

Patrols lock in their positions

Jennifer Foreshew

PATROLLING Australia's coastline out to 200 nautical miles can be a challenging job, especially when it involves tracking illegal fishing vessels in the dead of night.

Australian Fisheries Management Authority compliance officers must be sure an unauthorised vessel is at fault when they apprehend it.

In recent years they have calculated GPS co-ordinates using paper maps and radio contact with head office, but that was a cumbersome process.

"For our officers to have a GPS co-ordinate and then to try and work out on a map whether the fishermen were in the right zone or in a marine park, they needed some capability," says the authority's information management systems general manager, Mark Farrell.

"We have it back here in Canberra on our servers, but our people out in the field couldn't connect via the internet or any suitable communications facility back to here to be able to download maps."

AFMA spends a large chunk of its \$55 million annual budget protecting Australia's northern borders from illegal fishing.

It has about 230 staff spread across three locations in Canberra, Darwin and on Thursday Island in the Torres Strait.

The authority manages more than 20 fisheries, including deep-water finfish and tuna species, and Australian fishing on the high seas.

It also works with several government bodies to ensure compliance with international fishing agreements, as well as administering an illegal foreign fishing program.

The authority has been collecting commonwealth fisheries data for more than two decades.

It uses the ESRI ARCSIMS mapping system, Hyperion Business Intelligence and Oracle databases, as well as a variety of Excel spreadsheets to gather and store information collated from sources such as observer and research data, log books and catch-disposal records.

The authority began using In-

CASE STUDY AUSTRALIAN FISHERIES

The problem: Compliance staff at sea were using complicated paper maps and radio to detect illegal fishing. The process was even more difficult at night.

The process: The authority introduced Map Intelligence technology including business intelligence capabilities, Excel client and a laptop standalone package.

The result: Field staff have more efficient and convenient access to data at any time. Staff decision making and evidence gathering are improved.

tegeo's Map Intelligence software two years ago.

It allows fisheries managers to transform disparate flat files, maps and dashboards into dynamic web-based mapping applications.

Managers can do their own highly visual reports without relying on specialist programmers.

The authority uses Map Intelligence Server connected to its geographic information system server platform.

Map Intelligence's business intelligence capability enables the authority to analyse and map fishery catch data over time, querying the database and slicing and dicing data as required for analysis.

A year ago, the authority began using the Map Intelligence Excel client to provide staff with an ad hoc location analysis capability from their desktops, using Excel and mapping data against the central server.

Compliance staff use this to map sightings of illegal fishing vessels, particularly in northern Australia. Staff can enter details as they are received and generate a spatial picture of the location of the fishing vessel, incorporating a range of authority charts and maps.

The authority's 20-plus field team was issued with toughened laptops this year to provide a similar function to the Excel client.



'This has given our staff certainty that they are doing the right thing out there'

Mark Farrell, AFMA information systems general manager

It is designed to run in standalone mode so that field staff on activities at sea, remote from any network connectivity, can provide web-based maps.

"We provide all the latest maps through software distribution or other means so they can put in a GPS co-ordinate through Excel, see the results on a map and plot exactly where they are," Farrell says.

"They can look at the map and zoom in and out to quite a granular level to see the boundaries of our fishing zones and any other marks put on the maps to indicate things such as oil wells."

"It is really back-up to help our staff, and once it is mapped and we arrest, say, an Indonesian fisherman, we can use that as evidence."

Farrell says the Map Intelli-

gence technology has also improved decision-making for field officers.

"We have had instances of fishing boats sitting just outside of our zone when patrol boats go past and then they'll try to duck in and do a bit of fishing once we have gone past, and get back out again," Farrell says.

"You might catch someone who is doing that, but because we are patrolling around a line on a map if you like, it is very hard to say are they in the zone or out of the zone. This has given our staff certainty that they are doing the right thing out there."



Target: An illegal fishing boat, the Indonesian Mitré 2139, caught inside the Australian fishing zone, above, and Mark Farrell in Canberra, left