



# Annual Report **AusKelp – Eden 1**

Update #1 FY22



## Welcome to AusKelp's Annual Update FY22

Since we began the journey to build Australia's first commercial kelp farm in March 2019, we could not have easily contemplated how complex and diverse the challenges would be. As with all new industries there are extra hurdles to overcome.

Building an offshore farm with an ocean crop has inherent challenges; the ocean is an unpredictable, high-energy environment that requires experience combined with engineering and scientific skills to manage. Thankfully, we are developing a strong local and international team who have made excellent progress to date.

We are blessed in Australia to have a strong regulatory framework which is designed to protect our environments. Unfortunately, these very worthwhile protections make it difficult to move effectively in a new industry like seaweed farming – that is being developed in an environmentally sensitive area, like our oceans. Whilst there is strong practical and scientific evidence internationally to show that kelp has many benefits to the local environment, with minimal downsides, the fact that this is being done for the first time in Australia means the regulatory burden is disproportionately high.

Thankfully, after more than two years, we are now making progress with NSW authorities. Our pathway to developing this new and environmentally friendly industry is now more defined and there is a pathway to success – albeit long and difficult. We expect that if we are successful, we have 18 months of further approvals before we can develop our ocean farm. The good news is that we have plenty of work to do in the meantime on scientific processes and lab work, as you will see in our report below.

AusKelp will release an ongoing annual report to keep everyone to date with our project. We hope this report will provide an avenue to get involved with our mission, as well as provide valuable insights into this incredible industry, and also introduce the people who are making

the dream of a sustainable high-value seaweed industry a reality.

As always, our sincere thanks to all those of you who have been part of the more than 3-year AusKelp journey. Thanks also to those representing the many government departments who are charged with developing regional industries and those protecting our environment and oceans. We appreciate your support, belief and guidance.

Our dream for AusKelp is simple; build a business that delivers high-paying and innovative regional jobs while protecting the environment. Kelp and seaweed have the potential to be one of the world's great industries. A strong seaweed industry in Australia may be one of the many factors that helps to save kelp and fish populations in Australian waters, long term.

Sincerely,

Christopher Ride, Managing Director  
Email: [info@auskelp.net](mailto:info@auskelp.net)



# 1.

## About AusKelp

AusKelp is an early-stage Australian owned and operated company focused on building commercial seaweed farms in Australia. The company's objective is to create an environmentally positive and sustainable seaweed aquaculture industry in NSW and Victoria. Utilising the latest technology, global research and expert advisors, AusKelp is developing Australia's most advanced seaweed ocean farms. The company founder, Christopher Ride, was previously one of Australia's most successful information technology businessmen.

## AUSKELP'S MISSION: CREATING JOBS THAT SAVE THE PLANET

# 2.

## Eden 1

AusKelp's first ocean project is a 200-hectare seaweed aquaculture farm in southern NSW. Eden 1 is the first registered commercial-scale seaweed farm in NSW marine waters. The ocean farm is located in Disaster Bay approximately 23km South-West of Eden. Eden 1 is located in an area zoned "available for aquaculture" by NSW Department of Planning and Industry (NSW DPI). To date, AusKelp have completed a rigorous evaluation and submission process whereby we have successfully obtained the requisite aquaculture permit and have also obtained a marine aquaculture lease (designated: AL21/004) from NSW DPI contingent on State Significant Development consent.

The Eden 1 ocean farm will use longline structures which are utilised globally for seaweed cultivation. Similar to longline structures are already in use in Twofold Bay and Jervis Bay (for mussel aquaculture). The Eden 1 ocean rig will utilise less flotation buoys as it will primarily be a submerged system.

The seaweed species targeted by Eden 1 for cultivation is *Ecklonia radiata*, also known as Golden Kelp, which is a fast growing, high-nutrient, locally occurring brown kelp native to Disaster Bay and the surrounding waters. At a later date, Eden 1 may assess the development of *Asparagopsis spp* (red seaweed). Both species occur locally within Disaster Bay and have significant domestic and international demand for multiple high-value products and purposes.

