



Benchmark®

Driving sustainability in aquaculture

Improving the economics of sea lice management

John Marshall, Head of Animal Health, Benchmark

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GENETICS

ADVANCED NUTRITION

HEALTH

Sea Lice is damaging brand 'salmon' and constraining growth

TANGIBLE CHALLENGES

- Mortality
- Feed conversion efficiency & growth rates
- Efficacy & resistance to treatments
- Commercial viability of prevention methods
- Restricting expansion licences

INTANGIBLE CHALLENGES

- Fish welfare
- Public perception
- Environmental safety
- Pride of the farmer
- Reliability

Sea Lice is a significant cost to the industry

ENVIRONMENTAL & SOCIAL

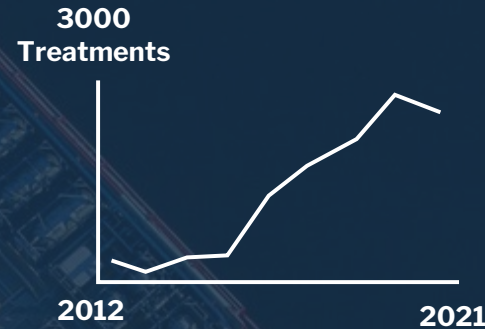
- Negative publicity and brand reputation
- Medicine discharge
- Decreased amenity values

BIOLOGICAL

- Fish welfare
- Mortality
- Loss of feeding days
- Weakened immune system
- Contagious- farm level and wild stock

ECONOMICS¹

- Treatment costs
- Reduced feed conversion efficiency
- Decreased market value of downgraded salmon
- Market distortion



14x

Increased use of Mechanical treatments between 2015 and 2021²

16%

increase in reported welfare incidents from fish production (2021)²

15.5%

total mortality (54m dead salmon in sea phase)²



NOK 6.6bn

Sea lice cost to the Norwegian industry annually³

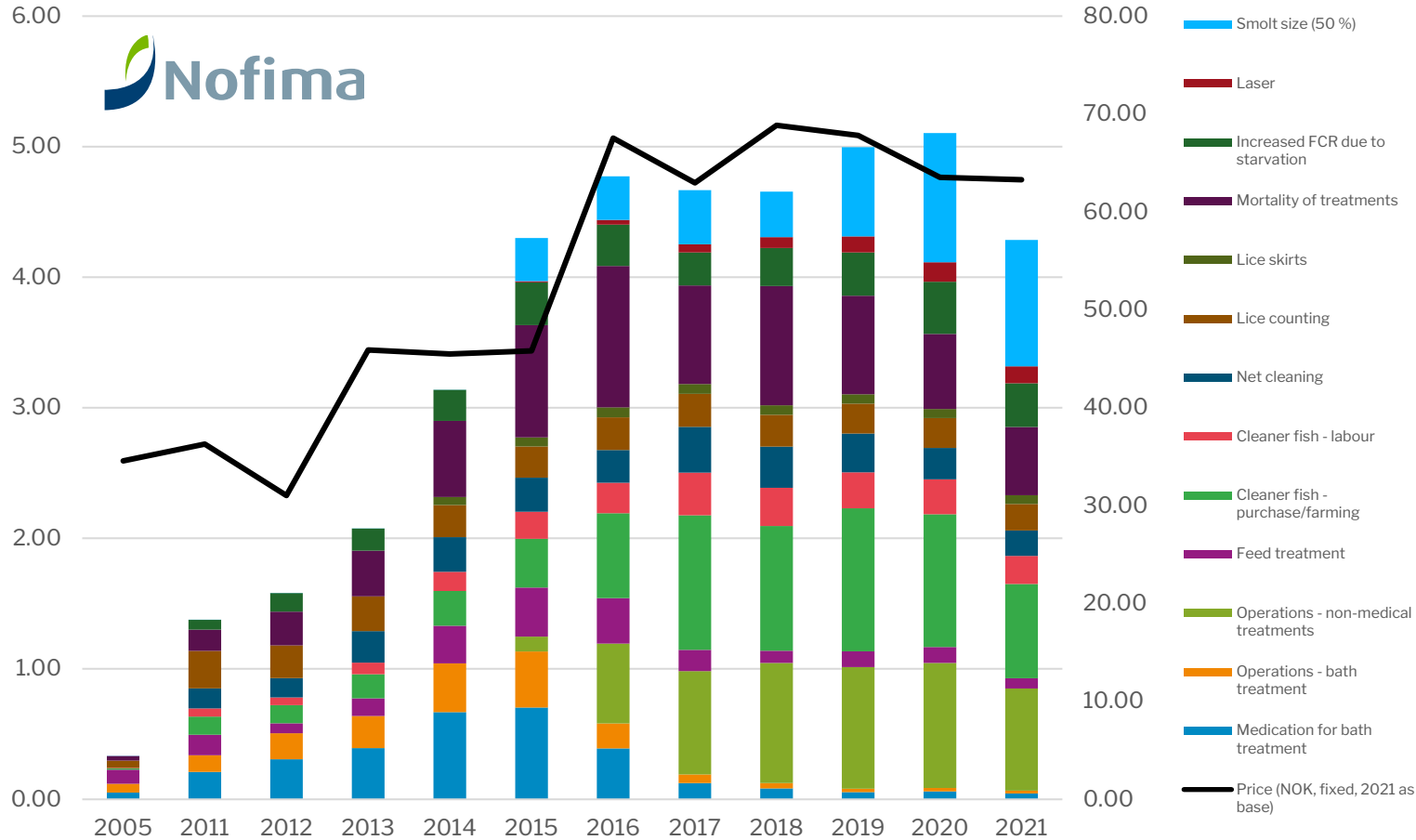
¹IntraFish, Sea Lice Report (2019)

