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“Occupational Health and Safety Management Systems (OHSMSs):  
The Case of the Development of an OHSMS in a Greek  
Aquaculture Organization according to ISO 45001:2018 Standard”

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Patras, Greece, June 2021

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Occupational Health and Safety Management Systems (OHSMSs):  
The Case of the Development of an OHSMS in a Greek  
Aquaculture Organization according to ISO 45001:2018 Standard

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*Fotios Tzatzakis, Occupational Health and Safety Management Systems (OHSMSs): The Case of the Development of an OHSMS in a Greek Aquaculture Organization according to ISO 45001:2018 Standard.*

*To my daughters Georgia and Katerina and my wife Athina.  
My deepest gratitude to my supervisor Dr. Ioannis Katsanakis.*

## **Abstract**

The modernized and global character of companies on the food sector has led to many changes in their operation. It is vital for organizations that their long-term sustainability is directly linked to social corporate governance, compliance with legislation, employee satisfaction and motivation, uninterrupted continuous operation, and meeting consumer's requirements for fresh food products of high nutritional value and taste that meet the sustainability criteria in their production and the creation of a positive influence on local populations and the environment in which they conduct business. The decisive factor in achieving the above claims is the protection of the health and safety of their employees, applying beyond the existing legislation modernized management systems of health and safety at work. These systems should operate and be integrated into businesses alongside other systems such as those usually related to quality, environmental protection and food safety.

One of the most important sectors of both the global and the Greek economy is the aquaculture sector, which has many occupational hazards, including mainly those that are mechanical, ergonomic, biological, chemical and physical. There are risks in this area that are inherent, as most of this activity needs to be performed in remote areas and in certain conditions such as outdoor work in the sea (diving), over the sea (floating boats, fish "cages"), near the sea (docks, ports), transport of personnel and goods in the provincial road network, but also in more sheltered and enclosed areas with the presence of high humidity (fish hatcheries) in combination with low temperatures and ice due to need for proper maintenance of the product (processing, packaging).

For these reasons, the operation of modernized health and safety management systems such as ISO 45001, which is designed to work in parallel with other systems, is considered very important. Based on these data, the development, implementation and maintenance of a health and safety management system in a Greek aquaculture organization is examined and evaluated in this study.



*Fotios Tzatzakis, Occupational Health and Safety Management Systems (OHSMSs): The Case of the Development of an OHSMS in a Greek Aquaculture Organization according to ISO 45001:2018 Standard.*

**Keywords**

Sustainability, Social Governance, Occupational Health and Safety Management System, ISO 45001:2018, Greek aquaculture.

## Περίληψη

Ο εκσυγχρονισμένος και παγκόσμιος χαρακτήρας των εταιρειών του κλάδου τροφίμων έχει οδηγήσει σε πολλές αλλαγές στη λειτουργία τους. Είναι πλέον ζωτικής σημασίας για τους οργανισμούς η μακροχρόνια βιωσιμότητά τους που συνδέεται άμεσα με την κοινωνική εταιρική διακυβέρνηση, την τήρηση της νομοθεσίας, την ικανοποίηση και παρακίνηση των εργαζομένων, την αδιάκοπη συνεχή λειτουργία, την ικανοποίηση των απαιτήσεων των καταναλωτών για προϊόντα τροφίμων φρέσκα υψηλής θρεπτικής αξίας και γεύσης που τηρούν τα κριτήρια βιωσιμότητας κατά την παραγωγή τους και τη δημιουργία θετικού αντίκτυπου στις τοπικές κοινωνίες και το περιβάλλον όπου δραστηριοποιούνται. Καθοριστικός παράγοντας επίτευξης των παραπάνω απαιτήσεων αποτελεί η προστασία της υγείας και της ασφάλειας των εργαζομένων τους, εφαρμόζοντας πέρα από την υπάρχουσα νομοθεσία, εκσυγχρονισμένα συστήματα διαχείρισης της υγείας και ασφάλειας στην εργασία. Τα συστήματα αυτά θα πρέπει να λειτουργούν και να ενσωματώνονται στις επιχειρήσεις παράλληλα με άλλα συστήματα όπως είναι συνήθως αυτά που έχουν σχέση με την ποιότητα, την προστασία του περιβάλλοντος και την ασφάλεια των τροφίμων.

Ένας από τους πιο σημαντικούς τομείς τόσο της διεθνούς όσο και της εγχώριας οικονομίας είναι ο τομέας της υδατοκαλλιέργειας, ο οποίος έχει πολλούς επαγγελματικούς κινδύνους, συμπεριλαμβανομένων κυρίως εκείνων που είναι μηχανικοί, εργονομικοί, βιολογικοί, χημικοί και φυσικοί. Υπάρχουν κίνδυνοι σε αυτόν τον τομέα που είναι εγγενείς, καθώς μεγάλο μέρος αυτής της δραστηριότητας χρειάζεται να εκτελείται σε απομακρυσμένες περιοχές και σε συγκεκριμένες συνθήκες όπως είναι: εργασίες σε εξωτερικούς χώρους π.χ. η εργασία μέσα στη θάλασσα (καταδύσεις), πάνω από τη θάλασσα (πλωτά σκάφη, «κλουβιά» ιχθύων), κοντά στη θάλασσα (προβλήτες, λιμάνια), μεταφορές προσωπικού και εμπορευμάτων σε επαρχιακό δίκτυο, αλλά και σε στεγασμένους ή κλειστούς χώρους με παρουσία υψηλής υγρασίας (ιχθυογεννητικοί σταθμοί) σε συνδυασμό με χαμηλές θερμοκρασίες και πάγο λόγω της ανάγκης για σωστή συντήρηση του προϊόντος (επεξεργασία, συσκευασία).

Για αυτούς τους λόγους, η λειτουργία εκσυγχρονισμένων συστημάτων διαχείρισης υγείας και ασφάλειας στην εργασία όπως το ISO 45001, που έχει σχεδιαστεί ώστε να λειτουργεί παράλληλα με άλλα συστήματα, θεωρείται πολύ σημαντική. Με βάση αυτά τα δεδομένα, σε αυτή τη μελέτη, εξετάζεται και αξιολογείται η ανάπτυξη, εφαρμογή και διατήρηση ενός συστήματος διαχείρισης υγείας και ασφάλειας σε έναν ελληνικό οργανισμό υδατοκαλλιέργειας.

### **Λέξεις – Κλειδιά**

Βιωσιμότητα, Κοινωνική διακυβέρνηση, Υγεία και Ασφάλεια στην Εργασία, ISO 45001:2018, Ελληνική Ιχθυοκαλλιέργεια.

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## **List of Abbreviations & Acronyms**

BSI	British Standards Institution
FAO	Food and Agriculture Organization (of the United Nations)
FGM	Federation of Greek Mariculture
UN	United Nations
H&S	Health and Safety
ILO	International Labor Organization
ISO	International Standards Organization
OHS	Occupational Health and Safety
OHSAS	Occupational Health and Safety Assessment Series
OHSMS	Occupational Health and Safety Management Systems
UN	United Nations

## **1. Introduction**

Management of health and safety at work involves different disciplines from sciences (chemistry, physics, biology) and engineering to psychology, in depth knowledge of relevant legislation and minimum requirements established by the government. Furthermore, there are barriers in maintaining high standards in health and safety. If organizations want to have sustainable growth, they must fulfill contemporary moral and social expectations and reduce the cost of injuries and illnesses caused in the workplace. This can happen through the effective management of H&S. Various businesses are executing Occupational Health and Safety Management Systems to deal with the ongoing changes in the legislation in a timely and effective manner and for better protecting their human resources. Occupational Health and Safety Management Systems set the framework for a systematic way of identifying, assessing and managing health and safety risks, reducing the likelihood of accidents, helping to comply with legislation and improving overall performance (Darabont, Antonov, & Bejinariu, 2017).

ISO 45001, the latest standard for occupational health and safety, was published in March 2018 by the International Organization for Standardization. The standard was developed to help organizations comprehensively manage Health and Safety at Work in industries that face significant safety risks (Uzun, Machicek, & Gurcanli, 2018).

A lot of interest in recent years is given on the sector of aquaculture, which is currently one of the fastest growing food producing industries in the world. The increasing number of people working in this sector and the level of production and processing of seafood is leading to more frequent reporting of occupational accidents and health problems among workers in this industry. In this competitive environment, aquaculture organizations should commit to efficiently managing health and safety to create a motivated and proud working force, which will lead to sustainable growth. Moreover, the implementation of health and safety management in aquaculture organizations presents challenges and opportunities for the comprehensive management of health and safety at work (Cavalli, et al., 2019)

Until the late 1980s, the Greek literature on occupational health and safety was inferior. Since 1990, there has been a gradual increase in publications on this topic, as a result of the reform

of the institutional framework for health and safety at work. This dissertation will try to contribute to the existing relevant Greek literature with the study of the development and implementation of a health and safety management system in an Greek aquaculture organization.

### **Aim of the research**

In recent years, occupational health deals in many cases with all health and safety parameters in the workplace and presents a clear focus on restriction of hazards. The management of the health of employees deals with various infectious diseases, stress-related disorders, circulatory diseases, hearing loss, respiratory diseases, and other diseases. Employment and working conditions in the informal and formal economy include other essential determinants, including working hours, salary, and workplace policies, by emphasizing maternity leave, protection provisions, health promotion, etc. (Araki & Tachi, 2003). In our era, fish and shellfish farming, as well as aquatic plant breeding, are among the fastest growing food sectors, already supplying the planet with half the number of fish we consume (Aquaculture Stewardship Council, n.d.).

Country	Weight (tonne) 2000	Weight (tonne) 2016	Projected Weight (tonne) 2020	2000-16 % change	2016-20 % change	Value ('000€) 2000	Value ('000€) 2016	2000-16 % change
Spain	309,229	283,828	320	-8%	13%	359,678	506,392	41%
France	266,77	166,14	265	-38%	60%	460,213	621,934	35%
Italy	213,525	157,109	206,854	-26%	32%	483,38	409,391	-15%
United Kingdom	152,485	194,492	254	28%	31%	499,274	1,022,376	105%
Greece	95,418	123,314	170	29%	38%	315,416	524,784	66%
Netherlands	75,231	62,94	n/a	-16%	n/a	115,761	96,527	-17%
Germany	65,891	41,721	52	-37%	25%	137,113	97,707	-29%
Ireland	51,247	40,19	81,7	-22%	103%	106,508	154,208	45%
Denmark	43,609	36,237	55	-17%	52%	159,02	123,212	-23%
Poland	35,795	38,3	61	7%	59%	72,463	109,555	51%
Czech Republic	19,475	20,952	20	8%	-5%	52,914	39,398	-26%
Finland	15,4	14,412	20	-6%	39%	62,687	62,633	0%
Hungary	12,886	16,248	27	26%	66%	23,638	31,521	33%

Country	Weight (tonne) 2000	Weight (tonne) 2016	Projected Weight (tonne) 2020	2000-16 % change	2016-20 % change	Value ('000€) 2000	Value ('000€) 2016	2000-16 % change
Romania	9727	12,574	36	29%	186%	16,93	27,679	63%
Portugal	7537	9785	35	30%	258%	54,683	60,375	10%
Croatia	6876	15,805	24,05	130%	52%	30,428	89,963	196%
Sweden	4834	15,747	25	226%	59%	16,136	51,27	218%
Bulgaria	3654	15,754	20	331%	27%	7942	32,668	311%
Austria	2847	3483	5500	22%	58%	12,95	22,457	73%
Lithuania	1996	4393	6400	120%	46%	2613	12,241	368%
Cyprus	1878	6625	6332	253%	-4%	11,157	36,268	225%
Belgium	1871	44	1032	-98%	2245%	6648	440	-93%
Malta	1746	6073	10,5	248%	73%	5426	60,431	1014%
Slovenia	1181	1844	2420	56%	31%	3916	4996	28%
Slovakia	887	2169	n/a	144%	n/a	2038	5035	147%
Latvia	325	788	2256	142%	186%	448	2083	365%
Estonia	225	868	n/a	286%	n/a	567	3877	583%
<b>Totals</b>	<b>1,402,545</b>	<b>1,291,834</b>	<b>1,707,044</b>	<b>-8%</b>	<b>32%</b>	<b>3,019,947</b>	<b>4,209,422</b>	<b>39%</b>

**Table 1: EU Aquaculture production volume, nominal value and percentage of change for 2000 and 2016, and EU Member States projection for 2020 (Guillen, et al., 2019)**

The purpose of this study is to present the effects of the implementation of a health and safety management system in an aquaculture organization in Greece.

### **Methodology of research**

The success of a research is primarily determined by the correct choice of the methodological approach (Thattamparambil, 2020). The case study methodology is considered the most common research method for exploring in detail the implementation of complex systems in the real-life context and the evaluation of various issues with the interactions within its contexts. The appreciation of the implementation of an OHS management system in a Greek aquaculture company, is a multi-faceted issue, so the case study methodology was chosen in order to satisfy the research goal and draw reliable and valid conclusions (Stake, 1995).

For this case study, discussions and unstructured interviews were performed with two (2) of the company's OHS department managers. Moreover, data were provided from the OHSMS Manual with the corresponded appendices. Furthermore, reports of higher management to

executives and shareholders regarding the OHS performance of the organization before and after the implementation of the management system were available.

