

AN INNOVATIVE MARKETING  
STRATEGY TO GROW

# ESENCIA



 MADE FROM FUNGI



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## 01. COMPANY OVERVIEW & DEMOGRAPHICS

Alternative fish appeals to a wide range of consumers, including vegetarians, vegans, and flexitarians. Flexitarians, in particular, are increasingly looking to reduce their seafood consumption for health and environmental reasons. Esencia Foods is Europe's first alt protein startup addressing the problems associated with traditional fish by introducing a seafood alternative based on mycelium (the roots of fungus). The company uses solid state fermentation (SSF) to create pieces of simulated "fish" that have a very similar texture to real fish because of the physical properties of mycelium. The mycelium's taste can be easily manipulated by changing the medium for the mycelium to grow on. Since the "fish" made by Esencia is grown in a controlled environment, it isn't subject to environmental pollutants and microplastics like conventional fish is. The fermentation process is also highly scalable and, with additional R&D, the company will be able to reduce the price per kilogram so that it is lower than traditional fish. The company plans to launch its products first in Spain and Germany before expansion to secondary European markets.

In this report, our team presents a marketing strategy for the launch of Esencia's first product: FungiFilet, a mycelium-based white "fish" filet. Our team first analyzes the market and presents customer research that informs our target customers. The initial target customer for Esencia will be the early adopters who are already familiar with alternative proteins and as the product category becomes better defined, the company will attract the early majority consumers of flexitarians who are open to trying new types of products (Section 2B). From there, our team illustrates the competitive landscape and outlines industry regulations and barriers to entry. We then present our marketing plan, our science communication approach, and our recommended partnerships and anticipated backlash following launch.

## 02. EVALUATION OF THE MARKET

### A. STATE OF THE MARKET

#### *i. Trends from traditional seafood*

Over the years, the traditional seafood industry has continued to grow—from 1990 to 2018, there has been a 122% increase in the amount of fish we are eating. Specifically, per capita consumption of seafood

increased by 10% between 2015 and 2019 ([source](#)). In 2017, seafood made up 17% of animal protein consumed globally ([source](#)).

The traditional fish and shellfish market is currently valued at US \$160B and growing with CAGR 2.5% ([source](#)). Specifically, the global whitefish market is valued at US \$173.4M in 2021 with expected growth of 4.1 % through 2021 to 2029, reaching nearly US \$239.15M ([source](#)). The key drivers for this market are a growing preference for whitefish as compared to other fishes due to its taste and high nutrient content ([source](#)).

Within the whitefish market, supermarkets are the largest distribution channel, as whitefish is available in these markets in the most forms—and both freshness and shelf life are guaranteed ([source](#)). The global whitefish market is sub-segmented into Tuna, Cod, Basa, Tilapia, Catfish, Haddock, and Others. Within these segments, Tilapia held the largest market share globally, of 67% in 2021 ([source](#)).

## ***ii. Outlook for alternative seafood***

Given the popularity of whitefish, the whitefish market is ripe for Esencia. The alternative meat industry is currently worth more than \$900 million, and witnessed an 18% increase in sales last year. According to research by the Plant-Based Foods Association, 79% of millennials already consume alternative meat products which suggests a similar percentage of millennials would consume alternative seafood products ([source](#)). This is reinforced by a recent survey conducted by the Good Food Institute that found that 78% of consumers would try seafood alternatives based on flavor messaging alone ([source](#)).

The global market for alternative seafood alternatives is projected to reach a market size of US \$1.6B in the next decade, at a CAGR of 28% ([source](#)). Specifically, the European alternative seafood market, which is currently valued at US \$31.8M in 2021 ([source](#)) and is expected to reach a value of US \$154.4M by 2027, exhibiting a CAGR of 30.46% during 2022-2027 ([source](#)). In the United States, alternative seafood retail sales increased from US \$12.1M in 2020 to US \$13.9M in 2021—and total retail alternative seafood sales increased by 14% in the past year and by 42% in the past two years ([source](#)).

This growth has led to many new players. In 2021, 21 new alternative seafood companies launched—and new companies emerged in Austria, Latvia, Thailand, Estonia, and South Africa. Alternative seafood also saw new activity from the conventional seafood industry in 2021, including new investments or

launches from Thai Union, Karavela, Long John Silver's, and Nestlé ([source](#)). These alternative seafood companies raised US \$175M in 2021, nearly double the amount raised in 2020—which suggests that investor appetite mirrors that of consumers ([source](#)).

## **B. TARGET CUSTOMERS**

### ***i. Customer research***

In our customer research, we interviewed 41 people (26 via Google Form and 15 via 1:1 conversation). Our interviewees were a mix of vegans, pescatarians, flexitarians, and omnivores. Our key finding from these interviews was that all interviewees are interested in trying a novel alt protein fish product—even omnivores.

Across interviews, people mentioned they like to have staple proteins and build recipes around those. People in general have busy schedules and many interviewees have a "food is fuel"-mentality. Many interviewees only cook on weekends due to busy schedules. For fish consumers, taste is the single most important aspect of fish products, followed by nutritional aspects and price. Most people eat fish in the form of filet, and few people eat fish chunks.

We learned from our interviewees that the appearance should be as similar as possible to real fish, with the same texture as traditional fish. Both vegans and omnivores stated that they would prefer fish with a delicate and soft flavor, which is convenient since white fish doesn't have an intense flavor. Some vegan interviewees said they would like something that doesn't taste just like meat (e.g., "Beyond Meat" is too much like meat). They prefer their "meat" to have a different and more subtle flavor. For omnivores, a main point is that they all hate fish bones, and many mentioned they also dislike the smell of fish. Interviewees also stated that they like the versatility of fish because of how it absorbs seasoning and marinades. Many people especially like sushi and fresh fish, and feel that fish is a better and healthier option than other meat.

Finally, we asked what it would take for people to buy a novel plant-based fish product on a frequent basis, e.g. twice a week. For this to happen the two most important factors were 'price' (it must not be too expensive) and 'nutritional properties' (it must be able to replace their traditional white fish on a nutritional basis). For omnivores interviewed, most expressed that they would want a new alt protein fish product to be the same in every way for them to consider it. Additionally, interviewees expressed that they would appreciate reviews for a new product by people they trust (e.g., influencers on instagram, food



bloggers, etc.). Consumers want to be able to see how new products can be cooked, and they want to see how easy it is to incorporate a new product into their meals. For additional survey results, see **Figure 1**.

## ***ii. Target customer personas***

Based on our research and customer interviews, we have identified different target customers for our beachhead market. The first of our target customers is “Debby.” Debby is our “early adopter.” She is a Gen Z or Millennial, single vegan/vegetarian woman, who is concerned about the environment, animal welfare, and/or health. But despite this, she misses the taste and flavor of fish. Debby is living in an urban area, with high disposable income—and would gladly pay extra for a delicious alternative fish product **(Figure 2)**.