²Norwegian Veterinary Institute, Fish Health Report 2021

³Nofima, Cost of Lice 2021, Audun Iversen & Øystein Hermansen

Economic and welfare impact:

TRUE COST OF SEA LICE PER KILO PRODUCED



IN 2021

>45m

Cleaner fish used¹

2826

Mechanical Treatments used²

961

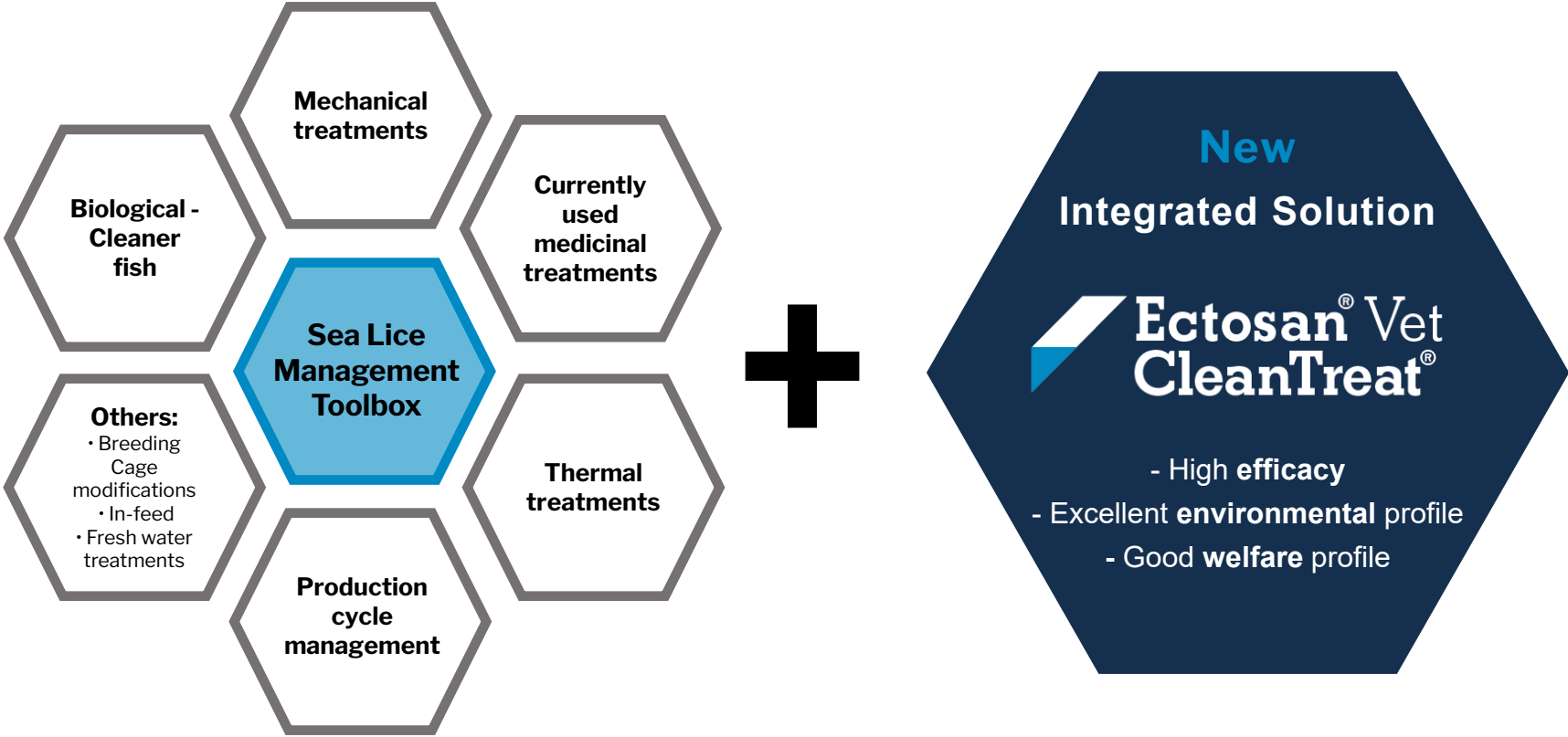
Medicinal Treatments²

More than

NOK 3.8bn

Spent annually on preventive measures¹

Strengthening the sea lice management toolbox





Benchmark[®]