### **Structure of the dissertation**

The structure of the dissertation by chapter, following the current first introduction chapter, is briefly described below:

- Chapter 2: In the second chapter the literature review is presented. Specifically, the scope of occupational health and safety is given and the reasons for the effective management for sustainable businesses are analyzed. A brief description of the Occupational Health & Safety Management Systems is made, the evolution of the primary standards is presented and key elements of ISO 45001:2018 Health and Safety Management System are explained.
- Chapter 3: In the third chapter a brief description of the Aquaculture business sector is presented and then follows the analysis of the case study. Specifically, after describing the aquaculture business sector, the development of an OHSMS in a specialized Greek aquaculture organization is analyzed. In particular, the data related to the context, the leadership and the worker participation, the planning, the support and the performance evaluation and improvement are presented and analyzed.
- Chapter 4: In the last section, the conclusion and also the recommendations and the limitations of this research are presented.

## **2. Literature Review**

### **2.1 The Scope of Occupational Health and Safety and the Reasons for the Effective Management for a Sustainable Business**

According to the International Labor Organization – ILO (2021), accidents and work-related illnesses are very serious and dangerous in our era. Also, it can be mentioned that every fifteen seconds, a worker passes away due to a work-related event or illness and 153 workers are presented to suffer a work – related incident. In this study it is presented that 2.3 million employees die every year because of occupational diseases or work – related accidents, in our era can be understood the change of the perception of the risk in the same way with the macro – economic context in which companies is needed to perform. The main problems due to the modernized and emerging risk are mainly related to psychological hazards, ageing of the population, globalization and introduction of new technologies. Based on another recent study, in 1960 the EU population average age was thirty three years and researchers believe that in 2020 it will grow to 44 years and in 2060 to 46 (Uzun, Machicek, & Gurcanli, 2018). In addition to the negative effects on the families of the affected employees, this entails significant costs for individual businesses and generally of the economy. In this way, Occupational Health and Safety (OHS) Management Systems can be considered in our era one of the most important parts of the management system of the company.

Occupational Health and Safety (OHS) is a discipline that connects various diverse subjects, including engineering, biology, physics, chemistry, psychology, sociology and legislation (RRC International, 2019). OHS deals with the prevention of work-related injuries and illnesses or the reduction of their outcomes and the assurance and improvement of the health of people at work (ILO, 2011). Occupational health also involves supporting the social well-being of people and the maintenance of the greatest level of physical and mental health. The influence on societies and the environment should also be taken into concern.

High standards of OHS can be achieved both by the improvement of working conditions and environment and on the other hand, by raising people’s awareness and improving behaviour towards risk. The first can be succeeded by designing, constructing and maintaining the

working environment, including machinery and equipment, and developing methods of work that will inherently exclude or mitigate as many risks as possible on the source. On the other hand, people play a critical role on OHS performance. Awareness and safe behaviour can be significantly improved by selecting competent people, informing/training them on recognition of hazards and risks and supervising or motivating them accordingly on the correct use of control measures and safe methods of work (HSA, n.d.).

In the contemporary world of work, there are developments and constant changes that create new challenges and opportunities for the management of OHS. Great industrialization, high use of dangerous energy sources and transport systems, multinational organizations that operate in different areas of the world, competition between enterprises, new labour conditions, ageing of population, new expectations of contemporary people and customers for high quality and sustainable products, increasingly complex technologies, scientific progress and new more sophisticated theories and risk assessments regarding OHS risks, affect the balance between the cost and the benefit of managing risks. It is important to highlight here the great role that the new Covid-19 pandemic has played and will continue to play for the coming years, on working environment and conditions of people in the whole world, on supply chains and on business continuity (ILO, 2020).

There are moral, social (or legal) and economic (or financial) reasons for governments and enterprises to manage health and safety (RRC International, 2019). Government through legislation, institutions and authorities sets the framework for the organizations that operate under its control, in order to comply with the moral expectations of its citizens and also to support the economic growth of the country and its people, by reducing unemployment, protecting the cost to the social insurance and reducing absenteeism from work, keeping citizens productive and healthy throughout their whole life. Enterprises on the other hand, in order to be sustainable, are expected to provide high quality jobs that do not place risk on their employees' health, keep employees motivated and productive, reduce direct and indirect cost of accidents and damage, maintain positive public image and business reputation in order to gain and keep loyal customers, ensure business continuity, support the growth of local communities and protect the environment, while being efficient and productive.

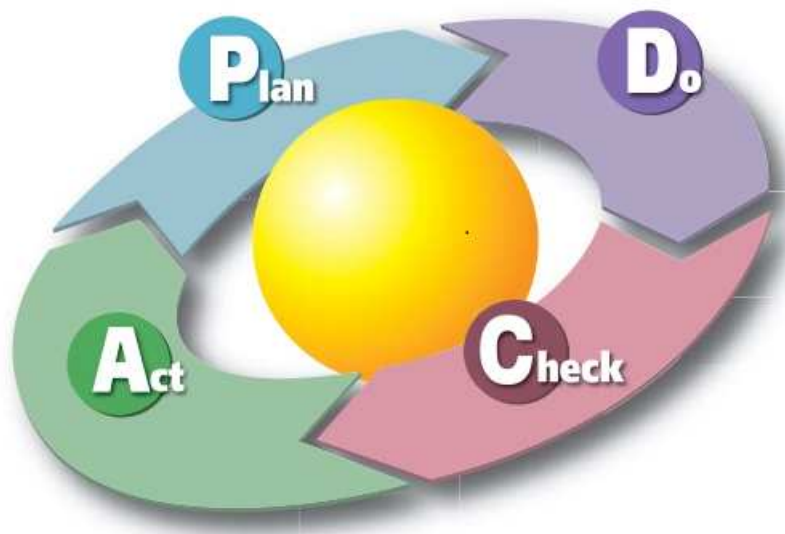
It is considered that ISO 45001 constitutes a modernized approach which requires businesses in national and global level taking in consideration modernized key elements for an effective implementation of the OHS management system. The publication of the new ISO 45001 is considered as a very important decision in the management of occupational health and safety. It can operate based on the evolution of other management systems, by approaching OHS with the same emphasis as environment and quality. According to Darabont et al (2017), the history of the quality domain standards has very narrow applicability to OHS, like MIL – Q – 9858 in the military field in 1942 – 1953, in the British national standards as BS 9000 and, finally, to international standards in the ISO 9000 series, with the newest version ISO 9001:2015. Essentially, we can recognize the necessity for a new occupational health and safety management strategy, as global level corporations have to face modernized and developing risks and substantial hinges on economic conditions (Uzun et al., 2018). ISO 45001 is the leading global standard for occupational health and safety. It provides a framework that allows all organizations to reduce the risk in the workplace in an active way and significantly improve health and well-being at work (ehsdb, n.d.).

## **2.2 Occupational Health & safety Management Systems (OHSMS)**

The integration of an occupational health and safety management system (OHSMS) aims to provide a systematic approach on planning, implementing, assessing and improving performance towards accident prevention and disease in the workplace through effective management. It is a step-by-step method which: i) decides what should be done, ii) decides how good it can be done, iii) allows monitoring the path to achieving the goals, iv) helps to identify how the effectiveness is measured and the areas for improvement. The basic condition is that it is developed and updated according to the organization and the legislative requirements (ILO, 2011).

This system is based on the “Plan-Do-Check-Act” iterative management method or Deming’s (PDCA) cycle, for the control and continuous improvement of processes and products, that was developed during the ‘50s. In the case of Occupational Safety and Health, “Plan” refers to the establishment of a policy for health and safety at work that includes the determination

of the necessary features, the required organization of the system, the identification of hazards and assessment of relevant risks. “Do” refers to the actual application and execution of the program of the plan. The “Check” aims on the monitoring and measurement of the performance of the system and the “Act” phase closes the circle with a re-evaluation of the system and the required measures for its improvement (ILO, 2011).



**Figure 1: The Deming Cycle (ILO, 2011)**

The management system is a consistent and useful tool, which is flexible and can be adjusted to the size and type of operation of each organization and focuses on the general or specific risks associated with its activity. Its complexity is affected by the type of business and can be very small in a medium-sized business, which follows a single production process and the risks can be easily identified, up to very high in large industries, such as mines, nuclear power plants, the chemical industries etc (ISO, 2015).

The implementation of the health and safety management system ensures (CCOHS, n.d.):

- the establishment of relevant policies,
- the consistency of commitments,
- the examination of all working conditions and relevant minimum requirements for risk assessment,

- the application of the preventive and protective measures in an effective and coherent manner and,
- the involvement of management and employees in the process, to the extent of their competence.

## **2.3 Retrospective of OHSMS**

The evolution of management systems standards is briefly presented in the next paragraphs:

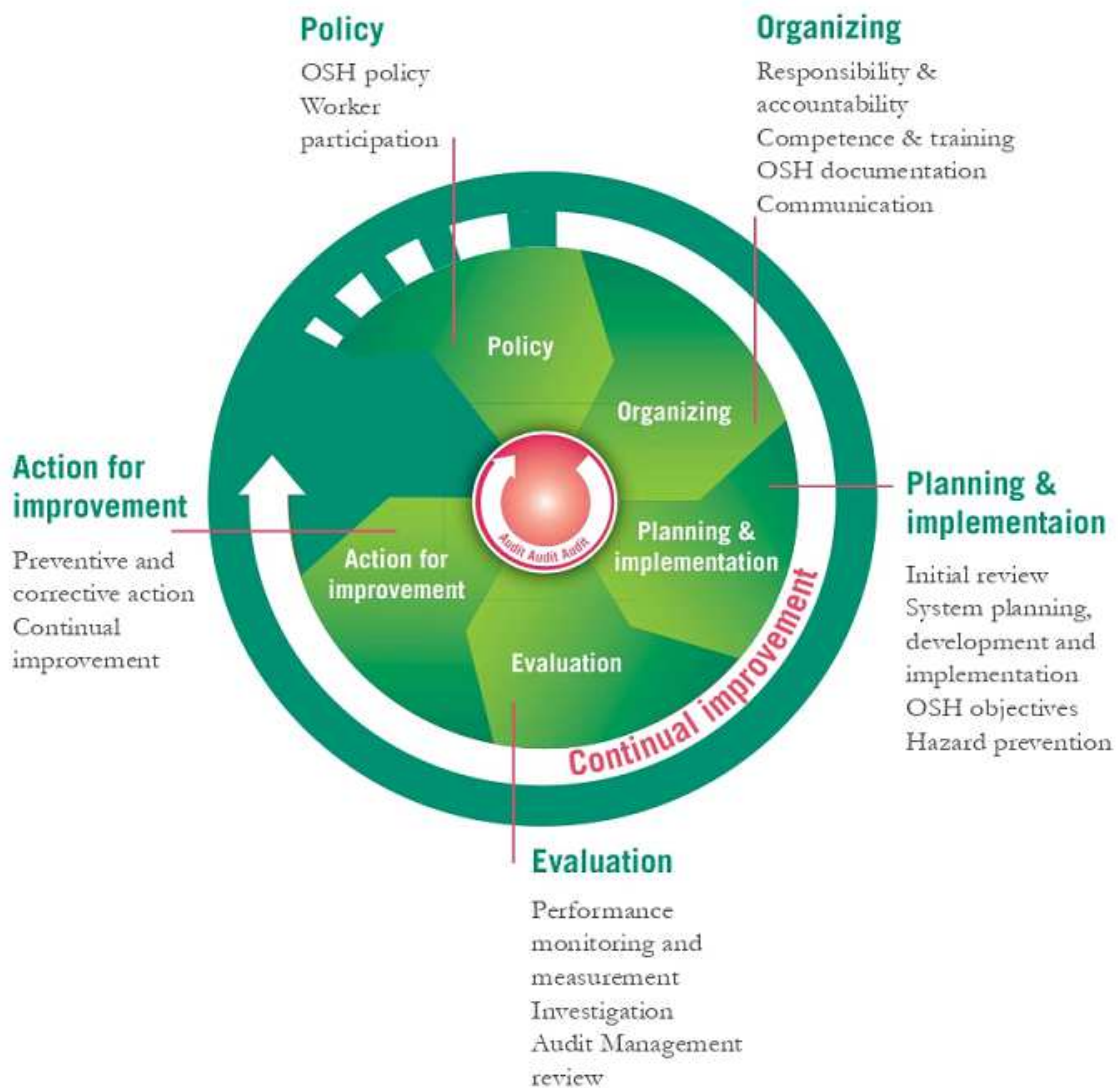
- Following the production of Government White Paper on the subject, the British Standard Institution published the British Standard for quality systems BS 5750 in 1979. According to this standard an organization would have to be inspected by an independent authority such as the British Standards Institution against the standard in order to be accredited (Wedlake, 2011).
- BS 5750 was adopted by ISO (International Organization for Standardization founded in 1947 and based in Geneva, Switzerland) in 1987 as an international standard. It came with three different models for quality management systems and it was named ISO 9001 (BSI). This standard was revised and republished in 1994, 2000, 2008 and in 2015 which is the version that remains current (ISO, 2015) and is supported by the relevant guidelines for its application ISO/TS 9002:2016 (ISO, 2016).
- In 1992 the first standard regarding the environmental management system BS 7750 was published by the BS Group (Welford, 2013).
- ISO 14001 regarding the Environment management systems was published in 1996 by ISO using BS 7750 as a starting point. It was revised in 2004 and the final publish was in 2015, which is the version that remains current (ISO, 2015).
- In 1999, after a try by the British Standards Institution (BSI) to produce an OSH management standard under the administration of ISO did not result, BSI formed later the same year the first OHSAS (Occupational Health and Safety Assessment Series) standard, which was OHSAS 18001 (ILO, 2011). OHSAS was translated into Greek in 2002. Since then, the OHSAS standard was revised in 2002 and in 2007 and the Greek

translations ELOT 1801 followed. ELOT 1801:2008 and OHSAS 18001:2007 (BSI, 2007) are two equivalent standards that define the general requirements that must be met by companies to develop a management system in order to identify and reduce occupational hazards for employees and the general public, which may be affected. The development of this system follows the relevant guidelines OHSAS 18002:2008 (BSI, 2008) published from the BSI and it describes the following phases:

1. Identify the legal requirements and needs governing the operation of modern companies, the equipment and the facilities, regarding the health and safety of the human resource and determine the way of correcting the possible deviations.
2. Recognize and evaluate the possible risks to workers' health and safety.
3. Determining the practices in the effort to be reduced risks and also the needed measures for the protection of employees.
4. Establishment of procedures and creation of files, based on the requirements of the template.
5. Employee training in occupational health and safety rules and also in system requirements.
6. System application.
7. System review and modification, when it is needed.
8. Conduction of an internal inspection.
9. The ILO Guidelines on Occupational Safety and Health Management Systems, ILO-OSH 2001 (ILO, 2001), were selected at a tripartite Meeting of experts in April 2001 and announced in December 2001 following the consent of the Governing Body of the ILO. The management standard was rooted in the principles of ILO-OSH standards such as the Convention on Occupational Safety and Health, 1981 (No. 155) (ILO, 1981). Figure 2 adequately summarizes the management actions described in the guidelines. The ILO intends to secure that it assists the requirements of working women and men by bringing together authorities, organizations and workers to produce labor standards, evolve policies

and devise plans. It ensures that the beliefs of the social partners are closely reflected in ILO labor standards, policies and programs.

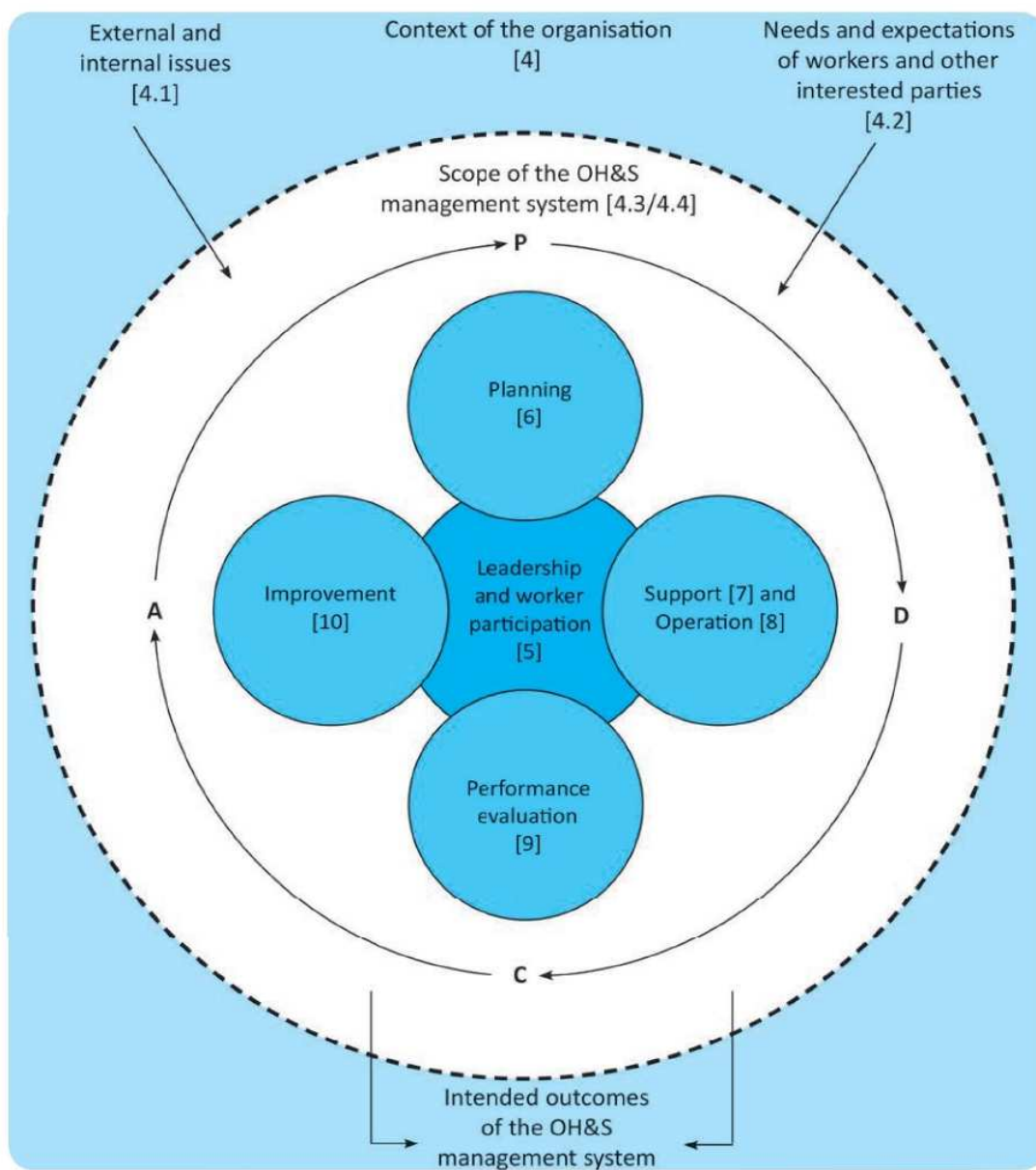
### The ILO Guidelines on OSHMS: The continual improvement cycle



**Figure 2: The ILO Guidelines on OHSMS: The continual improvement cycle (ILO, 2011)**

- ISO 45001:2018, the latest standard for occupational health and safety, was published in March 2018 by the International Organization for Standardization, after the Project Committee ISO/PC 283 Occupational health and safety, prepared the document

according to ISO/IEC Directives. As an international standard, it substituted OHSAS 18001. ISO 45001:2018 (ISO, 2018) defines specifications for an occupational health and safety management system. It provides direction for its use to equip organizations to present safe and healthy workplaces by limiting work-related injury and ill health and proactively developing its OH&S performance.



The relationship between PDCA and the ISO 45001 clauses

**Figure 3: The PDCA Cycle according to ISO 45001 (RRC International, 2019)**

ISO 45001 standard also follows the High-Level Structure (HLS) with the aim of facilitating the development of an effective overall operating management system. We can also mention that the modern standard is closely aligned with the ISO 9001: 2015 (quality), ISO 14001: 2015 (environment) and ISO 22000:2018 (food safety) standards to create optimal synergies for integrated management systems. Its structure corresponds essentially to ISO Annex SL, and as the main advantage can be considered that in all management standards is presented the same high-level structure.

The high-level structure is described in the following table (ISO, 2018):

- |   |
|---|
| <ul style="list-style-type: none"><li>• Scope</li><li>• Normative references</li><li>• Terms and definitions</li><li>• Context of the organization<ul style="list-style-type: none"><li>○ Understanding the Organization and its Context</li><li>○ Understanding the needs and expectations of workers and other interested parties</li><li>○ Determining the scope of OH&amp;S management system</li><li>○ OH&amp;S Management system</li></ul></li><li>• Leadership and worker participation<ul style="list-style-type: none"><li>○ Leadership and commitment</li><li>○ OH&amp;S policy</li><li>○ Organizational roles, responsibilities and authorities</li><li>○ Consultation and participation of workers</li></ul></li><li>• Planning<ul style="list-style-type: none"><li>○ Actions to address risks and opportunities<ul style="list-style-type: none"><li>▪ General</li><li>▪ Hazard identification and assessment of risks and opportunities</li><li>▪ Determination of legal requirements and other requirements</li><li>▪ Planning action</li></ul></li></ul></li></ul> |
|---|

- OH&S objectives and planning to achieve them
    - OH&S objectives
    - Planning to achieve OH&S objectives
- Support
  - Resources
  - Competence
  - Awareness
  - Communication
    - General
    - Internal communication
    - External communication
  - Documented information
    - General
    - Creating and updating
    - Control of documented information
- Operation
  - Operational planning and control
    - General
    - Eliminating hazards and reducing OH&S risks
    - Management of change
    - Procurement
  - Emergency preparedness and response
- Performance evaluation
  - Monitoring, measurement, analysis and performance evaluation
    - General
    - Evaluation of compliance
  - Internal audit
    - General
    - Internal audit programme
  - Management review

- **Improvement**
  - **General**
  - **Incident, nonconformity and corrective action**
  - **Continual improvement**

**Table 2: The structure of ISO 45001 Standard**

## **2.4 The reason for the transition to standard 45001 and comparison with OHSAS 180001**

The international standard ISO 45001 was prepared in order to be compatible and integrated with other management systems, such as the Quality (ISO 9001) or Environmental Management System (ISO 14001), e.g., the recording of threats and opportunities in ISO 45001 is being performed with the same method and logic as in the standards ISO 9001:2015 and ISO 14001:2015. Furthermore, it utilizes the approach of dealing with threats and exploitation of opportunities in the context of closer consultation with stakeholders which ensures that the Standard reflects the requirements of all stakeholders including employees (BSI).

Moreover, it is essential to remark that companies wanting to work globally or prove compliance with global criteria of Health and Safety in the workplace will require implementing and getting ISO 45001 Certification. (ISO/TC 283, n.d.).

### **2.4.1 Benefits of Implementing the ISO 45001 standard**

There are many benefits when implementing the ISO 45001 standard and the most important are (Aggelitsas, 2020):

- **Compliance with legislation:** ISO 45001 provides a framework through which the organization can identify occupational health & safety legislation applicable to activities, its products & services. The basic requirement of the ISO 45001 standard is the observance of the relevant legislation.

- **Compatibility with ISO 9001, ISO 14001 and/or ISO 22000:** Companies that implement a formal documented management system as to ISO 9001 (Quality), ISO 14001 (Environment) and / or ISO 22000 (Food Safety) can easily extend existing control systems to include occupational health & safety management.
- **Identifying Educational Needs:** ISO 45001 allows the identification of health and safety education needs.
- **Reduction of Operating Expenses:** The implementation of an occupational health and safety management system leads to a significant reduction in operating costs. The financial and moral cost of an accident could be inconceivable.
- **Continuous improvement:** The organization constantly and systematically seeks to improve its performance in terms of Health & Safety at Work. The organization sets objective goals, complies with legal requirements & provides the required resources to guarantee a safe & healthy working environment.
- **Risk minimization:** Risks & related hazards are eliminated or controlled, thus providing greater stability to the business.

#### **2.4.2 Comparison of ISO 45001:2015 to OHSAS 18001:2007**

The new standard ISO 45001 replaces OHSAS 18001 and provides a global reference framework for organizations in the private and public sector that seek to improve their performance and minimize the risk to Health and Safety at Work through effective prevention and protection measures. The international standard ISO 45001: 2018 was published on March 12, 2018. A three-year transition period was set for the transition of certification from OHSAS 18001 to ISO 45001, which expired on March 11, 2021. After this date all certificates issued under BS OHSAS 18001 are void (Uzun et al, 2018).

The transition to the new standard could be made in the context of a regular re-certification or supervision inspection or it could be carried out in any special inspection.

There are various changes in ISO 45001 compared to OHSAS 18001 and the most important are (Mustafa):

- **Context of the organisation (Clause 4):** More importance is being given to the process of the identification of stakeholders' requirements. This process is described in two sub-clauses: Understanding the organization and its context (Clause 4.1): The corporation shall define inner and outer concerns relative to its mission and influence its capacity to produce the planned result(s) of its OH & S management system. Realizing the demands and expectations of employees and other involved parties (Clause 4.2): involved parties are workers, suppliers, subcontractors, buyers, governing officials.
- **Leadership and worker participation (Clause 5):** Leadership and management commitment (Clause: 5.1) has more robust importance on top management to actively involve and accept accountability for the management system's effectiveness. OH&S Policy (Clause 5.2): ISO 45001 requires stronger participation by first-line employees on the development of OH&S Policy. Participation and consultation (Clause 5.4): The new standard requires the presence of employees with non-managerial positions in the consultation process.
- **Planning (Clause 6):** ISO 45001 focuses on strategically planning taking into consideration issues related to all interested parties, placing high importance on the preventive actions rather than corrective actions. Risk and opportunities (Clauses: 6.1.1, 6.1.2.3, 6.1.4): A broader concept than the previous standard, that includes opportunities rather than only risks. Businesses are to define, examine and, where required, take the step to address any risks or opportunities that may affect (either positively or negatively) the capacity of the management system to produce its expected outcomes, including improved health and safety at the workplace.
- **Support (Clause 7):** On clause 7.5, "Documented information", much more flexibility is given on documentation requirements than in OHSAS 1801.
- **Operation (Clause 8):** ISO 45001 is focused on placing control measures to eliminate or significantly reduce risks following the "Hierarchy of controls" method. This method is based on risk management principles. In clause 8.2, there is a new requirement compared to OHSAS 18001, which is the management of OH&S risks that may derive in case of any predictable or unpredictable change on the organization. In clauses 8.3

“Outsourcing”, 8.4 “Procurement” and 8.5 “Contractors”, the standard requires that all processes related to goods and services purchased by the company from third parties shall be controlled and monitored in order to comply with the company’s OHSMS.