Our second target customer is “Mrs. Wilson.” “Mrs. Wilson” represents our “late majority” customer base. She is a middle-aged woman who follows a vegan or omnivore diet and goes to the supermarket to do the shopping for her whole family. Her children play a huge role in what she purchases—and she is searching for inexpensive, easy-to-prepare, healthy, safe, and sustainable food for her family **(Figure 3)**.

Our third target customer is Adam.” Adam is a Millennial young professional, omnivore, urban dweller who sees “food as fuel.” He prioritizes food that is fast and easy to prepare **(Figure 4)**.

Upon further research and discussion with our mentor Hendrik from Esencia, we have decided to gear much of our marketing campaign to “Debby” and “Mrs. Wilson” since we believe these two customers reflect our biggest segment of quick adopting customers. We believe it is crucial for Esencia to get started with a strong base of customers ready to try the product and willing to pay a slight premium.

## **C. COMPETITOR ANALYSIS**

There are a plethora of novel seafood and fish alternative products hitting the market. And Esencia Foods is not the only company claiming to be able to create compelling and real-world substitute products resembling seafood’s texture, which is key for the customer experience. This means it will take more effort for Esencia Foods to differentiate itself and tell a story to surprise and delight consumers. Nonetheless, while Esencia Foods will not be the first company to offer seafood substitutes, Esencia’s outstanding technology will provide consumers with a much better and more realistic experience (look, feel, taste, and

price). And many competing companies are not yet, or only in very small pilots, in the market, which leaves a lot of room for good alternatives **(Figure 5)**.

Aqua Cultered Foods is the only company using solid-phase fermentation (SSF) to produce seafood alternative products (and is based in the U.S.). The feedstock for their production is organic material, to which a nutrient-rich solution is added to feed and nourish the microbes. With the help of a fungal strain, the conversion is initiated. By controlling environmental factors such as heat, humidity, and moisture—and tuning the recipe—a protein material is created. Aqua is still in its early stages. Aqua's lead investor has also invested in Esencia Foods. According to this investor, the company is not in direct competition with Esencia Foods because Aqua is initially focused on the U.S. and on other products. From a scientific perspective (which is important in terms of product expansion and eventual exit), it should be added that Aqua has a particular strain of mushroom that somewhat resembles white pieces of fish. Esencia Foods' approach, on the other hand, is to control the growth of the fibers, so Esencia will end up with a platform for developing various seafood products (and alternative proteins). Beyond Aqua, there are few other SSF companies, seven companies worldwide, e.g. Atlast, Libre or Bosque Foods, developing alternative meats. These are all early-stage startups that need to focus their resources on further research and development to meet strong demand in other regions and, according to their founders, do not want to or cannot expand into seafood.

Beyond SSF, the Alchemist restaurant in Copenhagen worked with scientists, led by microbiologist Dr. Leonie Jahn, to ferment seaweed on mushrooms to develop seafood substitutes. The team is experimenting with culturing filamentous fungi—microorganisms found in soil that form a mass of intertwined strands—on kelp to create a single product that tastes like the sea. The team uses mycelia, root-like fungal structures that resemble yeast. They are experimenting with different fermentation and growth conditions to determine how best to replicate the delicate texture of seafood. As such, this venture is currently in the research phase and does not yet have a product of its own. Alchemist is one of the most experimental restaurants in the world, and it is not clear whether research will be conducted only for in-house purposes to serve the product in its own restaurant, or whether there will be commercialization of products outside of the restaurant operation.

Another competitor is Quorn, a company that produces meat alternatives. Quorn originated in the United Kingdom and is sold primarily in Europe, but is available in 14 countries. The company had sales of



approximately EUR 225M last year. Quorn sells both cooking ingredients and a variety of meat substitute packaged dishes. All Quorn foods contain mycoprotein, which is derived from the fungus *Fusarium venenatum*. In most Quorn products, the fungal culture is dried and mixed with egg albumin, which serves as a binder, and then adjusted in texture and pressed into various shapes. There is also a vegan recipe that uses potato protein instead of egg albumin as a binder. Quorn is certainly one of the pioneers in mycoprotein production, and the final product has completely different textures due to the molding and pressing. Nonetheless, Quorn's focus is not on seafood.

Lohas Foods is a food company and manufacturer of plant-based seafood alternatives. The company uses its proprietary vertical technology of mycelium, novel plant fractions and clean-label additives to provide its customers with seafood that is similar in taste, texture and nutritional value. For flavor development, delivery and release, Lohas optimizes flavor (specifically for plant-based seafood and dairy products) by masking and enhancing flavor. It also uses microencapsulation technology to bind and release flavors. Unlike Lohas, Esencia Foods will not mask any flavor expression in the starting material, allowing for more optimal flavor development. Additionally, Lohas uses Liquid State Fermentation (LSF) and proprietary post-processing to achieve the functional properties, i.e. texture, taste, nutritional value. LSF is proving to be a disadvantage compared to SSF, which Esencia Foods uses, as it is more complex, costs more, and does not match Esencia Foods in texture. Additionally, Lohas Foods uses mycelium as another ingredient, but its use as the main ingredient in the product is not foreseeable at this time.

The other alternative products on the market are mainly vegetable protein isolates or concentrates, mainly from soy and peas, which are processed into surimi gels by partially or completely replacing fish raw materials or myofibrillar fish proteins. A number of companies such as Current Foods, Wild Type, Blue Nalu, Gardein, Good Catch, Finless Foods, Ocean Hugger Foods, New Wave, Sophie's Kitchen, BeLeaf, and the Plant Based Food Co. are already developing such products, some of which are already on the market. Most companies are not aiming to mimic the structure and texture of fish or seafood, but rather, the sensory characteristics of processed fish products in terms of appearance, texture, odor and taste (**Figure 6**).

Products based on protein isolates have two key problems: First, an off-flavor or aftertaste; second, the use of methyl cellulose. Off-flavor (off-key due to isoflavones, terpenes, etc.) means that undesirable tastes and/or odors can be perceived in the food. These are due to the fact that soy and pea protein

isolates are generally used in these products, which are known to have a strong inherent taste. Therefore, masking flavors must be used, which are not only expensive, but also create an aftertaste. One of the most common methods of texturizing alternative products is the food additive methyl cellulose, as it has the ability to solidify the product when cooked by heat, thus maintaining the shape of the product. However, due to its production, methyl cellulose is not free of chemicals, and its use as a binder is limited to creating a spongy texture that is only good for low-quality products such as fish sticks and burgundy pies.