In addition to the ocean farm, AusKelp are planning a purpose-built seaweed hatchery and drying/processing facility in Edrom NSW (on the south side of Twofold Bay). The proposed infrastructure development process for the ocean farm, hatchery and processing facilities will employ approximately 50 staff across a range of industries, including scientific, engineering, construction and various specialist consulting firms both here and internationally.



*Ecklonia radiata* – Brown kelp



*Asparagopsis spp* – Red Seaweed

### 3. Eden 1 Objectives

A healthy seaweed industry in Southern NSW fosters high-value regional jobs and provides an economic boost to a region badly affected by bushfires, repeated flooding events and Covid-19. Once operational, 40-60 direct operational jobs would be created by the Eden 1 project, which include: lab technicians, seaweed experts, ocean engineers, ocean farm operations, harvesting staff, processing personnel and product development teams. Additionally, if proven viable, the Eden 1 project may encourage other seaweed farmers to establish operations in Southern NSW.



*Ecklonia radiata* – Wild kelp



TOP  
Disaster Bay aerial view

BOTTOM  
Disaster Bay native kelp beds



## 4. Seaweed Industry

Seaweed is a fast-growing, global industry producing more than USD \$11 billion in annual sales. Development of a seaweed industry in Australia is aligned to the National Aquaculture Strategy, which aims to double the current value of Australia’s aquaculture industry, as well as the National Marine Science Plan 2015–2025 (2018) which aims to further develop Australia’s blue economy.

AgriFutures, Australian Seaweed Industry Blueprint, highlighted the opportunity for a seaweed industry in Southern NSW (Jervis Bay to Eden) that could generate \$50M annual gross revenue in the coming years, as well as create 500 jobs in this region, improve water quality and provide habitat for marine life (Kelly, 2020). However, these estimates are dependent on ocean leases being approved for seaweed cultivation in a timely manner. AgriFutures further predicts that seaweed aquaculture will become a \$1.5 billion industry in Australia by 2040 and will employ more than 9,000 direct jobs. It is expected that global food production must increase by 50–70% by 2050 to meet predicted population increases.

## National Seaweed Industry and Strategy

### Vision

A high tech and high value, sustainable seaweed industry supporting thriving oceans and coastal communities.

#### 2025 Goals

- \$100 million plus GVP
- 600 - 1200 new direct jobs
- 30% methane emissions reduction from Australian Meat and Livestock sector
- 3% National GHG emissions reduction (from 2013 baseline)
- Actions towards United Nations Sustainable Development Goal 14 – Life Below Water

## 14

LIFE BELOW WATER

#### 2040 Goals

- \$1.5 billion plus GVP
- 9000 new direct jobs
- 99% methane emissions reduction target from Australian Meat and Livestock sector
- 10% National GHG emissions reduction plus more globally (from 2013 baseline)
- 80% Nitrogen removal from Great Barrier Reef Catchments
- Significant contribution to UN Sustainable Development Goals 2, 3, 8, 10, 12, 13 and 14

### Critical SUCCESS FACTORS

**01**  
Industry Leadership & Collaboration

**02**  
Production Capability & Scale

**03**  
Innovation for the Future

RESEARCH, DEVELOPMENT AND EXTENSION PRIORITIES TO 2025

<ol style="list-style-type: none"> <li>1. National Industry Group Formation</li> <li>2. Regional Cluster Plans</li> <li>3. Space Planning, Legislation &amp; Policy Review for seaweed ocean aquaculture</li> <li>4. Pest, Disease, Biosecurity Review</li> <li>5. Industry Stakeholder Engagement &amp; Communications</li> <li>6. Industry Impact Investment Fund</li> <li>7. Market /Product /Species Knowledge Centre</li> <li>8. Social License, Environmental Standards, Quality Standards</li> <li>9. Workforce Development Plan</li> <li>10. International Alliances and Collaboration (ISS 2022)</li> </ol>	<ol style="list-style-type: none"> <li>1. Accelerate Asparagopsis culture techniques</li> <li>2. Develop a National Hatchery Network to provide seedstock</li> <li>3. Biofouling management</li> <li>4. Information &amp; advice service for new ocean farming projects.</li> <li>5. Broker collaboration projects for manufacturing facilities at key locations</li> <li>6. Support progress of advanced aquaculture technologies important for scale.</li> </ol>	<ol style="list-style-type: none"> <li>1. Bio-innovation program for target species</li> <li>2. Biodiscovery program for new species</li> <li>3. Seaweed Biofilters for reef protection R&amp;D program</li> <li>4. Offshore Platforms R&amp;D program</li> </ol>
--	--	---

