

FISHERY FINANCIAL MODEL - COMMUNICATIONS BRIEF

Pricing seafood-specific risks and opportunities: How MSC certification can support financing for a sustainable seafood sector

October 2026

Key messages

- Seafood is one of the world's most traded food commodities, but escalating environmental risks such as climate change, overfishing, damage to marine ecosystems and illegal fishing threaten the long-term supply of wild-caught seafood. This positions the sector as a potential source of both financial risks as well as opportunities.
- By steering capital towards resilient and well-governed seafood production, financial institutions can mitigate risks and incentivise the sector's most sustainable growth pathways.
- When effective fisheries management practises are implemented, and fisheries are managed sustainably, improved profit margins and more reliable market access follow, and rebuilt stocks can support higher catches over time.
- Marine Stewardship Council (MSC) certification is a key due-diligence tool in this shift. Leveraging MSC certification can help to better understand and derisk supply chains by mitigating exposure to nature-based, regulatory, supply chain, and reputational risks.
- Our prototype fishery financial model illustrates that MSC certification costs are dwarfed by potential revenue growth for well-managed fisheries. Based on documented benefits of improved fisheries management practises, the model applies +1% revenue growth and -1% operating expenses reduction to annual cashflows.
- Further we argue that the risk reduction from the MSC certification process should be factored into credit assessment, valuation, and the conditions attached to finance for seafood supply chains.
- All in, these impacts could roughly double the value of such fisheries (a multiple of 2.05x) in financial model (Discounted Cash Flow – DCF) valuation terms.
- Sensitivity analysis performed further supports the robustness of the direction and the scale of the results, and the value of integrating MSC certification into mainstream financial modelling.

A material market, shaped by risks that respond to management

Fish and seafood are among the world's most traded food commodities: global trade in aquatic animal products reached a record US$184 billion in 2024, comparable in value to the trade in terrestrial meat. Aquatic foods also supplied at least one-fifth of the animal protein available to 3.1 billion people in 2023. Wild capture remains critical to that supply, accounting for 92 of the 195 million tonnes of aquatic animals produced in 2024[i] and provides feed ingredients to most farmed seafood.

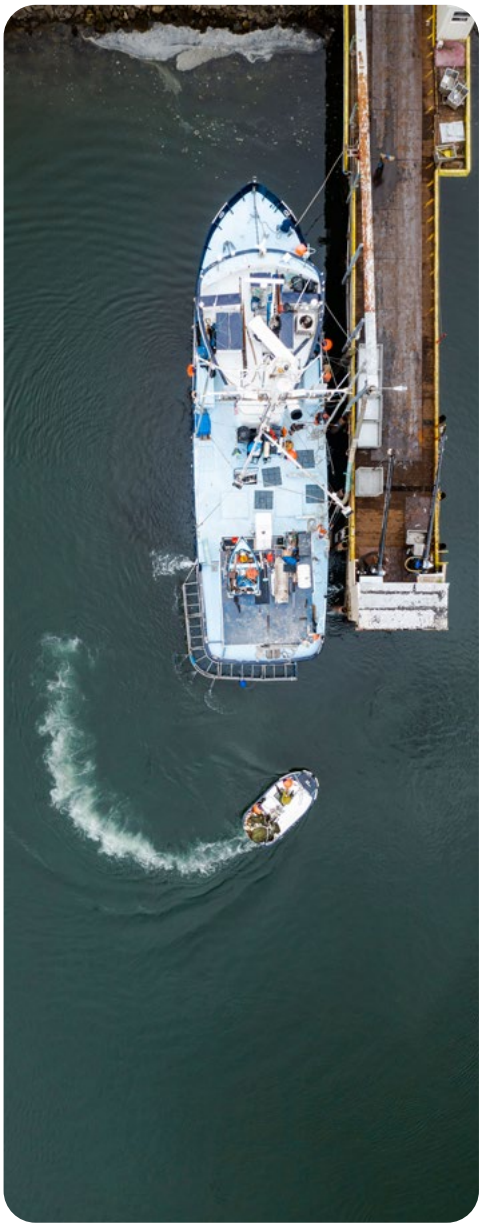
Over a third of fish stocks are currently exploited at unsustainable levels.[ii] Costello et al. (2016) modelled what could change that trend. Analysing 4,713 fisheries representing 78% of reported global catch, they found that with appropriate reforms recovery can happen quickly — the median fishery reaching its recovery target in under ten years — and that by mid-century 98% of stocks could be biologically healthy.[iii]

The reforms they modelled are rights-based fisheries management (RBFM), where fishers hold secure, allocated shares of the catch rather than competing for a common quota. This management framework produces benefits both to the resource overall as well as to the quota holders. These benefits are not disaggregated in the study. To represent the economic effect of that shift, the authors separately reviewed published studies of individual RBFM fisheries and adopted the mean figures those studies reported: a 31% increase in price and a 23% reduction in fishing costs.[iv]

RBFM is the management system for which quantified economic evidence is most readily available — the price and cost effects adopted in this model come from fisheries that made that transition. But a fishery can allocate rights and still carry a depleted stock or unmanaged ecosystem impacts. Equally, a fishery can meet the same outcome requirements by other routes such as effort controls, spatial or seasonal closures, or gear restrictions.