In more detail, these changes are presented in the next table:

<b>ISO 45001:2018</b>	<b>18001:2007</b>	<b>Evidence / Action Required</b>
4.3 Determining the scope of the OH&S management system	1 & 4.1	<p><b>No significant change.</b></p> <p>Assure that the scope description is related to:</p> <p>The outer and inner matters mentioned in 4.1;</p> <p>1. Obligations mentioned in 4.2;</p> <p>2. The kinds of work-related actions made.</p> <p>Any modifications to the scope should be subjected to the conditions of the standard and subjected to examination by the compliance assessment/Certification Body, who would verify, or otherwise, the incorporation of the change following the certification.</p>
4.4 OH&S MANAGEMENT Systems	4.1	<p><b>No significant change.</b> There is presently a more comprehensive locus on the OH&amp;S processes and the correlated documentation. The Process Matrix template gives a critical mechanism for recognizing and addressing the provisions of this clause. It gives crucial proof for demonstrating the processes that underpin OH&amp;S actions.</p> <p>It is also a helpful planning tool in contributing input into the provisions of other clauses, including those connected with risk, planning, resources, and the monitoring and measuring of the outcome of the management system. The process matrix can be a valuable artifact to display at audit.</p>
5.1 Leadership and commitment	4.4.1, 4.4.3, 4.4.6	<p><b>Minor change.</b> Suggests top management be involved and directing OH&amp;S, rather than assigning to someone further below the company. Also, workers being linked directly to preserve, enhance performance, and sustain the OH&amp;S system.</p> <p>1. Assuring that the OHS policy and OHS objectives are placed and are agreeable with the strategic path of the business;</p> <p>2. Blending the OHS management system demands into the organization’s business methods;</p> <p>3. Giving the required resources for the OHS management system;</p>

ISO 45001:2018	18001:2007	Evidence / Action Required
		<p>4. Communicating the significance of adequate OHS management;</p> <p>5. Focusing and assisting persons to offer to the effectiveness of the OHS management system;</p> <p>6. Supporting other related management positions to prove their leadership applied to their regions of charge.</p>
5.2 OH&S Policy	4.2	<p><b>Minor difference.</b> Enhanced specifications from the 2007 version: more additional notice to be given to the information and support of employees across the business.</p> <p>Businesses must commit to "meet" statutory and other obligations and implement the hierarchy of controls to OH&amp;S risks. The policy must be prepared as documented information.</p> <p><b>Update</b> the safety policy declaration to highlight information and employees' cooperation crosswise the company; commit to meet statutory and other terms; commit to the hierarchy of controls to OH&amp;S risks.</p>
9.2.2 Internal audit Programme	4.5.5	<p><b>Enhanced clause.</b> Employees need to be involved in the audit process and the construction of the audit program. Maintain the audit plan and the audit outcomes as a documented report.</p>
9.3 Management review	4.6	<p><b>No important change.</b> Added importance on improvement and pieces of information based on risks, opportunities and system effectiveness. Maintain the management report of the review meeting as documented information. Remark the different input demands in the standard.</p>
10.1 Improvement – General	4.5.3, 4.5.3.1, 4.5.3.2	<p><b>Insignificant difference.</b> Assure workers are included in continual improvement and get information about improvement actions.</p>
10.2 Incident, non-conformity and corrective action	4.5.3, 4.5.3.1, 4.5.3.2	<p><b>Enhanced clause.</b> This article says the provisions for the occasion of an incident or non-conformity. The provisions also add work to deter the same occurrences or non-conformities from happening again. This must be accomplished via study and examination to discover what created it and any steps to restrict it from reoccurring tomorrow.</p>

ISO 45001:2018	18001:2007	Evidence / Action Required
		<p>This clause expects that reasonable effort will be taken to address the impacts of the problem. This may need a manageable improvement by an Operative or exceptional levels of resources in an important event.</p> <p>A risk analysis can aid in discovering the proper steps that must be taken. Any ongoing risks should be listed in the risk record and taken into account when planning future activities.</p> <p>Any non-conformities and the following steps to limit the reoccurrence and the effectiveness of the remedial action(s) should be adequately documented and maintained.</p>
10.3 Continual improvement	4.5.3, 4.5.3.1, 4.5.3.2	<p><b>Insignificant change.</b> Express that continual improvement is drafted, executed and maintained. The required and actual results of continual improvement should be delivered to employees. This article intends to ensure that advancement is being done to increase the effectiveness of the OH&amp;S management system.</p> <p>Overall, it is crucial that the processes have recognized any concerns and that they have been documented and are in the process of being improved.</p>

**Table 3: Gap Analysis & Transition Guide OHSAS 18001:2007 to ISO 45001:2018  
(IMS Global Standards)**

## 2.5 Terms and definitions

Before proceeding with the case study, there are some terms that are being used in the next chapters that must be defined according to ISO 45001:2018 (ISO, 2018):

- **“Organization:** *Person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives.*
- **Interested party (preferred term) / Stakeholder (admitted term):** *Person or organization that can affect, be affected by, or perceive itself to be affected by a decision or activity.*

- **Worker:** *Person performing work or work-related activities that are under the control of the organization. Including the managerial staff in the organization. The term worker specifies that this person may or may not be paid by the organization, be temporary or permanent, be a supplier or subcontractor, or work individually, or even to people who may have little control over jobs they perform.*
- **Participation:** *Involvement in decision-making.*
- **Consultation:** *Seeking views before making a decision.*
- **Workplace:** *Place under the control of the organization where a person needs to be or to go for work purposes.*
- **Contractor:** *External organization providing services to the organization in accordance with agreed specifications, terms and conditions.*
- **Requirement:** *Need or expectation that is stated, generally implied or obligatory.*
- **Legal requirements and other requirements:** *Legal requirements that an organization has to comply with and other requirements that an organization has to or chooses to comply with.*
- **Management system:** *Set of interrelated or interacting elements of an organization to establish policies and objectives and processes to achieve those objectives.*
- **Occupational health and safety management system OH&S management system:** *Management system or part of a management system used to achieve the OH&S policy.*
- **Top management:** *Person or group of people who directs and controls an organization at the highest level.*
- **Effectiveness:** *Extent to which planned activities are realized and planned results achieved.*
- **Policy:** *Intentions and direction of an organization, as formally expressed by its top management.*
- **Occupational health and safety policy OH&S policy:** *Policy to prevent work-related injury and ill health to workers and to provide a safe and healthy workplace.*
- **Objective:** *Result to be achieved.*

- **Occupational health and safety objective OH&S objective:** Objective set by the organization to achieve specific results consistent with the OH&S policy.
- **Injury and ill health:** Adverse effect on the physical, mental or cognitive condition of a person.
- **Hazard:** Source with a potential to cause injury and ill health.
- **Risk:** Effect of uncertainty.
- **Occupational health and safety risk OH&S risk:** Combination of the likelihood of occurrence of a work-related occupational health and safety opportunity OH&S opportunity circumstance or set of circumstances that can lead to improvement of OH&S performance.
- **Competence:** Ability to apply knowledge and skills to achieve intended results.
- **Documented information:** Information required to be controlled and maintained by an organization and the medium on which it is contained.
- **Process:** Set of interrelated or interacting activities which transforms inputs into outputs.
- **Procedure:** Specified way to carry out an activity or a process.
- **Performance:** Measurable result.
- **Occupational health and safety performance OH&S performance:** Performance related to the effectiveness of the prevention of injury and ill health to workers and the provision of safe and healthy workplaces.
- **Outsource, verb:** Make an arrangement where an external organization performs part of an organization's function or process.
- **Monitoring:** Determining the status of a system, a process or an activity.
- **Measurement:** Process to determine a value.
- **Audit:** Systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled.
- **Conformity:** Fulfilment of a requirement.
- **Nonconformity:** Non-fulfilment of a requirement.

- ***Incident:*** Occurrence arising out of, or in the course of, work that could or does result in injury and ill health.
- ***Corrective action:*** Action to eliminate the cause(s) of a nonconformity or an incident and to prevent recurrence.
- ***Continual improvement:*** recurring activity to enhance performance.”

### **3. Case Study: Development and Implementation of OHSMS according to ISO 45001 Standard in GREEK FISH S.A. aquaculture organization.**

#### **3.1. Methodology**

##### **3.1.1 Purpose of the research**

This dissertation aims to recognize the results of executing an OHSMS according to ISO 45001 standard on the OHS performance of a complex organization, as an aquaculture organization in Greece is. This research will complete the purpose of this study, which is to connect the results of the literature review to the field, from theory to practice. It will point out how the organization's OH&S management system is developed and implemented and how this affects overall OHS performance and, as a result, a company's sustainability.

The investigation will be conducted on one of the biggest Mediterranean aquaculture companies, based in Greece, the Greek Fish S.A. company.

##### **3.1.2 Research method**

According to McPherson et al, (2010) research can be described as a combination of several approaches to examine reality where there are frequently limits between the central philosophical ideas and methodological aspects. According to Ghauri and Gronhaug (2005), research methods can either be qualitative or quantitative. There are many discussions concerning the suitability of every method. According to Zikmund et al. (2009), connecting the proper method to the correct research problem is essential.

The purpose of quantitative research is to examine the relationship among several variables that influence a parameter under consideration, identify the causal relations among them and reasonably explain them (Kachrimanis et al, 2008). On the other hand, qualitative research aims to understand and analyze a particular aspect in its actual structure (Jonker et al, 2010) rather than finding and forming causal connections.

For this dissertation, qualitative research was adopted since the purpose was to have a comprehensive description and, in turn, a more thorough comprehension of the research problem, which is not explained enough in the complicated agriculture industry in Greece and specifically in a Greek aquaculture company.

The next step is to choose a suitable research strategy. Yin (1994) classified the various research strategies to survey, case study, experiment, history and archival analysis. Among them, the case study was selected to be used in this dissertation.

The case study can be described as "the intensive study of a single case where the purpose of that study is to shed light on a larger class of cases" (Gerring, 2007). The case study method is favored over other systematic research methods but also has some flaws. Its main benefit is that it enables the researcher to directly observe the event under study and interact with it (Yin, 2003). A further benefit of the method is that the researcher can study each aspect of an event, thus aiding theory construction.

There are, though, some disadvantages of the case study method. One of these is the lack of clarity that can often lead the researcher to quick and amphibolic results. In addition, it is declared that the research following the case study method is very time-demanding and that delivering its results requires a size of documents.

In conclusion, the correct approach satisfies the topic's purpose, objectives, and the phenomenon under investigation. At the same time, some support that proper research includes a blending of both types and the use of more than one data collection technique (e.g., a combination of interviews, observations, written documents), which is referred to in the literature as "*triangulation*" for a thoroughgoing understanding of the data (Hammersley et al, 1991).

Furthermore, a different form of triangulation can be seen in this research, "*informant triangulation*". According to this type of triangulation, various kinds of data are collected from different informants in a situation. These various informants will have their perceptions (Remenyi, 2013).

### **3.1.3 Data collection**

For this case study, it was decided that the best data collection technique is in-depth unstructured interviews and observations from worksite visits and also secondary data, which will include documents provided from the research participants regarding the company's OH&S management system.

The in-depth interviews can be conducted either by face-to-face or by internet interviewing, which was selected because the interviews were conducted during the Covid-19 pandemic. The number of interviews conducted is five, two persons from the company's OH&S Department, two persons from the operations department, one from the top management level and one supervisor and a worker's representative.

The observations from worksite visits were 2, in a fish growing unit or farm and a packing plant in East Greece. Visits were performed during April and May of 2021. The researcher was accompanied by a member of the OH&S team of the company. In one of the visits in the farm unit, a part of training regarding the safe use of PPE was observed, amongst others. The documents kept on-site were shown in both visits, and people's behavior towards safety was observed.

The documents regarding the management system that were given from the research participants were:

- OHSMS manual,
- OH&S Policy,
- List of documented information,
- List of regulatory and other requirements,
- Organizational chart,
- Job description of various employees from all levels of management and departments,
- Documents of establishment and approval of Key Performance Indicators (KPIs) and budget regarding OHS,

- Procurement of Safety Technicians and Occupational Physicians external services,
- Procurement of divers external services,
- Weekly and monthly internal reporting to top management regarding OHS,
- Form for recording meetings of worker's safety committees,
- Guidelines for performing OHS risk assessment,
- Incident reporting, investigating and actions scheduled procedure,
- Company's training program,
- Form for documenting training and appraising of the training presentation by participants,
- Samples of boat and crane operator's licenses and certificates of boats and cranes,
- PPE provision form,
- Noise measurement report form,
- Annual scheduling of internal OHS inspections and audits, including checklists,
- Minutes of top management review meetings.