\$8.1 MILLION RDE INVESTMENT TO KICKSTART GROWTH

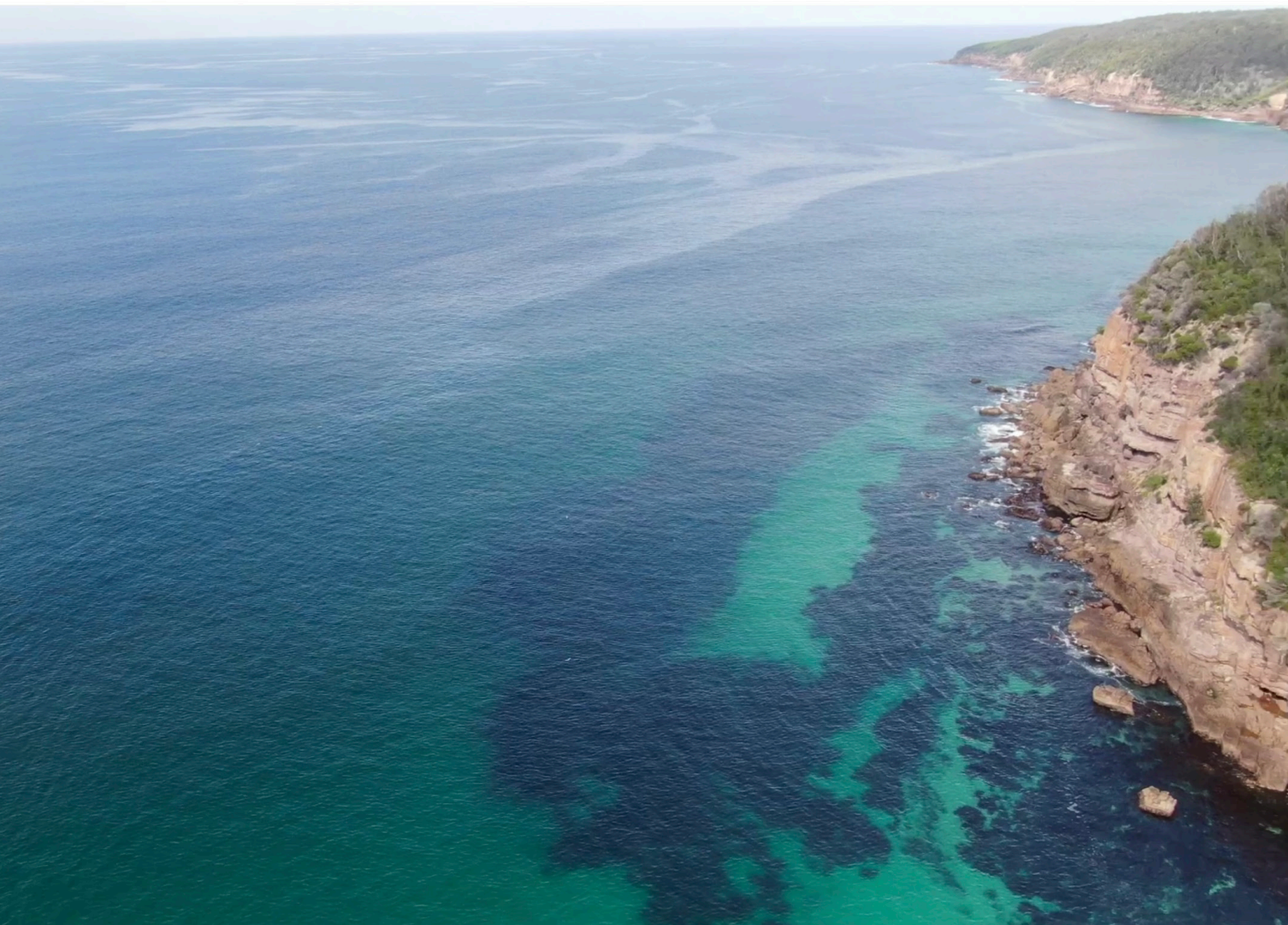
TO FIND OUT MORE  
 DOWNLOAD THE BLUEPRINT  
 AustralianSeaweedInstitute.com.au