Looking to the future

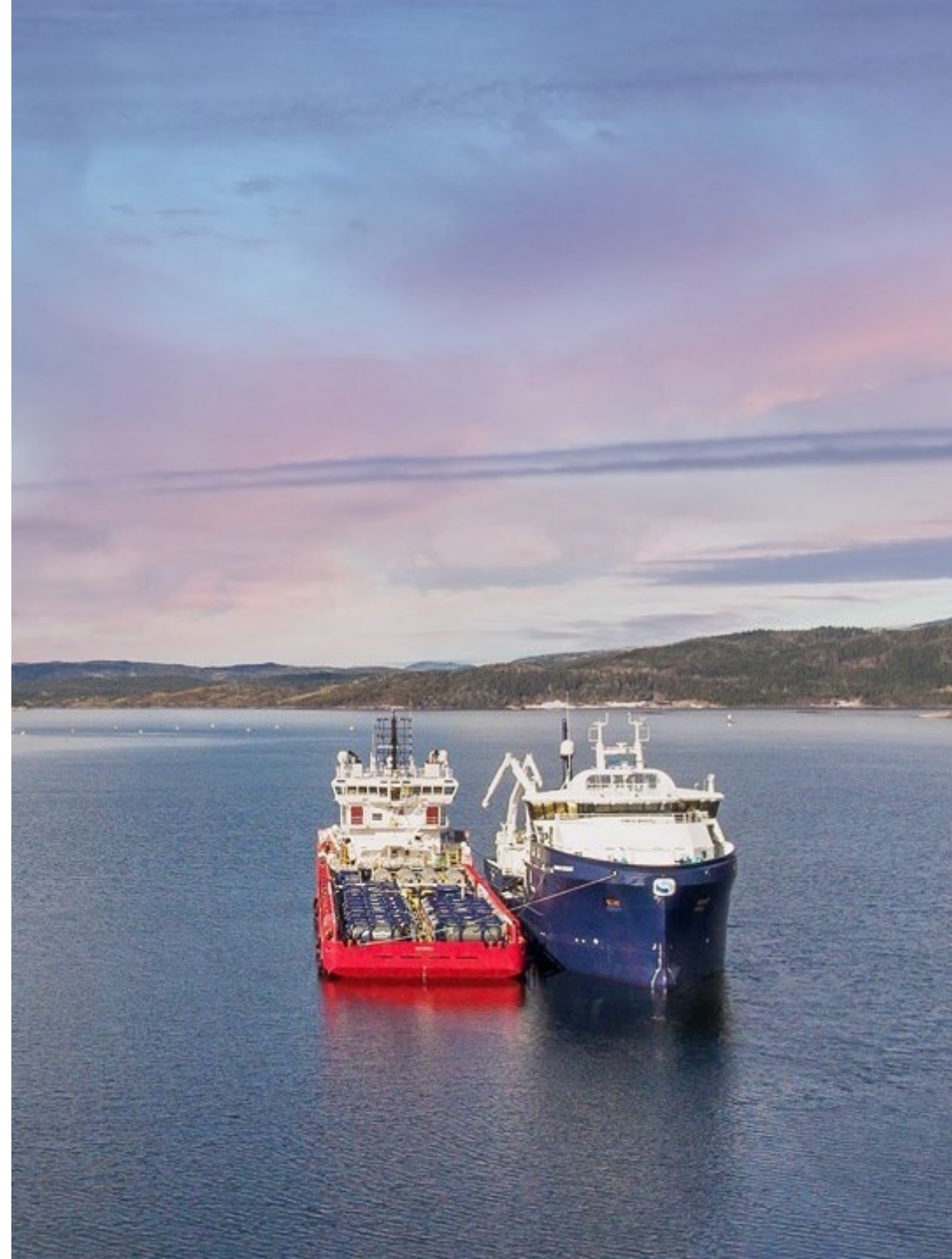
- Increasing sustainability potential
- Coordinated strategic management approach
- Improving the bottom line



Products and solutions are a key driver of more sustainable production

INCREASING SUSTAINABILITY POTENTIAL BY:

- Improving the **environmental profile** of medicines by purifying treatment water before discharge
 - CleanTreat® can meet the high entry barrier for new medicines by mitigating environmental impact
- Providing more tools to the industry to tackle sea lice which **meet stringent safety, efficacy and environmental criteria**