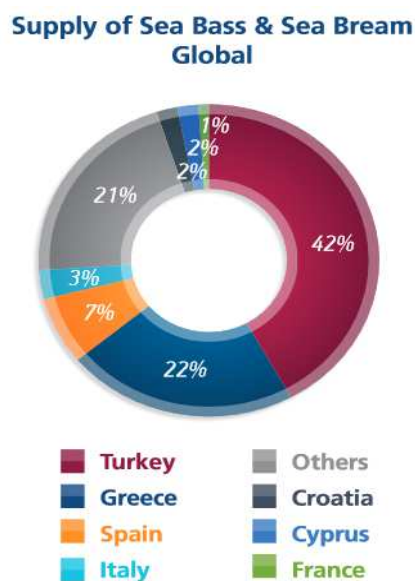
In conclusion, the following research was done regarding OHSMS in the Greek aquaculture organization Greek Fish S.A using those data mentioned above.

## **3.2. The aquaculture business sector and the company Greek Fish Group S.A.**

### **3.2.1 A brief description of the aquaculture business sector**

The continuous growth of the world population and the improvement of living standards of all industries including those on the food sector, create increased needs for food and especially for high-nutrition foods worth. Fish farming is one of the fastest developing global food industries as the demand for fishing products is constantly increasing. The

Mediterranean fish farming, the largest of which most of the production is sea bream and sea bass, almost covering the last 20 years exclusively the increased demand for these items. The industry contributes in a significant way to the economic and social cohesion of many regions of Europe Union, as many of them depend on its activity. Because many of the farming units are located in remote areas, especially they can create jobs and provide income to households, contributing to the anthropocentric development of local communities (FAO, n.d.).



**Figure 4: Supply of Sea Bass & Sea Bream Global (FGM, 2020)**

- Greece, Turkey and Spain are the main producers of sea bream and sea bass and produce about 70% of world production. The remaining 30% is produced in Italy, Croatia, France, Cyprus but also in some countries of North Africa and the Middle East.
- The Mediterranean fish farming sector, with 40 years of creative presence (1981 - 2021) is the second most extroverted productive sector in Greece and is ranked as the first sector in animal food exported based on volume and value.
- The annual turnover from the exports of Greek fish farming in 2019 exceeded 440 million euro.
- More than 80% of the total production of sea bream and sea bass is exported.
- The Mediterranean Fish Farming sector in Greece offers employment to about 10,000 people (FGM, 2020)

Aquaculture provides high nutrition food, employment to societies and also supports trade and economic development of people throughout the world. Conducting operations in a responsible manner will ensure the sustainable development of current and future generations.

### **3.2.2 The company**

One of the most important companies of aquaculture sector is **GREEK FISH GROUP S.A.**, which was founded in 1988. Also, it is the parent company of the vertical group Greek Fish S.A, of which the central axis of activities is fish farming. Within 33 years it managed to be the leading company in fish farming in the Mediterranean and also among the 10 largest fish producing farms in Europe.

As a leader country in this sector, it recognizes the importance of sustainability development, as well as the growing importance of informing every one of the parties concerned, regarding the values governing the group and their impacts on the economy, society and the environment for many years such as the Ten Principles of the United Nations (UN) on human rights, primary principles and rights at work, anti-corruption and also environmental protection. In addition, the vision of this company is to include high nutritional value healthy fish in consumer nutrition throughout the world. We can also mention that the mission of this company is to be responsible in every field and to supply nutritious and high-quality Mediterranean fish, to meet multiple hygiene needs nutrition of their consumers, in existing and modernized purchases, through the expansion of the distribution network and the expansion and development of value-added products like frozen fish, filleted fish and cooked fish.

The parent company was founded in 1988, where this company started the operation of the first marine unit. In its 33 years of operation, and through continuous refolding, acquisitions and mergers Greek Fish conquered first place in the world in production and marketing of Mediterranean species of fish while at the same time is, as it has been mentioned, among the 10 largest fish companies in Europe.

Its customers are the largest supermarket chains, wholesalers and processors in Europe and America and also on other countries. In addition, Greek Fish acts as a wholesaler to other fish farming companies, and provide services in all their functions, such as fish feed, excellent quality fry, as well as high standard equipment. Furthermore, Greek Fish Group is a company that is both backward and forward vertical integrated, since its broad business activity is related to various products and services that are complementary on the main activity. Its operations cover the entire value chain from producing equipment and fish feed for fish farms, breeding fish and fish farming to packaging, processing and distributing.

We can also say that the company currently has production facilities, which are fish farms, pre-growing and on-growing, packaging, processing, fish feed factories and a production unit for fish farming equipment. Also, Greek Fish has one research and development department for the creation of high-quality products and the increase of production. According to the continuous sampling analyses that they perform, Greek Fish S.A fishes have organoleptic characteristics (taste, aroma, texture) that place them at very high levels of nutritional value. The quality of their fish is guaranteed and fully controlled, as they produce their feed in their own factories and with their own recipes that contain organic ingredients such as, fishmeal, fish oils, soy-based plants, wheat and the necessary vitamins. This is a very important element of diversification of the Group, compared to the competition, which has invested heavily in its verticalization over the years. All extrusion, packaging and processes are also inspected daily moving the fish until they reach the places of sale.

The Greek Fish S.A. company made a strategic decision to certify all the establishments with the ISO 45001 International Standard for OH&S Management Systems. The development of the system was completed after six months and the implementation took another one and a half year. Then the certified body was invited to audit all establishments and after 4 months the company had completed the certification process for all establishments as planned. So, the development, the implementation and the certification of all company's establishments took over two years (around 28 months) to be completed.

### **3.3. Context of the Organization under the OHSMS prism**

#### **3.3.1. Understanding the Organization and its Context**

The company, in order to produce and execute the OHSMS, has recognized the outside and inside matters linked to its mission and influences its capacity to produce the wanted outcomes of the OHS management system and points that are essential for its goals and strategy and their continuous monitoring.

The organization of the company is reflected in the organization chart, and the staff is characterized by deep knowledge and extensive experience in the exercise of their duties and responsibilities.

The resources of the company are in general in a satisfactory condition. Specifically, the financial requirements arising from its operation are met, the necessary staff covers the responsibilities and the existing information systems technology is used for the dissemination of information and decision making, both for the inside and outside environment. The mechanical equipment and production technology perform satisfactorily in order to meet the requirements of the customers.

The culture of the company, including its values and perceptions, enables it to operate and meet the various requirements arising from the internal environment (internal business relationships of executives) and the external environment (customers, suppliers, etc.).

In order to analyze the external environment of the company and more specifically to identify those parameters that may affect the ability of the company to achieve the desired results of Health and Safety (OH&S), we will use the relevant literature, where the external environment is analyzed based on PEST Analysis (Political, economic, social and technological), extended with other parameters in the PESTLE Analysis (PEST & Legal & Environment) (pestleanalysis). Then the results of both the external and internal environment will be analyzed and determined, using the SWOT Analysis methodology (strengths, weaknesses, opportunities and threats) (pestleanalysis).

### 3.3.2. Understanding the needs and expectations of workers and other interested parties

The company in order to include all OH&S requirements in the OHSMS has identified the stakeholders. The table below identifies the needs and expectations of stakeholders, including workers, and which of these needs and expectations are or could become applicable legal and other requirements.

Interested parties include:



**Figure 5: Internal & External Interested Parties (iso9001help)**

Because of their impact or possible influence on the company's capability to consistently produce products and services that satisfy customer and relevant legal demands, GREEK FISH S.A. is concluding:

- The interested parties that are related to the OH&S management system.
- The provisions of these interested parties that are related to the OH&S management system

Greek Fish S.A. monitors and reviews learning about these interested parties and their related requirements at the annual Management Review.

The next table illustrates the interested parties with their overall requirements and expectations.

### Interested Parties:

	Requirements	Expectations
<b>Investors</b>	Investment Support. Engaging with the operation Implementation of Occupational Legislation Leader position market segment Targets achieving Requirements & Expectations fulfilling	Profitability, Reputation, Transparency Elimination Incidents (Accidents & Near Misses) Avoidance of fine due from Authorities Market share Lobbing
<b>Top Management</b>	Engaging with the operation Implementation of Occupational Legislation Keep Investors satisfied Employees' Participation	Investment Support from Investors. Reputation. Elimination Incidents (Accidents & Near Misses) Avoidance of fine due from Authorities
<b>Customers</b>	Meeting of food legislation obligations Compliance of Quality Specifications Food Safety Conformity with standards, and other regulations.	Use of Product. Labeling Possibility of visits and inspections Provision of quality data, certifications, submission of documents, specifications, analyzes notification of self-audit results.
<b>Facilities, Equipment and fleet.</b>	Equipment Safety Meeting of legislation obligations (CE) Licenses certifications	Operating facilities. Maintenance. Adoption of occupational health and safety good practices. Education
<b>Suppliers</b>	Safe working environment Technological support. Delivery on time Responding to special orders Stable cooperation	Reduce or eliminate the jobs with high-risk hazards Good communication and compliance with specifications Payments based on the agreed Satisfactory prices and payment methods.
<b>Sub-Contractors</b>	Safe working environment	Training, Participation Reduce or Eliminate the jobs with high risk hazards

	Requirements	Expectations
<b>Transporting companies</b>	Safe working environment. Payment based on the agreed. Response on the Frequency of itineraries.	Preference over competition. Effective communication.
<b>Employees</b>	Compliance with labor law Health & Safety working environment (e.g. PPE, work instructions). Training. Compensation.	Training, Participation, Awareness, Reduce or eliminate the jobs with high-risk hazards
<b>Employees Union</b>	Safe working environment. (e.g. PPE, work instructions)	Participation. Good communication with the management
<b>Occupational, Health &amp; Safety Committee</b>	Avoidance of fine from Authorities	Reduce or Eliminate the jobs with high risk hazards
<b>Competitors</b>	Observance of professional ethics and market rules. Code of ethics.	Exchange good practices related to OH&S
<b>Society</b>	OH&S Statement Respect for human life Compliance with legislation (H&S) Consultation and communication.	Social responsibility, Good communication and social relations Jobs offering, preference for employment by the local community. Social affairs, financial support for associations, the needy, strengthening the functionality of local services.
<b>Neighbouring Facilities</b>	OH&S Statement Respect for human life. Respect for the environment and zero complaints about noise, parking, health and safety, pollution and waste management.	Reduce the likelihood of large-scale industrial accidents
<b>Non-government organization (Elinyae &amp; ILO, Unions, Societies, etc.)</b>	Respect for human life Compliance with legislation (H&S)	Participation, Awareness. Participation and Support in scientific committees. Implementation of management systems standards. Lobbing (Producers Organization)

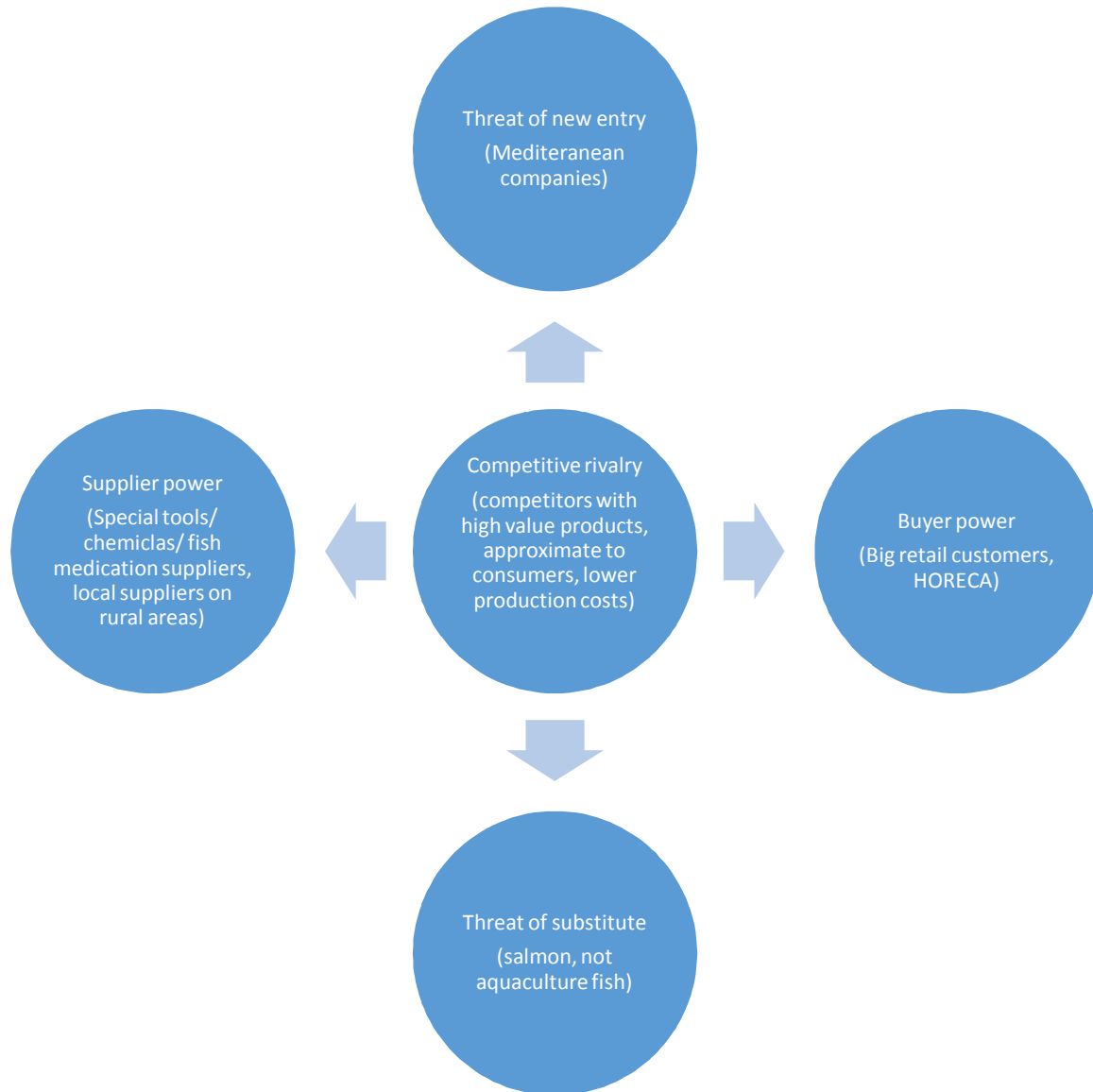
	Requirements	Expectations
<b>National Authorities (Port Authorities, Ministry of Employment etc.</b>	Implementation of the identified legal and regulatory requirements. OH&S Statement. Transparency.	Lobbing (Producers Organization) Understanding the requirements
<b>Certification bodies</b>	Engaging with the operation Legislation	Compliance with other certificates, updating and maintaining them.
<b>Visitors</b>	Safety. Access to premises	Feeling safe and familiar with the premises