## D. INDUSTRY REGULATIONS & BARRIERS TO ENTRY

There are several industry regulations that need to be considered before Esencia enters the market. Some key regulations to keep in mind include:

1. **Novel Food Regulation:** The European Union's Novel Food Regulation (EU) 2015/2283 sets out rules for the authorisation of novel foods, which are defined as foods that were not commonly consumed in the EU before May 1997. Mycelium-based products are considered novel foods and must be authorized by the European Food Safety Authority (EFSA) before they can be placed on the market. The authorisation process can take up to 18 months and requires extensive safety and nutritional data ([source](#)).
2. **Labeling and Packaging Requirements:** The food labeling and packaging regulations in Europe are extensive and require compliance with several directives and regulations, including the Food Information to Consumers Regulation (EU) No 1169/2011. All food products must be labeled with specific information such as the name of the food, a list of ingredients, nutrition information, allergen information, and storage and preparation instructions.
3. **Health and Safety Regulations:** As with any food product, safety is of utmost importance. Esencia must comply with the EU's food safety regulations, including those set out in the General Food Law Regulation (EU) No 178/2002. This includes ensuring that the product is safe for consumption, conducting hazard analyses, implementing appropriate safety measures, and keeping detailed records.

4. **Environmental Regulations:** As a producer of mycelium-based products, Esencia must also consider environmental impacts. This includes complying with waste management regulations, minimizing water and energy use, and reducing greenhouse gas emissions.
5. **Intellectual Property Rights:** Esencia must ensure that it is not infringing on any existing patents or trademarks related to mycelium-based products. Additionally, the company should consider seeking its own IP protection for its unique product and processes.

In addition to the industry regulations mentioned earlier, there may be other barriers to entry that Esencia may encounter due to regulations when launching its product in Europe. Here are some more barriers and steps Esencia can take to overcome them:

1. **Cost of Compliance:** Compliance with regulations can be expensive, especially for a new company with limited resources. Esencia can overcome this by conducting a thorough analysis of the compliance costs and budgeting accordingly. The company can also seek advice from regulatory experts or consultants to help navigate the compliance process.
2. **Time-Consuming Regulatory Processes:** The regulatory processes, such as the Novel Food Regulation, can take a long time to complete. Esencia can overcome this by starting the regulatory process as early as possible, providing all necessary information to the regulators promptly, and keeping up with any communication during the process.
3. **Competition:** Esencia may face competition from other established alternative protein companies that have already gone through the regulatory process. To overcome this, Esencia can differentiate itself by emphasizing the unique benefits of its "FISK" product, such as its sustainability, nutritional value, or taste.
4. **Consumer Acceptance:** Consumers may be hesitant to try a new product, especially one that is made from mycelium and is not traditionally seen as a fish product. Esencia can overcome this by conducting a marketing campaign that educates consumers about the benefits of mycelium-based products, providing samples or product demonstrations, and partnering with chefs or restaurants to showcase the product.

5. **Changing Regulations:** Regulations can change over time, and Esencia must be aware of any changes that may affect its product. The company can overcome this by staying up-to-date on regulatory changes, engaging with regulators, and adapting its product or processes to meet new requirements.

## 03. MARKETING PLAN

### A. SOCIAL MEDIA TOOLKIT

Since one of the most effective ways to sell a product is through 'word of mouth', we have designed a social media campaign for this. We have identified the values and target customer below:

**Key values:**

Enable you to eat fish without killing fish.

**Target consumer:**

Vegans who miss eating fish (Debby).

Based on this, we have decided on the following text for the campaign.

**The campaign: #SpreadTheWord - like rings in the water**

Do you miss the taste of fish? I've found an amazing plant-based fish alternative by #Esencia that has all the same nutrients as conventional fish, without harming any fish. Let's #SpreadTheWord and support innovative businesses that align with our values! #vegan #plantbased

The above message is intended for people to share on their SOME channels. By having pre-made a text for people to post, we believe they will be more likely to spread it, since we have lowered the friction in the action of making a post on SOME. People can of course edit the text or write their own. The important thing is just to make it as easy as possible for people to share their enthusiasm for this product, and this pre-made text does so.

In developing this section, we also came up with some ideas for naming Esencia's mycelium-based white fish filet product. For Esencia's filets we came up with several possible names, "FISK," "FYSK",

"FishFilet," "FungiFilet," "FungiFish," and "SeaShroom." We ultimately decided on the name: "FungiFilet." This name is subject to further customer testing.

We have also come up with some key slogans for our campaign, as illustrated below.

"Taste the future of seafood with Esencia!"  
"The taste of the ocean, without the environmental cost."  
"Save the oceans, one bite at a time with Esencia"  
"Experience the delicious taste of seafood, made from the power of fungi"  
"Esencia - the new wave of sustainable seafood."  
"Forget fish bones, taste FungiFilet!"

## B. PRINT ADS

In addition to our proposed social media campaign, we have developed different sets of print ads to effectively appeal to our target consumers. We have some general ads that could be used to appeal to all personas (**Figure 7**). Next, we have print ads for our two priority consumer segments: Debby and Mrs. Wilson. Our ads geared for Debby highlight the fact that she misses and yearns for the taste and texture of fish (**Figure 8**). Our ads for Mrs. Wilson highlight her concerns about fish bones, smell and mercury—for herself and her family (**Figure 9**). We also have developed some print ads for latter marketing efforts to reach Adam—our current fish-eater, flexitarian consumer (who reflects the third target consumer group). While not our target consumer for our advertising campaign, these supplemental ads will appeal to Adam by highlighting his work-focused life, and his fuel-is-fuel mentality (**Figure 10**). In creating these ads, our team also decided to refresh and revamp Esencia's current logo (**Figure 11**).

## C. VIDEO

We have also developed a TikTok, Youtube Shorts, and Instagram Reels format video featuring a Fish Taco recipe. The length of the video is kept to under 30 seconds and features fast transitions and visually appealing effects to engage audiences. The recipe is purposefully not included in the description to force viewers to save the video and rewatch the content repeatedly which is desirable for the video to be ranked highly on the platform algorithm. Trending music was selected since the videos featuring these

songs also rank higher in the audience feed. Link to "Did someone say vegan fish tacos?" video: [https://youtube.com/shorts/DtziK\\_WeC6o?feature=share](https://youtube.com/shorts/DtziK_WeC6o?feature=share).

## 04. SCIENCE COMMUNICATION

Of course, communicating the science behind Esencia is key. Regarding the science behind the product, the company intends to patent the process they use for their mycelium-based alternative fish filets. As a result, we were able to learn very little about the techniques they use. Furthermore, the white fish filet product that was assigned to our group is still in development, and the company is a relatively new startup, so the technique that they plan to use to scale up was not fully clear. For these reasons, we decided to split our science communication in two directions:

1. An animated video for kids, who are part of our target "The Wilson family";
2. A FAQ section, aimed at our target "Debby aka the vegan who misses fish" who we think might browse the FAQ section to find out about the philosophy and ethics of the company or the environmental sustainability of the product.