The role of MSC certification



MSC certification provides independent, third-party verification that a fishery operates under effective and sustainable management practices.[1] The MSC Fisheries Standard sets requirements for sustainable target stock, minimised ecosystem impacts, and effective management of the fishery, which are not satisfied by legal compliance alone and are assessed by independent third-party experts through a public process.

Certification therefore addresses biological and management risks directly, as well as regulatory and reputational risks by keeping fisheries ahead of tightening requirements. The MSC Chain of Custody standard extends that assurance along the supply chain. Certification is also not a single, one-off exercise: MSC certified fisheries are audited annually, and full re-certification is required every five years. Audit reports are public, and, if requirements are no longer met, fisheries are suspended: of 1,355 fishery units of certification[2] that were ever certified, 229 (17%) have been suspended at some point, and 80% of suspensions arose from issues relating to sustainability of the target stock.[v]

While the certification does not currently address climate change mitigation or adaptation, the MSC is developing a standardised Greenhouse Gas emissions reporting system to help MSC certified and Improvement Program fisheries to calculate and report their emissions. The GHG calculator will be available to pilot in 2027 and potential processes for the verification and validation of fishers' emissions reports is also being explored.[vi]

A recent MSC-led study examining 661 fisheries worldwide highlights a growing need for adaptive management systems to respond to the new challenges created by climate-driven shifts in stock distribution and changes in biomass. Fisheries can build resilience through effective monitoring, regular review of management measures, clear long-term objectives, stakeholder engagement and responsive decision-making processes. MSC certified fisheries, which already meet robust management requirements, are likely to face comparatively lower risks than many fisheries globally that are unable to adequately monitor and regulate their activities.[vii]

[1] The MSC programme is recognised by the Global Sustainable Seafood Initiative whose Global Benchmark Tool assesses certification schemes against the FAO Code of Conduct for Responsible Fisheries and the FAO Guidelines for the Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries. The MSC is also an ISEAL Code Compliant member, meeting the ISEAL Code of Good Practice for Sustainability Systems, which governs how sustainability standards are set, assured and evaluated. independent assessment against the requirements of the MSC Fisheries Standard, followed by annual audits.

[2] **Unit of certification:** within a fishery that engages with the MSC, there is often more than one 'unit of assessment' (UoA). UoAs may differ by target species, fishing gear, fleet or operators, or fishing location. If a UoA is certified, it is then referred to as a 'unit of certification'.

The data gap for financial institutions

Certification addresses a persistent problem for financial institutions: seafood supply chains are complex and opaque, while credible, independent and standardised data is scarce. Scientific and observation data platforms offer valuable insight into stock status, habitat impact, and indicators of illegal, unreported, and unregulated (IUU) fishing, and some are already used in financial due diligence. Most, however, supply data that requires interpretation rather than an independently audited judgement against a single standard, and data coverage varies by fishery and region. Third-party ESG ratings, which score companies on environmental, social and governance performance, largely rely on company disclosure and assess corporate policy rather than the condition of the fisheries themselves.

Disclosure frameworks are moving towards risk assessments covering specific assets and locations rather than corporate policy alone. The Taskforce on Nature-related Financial Disclosures (TNFD) asks companies to report their nature-related dependencies, impacts, risks and opportunities, but remains (for now) voluntary and self-reported. Within the EU the Corporate Sustainability Reporting Directive is mandatory for companies within its scope and subject to mandatory limited assurance. The biodiversity and ecosystems standard, ESRS E4, covers material impacts, risks and opportunities, together with dependencies on ecosystem services. However, neither framework generates the underlying information. A processor, trader or retailer reporting under either framework still depends on someone having assessed the fisheries it buys from — and that assessment must come from further up the supply chain.

MSC certification offers an independently audited, science-based assessment of the fishery itself, at the level of the assets a lender or an investor is exposed to. TNFD's own fishing sector guidance finds that MSC certification covers or partially covers 12 of 18 TNFD core indicators (67%) and 17 of 26 TNFD indicators overall (65%) for the sector.[viii] For a financial institution, MSC certification can act as a third-party audited, fishery-level proxy for most of the indicators assessed as financially material for the seafood sector.

Sustainable finance frameworks already reference MSC certification — the IFC's Blue Finance Guidelines 2.0 and ICMA's Illustrative KPIs Registry for Sustainability-Linked Bonds among them. In practice, though, the terms of finance are tied to a binary certified/uncertified test, or to targets for the share of seafood sourced from certified fisheries. There is also the opportunity to use more granular information on a fishery's progress toward sustainability. The MSC Improvement Program —a time-bound, structured and audited pathway to full MSC certification – can evidence the additionality and impact of the MSC certification program before the fishery reaches certified status. MSC fisheries also continue to be scored on the evolving requirements of the MSC Fisheries Standard.