**Table 4: Interested Parties**

### **External Environment:**

The organization has used the Porter's five forces analysis for identifying and analyzing the more direct external environment and the PESTLE Analysis in order to analyze the more general external environment. The Porter's five forces analysis focuses on the industry's participants through the three out of five forces, the threat of new entry, the competitiveness of existing rivals and the threat of substitute products and on the vertical participants through the other two out of five forces, the power of suppliers and customers. The PESTLE analysis focuses on the external environment, presenting the prevailing conditions, the challenges and the changes that the company might face in terms of Politics (P), Economic (E) and Social Conditions (S), Technological Developments (T), Legislation (L) and (E) Environment (pestleanalysis).

Below the figures describe the Porter's 5 Forces and PESTLE analysis of the company.



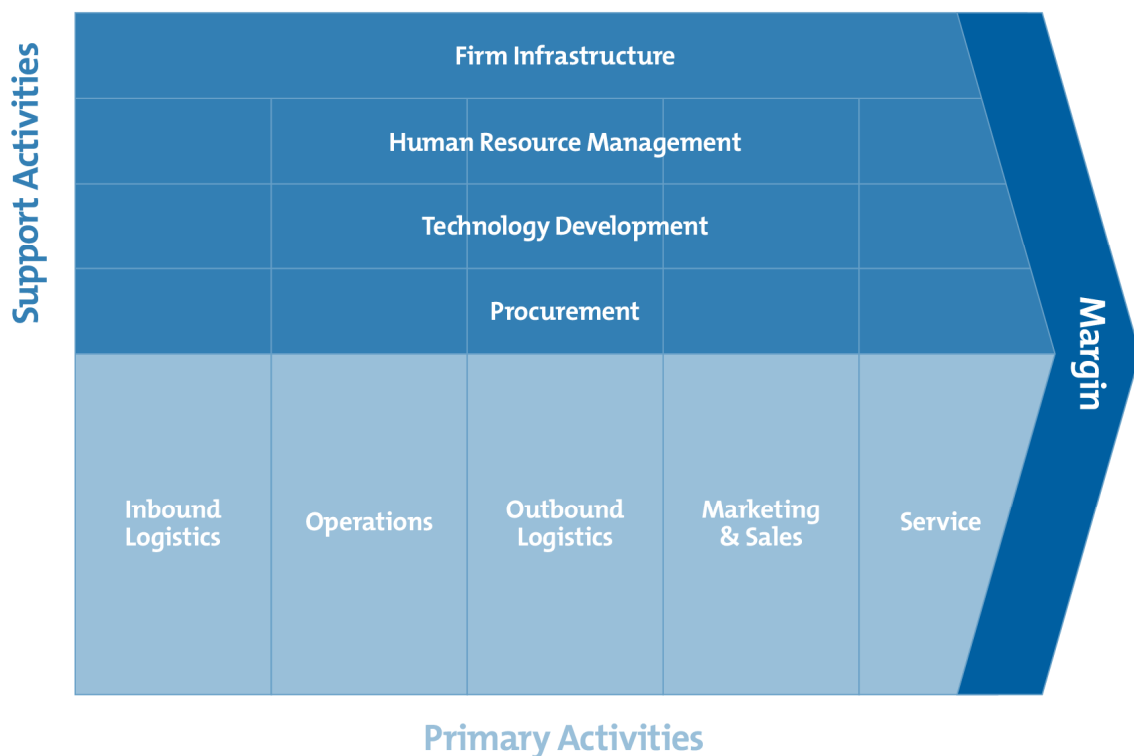
**Figure 6: Porter's 5 Forces**

P	<ul style="list-style-type: none"> <li>• Tax policy for companies • Strengthening investment plans • Support for entrepreneurship • The Political environment It is characterized by low stability</li> </ul>
E	<ul style="list-style-type: none"> <li>• Increase in energy costs - Economic crisis - Competition - Taxation - Labor cost - Investments. • Development of banks • Business financing • Protection of assets and products .</li> </ul>
S	<ul style="list-style-type: none"> <li>• High standard of living • Increased per capita income • Jobs • Donations, assistance to local agencies • Rapid growth of social networking • Human resources with qualifications in the industry • Demographic issues • Poor educational level in segment.</li> </ul>
T	<ul style="list-style-type: none"> <li>• New alternative energy sources • Industry innovation, research and development make the difference • Rapid advancement in technology • R&amp;D and High Tech protection equipment . • Progress in the development of communication • New production technologies • New product codes, immediate adaptation to customer requirements • High technology with low cost • Correct and effective means of communication .</li> </ul>
L	<ul style="list-style-type: none"> <li>• Changing national legal environment • High legal compliance of the company • Strong obligations for the implementation of management systems • Observance of safety rules • Compliance with Environmental Terms • Observance of the Health Conditions • Observance of fire safety rules OH&amp;S legislation. • Regulations on the Health and Safety issues regarding workers Labor legislation</li> </ul>
E	<ul style="list-style-type: none"> <li>• Climate change • Environmental legislation • Recycling issues • Pollution • Management of hazardous solid waste • Environmental Consciousness to the Consumer • Governmental Supports for Environmental Activities • Infrastructures for the protection of the environment (collective waste management systems, etc.) • Business Continuity after major events (natural or technological disasters)</li> </ul>

**Table 5: PESTLE Analysis**

### Internal Environment:

Examination of the internal environment is made through Porter's Value Chain. Porter's Value Chain consists of Primary Activities (Inbound Logistics, Operations, Sales & Marketing, Servicing) and Support Activities (Administrative/Finance Infrastructure, Human Resources Management, Product & Technology Development, Procurement). It is used to study the internal environment that can impact and form the strategy (Mind Tools Content Team, n.d.).

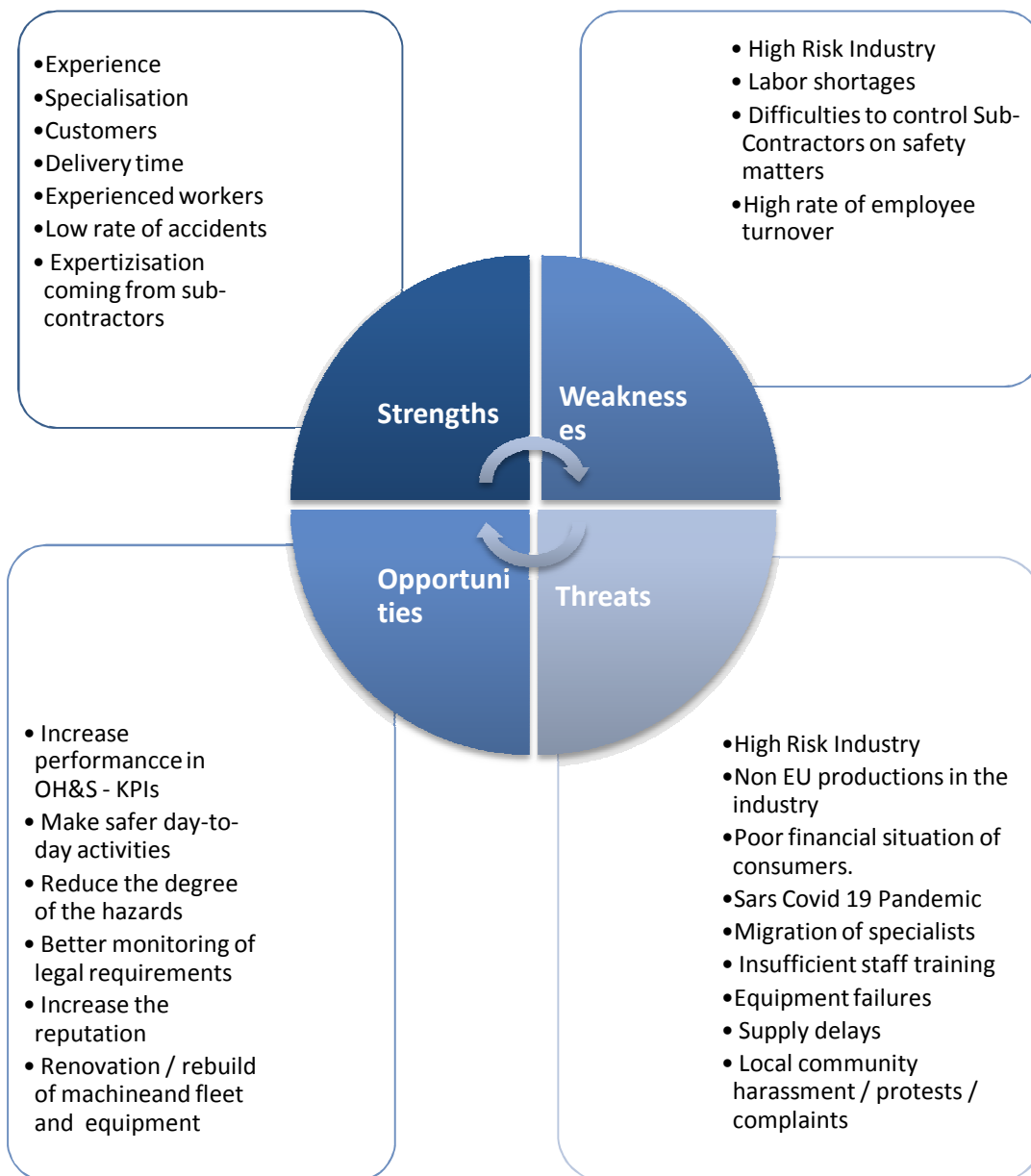


**Figure 7: Porter's Value Chain (Mind Tools Content Team, n.d.)**

According to Porter's Value Chain analysis the company has recognized the elements that are related with the internal stakeholders and are included on the following SWOT analysis. The most important is the management of human resources and more specifically the competence and training of employees, the experience of the employees and sub-contractors, the labour shortages and the high rate of employee turn-over.

Finally, the SWOT Analysis (Strengths/ Advantages, Weaknesses, Opportunities, Threats/ Dangers) is used to examine internal environment in conjunction with all external factors that

can influence and shape the strategy (pestleanalysis). Following the analysis of the internal and external environment the company proceeded with the SWOT analysis below.



**Figure 8: SWOT Analysis**

### **3.3.3. Determining the scope of the OH&S management system**

Following the SWOT analysis, the organization proceeded with the establishment of the scope or else the definition of the limitations and applicability of the OHS management system.

In defining its scope, the Organization:

- (a) has considered the external and internal matters
- (b) takes into account the requirements of the internal and external stakeholders
- (c) takes into account the work scheduled or made related to activities.

The scope of Greek Fish S.A. includes management of health and safety at work in the implementation of:

- Production and sales of fresh fish from aquaculture.
- Production and supply of fish fry.
- Production and sale of processed fish.
- Production and sale of fish feeding products.
- Production, import and sale of equipment for aquaculture.