## 5. Wild Kelp

Wild kelp numbers are reducing in Australian waters due to increasing ocean temperatures disrupting ocean upwelling. Kelp forests dominate the rocky coasts of temperate Australia and are the foundation of the Great Southern Reef. Much like terrestrial forests, these marine forests create complex habitat for diverse communities of flora and fauna.

Upwelling brings cool, nutrient-rich waters to the ocean surface which supplies kelp with carbon, nitrogen and phosphorus that seaweeds need to produce photosynthesis and grow. It has been reported that more than 80% of Australia's wild kelp populations have been lost in the last 50 years. Shockingly, in Tasmania it is reported that more than 95% of giant kelp forests have been lost in the last 40 years.

Kelp forests support coastal food-webs and valuable fish habitats and provide a suite of additional ecosystem services. In many regions of Australia and around the world, kelp forests are in decline due to ocean warming, overgrazing, sea urchins, and in some areas due to man-made pollution.



**Wild kelp in Disaster Bay NSW.  
*Ecklonia radiata* inhabits all rocky areas  
surrounding Disaster Bay.**

# 6.

## Project Timeline

### April – June 2019 Q

- Commence Eden 1 Project
- Potential aquaculture sites identified – southern NSW
- Local seaweed species identified
- Appointment of advisor: Australian Seaweed Institute
- Final shortlist of aquaculture sites
- Site study and multiple site dives
- Meet with Bega Valley Shire Council (BVSC)

### July – September 2019 Q

- Register company: AusKelp Pty Ltd
- Discussions with local regulatory bodies
- Final site identified: Diaster Bay NSW
- Seaweed Hatchery design review
- Business and financial modelling completed

### October – December 2019 Q

- Submission for aquaculture lease
- Submission for direct negotiation 13 Dec 2020
- Study of local regulatory requirements
- Study of overseas kelp and seaweed farming and processes
- Prepare NSW DPI Licence Submission
- Preliminary environmental assessment

### January – March 2020 Q

- Submit detailed Project Outline to NSW DPI
- Submit detailed Supplementary Information to NSW DPI
- Application for Licence for Public Water: 20 Jan 2021
- Additional application for Direct Negotiation with NSW DPI
- Direct Negotiation rejected by NSW DPI
- DPI inform that lease must go to Open Tender
- Onsite land facilities identified: Wonboyn and Edrom
- Study of *Ecklonia radiata*, propagation and yields
- Review of Constraint Criteria: conservation and exclusion zones, maritime conservation zones, pipelines and cables, navigation, channels and shipping, department of defence requirements, substrate types, seagrass beds, maritime heritage, artificial reefs, maritime infrastructure and monitoring
- Class A Aquaculture Lease submission

### March – May 2021 Q

- NSW DPI official tender Process: 29 March 2021
- Class A Aquaculture Licence obtained: 9 April 2021
- **Successful aquaculture tender for 200-hectare ocean farm AL21/004: 18 May 2021. Aquaculture lease approved pending State Significant Development Application (SSDA) approval**
- Seaweed Aquaculture Biosecurity plan completed
- Preparation of monitoring reports and management plans

### July – September 2021 Q

- Launch AusKelp website [www.auskelp.net](http://www.auskelp.net)
- Review ocean farm designs and seafloor attachment
- Australian Sustainable Seaweed Alliance (ASSA) – Foundation Member
- Study of carbon emissions/credits and kelp
- Threatened species review