Impact of the MSC certification

The MSC's own data record more than 2,600 improvements by certified fisheries and a statistically significant rise in median assessment scores between entry to the programme and the end of the first certification period.[ix] Melnychuk et al. (2022) find that fish populations targeted by MSC certified fisheries have higher relative abundance than non-certified populations.[x] Data generated by the fisheries is not accessed until the fishery enters certification, justifying the authors description of this as an association rather than a causal effect, since fisheries seeking certification tend to be well-performing when they enter the programme, rather than a random sample of all fisheries.

For a lender or investor, however, the finding is still salient: whether certification drives better outcomes or mainly identifies fisheries already performing well, it provides an independent assessment of stock status against the MSC Fisheries Standard, with annual audits to monitor any changes. The conditions attached to certification, and the improvement required of fisheries working towards it, are what link management practices to the outcomes modelled in this paper.

Research has also quantified the price premium achieved through MSC certification for certain species. NEF Consulting, in a study commissioned by the MSC, found that Cornish hake prices rose from 75% of uncertified Scottish hake prices at certification in 2015 to 138% by the end of 2018 — although the same study found no attributable premium for certified Cornish sardines, and premiums vary by fishery and market.[xi] Lallemand et al. (2016) modelled the loss of MSC certification for the South African hake trawl fishery including the impact on the price premium, access to markets and product mix. This was done through four cumulative scenarios — loss of the approximately 16% price premium, displacement from northern to southern European markets, downgrading from fillet to non-fillet product, and diversion of exports to a domestic market where prices fall sharply on oversupply. Together these reduced the fishery's value by 37.6% over five years against the status quo, keeping the discount rate constant at 10%.[xii]

What is less readily available is research connecting improvements in fishery management and impact of MSC certification to the mechanics of financial valuation.
That is the gap this project sets out to address: in this first phase through an illustrative model, and in later phases using fishery-specific data.

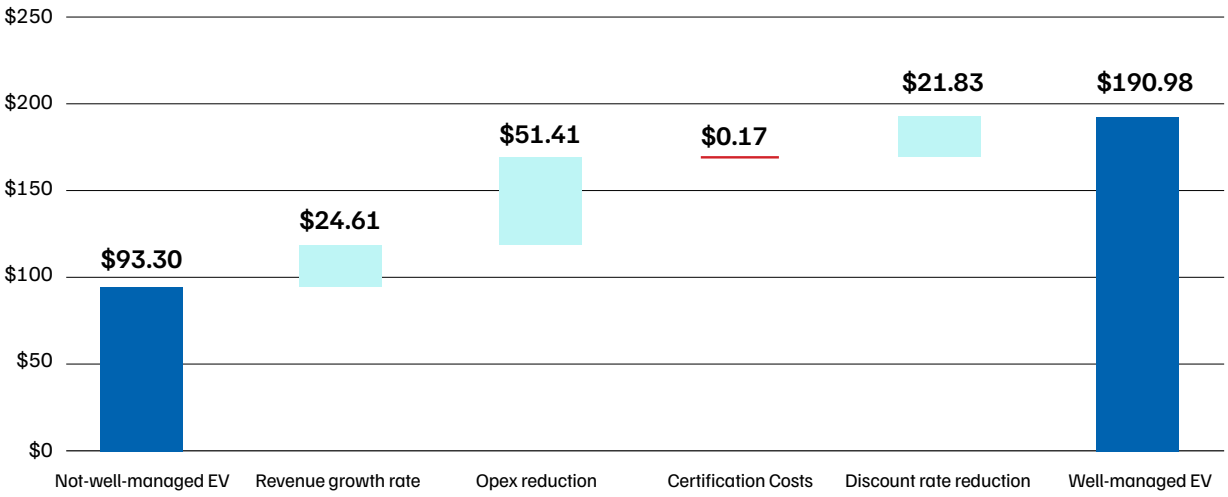


Prototype Fishery-Financial Model – results and insights

As a first step in valuing the financial impact of MSC certification on fisheries, we have built an illustrative financial scenario model based on assumptions drawn from relevant research and reports (Annex A). Its aim is to integrate the impact of improvements in fisheries management — such as those achieved in the lead up to and during the MSC certification process — into a discounted cash flow (DCF) model.[3]

For businesses, MSC certification is usually framed as a market-access or a reputational benefit. Modelled as a financial proposition, the results are also supportive. On a ten-year discounted cash flow basis, a well-managed, MSC certified fishery is worth roughly twice an otherwise identical not well-managed one.

Figure 1 – Value uplift waterfall



The model could be read as having two stages: first a transition from a not well-managed[4] fishery to a well-managed[5] one, and then to an MSC certified[6] fishery.

