



How EcoConnect can help you

EcoConnect is NIWA's specialist environmental forecasting and information service. EcoConnect specialises in the creation and delivery of past, present and future environmental information.

EcoConnect provides the New Zealand fishing industry with a unique operational decision-making tool to help mitigate commercial, operational, and environmental risk brought about by our changing weather and sea conditions.

Importance of accurate environmental forecasting for the fishing industry

New Zealand's fishing industry is sensitive to, and impacted by, sea state, weather, sea surface temperature and ocean productivity conditions.

EcoConnect provides a leading-edge technology solution to mitigate such risks by providing observational data and forecasts of weather and sea state conditions across various time-scales, including:

- satellite-derived sea surface temperature analyses - both real-time and climatologies to guide catch targeting
- satellite-derived chlorophyll-a (primary productivity) real-time analyses for oceanic waters to guide catch targeting
- satellite weather imagery
- accurate weather forecasts (e.g., wind and fog) to inform operational decision-making
- accurate sea state forecasts (e.g., significant wave height, mean wave period, mean wave direction, peak wave direction and period, wave spread, tides and storm surge)
- automated alerts of forecasted inclement conditions – using user-specified thresholds (e.g., warn when the significant wave height off the Port of Greymouth will exceed 4m).

EcoConnect products relevant to the fishing industry

Real-time data:

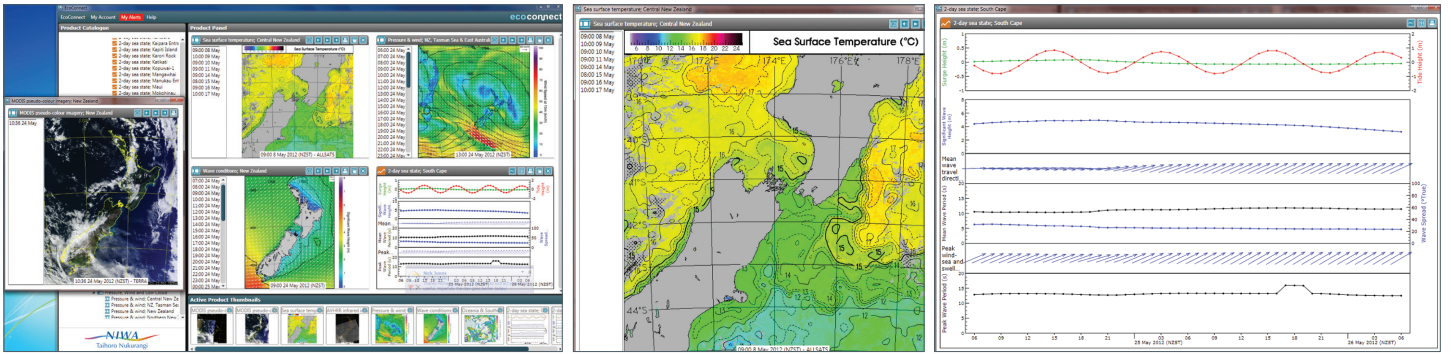
- Meteorological observations (weather and climate stations).
- Satellite (infrared and visible imagery, sea surface temperature and chlorophyll-a).

Site-specific forecasts:

Meteograms:

- High resolution (12km) two-day (hourly time resolution); global resolution (25km) six-day (three hourly time resolution) and 15-day (daily time resolution) forecasts of weather.





EcoConnect desktop with windows open for sea surface temperature, wind speed, seagram, wave height and satellite.

Sea surface temperature

'Seagram' at a specific ocean point around the coast.

- Forecast meteograms with or without real-time observations (2 and 6-day forecast range):
 - Air temperature
 - Relative humidity (two-day forecast only)
 - Precipitation amount (hourly)
 - Wind speed and direction
 - Cloud levels (low, mid, high levels and total, two-day forecast only).
- Forecast meteograms (15-day probabilistic forecasts):
 - Maximum and minimum air temperature (1.5m)
 - Average wind speed
 - Precipitation amount
 - Probability of precipitation above four different thresholds.

Sea conditions:

Forecast of sea-state including significant wave height, mean wave period and direction, peak energy wave period and direction as well as tide and storm surge height for specific ocean locations.

Forecast maps:

- Two-day hourly forecast maps for sea state (significant wave height, direction and period), precipitation, mean sea-level pressure, 10m wind speed and direction, low cloud, 1.5m relative humidity, 1.5m air temperature, storm surge and astronomical tides.
- Six-day three-hourly forecast maps for sea state (significant wave height, direction and period), precipitation, mean sea-level pressure, 10m wind speed and direction and 1.5m air temperature.

Climatologies:

- Maps of expected monthly sea surface temperature.
- Maps of monthly sea surface temperature and anomalies (with respect to the monthly sea surface temperature climatology).

EcoConnect science

- Satellite analyses of sea surface temperature and chlorophyll-a.
- High-resolution numerical weather prediction models.
- High-resolution wave models.
- Tide and storm surge models.
- Ongoing verification of forecast system accuracy.
- Active research programme

EcoConnect infrastructure

- High performance supercomputer (FitzRoy): IBM p575 POWER6.
- X and L Band satellite reception and data processing systems.
- Operational forecasting systems.
- 24/7 forecast availability, monitoring and IT support.
- Rich Internet Application (RIA) – the EcoConnect App that runs on a Windows PC
 - Integrated access to environmental forecasts and information
 - Automatic data update
 - User tailored SMS/e-mail alerts.
- Flexible and reliable storage and delivery
 - Oracle application and database servers
 - Business-to-business delivery using Web Services.
- Underpinned by ongoing NIWA research and development.

EcoConnect access

- EcoConnect is a paid subscription service.
- EcoConnect can be tailored to deliver environmental information in a format that suits customer business needs.

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