

THE FUTURE OF GLOBAL AQUACULTURE

Executive summary: the strongest expectations, uncertainties and implications for V5 Verde Equity

Prepared for V5 Verde Equity ApS

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Science | Operations | Sustainability | Capital

Executive Summary

What leading scientists, sustainable-food experts and major industry operators expect

Executive conclusion

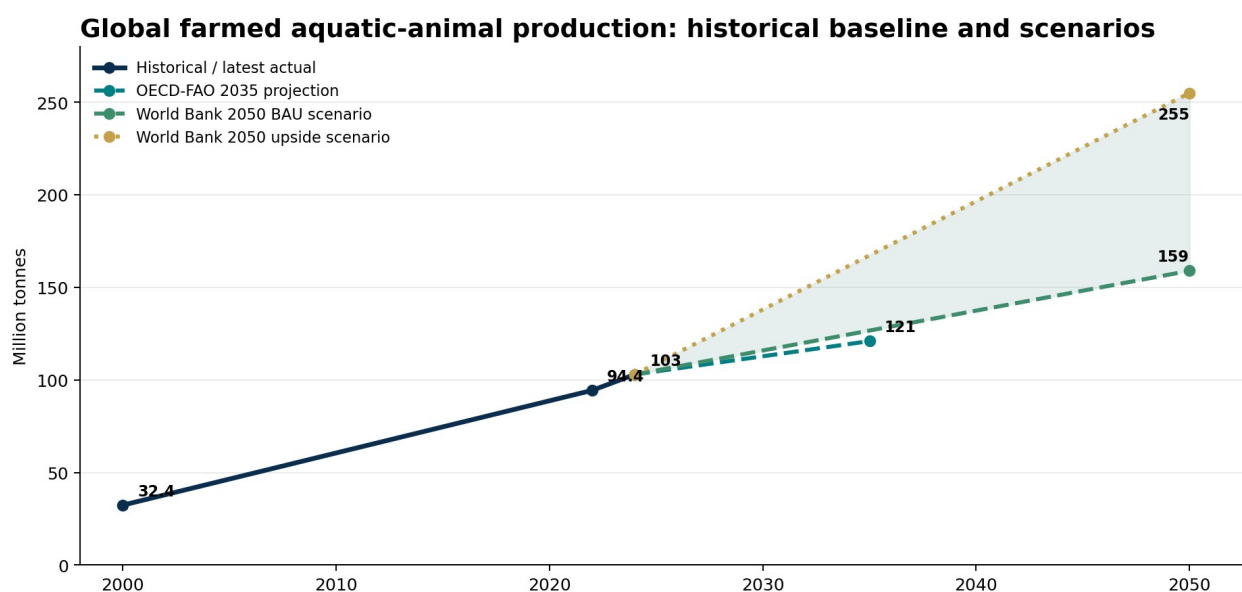
Aquaculture will become larger but more mature, more biologically controlled, more data-driven and more climate-adapted. The future winner is not the company with the largest announced farm, but the operator that combines licences, genetics, robust juveniles, health, feed, water and energy control, processing, traceability and market access into reliable cash flow.

V5 alignment note

The V5 executive conclusions, strategic implications, capital architecture and investor proposition in this summary are aligned to V5 Verde Equity's Institutional Business Plan 2026-2031, Version 3.3, dated 14 August 2026. The terms are planning and indicative, not an offer; definitive Series 1 legal, security, tax and investor documents control. [19]

Aquaculture supplied 103 million tonnes of aquatic animals in 2024, or 53% of global aquatic-animal production, while wild capture remained around 92 million tonnes after decades of aggregate stability. FAO expects total aquatic-animal production to reach approximately 214 million tonnes by 2034, with aquaculture providing most incremental output. [1,11]

OECD-FAO projects aquaculture production of 121 million tonnes by 2035 and 56% of combined fisheries and aquaculture output. Growth continues but slows to 18% over the decade. This marks a transition from rapid sector expansion to competitive maturity, where survival, FCR, disease control, energy, processing yield and product value determine performance. [2]



Note: 2050 values are scenarios, not point forecasts. Sources use different modelling frameworks.

Global production outlook

Sources: FAO 2026; OECD-FAO 2026-2035; World Bank and WWF 2025. The 2050 values are scenarios.

The ten strongest expectations

- 1. Precision aquaculture becomes normal.** Cameras, sensors, automated feeding, machine vision, robotics and predictive analytics move from pilots to normal infrastructure.
- 2. Biology becomes the moat.** Selective breeding, genomic selection, hatchery quality, vaccination, diagnostics and robust juveniles create cumulative gains.