The cut off does not exactly align to the above graph as some of the operational gains in the first stage would relate to the MSC certification status of the fishery. The annual +1.0% revenue growth and −1.0% operating cost reduction applied here are a fraction — 40-45%— of the mean values adopted by Costello et al. (2016) and calculated from observed values for fisheries moving to rights-based management.[xiii] The model therefore uses these values as a proxy for what improved management is worth, rather than as a claim that well-managed fisheries are rights-based ones. MSC certified fisheries include both rights-

[3] **A DCF model:** a method of valuation that estimates future cash flows and then adjusts them to present value by using a discount rate that compensates for the risk of those cashflows not materialising in the future.

[4] **Not well-managed fishery:** a fishery that continues on its current path: catch volumes hold steady, operating costs remain a constant share of revenue, and revenue grows only with general price inflation. It is not a fishery in collapse — it is one in which nothing improves. This is a deliberately conservative comparator; a fishery whose stock was actively declining would produce a larger contrast than the one modelled here.

[5] **Well-managed fishery:** A fishery in which the target stock is healthy or rebuilding towards healthy levels, impacts on the wider ecosystem and habitat are minimised, and an effective management system is in place — with decision rules that respond to stock status and are enforced in practice. In this model those attributes translate into two financial effects relative to the comparator: modestly faster revenue growth and modestly lower operating costs.

[6] **MSC certification** is treated as a "sub-section" of well-managed fishery in this model, and as a means of demonstrating this through an independent assessment against the requirements of the MSC Fisheries Standard, followed by annual audits.

based and non-rights-based systems; all are assessed against the same MSC Fisheries Standard to establish that they meet the requirements for sustainable target stock, minimised ecosystem impacts, and effective fishery management without prescribing how access is allocated. Costello et al. (2016) research further attribute only 32% of the profit gain they model for rights-based management to the price increase and cost decrease, and majority of the profit gain, 68%, to optimising the harvest policy. This first illustrative version of the fishery financial model does not factor in any stock dynamics or harvest optimisation.

The model also does not include the costs of fishery-specific improvements needed to get to the well-managed level. Costello et al. (2016) are explicit that the same is true of their own figures. A fishery starting from a weak baseline faces a higher relative cost to reach well-managed status and a fishery-specific model would need to carry these costs. Applying the above assumptions to revenue growth and operating expenses builds in a margin, but that margin is set against the size of the benefit rather than as a provision for those costs. What can be said is how much room the result leaves. On the indexed basis used here, improvement costs would need a present value sufficient to erode the result materially; Table 3 sets out that headroom and shows that the value multiple falls to 1.50x at a spend of 75% of a year's revenue, and to parity only at around 144%.

Costs of required improvements, and how they compare to annual revenues, vary significantly between different fisheries, species and markets. One recent example is the Peruvian Jumbo Flying Squid in the MSC Improvement Program that discloses a total investment of US$0.5 million across the 2026-2029 Fishery Improvement Action Plan[xiv] relative to estimated annual revenues of approximately US$850 million[xv]. This budget covers the specific activities identified during the pre-assessment phase, but does not include project coordination, management and administration costs or in-kind technical capacities covered by partner institutions.

In the above graph, approximately 80% of the total value uplift is attributed to the higher revenue growth and the opex reduction. However, a large part of this does not relate to the 10-year assessment period, but to the 'persistence assumption' of locking this higher margin in as part of the terminal value for the project. MSC certification is what justifies this assumption. A certified fishery is third-party assessed against the requirements of the MSC Fisheries Standard and audited annually, verifying the fishery continues to be effectively managed and able to retain the margin advantage, rather than seeing it competed away.

Our estimate of the average audit fee comes to approximately 0.16% of a single year's revenue for an assessment valid for five years, or about $0.03 a year, based on the $100 baseline revenue. Smaller fisheries could face proportionally higher fees as the above estimate is based on average revenues and costs. The fees also vary depending on complexity of the audit and other factors. The cost included here relates to the cost of





certification and maintaining it through ongoing audits. Fisheries entering MSC certification also carry varied costs of closing conditions over the five-year certification period — commissioning scientific studies, implementing an observer programme or electronic monitoring, crew training, gear modifications. These costs are fishery specific and not included in the illustrative model.

Approximately 20% of the value uplift is attributed to the discount rate differential. Both scenarios use a commercial rather than a social discount rate, since the model addresses lenders and investors, rather than a public appraisal. For the not-well-managed fishery we apply 10% over ten years, aligning with valuation of UK fishing quota at a 10% discount rate over a 10 to 15-year asset life "to better reflect the level of risk associated with quota ownership".[xvi] This is consistent with the only published fishery-level valuation of MSC certification we identified. Lallemand et al. (2016) apply a 10% discount rate over five years to estimate the net present value of the South African hake trawl fishery. That study applies the same rate to both scenarios, expressing the value of certification entirely through cash flows — price premiums, market access and product mix.[xvii] We apply, in addition, a 0.5 percentage point reduction to the discount rate for the MSC certified fishery at 9.5%. This reduction assumes that certification acts as a proxy for healthy stock levels and harvest controls, low ecosystem impacts, and effective fisheries management, which in turn mitigates tail risks such as stock collapse and illegal, unreported and unregulated (IUU) fishing. The reduction in the discount rate also reflects credible evidence that better-managed fisheries can secure lower financing costs, both through sustainability-linked loan pricing[xviii] and through lower perceived default risk as more stable cash flows feed into lenders' and rating agencies' credit assessment,[xix] although the size of this reduction is illustrative as this effect has not to our knowledge been quantified in the literature.