The scope of the OH&S management system applies throughout the organization and includes the aforementioned activities performed at the Greek Fish S.A. as follows:

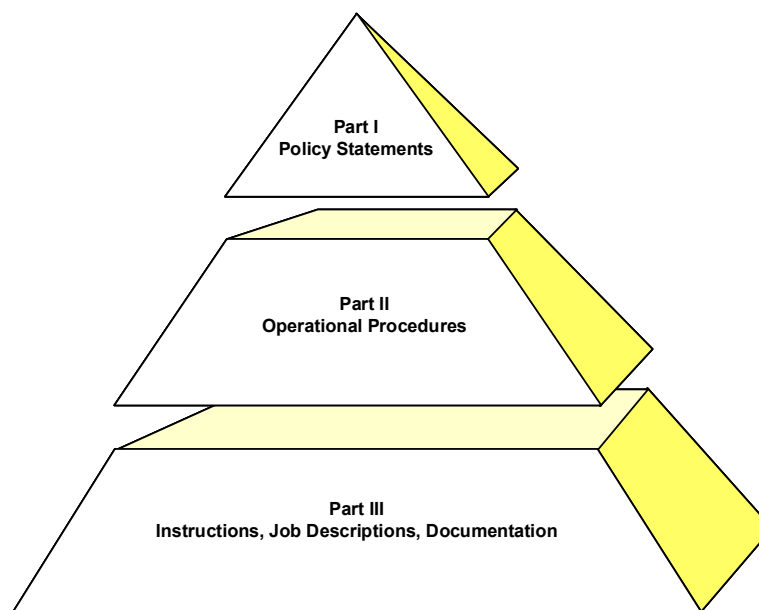
- An administrative building and a plant for the packaging and processing production located in industrial area of Koropi.
- Fish farming Hatcheries and on –growing units in:
  1. Evia
  2. Thersprotia
  3. Fokida
  4. Aitolokarnania
  5. Argolida
  6. Chios
- Fish feed industry in Korinthos.

- An administrative building and a plant for manufacturing fish cages, feeding machines and other equipment for aquaculture in Evia.

The management of Greek Fish S.A. is responsible for preparation and maintenance of an Occupational Health and Safety Management System. This OH&S Management System Manual includes:

- Description of the elements of the OH&S Management System and their interactions.
- Operational procedures.
- Instructions.

OH&S Management System Manual includes the following parts according to the scheme:



**Figure 9: Elements of OHS management System**

- Part I: Contains basic principles and managerial elements governing the OH&S Management System of Greek Fish S.A. as also the defined responsibilities of persons operating the OH&S Management System.
- Part II: Contains the operational procedures of Greek Fish S.A. OH&S Management System, as they are applicable to all activities.

- Part III: Contains the specific instructions and work descriptions for the performance of all operations and duties regarding the implementation of OH&S Management System. It also contains the various forms, tables, data sheets and generally all documentation accompanying the work instructions and procedures.

The QHSE department of Greek Fish S.A. in cooperation with the top management and the legal department is responsible keeping up to date and comply to all requirements of the following:

- ISO 45001: 20018 - OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM REQUIREMENTS.
- The regulatory requirements related to OH&S - according to the current Register of External Documents. **For more information see Appendix B** (Greek Ministry of Labour).
- Contracts with suppliers and other stakeholders in the part on requirements for health and safety at work.

### **3.3.4 OHS Management System**

According to the description introduced in the company's handbook, the OHS Management System is *"A description of how the Company will establish, implement, maintain and continuously expand the OHS management system, including the essential processes and their synergies, under the provisions of this document."*

Greek Fish S.A. has placed OH&S Management System procedures that detail the processes and methodology needed to perform the OH&S Management System. The scope of the System procedures are based upon the company's kind of products, services, the complexity, order and synergy of the processes, the methods applied, and the experience, skill and training of personnel.

According to the information available from the descriptions of the OHS managers of the company and the relevant documents provided, the procedures include:

- System procedures that define the actions required completing the OH&S Management System of Greek Fish S.A.
- Procedures that explain the order and characteristics of the processes required to guarantee the compliance of services, including those outsourced.
- Guidance that explains the working practices and controls of Greek Fish S.A service actions.
- Duties, methods and control criteria, required to assure the purpose and the control of the processes.

The management of Greek Fish S.A has chosen a process-oriented approach for building, documenting, introducing and improving the efficiency of the OH&S as it ensures continuous management and control of the processes in the health and safety management system and their interaction.

"The Greek Fish S.A Process Scheme" (for more information see Appendix A), shows the processes realized in the company and their interrelation. The following types of processes are outlined:

- Planning processes:
  - Identifying hazards and assessing risks and opportunities;
  - Defining legal demands and other demands;
  - Objectives and planning of their fulfillment.
- Processes related to the maintenance:
  - Resource management;
  - Competence, awareness, exchange of information;
  - Manage documented information.
- Operational Planning and Management:
  - Operational planning and management of the OH&S;
  - Emergency preparedness and response capability.
- Processes related to performance evaluation:
  - Conformity assessment;
  - Internal Audit;
  - Management review.

- Leadership and improvement
  - Leadership;
  - Non-compliance, corrective and preventive action;
  - Continuous improvement.
- Satisfaction of stakeholders
  - Absenteeism;
  - Claims.

Greek Fish S.A. has placed OH&S Management System procedures for managing novel and changed existing documents needed for the system's running. The OH&S Management System procedures assure that:

1. Documents are signed for adequacy before publicity;
2. Documents are re-evaluated, renewed as needed and re-signed;
3. The applicable versions of documents are available at all locations where actions essential to the productive functioning of the quality operating system and process are made;
4. Out-of-date documents are withdrawn from all positions of issue or use, or unless they are controlled to limit unwanted use;
5. Any out-of-date documents maintained for legal or knowledge storage purposes are recognized.

### **3.4 Leadership and worker participation**

Greek Fish S.A. focuses on integrating health and safety aspects into the general organization's management system, thus requiring a more substantial management involvement. Top management demonstrates leadership and commitment to performing all activities concerning the OH&S management system.

Additionally, the organization recognizes and clearly describes, in a process, opportunities for improvement for health and safety at work that may arise due to organizational changes,

elimination of OH&S risks in the workplace and adaption of the work environment to the employees' needs.

The organization's commitment is demonstrated by including principles on the OH&S policy that supports and continuously advances health and safety performance. Furthermore, the policy establishes a framework for the organization to set goals and take the necessary actions to achieve the expected results. It is developed and reviewed, when necessary, in consultation with workers at all company levels. The organization commits to comply with applicable legal requirements and other requirements and control OH&S risks using the hierarchy of controls method. The policy is documented and available to all interested parties.

Responsibilities, accountability, authorities, and reporting of people with roles within the OH&S Management System are designated and communicated and kept as documented information.

The company establishes processes that support the participation or representation of all employees, including the non-managerial employees, in developing and implementing the OH&S Management System.

### **3.4.1 Leadership and commitment**

It states the way in which the top management exercises the leading role and demonstrates its commitment in relation to the management system of OH&S. The management of Greek Fish S.A. in the person of the Executive Director of the organization, has declared its commitment, related to the development, implementation and maintenance of an efficient system for management of health and safety at work. Evidence of implementation of the commitments made by the management provides as:

1. Assuming overall responsibility and accountability for the prevention of work-related harm and ill-health as well as the provision of safe and healthy workplaces and activities;
2. Assuring that the OH&S policy and relevant OH&S goals are set and are harmonious with the strategic orientation of the company;
3. Assuring the integration of the OH&S management system specifications into the company's business methods;

4. Assuring that the resources required to institute, execute, sustain and improve the OH&S management system are available;
5. Communicating the essence of efficient OH&S management and of adapting to the OH&S management system demands;
6. Assuring that the OH&S management system delivers its expected result(s);
7. Influencing and encouraging employees to participate in the effectiveness of the OH&S management system;
8. Assuring and fostering continual improvement;
9. Encouraging other relevant management roles to demonstrate their leadership as it utilizes to their regions of responsibility;
10. Forming, leading and promoting a mindset in the company that promotes the expected results of the OH&S management system;
11. Guarding employees against reprisals when communicating incidents, hazards, risks and opportunities;
12. Assuring the company institutes and executes a process(es) for discussion and cooperation of workers;
13. Promoting the founding and functioning of health and safety committees.

### **3.4.2 OHS Policy**

The management of Greek Fish S.A. has adopted a “Occupational Health and Safety Policy”, as a framework for establishing and reviewing the company’s objectives and management.

Management policy:

- embodies a dedication to assure healthy and safe working conditions to stop work-related incidents and is suitable for the scope, extent and context of the company, and the particular nature of its OH&S risks and the OH&S opportunities;
- presents a framework for determining the goals of the OH&S;

- embodies a dedication to satisfying legislative demands and other demands;
- introduces a dedication to eradicate the hazards and decrease the risks to the OH&S;
- introduces a dedication to improving the management system of the OH&S continuously;
- introduces a dedication to discussion and participation of employees and employee representatives, where possible;

Management policy is reached to all workers, outsiders and unions. The policy is reexamined and assessed regularly at least once per year by the management to assure its applicability and agreement with its objectives, differences in its performing environment, legislative changes and differences in the company or the industry. Management assures that there is the latest version of it on the organization's intranet. The same is available to other stakeholders by placing it on the organization's website.

**Policy Statement**

**OH&S is a fundamental component of Greek Fish S.A. long-term business strategy. We consider H&S implications in the full spectrum of our activities with the intent to protect associates and employees.**

Safety is a core value and it has a direct impact on the quality, performance and sustainability of our organization.

We **commit** to:

- Conduct our business with a goal of zero harm.
- Provide safe, healthy, and secure work places safe equipment and safe work procedures and practices based on the results of regularly reviewed risk assessments for employees, contractors, and customers.
- Provide all means to ensure all personnel is competent and properly trained, in Health & Safety issues that affect their work to ensure they have the proper competences to conduct their tasks safely.
- Establish emergency plans and provide all appropriate safety equipment, where applicable
- Fully support an OH&S management system framework for continual improvement through annual OH&S objectives and corresponding action plans.
- Comply with applicable legal, regulatory, industry and corporate requirements
- Communicate openly with all stakeholders on relevant health and safety issues.
- Speak up for anything that consists a violation or have the effect of concealing the foregoing

**Chief executive officer**

**Figure 10: Policy Statement**

In addition, Life Saving Rules were developed, to identify and mitigate the potential for serious injuries or fatalities and every part of this Group by accepting working for or/and with us must acknowledge. We have zero tolerance regarding breaches of Life Saving Rules:

**Rule 1**

We are aware of the risks and safety measures in the tasks that we perform.

**Rule 2**

We shall report all unsafe conditions and incidents.

**Rule 3**

We never override, remove or misuse H&S devices, and signs

**Rule 4**

We do not perform any activity under the impact of alcohol or drugs.

**Rule 5**

We always use the required PPE, including safety belts.

**Rule 6**

Maintain three points of conduct when climbing, working from a ladder, in a boat or stairs

**Rule 7**

Work with a valid work permit in any case that this is a prerequisite

**Rule 8**

Verify isolation when working on energized systems

**Rule 9**

I always preserve good level of housekeeping in my work environment.

**Living by these rules is a condition of employment in Greek Fish Group.**

Moreover, all workers and contractors operating for Greek Fish have to comply with the below rules:

- All Personal Protective Equipment (PPE) needed for an assigned job must be used properly. This refers in general to the use of:
  1. Proper fall protection equipment when operating at height.
  2. Safety helmet.

3. Eye protection.
  4. Safety boots.
  5. High visibility lifebuoys
- Equipment must be sufficiently isolated from all energy sources and tested to assure it cannot start or move before any tasks.
  - All energy sources must be checked to ensure they work safely.
  - Safeguards must be in position before equipment is (re)started.
  - Entry into confined spaces is only permitted for competent employees authorized by the relevant supervisor.
  - Driving, diving and operating floating vessels or boats for the corporation are performed strictly according to legislation and company requirements by licensed persons.
  - Fire safety equipment must be upgraded.
  - All occupational incidents are reported, recorded, and investigated to recognize the root causes, take remedial actions, and communicate any lessons learned.
  - Additional Health & Safety demands are laid down in Group guidelines and local documents, regularly reexamined and modified. Non-compliance with those rules will not be allowed.

### **3.4.3 Organizational roles, responsibilities and authorities**

According to the company's OH&S management system manual, management ensures that the responsibilities for the relevant roles within the management system of the OHS are assigned and communicated to all levels of the Organization and are kept as documented information. Although responsibilities may be delegated, the top management is still accountable for the operation of the OHS management system.

The top management must delegate the responsibility for:

- (a) ensuring that the OHS management system complies with the requirements of this document.
- b) the preparation of reports on the performance of the management system of the OHS to the top Management.

The senior management of Greek Fish S.A.:

- Ensures that, the responsibilities and powers for the respective roles in the OH&S are assigned and communicated at all levels of the company and documented and maintained
- Workers at all levels of the organization are informed about the responsibilities under the OH&S for the aspects they manage.
- The roles of the officials in the organization are defined, adopted, regulated and modified by the Administration.
- The roles, responsibilities and authority of the employees are defined in the employment contracts, job descriptions and / or in the documentation in the OH&S Management Manual, Health and Safety at Work Policy and the Fundamental Rules, Internal Regulations, Procedures, Instructions, programs, plans and orders related to OH&S.

Senior management has the final accountability for the functioning of the management system by allocating responsibilities and authorization to:

- Assuring that the management system complies with the provisions of ISO 45001:2018;
- Reporting to the senior management on the effectiveness of the management system.

Any exemptions to the policies will be reexamined by the CEO and approved suitably.