3. **Feed becomes a performance service.** Feed groups combine precision formulation, novel/circular ingredients, health support, data and footprint measurement.
4. **Hybrid production wins.** Ponds, marine cages, flow-through, RAS, semi-closed, submersible and offshore systems coexist. System choice remains species- and site-specific.
5. **Climate changes site and species economics.** Temperature, oxygen, algal blooms, storms, water scarcity and pathogens force climate zoning, early warning and adaptation.
6. **Sustainability becomes measurable.** Mortality, welfare, feed origin, energy, water, escapes, emissions, labour and traceability become finance and market-access conditions.
7. **Asia stays dominant, but new regions grow faster.** Africa and the Americas gain percentage share, creating demand for seed, feed, cold chains, veterinary capacity, energy and finance.
8. **Consolidation and networks coexist.** Large integrated platforms grow, while small and medium farms connect to shared hatcheries, processors, data and contract-farming systems.
9. **Finance follows proof.** Established operators, licences, data, collateral and customer contracts attract debt and institutional capital; experimental farms remain equity- and grant-dependent.
10. **No single technology removes biological risk.** AI, RAS, offshore systems and certification improve control, but cannot replace husbandry, governance, redundancy and market discipline.

What the industry is likely to look like

Time horizon	Likely operating model	Economic implication
2036	Precision-monitored farms; improved genetics and juveniles; hybrid systems; stronger welfare, traceability and climate adaptation.	Margin moves toward biological execution and data-backed control.
2046	Integrated genetics-hatchery-health-feed-data-production-processing platforms; more modular systems and climate zoning.	Operating knowledge and system optionality become the key intangible assets.
Beyond 2050	World Bank scenarios of 159 Mt BAU to 255 Mt upside, depending on investment, geography, technology transfer and infrastructure.	Treat upside as conditional; scenario discipline and capital structure are critical.

Corporate capital-allocation signals

Corporate signal	Direction
Mowi	Post-smolt plus Smart Farming: better biological metrics and shorter high-risk exposure rather than all-land production. [12]
Cermaq	Post-smolt RAS, closed/submersible cages, deep feeding, oxygenation and vaccination - with explicit energy trade-offs. [13]
SalMar	Conventional, submerged, semi-closed, exposed and semi-offshore systems form a technology portfolio. [14]
Skretting, BioMar and Cargill	Resilience, data sharing, precision nutrition, novel and circular ingredients, and farm-performance support. [15-17]
Thai Union	AI-supported quality, food safety, traceability and responsible sourcing push assurance requirements upstream. [18]

Investment implications

- The scarce asset is increasingly the established licence, site, hatchery, team, biological dataset and customer base - not the tank or cage alone.
- Greenfield CAPEX-first concepts without proven species biology, robust juveniles and operating teams remain the highest-risk segment.

- Institutional capital is likely to prefer diversified platforms, secured structures, contracted cash flows, controlled accounts and frequent biological reporting.
- Sustainability-linked finance works when KPIs are operational and auditable: survival, FCR, medicine, energy, water, escapes, processing yield and traceability.
- Grants, guarantees and blended finance should absorb translational and first-of-a-kind risk, not conceal structurally weak economics. [3,9,10]

V5 executive conclusion

Evidence before scale

The industry outlook supports V5's Greece-first, established-operator strategy when it is implemented through direct ownership and co-management, biology-first underwriting, target-level security, controlled cash and independently verified reporting. V5 is not positioned as a universal RAS developer; it is an institutional platform for improving and financing productive aquaculture assets. [19]

1. Build the first operating portfolio through Greek HoldCo and one target-specific BidCo or AssetCo per approved established operator. Separate BidCos preserve control and liability separation; operators do not cross-guarantee one another. [19]
2. Prioritise expected debt-free, licensed operators with at least three years of reconciled accounts and cohort data, positive sustainable cash EBITDA, productive assets, customers and an independently priced value-creation plan. [19]
3. Modernise biology and cash conversion first: juvenile quality, survival, FCR, health, water and oxygen, sensors, processing yield, traceability and market access. Select full RAS, stage-specific RAS, Advanced FTS, hybrid or marine systems only after species-, site- and whole-life economic comparison. [19]
4. Keep new development ProjectCos, Therma Blue and Oman outside Series 1 during development, construction and loss-making ramp. Each follows separate funding and must pass its own maturity and verified-profit gates before any later V5 investor product. [19]