While based on a prototype model, the analysis supports treating certification not as a discretionary cost borne by the fishery, but as a credible, auditable input to nature-related risk assessment and disclosure. And for financial institutions, as a risk signal that can be used in underwriting and valuation.

Sensitivity analysis

As can be seen from the sensitivity analysis presented below, the conclusion is robust.

The three assumptions were assessed at half strength, base case, and double strength. Across this range, the well-managed fishery is worth 1.49 to 3.37 times the value of the not well-managed fishery.

Table 1 - Does the conclusion survive weaker assumptions?

Scenario	Revenue growth p.a.	Opex reduction p.a.	Discount rate	Enterprise value	vs. not well-managed
Not well-managed fishery	2.00%	—	10.00%	$93.3	1.00x
Conservative—half strength	2.50%	-0.50%	9.75%	$139.2	1.49x
Base case - well managed fishery	3.00%	-1.00%	9.50%	$191.0	2.05x
Stronger—double strength	4.00%	-2.00%	9.00%	$314.4	3.37x



Table 2 shows the multiple achieved when each effect is applied on its own, at its base-case value. Each is individually sufficient to make the well-managed fishery the more valuable one: with any two of the three removed, the multiple remains above 1.00x. The reduction in operating expenses is the strongest single contributor at 1.50x, and the discount rate the weakest at 1.16x — the result does not rest on the lower discount rate. With no change to the discount rate at all, the two operating effects together still produce a multiple of 1.81x. The three effects also reinforce one another: applied together they produce an uplift around 13% greater than the sum of their individual contributions, and in practice improvements in fishery management would be expected to act on several value drivers at once.

Table 2 - Applying a single value driver

Scenario	Revenue growth p.a.	Opex reduction p.a.	Discount rate	Enterprise value	vs. not well-managed
Not well-managed fishery	2.00%	—	10.00%	$93.3	1.00x
Revenue growth only	3.00%	—	10.00%	$117.7	1.26x
Opex reduction only	2.00%	-1.00%	10.00%	$140.3	1.50x
Discount rate only	2.00%	—	9.50%	$108.4	1.16x
Revenue + opex only, rate unchanged	3.00%	-1.00%	10%	$169.2	1.81x
All three— base case	**3.00%**	**-1.00%**	**9.50%**	**$191.0**	**2.05x**

The model prices certification, not the improvement programme that may precede it. It does not estimate what that programme would cost, but it can show how much room the result leaves for one. Applying improvement costs to the well-managed fishery alone, phased over the first three years, the value multiple falls to 1.50x at a spend of 75% of a year's revenue, and to parity only at around 144%. This is a test of headroom rather than a claim that such costs are covered; a fishery-specific model would carry its own estimate in place of it.



Table 3 - Headroom against unmodelled improvement costs

If the value multiple fell to	Well-managed enterprise value	Improvement spend required	as % of Yr 0 revenue
2.05x (base case — no improvement cost)	$191.0	—	—
1.75x	$163.3	$40.9	41%
1.50x	$139.9	$75.4	75%
1.25x	$116.6	$109.8	110%
1.00x (parity-no advantage left)	$93.3	$144.3	144%



Conclusion

Well-managed fisheries are better for the ocean and support a more resilient long-term economic model. This paper set out to examine whether they also underpin a more robust financial model. According to the model presented here, they do. Over ten years, a well-managed fishery is worth around twice an otherwise identical one without those controls (in DCF terms). Most of that difference comes from the business itself — better margins from more resilient catches and improved access to markets – while the cost of MSC certification is a small fraction of a single year's revenue. Good management shows up in the accounts.