### October – December 2021 Q

- Commence State Significant Development (SSD) application process
- Preparation of SSD Application Scoping Report
- Discussions with Principal Planning NSW DPIE
- Review of preliminary underwater inspections and surveys
- Discussions with Wonboyn Oyster Farmers
- Discussions with Blue Economy CRC

### January – March 2022 Q

- State Significant Development Application instigated
- SSD Scoping Report submitted
- SSD Scoping report review
- SSD Scoping Report re-submitted
- AusKelp development roadmap completed
- Hatchery/Laboratory design review

### April – June 2022 Q

- Appointment of technical consultants: SWD Connectors
- Appointment of Job Schipper as lead scientist
- Appointment of SSDA advisor: ERM – the world's largest pure-play sustainability consultancy
- Appointment of technology provider: Soft Seaweed
- Appointment of hatchery equipment provider: Metal Production
- Departmental SSD Scoping Meeting: all relevant departments
- Purchase of 2 x ocean monitoring buoys and seaweed-specific cloud software
- Exploratory site dives
- Appointment of Laboratory partner: Co-Labs Melbourne
- Appointment of Senior lab consultant: Andrew Gray
- Scientific hatchery protocols developed
- Lab commissioning commenced
- Lab supplies ordered
- Commence Seawater filtration system construction
- Commence Incubator construction

## 7. Meet the Scientist

### Job Schipper

#### Lead Scientist – Propagation & Seeding

Every great endeavour needs a brilliant scientist. Recognised as one of the world's most experienced seaweed experts, Job Schipper has been appointed as lead scientist for AusKelp's propagation of *Ecklonia radiata* brown seaweed. With a MSc in Horticulture science from Wageningen University in the Netherlands, Job has been seaweed farming in Norway since 2008. He is previously the founder of Hortimare BV which is one of the world's leading seaweed propagating companies. Job's role is to provide the commercial capabilities to AusKelp to propagate Ecklonia, run the laboratory and provide seeding expertise. We are thrilled to have Job on our team.



## 8. Our Partners





# 9.

## What's Happening this Year: FY23

### July 2022 – December 2023 HY

- Laboratory commissioning
- Sori collection site dive: Disaster Bay region
- Lab Propagation process
- Water Nutrient analysis and review
- Incubator commissioning
- Water filtration commissioning
- *Ecklonia radiata* propagation protocols
- Continue SSD process
- Environmental Impact Survey instigated
- Community Consultation instigated
- Stakeholder management and information sessions
- Sporophyte propagation and practical testing



# 10. In the Media

**ABC NEWS** Melbourne 10°C Now  
Change location Feels like 8

Just In Watch Live Coronavirus Politics World Business Analysis Sport Science He

ABC RURAL

## Seaweed farm proposal for Eden aims for Australian-first commercial kelp crop

ABC Rural / By Joshua Becker and Xanthe Gregory  
Posted Wed 4 May 2022 at 4:55pm

AusKelp's 200-hectare ocean lease is in Disaster Bay, near Eden. (Supplied: AusKelp)

Help keep family & friends informed by sharing this article

abc.net.au/news/australias-first-ocea... COPY LINK SHARE

Those behind a plan to build Australia's first commercial ocean seaweed farm off the NSW south coast say it would create a "brand new industry" and feed a growing appetite for the product.

AusKelp have submitted a proposal to build a 200-hectare lease at Disaster Bay, south of Eden, which would grow kelp for food, cattle feed, and the pharmaceutical industry.

Kelp are large brown algae seaweeds which grow naturally in the colder waters off the coastline.

High in protein, it can be cooked like other greens or used in supplements.

The leases will harvest two main species found in southern NSW, golden kelp (*Ecklonia radiata*) and *Durvillaea*, commonly known as southern bull kelp.

AusKelp CEO Christopher Ride said the development would tap into a massive market for both human consumption and agriculture.

"It's never been done in New South Wales waters before. In fact, has never been done in an ocean farming setting in Australia at all," Mr Ride said.