### A. ANIMATED SCIENCE VIDEO FOR KIDS

For our animated science video, we tried to create an explanation that could be given to kids. We imagined an underwater city where the inhabitants are animated fish characters. In this city, fish live happily and cultivate what from our draw may seem like corals, but actually represent the fungus used by Esencia. Fish citizens cultivate and grow the fungus, harvest it, and bring it to the city's Chef O'Filet. Chef O'Filet is the best chef in town and works tirelessly for the fish citizens: he prepares the fungus by seasoning it and by adding Omega-3s to grow healthy and smart kids. He cuts the fungus and packs it. When the fisherman drops the hook, immediately Paco<sup>1</sup>, a fish citizen, runs to Chef O'Filet to get a packet of FungiFilet, the specialty that the Chef prepares starting from the fungus grown in the city. Paco returns to the hook and hooks the FungiFilet where otherwise one of the fish citizens would have been hanging. The fisherman pulls up the hook and finds the package of FungiFilet by Esencia, and he is happy about it. He goes home to have

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<sup>1</sup> Paco: we have chosen a typically Spanish name to recall the origins of the company

dinner with his family and children and they all smile enjoying a tasty dinner of FungiFilet. Meanwhile, in the underwater city, all fish citizens continue to live happily.

This cartoon broadly represents what happens in Esencia's laboratory: the mycelium is grown in trays and kept in a controlled environment. When it is fully grown, the mycelium is harvested, cut, and spices and omega-3s are added. Our knowledge of the process stops here, so we couldn't know more. To make the video more scientific, voiceover content can be added, in which the steps can be explained by making comparisons on how the real process takes place. See a sketch of how we imagined this cartoon in

**Figure 12.**

## **B. SCIENCE FAQ**

Browsing Esencia's website we realized that a Frequently Asked Questions section was missing. Because one of the most appreciated characteristics of a company by consumers is transparency, we believe a new FAQ section can build customer loyalty. Another reason to have a FAQ section is to help attract potential investors, who are curious about the products and the principles of the company. At the end of the FAQ, we suggest inserting a contact form open to potential investors to answer more specific questions that the company does not want to declare publicly (**Figure 13** shows our FAQ page and **Figure 14** and **Figure 15** show how we imagined the web page). Here you can browse the web site on your mobile phone: <https://cultivate-tomorrow-esencia.my.canva.site/>.

For the future, we also suggest the company run a comparative Life Cycle Assessment (LCA) of Esencia's mycelium-based fish products, as compared with conventional fish products. This will add a lot of value to the company's environmental sustainability declarations.

## **05. PARTNERSHIPS & POTENTIAL BACKLASH**

### **A. PARTNERSHIPS**

As a group, we propose that Esencia collaborates with various partners to increase the reach of FungiFilet. After conducting research on successful food start-ups, we recommend that Esencia's partnership process be split into three steps.



- **The first step:** This would involve collaboration with retailers by setting up food stands in supermarkets where customers can try FungiFilet. This would allow customers to taste the product and get a sense of its quality, which could increase the chances of them making a purchase. We suggest that Esencia begins this process in Germany, a promising market for vegan products with a large consumer base interested in sustainable/ethical food options.
- **The second step:** This would be to sell FungiFilet to restaurants. This would involve collaborating with chefs and restaurant owners to create dishes that incorporate the product. By selling to restaurants, Esencia can tap into a market that values unique and innovative ingredients. The exposure that Esencia would receive from being featured on menus at popular restaurants could also help to increase brand awareness and generate interest.
- **The third step:** This would be to develop ready-meals that incorporate FungiFilet. These meals would be sold in retail, making it easier for customers to purchase and prepare the product at home. Ready-meals are a convenient and popular option for busy consumers, and by incorporating their product into these meals, Esencia can provide an accessible option for those who may not have the time or resources to cook from scratch.

In addition to these steps, we suggest that Esencia also explores collaboration with fast food chains, such as Burger King. Burger King has recently opened a 100% plant-based restaurant in Vienna. Currently their partner is The Vegetarian Butcher which does not produce alternatives to fish. So Burger King might be interested in recreating their "King Fish" burger using a mycelium-based alternative. By partnering with fast food chains, Esencia can reach a wider audience and make their product accessible to a larger consumer base. Fast food chains are also known for incorporating new and innovative ingredients into their menu items, making them a promising partner for Esencia.

Overall, as a group, we believe that Esencia's FungiFilet has the potential to be a successful and innovative addition to the food industry. By collaborating with retailers, restaurants, and fast food chains, Esencia can increase their reach and generate interest in their product. With a focus on sustainability and ethics, Esencia is well positioned to tap into a growing market of consumers who are looking for alternative and environmentally friendly food options.

## B. BACKLASH

As Esencia seeks to scale up FungiFilet, there may be potential backlash they face. We have outlined our anticipated backlash below:

- **The product itself:** While the vegan fish-product has received positive feedback from some customers, there is a possibility that consumers may not like the taste, leading to negative reviews, decreased sales, and a loss of trust in the brand. To address this concern, Esencia can complete user taste tests during the development of the product and only release it to the market once a certain satisfaction level has been achieved among testers. Brand awareness and word of mouth marketing will be essential to Esencia's growth, and as such, the company should go to great lengths to build a reputation of excellence.
- **Uncertainty on how to prepare or cook the product:** This could lead to negative reviews and a loss of interest in the product. Esencia can address this concern by providing clear instructions on the packaging and on their website, as well as creating recipe ideas and cooking demonstrations.
- **The price point of the product:** While some consumers may be willing to pay a premium for a high-quality vegan product, others may feel that the product is still too expensive, leading to negative reviews and a lack of sales. Esencia can address this by conducting market research to determine an appropriate price point and by offering promotions and discounts to encourage consumers to try the product.
- **Advertising of the product:** Some consumers may feel "tricked" if they believe the product is real fish. Additionally, some consumers may feel that the product is too "science-y" and not "real" food, leading to negative reviews and a loss of trust in the brand. To address this, Esencia can be transparent in their marketing and labeling, clearly indicating that the product is plant-based and highlighting the sustainability benefits.
- **Traditional seafood companies:** Traditional seafood companies may feel threatened by the rise of plant-based fish products and take measures to protect their market share, such as launching marketing campaigns to promote the benefits of traditional seafood, lobbying against plant-based fish products, or even launching their own plant-based products to compete with newcomers.

Esencia can protect against this by establishing itself as a trusted company that specializes in seafood alternatives and clarifying to consumers the risks associated with traditional seafood through honest marketing communication.

- **Regulatory bodies:** Regulatory bodies such as the FDA and EU may scrutinize plant-based fish products to ensure they meet safety and labeling requirements. There may be concerns about how the product is labeled and marketed, particularly if it is marketed as a substitute for traditional fish. Esencia can address these concerns by following the steps required to pass these challenges, such as ensuring safety and labeling requirements are met.

Overall, while there is potential for backlash following the launch of "FungiFilet", Esencia's commitment to sustainability and innovation will help them navigate any challenges that may arise. By continuing to listen to feedback and adapt as needed, our team is confident that Esencia can become one of the leaders in the growing market of alternative fish products.