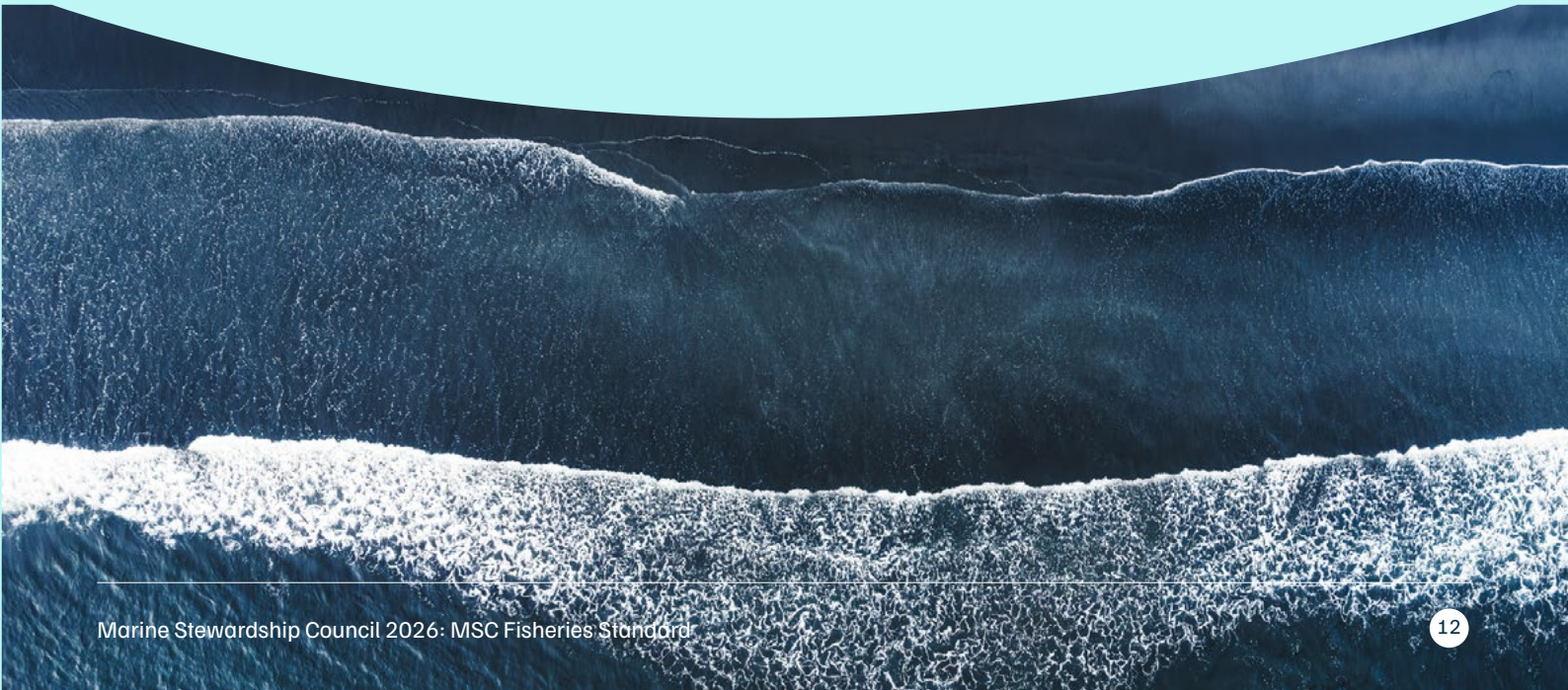
That matters because the seafood sector is carrying more risk than it used to: warming seas and shifting stocks, tighter regulation, and markets that increasingly require detailed information on the origin and impacts of seafood product. Financial institutions are exposed to all those factors, whether they are measuring them or not. When the value of good fisheries management can be set out in the same terms as any other investment case, it can be weighed alongside them — in lending or investing decisions, in what a fishing business is judged to be worth over time, and in the conditions attached to finance.

There are three caveats to the illustrative model. The model runs on a hypothetical fishery, calibrated to published research rather than any one operator's accounts. It prices certification itself, not the work a fishery may need to do to reach the standard including capital investments. And for the assumption that a better-managed fishery is a safer place to put money — this is an illustration of what that safety might be worth, rather than an observed spread.

Even so, the direction and the scale of the results are striking. The next step is to work with fisheries and financial institutions to refine the model with fishery-specific assumptions.

We believe further integration of seafood related risks and the derisking impact of MSC certification into mainstream financial models can help drive more blue finance and, ultimately, better outcomes for the ocean. If you are a bank, an investor, or a seafood business with exposure to a fishery, we would welcome your participation as we further explore the links between credible certification and financial markets.

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Annex A - Model assumptions and modelling notes

The model is a ten-year discounted cash flow comparison of two fisheries identical in every respect except for the effects of improved management. This annex sets out the assumptions and their sources, the derivation of the certification cost, and the mechanics of the model.

The assumptions are drawn from sector research and public market data on effective fisheries management rather than being specific to MSC certification. Treating the two as interchangeable is reasonable in one direction: every MSC certified fishery meets what the MSC Fisheries Standard defines as global best practice in maintaining sustainable stocks, minimising ecosystem impacts and effective fishery management, so certification can serve as a proxy for effective management. The converse does not hold — strong governance does not necessarily lead to certification, which is a business decision. Both the costs and benefits of improvement are specific to each fishery; a fishery-specific model is the logical next step.

