

“They are worth the investment”

Greek Aquaculture company Andromeda chooses cage nets made with Dyneema®

Towards an increasingly sustainable future

Fish farming plays a key role in providing a source of protein to an ever growing global population. Increasing international demand for sea food is driving the aquaculture industry to develop more economic operations, larger scale production and fish farming in more remote and harsher conditions. This places huge demands on equipment, manpower and materials as well as the environment. This is not only true for salmon farming but also farming of other species such as sea bream and sea bass.

Fish farming in the Mediterranean

Fish farming in the Mediterranean focuses on sea bream and sea bass. Although volumes are not as large as for salmon, the industry is a crucial part of the region's economy. Greece is the most important country when it comes to aquaculture. In an industry dominated by a relatively small number of large companies, Andromeda is one of the top five players. It aims to become the premier company in the Mediterranean



aquaculture industry, to be the best in terms of product quality, innovation and service, and to provide the best working environment for its employees. What's more, Andromeda wants to sustain healthy growth and above average profitability. The company first started using netting made from Dyneema® almost 5 years ago. Today it has over 80 nets with Dyneema® installed. This accounts for almost 25% of nets used for sea bream farming. In addition, Andromeda is considering using nets with Dyneema® for sea bass as well.

Easier and safer handling

Nets made with ultra strong and extremely light Dyneema® fiber mean Andromeda can use larger and lighter net cages. What's more, these cages are much easier to handle. As a result, they provide a safer working environment by reducing bodily strain and physical requirements. Something that's important to Andromeda and fits well with their Corporate and Social Responsibility program.

Less antifouling consumption and excellent bite resistance

Lower weight netting also delivers other benefits for fish farmers. One of these is the annual antifouling consumption. “Nets made with Dyneema® use 40% less antifouling, compared to nylon”, says Antonis Raftopoulos, Purchasing Manager at Andromeda. This not only has a positive environmental impact but also produces significant cost savings. Dyneema® fibers are highly impervious to wear and tear resulting in bite resistance not seen in other materials. This excellent resilience hampers



predators like seals, turtles and blue fish from damaging and entering the cages. Even more importantly, it helps protect fish farmers' biggest asset: the fish, since sea bream can't bite their way out of the

cage. Over the years Dyneema® has become the material of choice for sea bream farming in the Mediterranean.

Reduced operational cost

Netting made with Dyneema® also has other benefits when it comes to operational cost. One of these relates to washing and diving inspections. “We are confident that with Dyneema®, we can reduce diving inspections by 50%”, says George Tzamalīs, Production Supervisor at Andromeda. “Furthermore, nylon nets have to be cleaned after 7 months. Nets made from Dyneema®

only need cleaning every 12 months. Netting with Dyneema® has a smaller diameter meaning up to 30% less surface area to catch dirt.”

A healthier environment for fish

Every fish farmer knows, in a good growing environment fish are healthy, eat well and grow fast. Nets that are clean and allow better water flow through the cage offer a double advantage when it comes to food conversion rate (FCR). Both FCR and fish mortality are lower with clean nets. The impact of improved FCR on feed cost can be enormous. “When using a clean net from Dyneema® the fish grow faster and better”, says George Tzamalís. “We have no hard proof that nets made from Dyneema® harvest more biomass, but our feeling is that they translate into a 3 to 5% benefit over nylon nets.”

Durability

Andromeda has been working with nets made from Dyneema® for almost 5 years. “We expect nets with Dyneema® to have

a lifetime at least equalling that of nylon nets. Our experience is that nylon nets show a steep decline in performance after some years. In contrast, nets with Dyneema® only lose strength gradually over time,” comments Antonís Raftópoulos. “They are worth the investment as they lead to overall savings of 10 to 15%.”



DSM Dyneema: towards improved sustainability

The many benefits related to People, Planet and Profit have been illustrated by comments from experienced fish farmers, such as Andromeda’s experiences above. It shows that nets made from Dyneema® perform significantly better than traditional nylon netting and to support this DSM Dyneema has a dedicated team working within the commercial fishing industry. Find out how Dyneema® can help improve your business by visiting our website: www.dyneema.com

DSM Dyneema, part of DSM, the life sciences and materials sciences company, is wholly committed to sustainability, which the company expresses in three critical areas: People - Planet – Profit. The contribution of strong Dyneema® fiber to these areas is recognized by fish farmers all around the world. The unique properties of Dyneema® fiber, like high strength with low weight, durability and excellent bite resistance, make it extremely valuable for sea bream farming companies. This is the story of one of them.

About Andromeda

Andromeda Group (founded in 1998) currently consists of three dynamic companies active in the Mediterranean aquaculture sector in Greece, Spain and Albania. Through its facilities, Andromeda provides excellent customer service, delivering fish to the main European markets within 48 hours from harvesting and meeting customer requirements in terms of species, sizes and volumes. The Andromeda group employs more than 500 people, has a production capacity of about 16,000 tons and annual sales of approximately €76 million (2010). For more information please visit: www.andromedagroup.eu

www.dyneema.com

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