## 06. Appendix

### Survey results

#### HOW WOULD YOU LIKE MYCELIUM-BASED FILETS TO BE?

- The appearance should be as similar as possible to real fish, same texture
- Vegans about the taste: delicate taste, since white fish doesn't have an intense flavour.  
Most of VEGANS said : NO SEAWEED TASTE
- Omnivores about the taste: as similar as possible to real fish fillets, not too strong flavour of fish since white fish is delicate.

#### WHAT WILL MAKE YOU CONSUME IT 2 TIMES A WEEK?

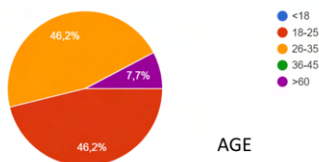
- PRICE
- NUTRITIONAL PROPERTIES: it must for real be able to replace white fish on a nutritional level

#### PROPOSED RECIPES:

- "CACIUCCO" + it's like a soup of fish
- FISH RAGOUT
- GRILLED FISH
- FISH BAKED IN THE OVEN WITH POTATOES WITH MAYO AND LEMON
- BREADED
- "IN SAOR" (condiment made from onions cooked in vinegar with pine nuts and raisins)

#### WHO ANSWERED?

26 people: 73% boys and 27% girls



AGE

50% students + 50% workers

70% follows a omnivore diet

#### VEGETARIAN/VEGAN RESULTS:

7 people

##### What they liked about fish filets:

- Taste
- Delicate taste
- Easy to assemble a balanced meal
- Reminds childhood tastes

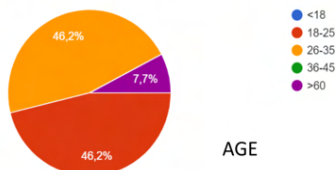
##### What they didn't like:

- Fish bones
- Price
- Smell

They choose products mainly basing on: PRICE and NUTRITIONAL PROPERTIES

#### WHO ANSWERED?

26 people: 73% boys and 27% girls



AGE

50% students + 50% workers

70% follows a omnivore diet

#### OMNIVORES:

19 people

##### What they like about fish filets:

- "Soft" "Delicate" taste
- Nutritional aspects (omega 3!)
- Easy to prepare, easy to assemble a balanced meal
- It's light!
- Taste in general

##### What they don't like:

- Fish bones
- Price
- Smell

They choose products mainly basing on: PRICE and NUTRITIONAL PROPERTIES

Figure 1. Customer survey results.

## Persona 1: Debby aka 'The vegan who misses fish'



### Demographic Info:

- 18-30 year-old living in a big city
- Higher disposable income and willing to pay a little extra for good, and novel vegan food

### Frustrations:

- Misses the taste/flavor of fish
- Feels left out when she is at home and her mother makes a childhood dish

### Behaviours:

- Follows a vegan diet and loves cooking new recipes and trying new restaurants with plant-forward menus

### Motivations:

- Concern around environment, animal welfare and/or health
- Appreciates fresh, delicious, healthy, and sustainable and locally-sourced food

Figure 2. Target customer persona of "Debby"

## Persona 2: The Wilson family aka 'parent & children'



### Demographic Info:

- Age 35-50
- Higher disposable income and willing to pay a little extra for good, and healthy vegan food

### Frustrations:

- Higher stress with family
- Less time to cook
- Highly influenced by children's preferences

### Behaviours:

- Follows a vegan or omnivore\_diet and goes to the supermarket to do the shopping for the whole family. The children play a huge role in what the parents buy!

### Motivations:

- Wants an option without fish bones or mercury for their children
- Motivated by food that is 'better for family'

*\* The most important characteristics for the **parent**: VALUE FOR MONEY (so PRICE + NUTRITIONAL PROPERTIES), also EASY to PREPARE.*

*\* Most important characteristics for the **child**: TASTE, PACKAGING, GADGETS inside, something they have seen ADVERTISED.*

Figure 3. Target customer persona of "Mrs. Wilson"

## Persona 3: Adam aka 'The food is fuel yo-pro'



### Demographic Info:

- Age 21-35
- Higher disposable income
- Urban-dweller

### Frustrations:

- Dislikes time-consuming meal-prep
- Limited time with a busy professional life

### Behaviours:

- Tech bro, banker, or lawyer
- Extremely habitual! (difficult to get onboard given tendency for simple, repeat purchases, but very rewarding if done)

### Motivations:

- "Eat to live, not live to eat"
- Doesn't mind eating the same thing over and over as long as it lives up to their criteria of being "easy and fast to make", e.g. recipes they know in their sleep or things that can be eaten straight out the package!

Figure 4. Target customer persona of "Adam."







	<b>ESENCIA FOODS</b> 	Other mycelium seafood 	Plant-based   & some more	Cell-based   & few more
Region	<b>EU</b>	US	EU US	EU US
Whole cuts	✓	✓	✗	?
Texture	✓✓	✓✓	✗	✓
Taste	✓✓	✓✓	✓	✓
Ingredients	<b>5-8 ingr.</b>	5-8 ingr.	~15	~15
Price (€/kg)	<b>3.80 (↓)</b>	?	~24 (↓)	>100

Figure 5. Esencia's unique positioning to leverage the power of mycelium to create alternative fish products.

Product Type	Main Ingredients	Company
Tuna chunks, fish burgers, fish cakes and crab cakes	Six-legume blend (including peas, chickpeas, lentils, soy, fava beans and navy beans)	Good Catch
Fish filet and crab cakes	Soy, wheat, potato	Gardein
Caviar	Seaweeds	Plant-Based Foods
Fish fingers, tuna pate, fish cakes, smoked salmon	soy, potato, konjac, wheat	VBites
Ahimi®—raw tuna, Unami™—raw eel	Tomatoes/eggplants	Ocean Hugger Foods
Shrimp	Seaweeds	New Wave Shrimp

Figure 6. Plant-based alternatives to seafood on the market or under development.





Figure 7. Ads geared for all three customer segments (two color options).