Three exclusions should be noted. The model does not value natural capital or social value, nor the wider climate, nature and social co-benefits of good management. It does not apply an "ecological discount rate" in place of an economic one, which would further favour a well-managed fishery — Gollier (2010) puts the ecological rate at 1.5% against 3.2% for consumption.[xx] And it does not incorporate systemic risks such as climate change, which bear on both scenarios.

Key assumptions

The model is illustrative and assumes linear relationships with no delayed effects. It starts from a hypothetical "not well-managed fishery".

- **Revenue (+1.0% a year)** The advantage is relative rather than a forecast of rising catches. Global capture production has been broadly flat for three decades and the biological limits of many stocks have been reached, so the assumption is not that a certified fishery lands more fish. It is that it is better placed to keep landing what it lands: a fishery held to a credible standard on stock status and harvest control is less exposed to the stock decline, quota reduction and closure that erode an overfished fishery's volumes. Holding position against an eroding comparator is itself a gain. The model expresses this as a gain to the well-managed fishery rather than as erosion in the comparator; in relative terms the two are equivalent, and holding the comparator flat is the more conservative construction. Certified seafood also benefits from stronger market access and price resilience, and in some fisheries a measurable premium.
- **Inflation-linked growth assumption (2.0%)** is applied identically to both fisheries and to the terminal value; its derivation is in Table A1. Re-running the model at 1.0% raises the value multiple to 2.37x and at 2.5% lowers it to 1.95x, so the result is not sensitive to the assumption and 2.0% is not the flattering end of the range.
- **Operating expenses (-1.0% a year)** More efficient management also lowers operating costs, as more predictable catch saves on fuel, labour, and maintenance. This is captured as a 1.0% annual (cumulative) reduction, applied to a base that grows in line with revenue.

Table A1: Assumptions and sources

Assumption	Well-managed fishery	Not well-managed fishery	Basis and source
Forecast period	10 years	10 years	Costello et al. (2016), United Nations (2021)
Yr 0 revenue	100	100	Illustrative index rather than a specific dollar value for a specific fishery, so the output reads as relative value creation. Every other figure scales from this base.
Inflation-linked revenue growth	2.00%	2.00%	Assumption applied identically in both scenarios so that it does not affect the comparison. Set in line with the 2% medium-term inflation targets of major central banks, and with the general inflation rate implied by the OECD-FAO Agricultural Outlook 2025-2034 (nominal capture fisheries prices +12%, real -10%, which is about 2.0% a year). The model assumes no real price gain for either fishery; OECD-FAO 2026-2035 projects real capture fisheries prices 14% below their 2023-2025 average by 2035.
Additional revenue growth from improvements	+1.00%	—	Costello et al. (2016), Table S13, page 65 of the SI reports a mean price increase of 31% from rights-based fisheries management. Excluding the outlier of 102% for Australian Bluefin tuna, the mean is +23%. A more conservative +1.0% per year/+10% over 10 years is applied here as a proxy for a revenue effect for the certified fishery. This is roughly 45% of the 23% adjusted mean.
Annual revenue growth (Yr 1–10)	**3.00%**	**2.00%**	*Calculated: inflation-linked growth plus the improvement-driven uplift.*
Opex ratio (% of revenue)	67.00%	67.00%	Costello et al. (2016), p.5128: mean cost/revenue ratio of 67% as a global estimated ratio for the current state of a fishery. Table S14 of the same paper gives a lower mean of 54% but this is a cross-category average spanning molluscs, echinoderms and crustaceans, most of which aren't representative of a commercial finfish fishery.

Assumption	Well-managed fishery	Not well-managed fishery	Basis and source
Annual reduction in baseline opex from improvements	−1.00%	—	Costello et al. (2016), Table S13, page 65 of the SI, reports a mean cost reduction of 23% from rights-based fisheries management. A more conservative −1.0% a year is applied to the certified fishery, reaching c.10% by Yr 10 — roughly 40% of that mean.
Asset turnover	0.60x	0.60x	Midpoint of a 0.46x–0.77x range in revenue-to-total-assets across listed wild-capture operators: Brim hf FY2023 (0.46x, balance sheet includes €402m capitalised fishing quota) and Austral Group S.A.A. FY2025 (0.77x). Gives Yr 1 capex of $166.67 (Yr 0 revenue divided by asset turnover).
Useful life	15 years	15 years	Per SECFISH (2019), fishing quotas are typically discounted at 10% a year over a 10–15-year asset life and Pingtan Marine Enterprise Ltd. (NASDAQ: PME), Form 10-K/A FY2015, note 3, F-12 vessel life of 10-20 years. Gives depreciation and Yr 2–10 maintenance capex of $11.11, holding the asset base constant in real terms, with no growth capex within the period.
Certification cost (Yr 1 and Yr 6)	0.16% of revenue	—	See Table A2 below.
Certification amortisation	20.00% p.a.	—	Straight-line over the five-year life of an MSC certificate, covering Yr 1–5 and Yr 6–10.
Tax (% of profit before tax)	21.20%	21.20%	OECD Corporate Tax Statistics 2025, p.12: global average statutory corporate tax rate.
Terminal growth	2.00%	2.00%	Set to the inflation-linked rate (as above) for both scenarios, so no perpetual growth advantage is credited to certification.
Discount rate	9.50%	10.00%	SECFISH (2019), Guidelines for the valuation of intangible assets of fishing fleets in the EU, p.14: fishing quotas are typically discounted at 10% a year over a 10–15-year asset life. Reduced by fifty basis points for the well-managed fishery to reflect the risk reduction.