Coordinated strategic sea lice management approach

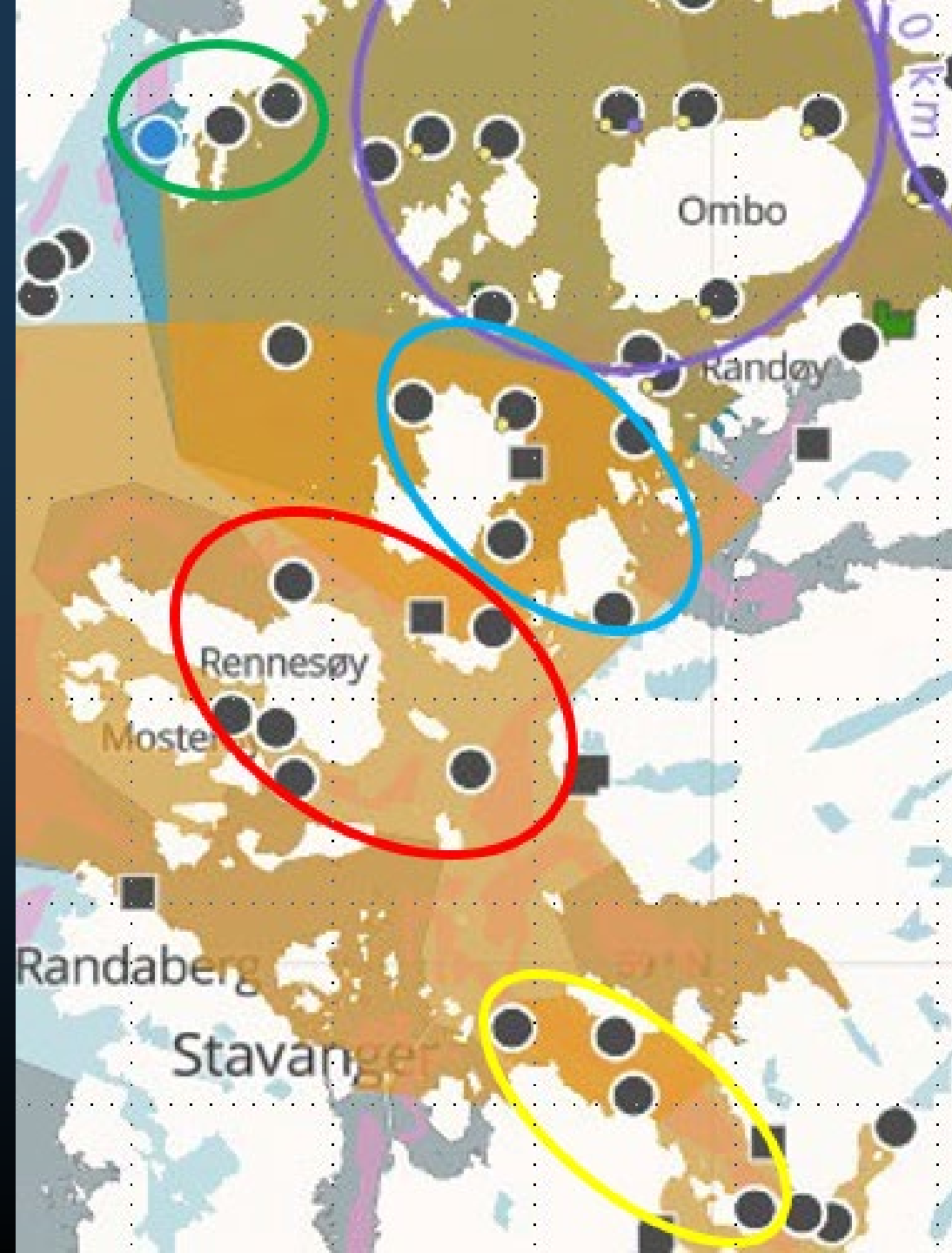
OVERCOMING THE SEA LICE CHALLENGE NEEDS A HOLISTIC APPROACH, USING ALL RELIABLE SOLUTIONS IN THE MOST EFFECTIVE MANNER



Strategic use offers **the real possibility to reduce the number of treatments and improve overall fish health** - stop fire fighting

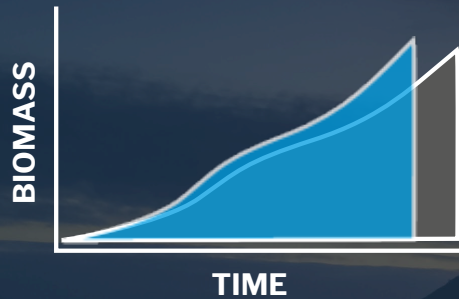


Work together to apply all available knowledge and competencies to sustainably manage sea lice



Improving the economics of sea lice management

Value of the treatment



 Ectosan® Vet & CleanTreat®
 Current

Adding tangible value

- Efficacious and safe treatment
- Increased biomass at harvest
- Shorter production cycle
- Reduction in number of treatments in the cycle
- Quality upgrade

Plus intangible value

- Improved fish health & welfare
- ASC scoring of zero
- Restoring farmer pride



Benchmark®

Benchmark® have introduced the first new sea lice medicine to the Norwegian market in over a decade

Tusen Takk

 **Nofima**

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