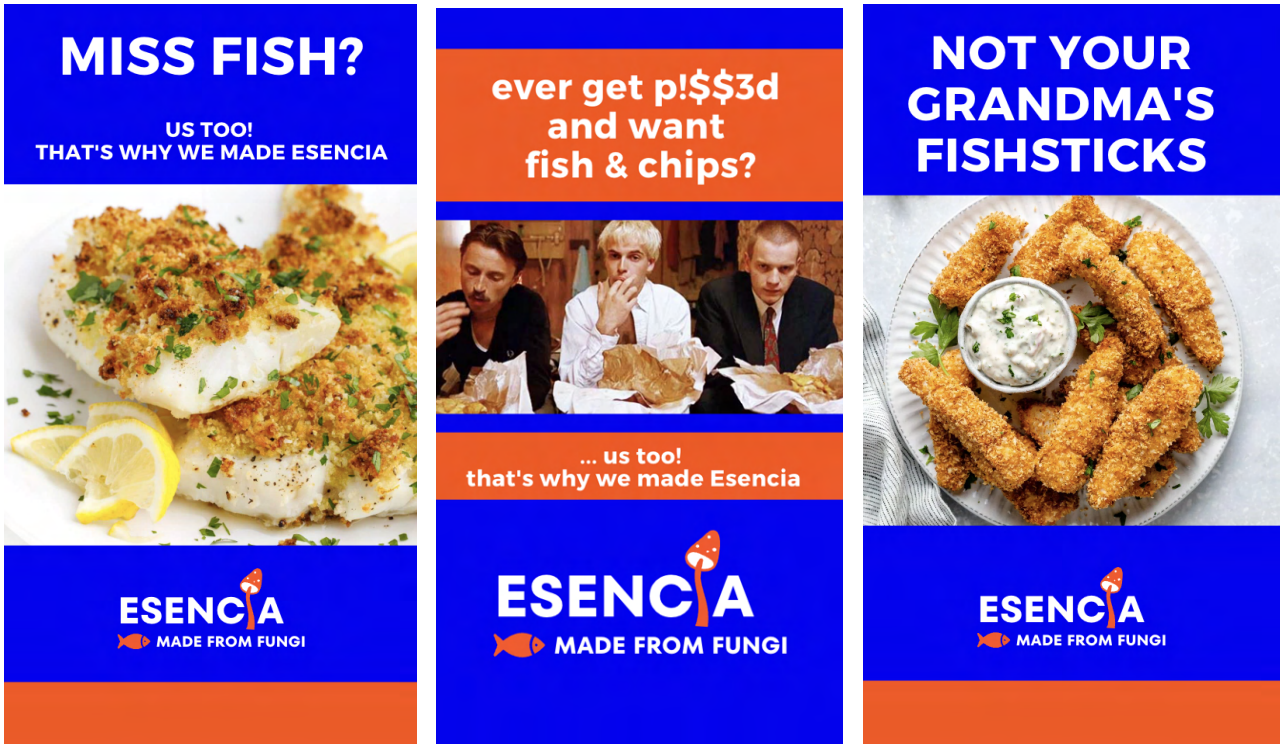
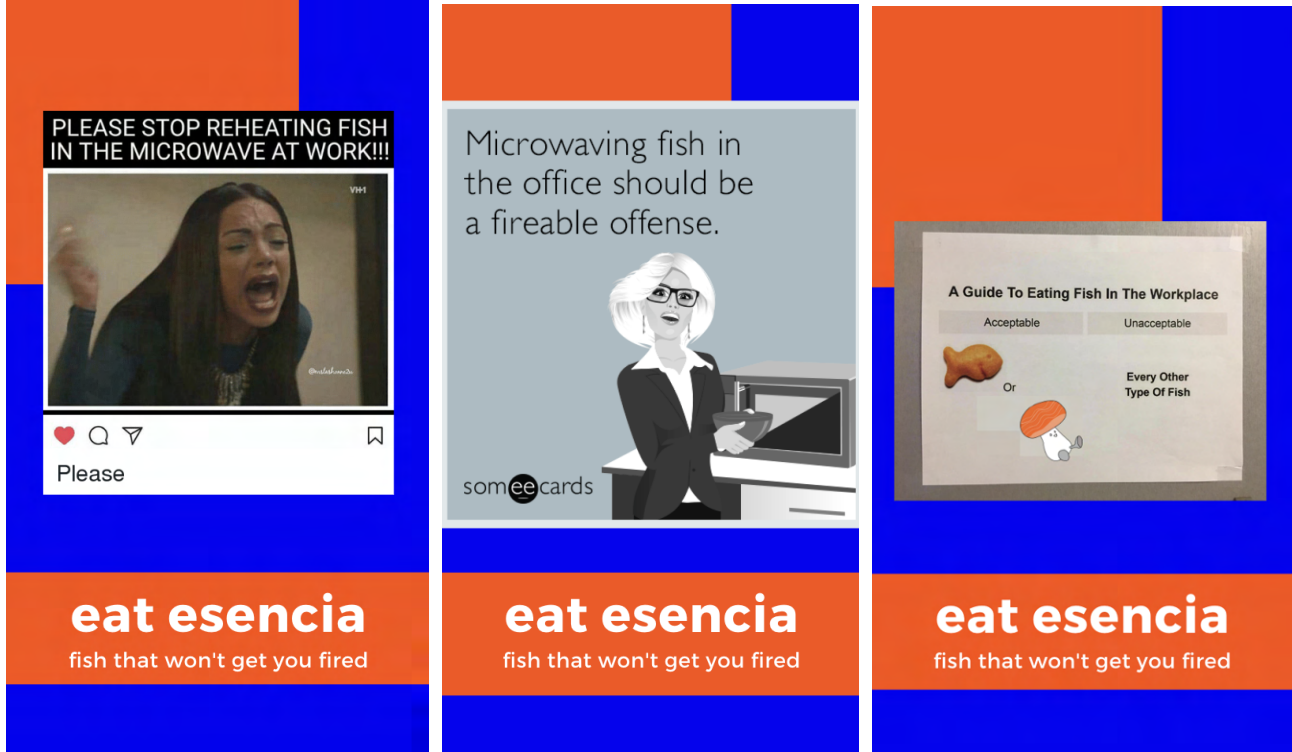


Figure 8. Ads geared for "Debby."





Figure 9. Ads targeting "Mrs. Wilson."