Strategic implications for execution

- Use established licences, sites, hatcheries, teams and operating datasets as the portfolio foundation; these become more valuable as regulation, climate and site scarcity increase. [19]
- Require a 100-day Danish-to-Greece operating plan with named specialists, measurable baselines and accountabilities across hatchery, genetics, nutrition, biosecurity, water/oxygen, automation, processing and training. [19]
- Underwrite every acquisition and modernisation in a zero-grant case. Treat formally awarded public support as capital-efficiency upside, never as a substitute for viable biology and cash flow. [19]
- Begin lower-cost refinancing work at Month 12, seek lender indications by Month 18 and target completion by Month 24. Refinancing is not guaranteed; failure increases cash sweeps and does not extend maturity automatically. [19]
- Measure V5 and every operator through survival, FCR, welfare, grade, processing yield, working capital, cash conversion, collateral coverage and timely investor reporting - not announced CAPEX. [19]

Capital architecture

Risk ring	Eligible capital and use	Boundary
Development / management equity	Sponsor, strategic, operator, sovereign/local-partner or awarded-grant capital for sites, studies, pilots, pre-FEED/FEED, permits and market testing.	Full loss is possible; stage budgets and termination rights; no cross-default into Series 1 or senior operating assets.
Senior credit / operating assets	€20m Series 1 for approved established Greek operators; primary growth capital, secured shareholder instruments and limited permitted secondary consideration.	Exclusive target-level security, controlled accounts, covenants, reserves, sweeps and sinking fund; development ProjectCos excluded.

Institutional foundation: V5 Verde Equity ApS, CVR 40039848, is registered with Finanstilsynet as a manager of alternative investment funds and acts as delegated investment manager and administrator of V5 Food & AgBio Fund I K/S within the Fund documentation. Registration is not full AIFM authorisation or ongoing Finanstilsynet prudential supervision. [19]

Series 1 investor proposition - 5.75 | 15 | 10

Element	Version 3.3 planning term	Investor alignment
Portfolio and tenor	€20m diversified multi-operator founding series; Month 36 maturity; Month 48 only if holders of at least 75% of principal elect it; 6.25% coupon only in the elected Year 4.	No unilateral manager extension; up to five separately diligenced operators.
Current cash income	5.75% annual cash coupon, paid quarterly.	Ranks ahead of V5 servicing economics and Residual Excess Spread.
Performance participation	15% of positive Defined Distributable Operating Cash annually after audit, prior-loss recoupment and payment tests; 12.50% gross Note cash-IRR cap as defined.	Cash-based participation, not a claim on EBITDA, grants, revaluations, refinancing or disposal proceeds.
Direct equity alignment	One collective non-voting Series 1 Growth Share class equal to 10% of the designated Greek platform HoldCo for funded Founding Investors.	Subordinated, outside Note collateral and the Note cash-return cap; survives Note repayment; no guaranteed exit at Month 36 or 48.
Security and concentration	First-ranking target-level security over eligible bank-debt-free real assets, receivables, controlled accounts, relevant shares and proceeds; initial gross LTV target <=50%, hard maximum 55%, adjusted coverage >=1.25x; at least 70% primary capital and controlled concentration.	A share pledge alone is insufficient; asset-owning entities must grant lawful security.
V5 economics and scaling	Servicing fee capped at 0.50% of deployed capital, net of fee offsets; Residual Excess Spread only after the complete waterfall. Year-1 scale toward €50m requires additional collateral; up to €100m is only a separately approved planning ceiling.	Fee transparency, performance dependency and no automatic expansion.

Challenge to “2 and 20”

V5 positions the model as secured real-asset income plus transparent performance participation and direct equity alignment. ILPA Principles 3.0 are used only as an alignment, governance and transparency benchmark. V5 receives the capped servicing fee and Residual Excess Spread only after the full investor waterfall; Note-level acquisition, refinancing, exit or carried-interest fees require 75% Noteholder approval and full disclosure. [19]

Principal uncertainties

Higher confidence	Medium confidence	Lower confidence
More aquaculture; precision tools; selective breeding; feed and biosecurity innovation; traceability and climate adaptation.	Selective expansion of RAS, semi-closed and offshore systems; faster growth in new regions; stronger data-linked finance.	Exact 2050 tonnage; universal full-grow-out RAS economics; broad gene-editing acceptance; rapid large-scale seaweed economics.

Selected references

- [1] Food and Agriculture Organization of the United Nations (FAO). SOFIA 2026: Global fisheries and aquaculture production reaches new highs. 2026. [Official source](#)
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- [17] Cargill. Aqua Nutrition Impact Report and SeaFurther supply-chain materials. 2024-2025. [Official source](#)
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- [19] V5 Verde Equity. Institutional Business Plan 2026-2031, Version 3.3, 14 August 2026. Confidential internal planning document; definitive product documents control.