**Key points:**

- AusKelp is seeking approval for Australia's first commercial ocean seaweed farm
- If approved, kelp would be farmed on 200 hectares off the NSW south coast near Eden
- Kelp can be used in pharmaceuticals, human food, and to reduce carbon produced by livestock

"It's a brand new industry."

He said the \$8 million project would create up to 60 jobs in the Bega Valley Shire.

AusKelp CEO Christopher Ride hopes to establish the commercial seaweed industry in Australia. (Supplied: AusKelp)

The company has received an aquaculture permit from the Department of Primary Industries for the ocean lease but the project is contingent on seeking approval from the Department of Planning and Environment as a State Significant Development.

"We've got at least 12 months to go before we can start to put test beds in Disaster Bay for production expected to be in the beginning of 2025," Mr Ride said.

### Emerging industry with big plans

Agrifutures published an Australian Seaweed Industry Blueprint which estimated the industry could be worth \$1.5 billion by 2040, employing 9,000 people.

But lead author Jo Kelly, from the Australian Seafood Institute, highlighted the industry was currently "small, fragmented, and disparate".

The report estimated in 2020 the gross value profit of the entire Australian industry was less than \$3 million and the workforce less than 40 full-time equivalents.

AusKelp's Christopher Ride said the industry was held back by regulations and risks of investing in an emerging market.

"I think the reason it hasn't been done before is because we've got quite a lot of regulation to overcome, and rightly so to protect our ocean environments," Mr Ride said.

Kelp is one of the fastest growing plants on earth. (Supplied: AusKelp)

"There's a high level of risk associated with going through the regulatory process, which takes many years to then really work out whether this is viable at scale."

It is estimated seaweed populations have reduced by 40 per cent across the world over more than two decades.

The company predicts a 200-hectare seaweed array could sequester 3,600 tonnes of carbon every year.

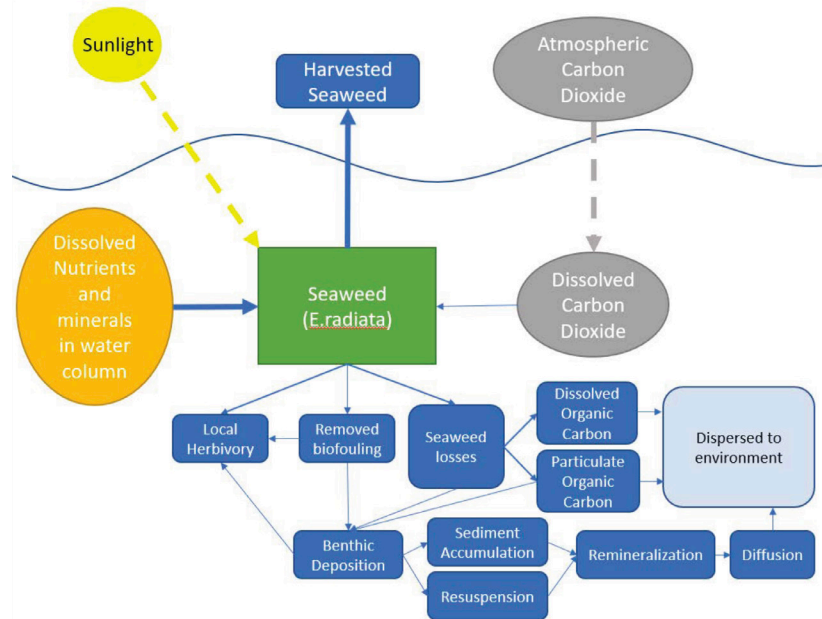
"It has a whole lot of extraordinary benefits, and the beauty of kelp is that kelp is the most environmentally friendly form of aquaculture and agriculture," Mr Ride said.

# 11. Kelp Facts

Kelp is the fastest growing lifeform on earth.  
In ideal conditions kelp can grow at up to 50cm per day!

## How kelp grows...

Carbon, nutrients, chlorophyll, nitrates, phosphates and sunlight through **photosynthesis** create sugars that allow seaweed to grow.



Thanks for reading our report. We look forward to providing our next update at the completion of FY23.