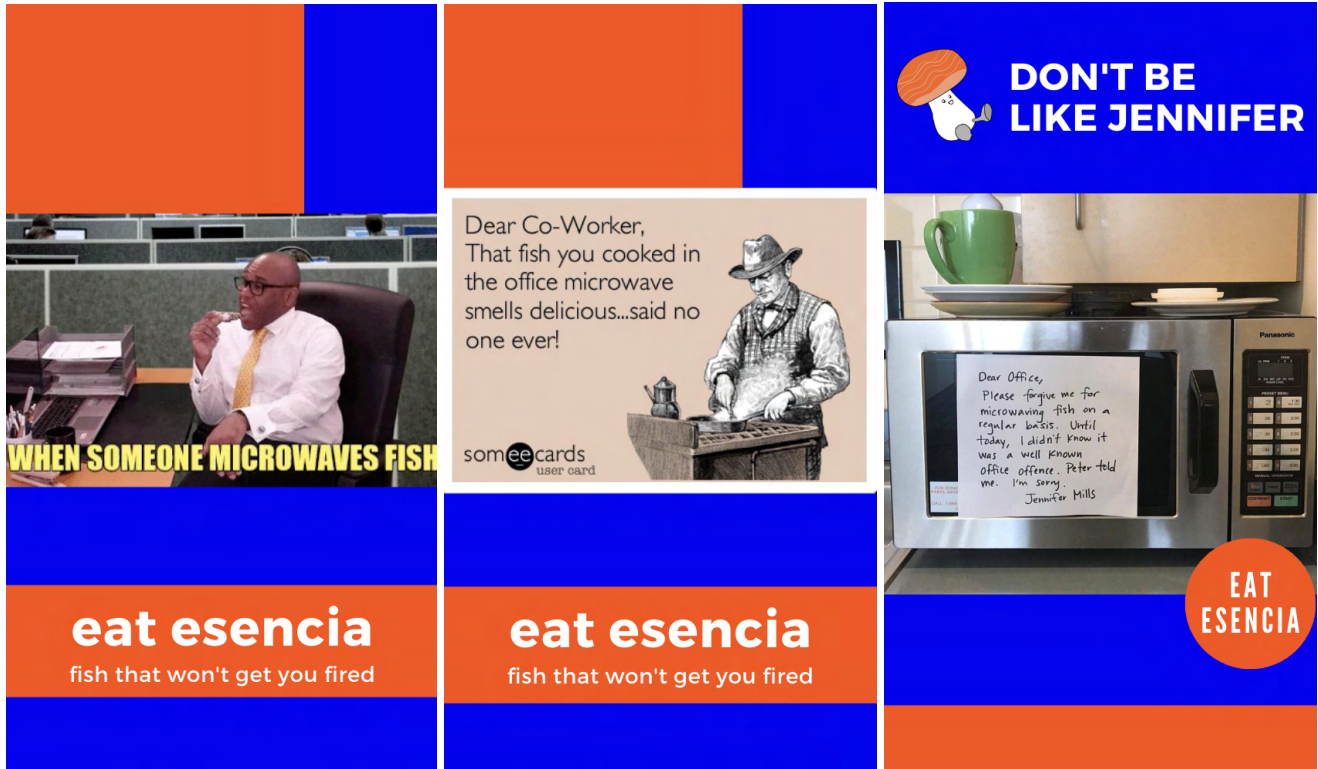


Figure 10. Ads targeting "Adam."



Figure 11. Esencia logo ideas.

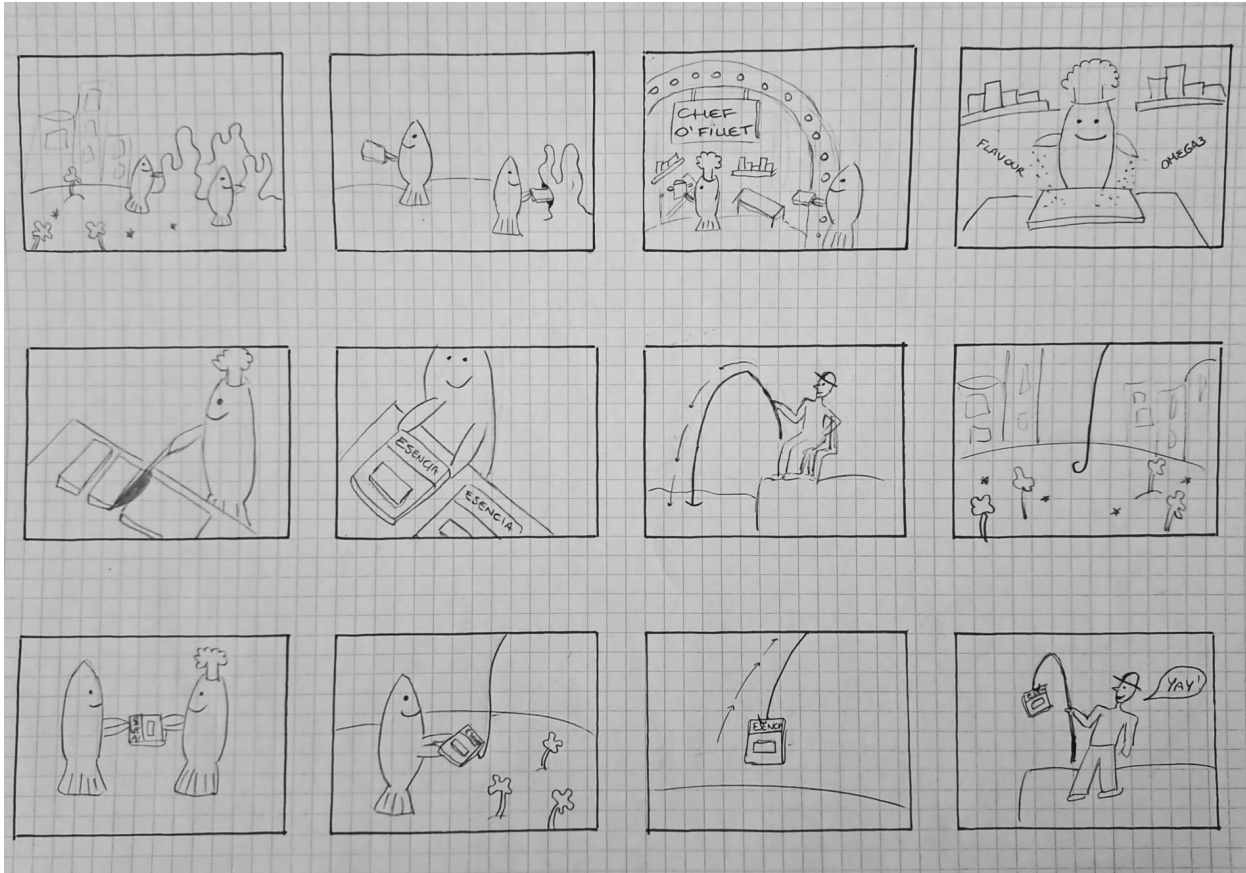


Figure 12. Sketch of animated scientific video, geared for Mrs. Wilson and her children.

## FREQUENTLY ASKED QUESTIONS

### SCIENCE

#### 1. What is FungiFilet?

FungiFilet is a mycelium-based product. This means it is made of mycelium, which is the vegetative part of fungi. We use mycelium to create a fish-like texture and taste without using fish. The winning point of our mycelium-based filets is that they provide a sustainable, plant-based alternative to conventional fish. We're proud to offer this innovative and sustainable product, and we hope you'll enjoy it as much as we do!

#### 2. How do we make it?

At Esencia, we use a process called solid-state fermentation to create our mycelium-based fish filets. The fungal species we use is specifically chosen for its ability to create a mycelium with fish-like texture and taste. We grow it in a controlled environment and once the mycelium has grown to the desired level, we

harvest, cut and process it to create a variety of conventional fish-like products, such as filets. Solid-state fermentation is a type of fermentation process in which microorganisms grow on a solid substrate rather than in a liquid. This can include a variety of substrates, such as grains, fruits, vegetables, and other plant-based materials.

