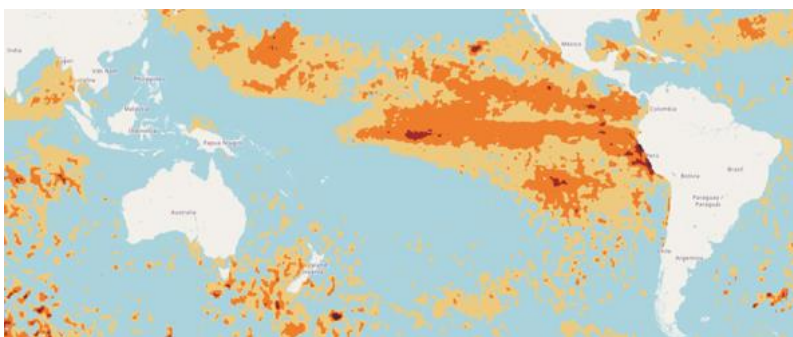




El Niño Global Tracker as of 28th July 2026

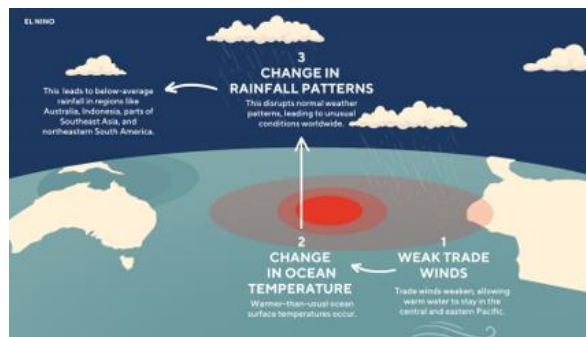


Image showing the effects of El Niño

What is El Niño?

El Niño is a natural climate phenomenon driven by unusually warm sea surface temperatures in the central and eastern tropical Pacific Ocean, which alters atmospheric circulation and shifts rainfall and temperature patterns across many regions.

In Singapore and much of Southeast Asia, it typically brings warmer temperatures and drier conditions, particularly during the Southwest Monsoon season (June–September).

Climate models indicate that El Niño conditions have commenced and are expected to persist through the second half of 2026, potentially strengthening between August and September 2026 and again from February to May 2027, bringing below-average rainfall and above-average temperatures.

Why farms should prepare:

Prolonged increases in water temperature can place considerable stress on fish health and the farm environment. Early preparation is the most effective way to minimise impacts and disruptions to farm operations and production.

What are the potential impacts of El Niño on fish farms?

• **Reduced Dissolved Oxygen**

Higher water temperatures will decrease dissolved oxygen (DO) saturation levels, resulting in low DO incidents and extreme daily DO fluctuations. This can cause stress to the fish and affect their health. Prolonged low DO conditions without mitigation measures in place can result in mortality.

• **Increased Stress to Fish Health**

Higher water temperatures can accelerate the growth of pathogenic bacteria, viruses and parasites, and suppress fish immunity. This can increase virulence, leading to fish stress, disease outbreaks, morbidity and mortality.

• **Higher Plankton Bloom Risk**

Higher solar irradiance and warmer water temperatures create ideal conditions for phytoplankton growth, increasing the likelihood of harmful plankton blooms which are known to have negative impact to fish culture. For land-based farms or closed containment farms with seawater intakes, there is a higher risk of plankton entering culture systems through the intakes.

• **Biofilter Nitrification Instability**

For farms equipped with biological filtrations, sudden changes in temperature may weaken beneficial filter bacteria, potentially causing spikes in ammonia and nitrite.

How can fish farms prepare for El Niño?



Water Quality Monitoring

- Monitor water quality parameters routinely, either using the farm's own monitoring equipment or through SFA real-time data on the Aquaculture Sensing Network (ASN) website. For farms using closed systems, put in place additional monitoring of chemical parameters such as ammonia, nitrite and nitrate levels.

Feeds & Feeding

- Reduce or stop feeding when the feeding response is poor. Remove uneaten feed promptly to minimise bacterial growth and oxygen depletion.

Stock Management

- Thin or lower stocking density if possible. Reduce high-stress handling practices. Observe for fish showing abnormal behaviour such as gasping for air, or crowding near the surface or at aeration sources.
- Remove and dispose dead fish promptly and properly. To mitigate disease outbreaks, sick fish should be isolated where possible, otherwise removed.

Mitigation Measures

- Ensure equipment such as generator sets, filters, aerators and water pumps are in working condition and operationally ready for deployment when needed.
- If low dissolved oxygen levels are detected, farms should increase aeration directly in nets, ponds, tanks and biofilters (where the design permits).
- If high ammonia and nitrite levels are detected, farms can introduce additional biomedica to support the establishment and proliferation of nitrifying bacteria.

Adequate Shading

- Install shading nets that can shield fish stock from solar irradiation and heating of the water surface. This can reduce surface heating and heat stress related factors for fish stock.

General Farm Preparedness Checklist

Weather & Water Monitoring

- ☐ Monitor daily weather updates (e.g. the myENV app).
- ☐ Monitor the ASN website for in-situ water quality conditions.



Scan here to access the ASN website.

Please approach your account manager for access details.

- ☐ Monitor in-situ water conditions daily using multi-probe sensors, and log the readings.

Infrastructure

- ☐ Inspect and maintain critical farm equipment, e.g. aerators, water pumps, generators and filtration.

Worker Safety

- ☐ Ensure workers are well hydrated and have shaded rest areas.
- ☐ Schedule physically demanding work during cooler parts of the day.
- ☐ Ensure workers have proper PPE (hats, sunblock, etc.)

Emergency Preparedness

- ☐ Maintain and display an emergency response plan on-site.
- ☐ Stock essential supplies such as water, first aid kits and emergency items.
- ☐ Keep emergency contact lists up to date.