done that already, then we are ahead.

"The two successful incidents we have had already have paid for the technology for a year a least."

Geen is also upbeat about the usefulness of the technology in learning more about the habitat and habits of the target fish.

"Redbait is a fish that has never been targeted before in Australian waters," he said. "Very little is known about its habits and where they migrate – so we have a lot to learn, both about them and the best way to use this technology to catch them.

"There's little doubt that it will help us to understand more about the fish and how to find them."

## WANT TO KNOW MORE?

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