### **3. How do we recreate muscle fibers?**

The impressive feature of mycelium protein lies in its texture, which resembles that of muscle cells due to the strong structures present in both. Fungal hyphae consists of filaments composed of fibers and proteins, including the tough chitin fiber, while animal muscles are made up of cylindrical cells that differentiate during embryonic development. Both processes result in the formation of tube shapes of comparable size, creating similar frameworks. This is a significant advantage over some plant-based proteins that are isolates, requiring the extraction of protein from the food and the addition of other ingredients to create texture. As a result, the resulting texture of plant-based proteins differs significantly from animal meat. Last, mycelium has a neutral taste and this serves as a blank slate, allowing it to absorb any added flavors.

## **NUTRITION**

### **1. High in proteins and free from mercury**

Our FungiFilet is a great source of high-quality protein. Our filets contain similar levels of protein to many popular fish species, making them a great alternative for those who want to reduce their consumption of conventional fish. In particular, FungiFilet contains about 16 to 21g per 100gr of proteins. However, our mycelium-based fish filets have some distinct advantages when it comes to protein. For example, they are completely free from mercury, which is a concern in many types of fish. Our filets are also free from antibiotics, hormones, and other potential contaminants that can be found in conventional fish.

### **2. Source of dietary fibers**

FungiFilet is an excellent source of fiber. Dietary fiber is crucial for maintaining good digestive health and promoting healthy bowel movements. It can also help regulate blood sugar levels, lower cholesterol levels, and aid in weight management.

### **3. Rich in omega-3**

At Esencia, we're committed to providing sustainable and healthy seafood options. That's why we've taken our mycelium-based fish filets to the next level by adding omega-3 fatty acids. Omega-3 is an essential fatty acid that is naturally found in conventional fish and is important for maintaining good health. By adding omega-3s to our mycelium-based fish filets, we're making them a true substitute for conventional fish. You can enjoy the same great taste and texture, while also getting the important health benefits of omega-3s.

#### 4. Is FungiFilet suitable for vegans?

Our innovative process of using mycelium to create a fish-like texture and taste means that our filets are 100% vegan. In addition to our mycelium, FungiFilet contains a few other plant-based ingredients ([see FungiFilet list of ingredients](#)) to give flavor. So whether you're a vegan or simply looking to reduce your consumption of animal products, our mycelium-based fish filets are a delicious and sustainable choice.

#### 5. Is FungiFilet genetically modified?

We understand that many consumers are concerned about genetically modified organisms (GMOs) in their food, our mycelium-based fish filets are 100% non-GMO. Our innovative process of using mycelium to create a fish-like texture and taste relies on natural fermentation techniques, without the need for genetic modification or manipulation.

#### 6. Is it safe to eat?

At Esencia, the safety and quality of our products are our top priorities. The fungal species we use is recognized as GRAS "Generally Recognized As Safe". GRAS is a designation used by the United States Food and Drug Administration (FDA) to indicate that a substance is considered safe for its intended use in food based on a long history of common use in food or on the results of extensive scientific research.

#### 7. How do I cook FungiFilet?

FungiFilet has the same taste and texture of conventional fish, making it a great alternative for recreating your favorite fish-based recipes. We have created a recipe book to inspire you, check it [here!](#)

## SUSTAINABILITY

### 1. The problem: environmental impact of fisheries

**Overfishing:** Most commercially important whitefish stocks are overfished. Pirate fishing is rampant because of high commercial value and fish are often harvested before sexual maturity. Unreported and unregulated



fishing threaten a variety of species and habitats in the Arctic, home to some of the most outstanding marine ecosystems in the world. This is of concern because 20 to 25% of the global whitefish catch comes from just two Arctic fisheries alone.

**Ecosystems disruption:** Overfishing of whitefish disrupts the ecosystem balance around the planet.

Haddock mature earlier in their lifecycles than in the past and these young fish produce fewer eggs.

Overfishing of Patagonian toothfish and orange roughy has led to commercial extinction, and overfishing of cod will lead to potential extinction within the next 15 years.

**Bycatch:** Much of the haddock harvest comes from the use of bottom trawlers, especially off the coasts of New England, Canada and northern Europe. The trawlers damage habitats and cause high bycatch rates because many bottom dwellers are caught along with the haddock, including overfished cod.

**Antibiotic use:** Approximately 80% of antimicrobials used in aquaculture enter the environment with their activity intact. This alters biodiversity in aquatic environments and the normal flora of fish and shellfish and has serious implications for human health since it can lead to antibiotic-resistant bacteria.

**Pollution and waste:** Fish farms generate large amounts of waste, which can contribute to water pollution and harm local ecosystems. One-fifth (21%) of catch from bottom trawls is discarded. In addition, fish farms can release chemicals, such as copper and zinc, into the surrounding environment.

(Sources: <https://www.worldwildlife.org/industries/whitefish> ; Cabello et al. (2013) Antimicrobial use in aquaculture re-examined: its relevance to antimicrobial resistance and to animal and human. *Environ. Microbiol.* 15, 1917–1942. doi: 10.1111/1462-2920.12134 ; Pérez Roda, M.A. et al. (2019). A third assessment of global marine fisheries discards ; FAO Fisheries and Aquaculture.)

## 2. Our impact: rethinking seafood

For every ton of live weight fish products landed, 1.7 tons of CO<sub>2</sub> are emitted. Mycelium requires 700 times less water, 5,500 times less space, and 20 times less emissions per ton. Overall, for every ton of mycelium, 0.085 tons of CO<sub>2</sub> is emitted; another 0.02 tons of CO<sub>2</sub> can be added due to further processing, packaging, and transport. At a product level, this means that mycelium-based seafood requires 16X less CO<sub>2</sub> for every product sold. If all players producing mycelium-based seafood will sell around 188 million tons, we will save more than 250 million tons of CO<sub>2</sub>e/year!

*Figure 13. Esencia FAQs.*

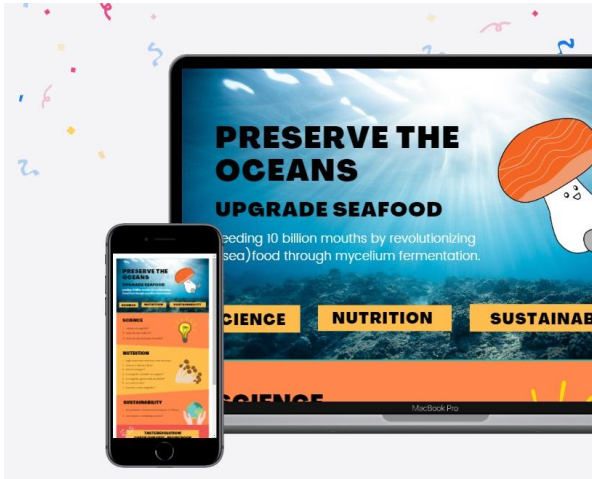


Figure 14. Web page graphic idea (1).



Figure 15. Web page graphic idea (2).