Table A2: Derivation of the certification cost

Step	Value	Source
Value of global fisheries production, p.a.	$174bn	FAO, SOFIA 2026
MSC-certified share of global wild marine catch	18.4%	MSC Annual Report 2025–26
Value of MSC-certified catch, p.a.	*$32.0bn*	*Calculated*
Number of MSC-certified fisheries	746	MSC Annual Report 2025–26
Average revenue per certified fishery, p.a.	*$42.9m*	*Calculated*
Average cost of certification	$67,500	MSC fishery certification guide
Certification cost as % of revenue	**0.16%**	**Calculated**

The $174bn production value is taken from SOFIA 2026 (2024 data), which puts the first sale value of global aquatic animal production at $545bn, of which $371bn is aquaculture. The volume share (18.4% of wild marine catch as of March 2026) is multiplied by the capture production value figure, which assumes certified fish carries average value, to create a more conservative estimate to base the fee calculation on. This is divided by number of MSC certified fisheries (as of March 2026). The MSC's certification guide cites an anecdotal range of $15,000 to $120,000 for certification (fees are not paid to or influenced by MSC). $67,500 is taken as the midpoint, but certification fees depend on the complexity of the fishery, the availability of information and the level of stakeholder involvement. FAO does not publish a marine-only capture value, so $174bn includes inland capture. Narrowing the denominator to marine capture alone — using the marine share of capture volume, 79.6 of 91.9 million tonnes, as a proxy — would give roughly $150.7bn and 0.18%. The difference is immaterial: certification reduces enterprise value by less than $0.20 against an uplift of $97.68.

Modelling notes

Revenue. Yr 0 revenue of $100 is an anchor rather than a forecast year: revenue and operating cost growth are applied from Yr 1 and compound through Yr 10, so Yr 1 already reflects one full year of growth.

Operating costs. Opex is built in two stages, each calculated off that year's revenue rather than as a chain from the prior year. Baseline opex is that year's revenue multiplied by 67%; this ratio is identical in both scenarios and constant across all ten years. Opex is then baseline opex multiplied by (1 – 1.0%) raised to the power of the year number for the certified fishery, so the reduction compounds year on year, reaching –9.6% cumulatively by Yr 10. Certified opex therefore drifts down from 66.3% of revenue in Yr 1 to about 60.6% by Yr 10, while the uncertified fishery holds flat at 67% throughout.

Both operating drivers are set at the same rate of 1.0% a year, but their effect on profit differs because they apply to different bases. The revenue uplift adds 1.0% to revenue — $1.00 in Year 1 — but operating costs are modelled at 67% of revenue in both scenarios, so $0.67 of cost comes with it and only $0.33 reaches margin. The cost reduction applies to the whole operating cost base of $69.01, itself 67% of that year's revenue, so 1.0% of it is $0.69 — and all of it reaches margin. That is why the bar showing value increase from the reduction of operating expenses in the Figure 1 is roughly double the bar relating to value increase from higher revenue growth.

Certification cost. Certification is capitalised twice, in Yr 1 for initial certification and in Yr 6 for the five-yearly reassessment, each calculated as that year's own revenue multiplied by 0.16%. Each capitalised amount is then amortised straight-line at 20% a year over its own five-year schedule, covering Yr 1–5 and Yr 6–10 respectively.

Capital expenditure. Because the fishery acquires its whole asset base in Year 1, the explicit ten-year period's free cash flows contribute little in present-value terms — it is slightly positive for the well-managed fishery and negative for the not well-managed one, so the terminal value accounts for more than the whole of the uncertified fishery's valuation. This follows from how the model is built — it values a fishery from a standing start rather than an established operator with a partly depreciated fleet — and applies identically to both scenarios, so it does not affect the comparison between them.

Cash flow and valuation. Free cash flow is net income plus depreciation and certification amortisation, less total capex covering both Yr 1 capex (vessel, gear etc.), maintenance capex, and certification. Terminal value at the end of Yr 10 is that year's free cash flow multiplied by one plus terminal growth, divided by the discount rate less terminal growth. Both scenarios carry the same 2.0% terminal growth rate, so certification is not credited with faster growth in the long run. The model does, however, assume the certified fishery keeps its Year 10 cost and price advantage beyond the ten-year period, rather than seeing it competed away. Around 70% of the value uplift sits in the terminal value, reflecting the fact that the operating advantages compound across the ten-year period and are widest in the Year 10 cash flow that the terminal value capitalises.



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