Greek Fish S.A. has placed an OH&S Management System as a means of satisfying its OH&S Policy, delivering its goals and assuring that outcome corresponds to customer demands. Organizational roles, responsibilities and authorities are defined within:

- the Company's Organization Chart and

- the Job Descriptions promote effective OH&S management and are communicated to all business levels.

The Management representative for the OH&S system has the responsibility and authority for:

1. assuring that the OH&S management system corresponds to the demands of the International Standard;
2. assuring that the processes are achieving their intended outcomes;
3. reporting on the performance of the OH&S management system and opportunities for improvement to top management;
4. assuring the promotion of customer focus throughout Greek Fish S.A.
5. assuring that the integrity of the OH&S management system is maintained when modifications to the OH&S management system are shaped and performed.

Management representative's responsibility involves the relationship with outside parties concerning OH&S management system matters.

In Figure 11, the delegation of authority regarding OH&S within the company is depicted. The roles of people included in the figure and the people of the supporting departments like the Legal and HR departments are described below.

**OH&S Department will:**

- Support the Operational Managers to ensure operations are informed of all relevant Health and Safety regulations and company requirements.
- Name and facilitate training needs to ensure all employees understand Health and Safety requirements, work-related hazards, and control measures.
- Conduct Internal Audits for H&S programs and procedures (2 / year / establishment).
- Support Group on fulfilling its obligations on Safety Technicians and Occupational Physicians (outsourced) recommendations.
- Support on preparation of Emergency Procedures for each establishment.
- Keep an updated list with relevant PPEs per working environment and employee's tasks.

- Review and coordinate any update on Risk Assessments in cooperation with Safety Technicians for each establishment.
- Defining minimum requirements for the selection of contractors-suppliers develop systems for monitoring them and evaluating their performance regarding H&S issues.
- Support executive and operational managers on annual planning and implementation of H&S requirements.

**Legal department will:**

- Provide information to managers and supervisors regarding the minimum legislation requirements for operations in all worksites.
- Ensure that Incidents on the workplace are properly reported to all relevant authorities.

**HR Department will:**

- Plan, monitor and evaluate OH&S training program.
- Plan, monitor and evaluate Safety Technicians' and Occupational Physicians' services.
- Report incidents on relevant labor inspection authority according to legislation requirements, in cooperation with the Legal Department.
- Ensure that no employee will perform any tasks before having at least a minimum induction training and Medical Certificate available.
- Ensure the availability of a valid license or other requirements for all employees perform tasks as deemed by legislation

**Managers/Supervisors will be responsible and accountable that:**

- The workplace's environment, machinery, equipment and tools are designed, maintained and used according to legislation minimum requirements and furthermore as safely as reasonable possible.
- Induction training and proper PPE must be available for every new employee before starting to work.
- In every workplace an Emergency Plan will be available and Emergency Drill will be conducted at least once a year.

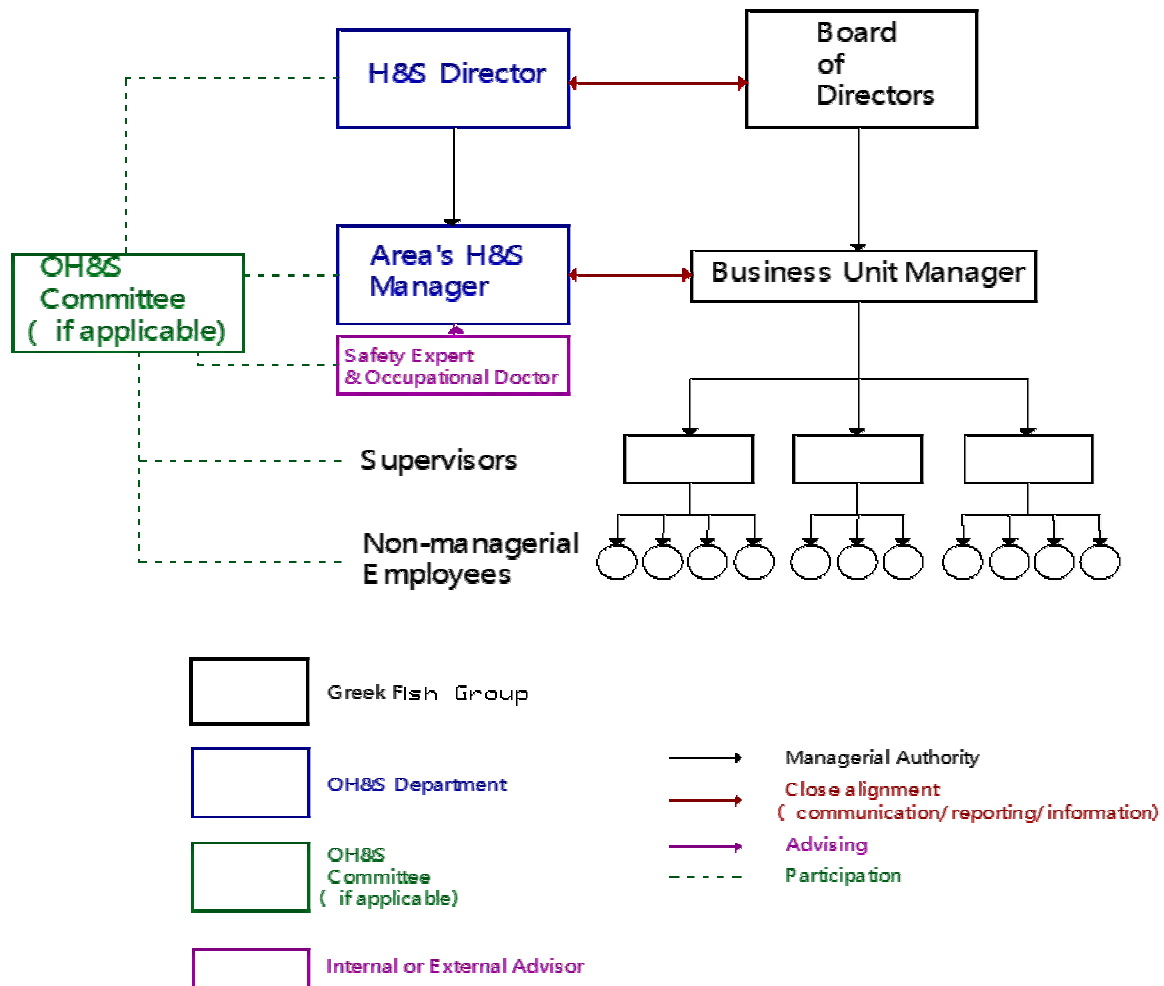
- In every workplace and shift there will always be present a person with certified First-Aid training.
- Only competent employees and properly trained (where applicable), will be assigned with high-risk tasks.
- No Work at Sea will be performed without the presence of at least two persons with certified training for Rescue at Sea.
- Lone-Working is not permitted during operations over the sea.
- On the rest operations, Lone-working will only be performed by using a suitable emergency device.
- All undesired conditions and incidents will be reported immediately to relevant departments.

**Licensed Operators/Technicians will:**

- STOP WORK whenever there is an imminent risk of serious incident taking into consideration their experience, skills, knowledge and H&S rules.

**All employees will:**

- Report to their supervisors any Unsafe condition/behavior or Incident (Near-Miss, Minor Injury or Lost Time Incident) on the workplace, that they are aware of.
- Comply will all Greek Fish's and relevant legislation's safety regulations.
- Make use of their PPE according to PPE's manufacturer instructions and guides by the company.
- Participate in all company's training programs.
- Consult their supervisor and not proceed with performing a task if they consider that task cannot be done safely.
- Make safe use of machinery, equipment, tools and hazardous materials, without bypassing any safety device or safety procedure.



**Figure 11: OH&S Organizational Chart**

### 3.4.4 Consultation and participation of workers

How the organization develops, implements and sustains process (es) for discussing and including employees of all levels and roles and, where applicable, employee representatives in the construction, plan, implementation, review and the steps to update the management system of the OHS.

In Greek Fish S.A., there have been formulated, executed and maintained processes for counseling and participation of workers at all levels and areas in the construction, plan, implementation, review of the performance and steps for the development of the management system OH&S.

The organization:

1. gives tools, time, education and support required for discussion and cooperation;
2. gives convenient access to transparent, understandable and related information about the OH&S management system;
3. defines and eliminates restrictions or limitations to participation and reduces those that cannot be removed, with no threats, punishments, or methods or systems that discourage employee' participation.
4. highlights the discussion of non- managerial staff on the following:
  - 4.1. defining the requirements and expectations of affected parties;
  - 4.2. establishing the OH&S policy;
  - 4.3. distributing organizational roles, responsibilities and authorities as suitable;
  - 4.4. planning how to meet legal provisions and other provisions;
  - 4.5. establishing OH&S goals and mapping to deliver them;
  - 4.6. defining appropriate regulations for outsourcing, procurement and contractors;
  - 4.7. deciding what needs to be controlled, measured and assessed;
  - 4.8. plan, installing, executing and maintaining an audit program(s);
  - 4.9. assuring continual improvement;
5. highlights the participation of non- managerial staff in the following:
  - 5.1. defining the tools for their consultation and participation;
  - 5.2. recognizing hazards and assessing risks and opportunities;

- 5.3. defining steps to remove hazards and decrease OH&S risks;
- 5.4. defining competence qualifications, coaching needs, training and assessing training;
- 5.5. deciding what requires to be communicated and how this will be arranged;
- 5.6. defining control measures and their practical implementation and use;
- 5.7. investigating incidents and nonconformities and defining corrective actions.

Workers' participation and counseling is mainly carried out through:

- their representatives in the Health and Safety Team the HST gathers regularly to discuss activities, develop plans and programs to ensure healthy and safe working conditions for employees and others (for document used to keeping records of minutes of meetings see Appendix C)
- the representatives of the employees
- the members of the Health and Safety Team

The emphasis on consulting and involving non-managerial employees is intended to apply to staff performing the work activities, but not excluding, for example, managers who are influenced by work activities or other factors within the Organization.

It is recognized that the provision of cost-effective training for employees and the provision of on-the-job training, where possible, can be significant barriers to employee participation.

### **3.5 Planning**

#### **3.5.1 Actions to address risks and opportunities**

##### **3.5.1.1 General**

Planning has regularly been an essential component of building and sustaining an OH&S MS. ISO 45001:2018 now lays greater importance on the organization's planning to proactively recognize any conditions that could drive any undesired events that could hinder the realization of continual improvement. The company is now expected to analyze its context and involved parties when designing and executing its OH&S management system.

To this end, the company takes into account the matters introduced in 3.2.1 (operating framework), the conditions introduced in 3.2.2 (stakeholders) and 3.2.3 (the scope of the OH&S management system) and recognizes the threats and opportunities that must be managed or utilized consequently.

Greek Fish S.A. has examined the matters related to understanding the organization's context and the requirements and expectations of the involved parties.

The company has also decided the risks and opportunities that need to be addressed to:

1. Give certitude that the OH&S management system can deliver its intended outcomes.
2. Enhance desirable results.
3. Block, or diminish, undesired results.
4. Accomplish improvement.

Greek Fish S.A. has planned steps to approach the risks and opportunities and combine and execute these steps into its OH&S management system processes and assess the effectiveness of these steps. All steps needed to address risks and opportunities are proportionate to the likely influence on the compliance of products and services and are introduced to the Risk Assessment.

The final Risk Assessment is based on Possibility and Severity of each risk (Koudounaris). For all the hazards in the workplace, the related risks are identified in all company operations. Risks are assessed using the following method. The probability of an event occurring is graded on a scale from 1 to 4, and the severity of the result in case it occurs is graded on a scale from 1 to 3 (Possibility grade: 1 – 4 | Severity grade: 1 – 3).

For each risk, the specific probability is multiplied by the severity of the risk. According to the result, the risks are categorized as follows in the next 3 categories:

1. Possibility \* Severity  $\leq 4$  = “Low Risk”
2.  $4 < \text{Possibility} * \text{Severity} \leq 8$  = “Medium Risk”
3.  $8 < \text{Possibility} * \text{Severity} \leq 12$  = “High Risk”

Efficient prioritization in the provision of resources and time planning is made according to the risk category.

**Note:** Measures are deemed necessary if the result of Possibility \* Severity is in the "Medium" or "High" Risk area.

However, action may be taken even if the risk is classified as "Low Risk". OH&S Manager is responsible for the above actions.

The Health & Safety Dept is responsible to ensure periodic and regular audit of the policy and procedures. These may include reviews to identify continuous improvement opportunities, and should include periodic formal audits by the Internal Audit Function and where appropriate, external audit reviews.

### **3.5.1.2 Hazard identification and assessment of risk and opportunities**

According to Greek Fish S.A. available documents, hazard identification is the manner in which the Agency establishes, implements and maintains a risk identification process(es) that is ongoing and proactive. Greek Fish S.A. is subject to a regulated risk identification order taking into account:

- organization of work,
- social factor (including workload, working time, exploitation, threats and harassment),
- leadership and culture in the organization;
- routine and non-routine activities and situations, including dangers arising from:
  - 1) infrastructure, equipment, materials, chemicals and physical conditions at the workplace;
  - 2) design of products and services, research, development, testing, manufacturing, assembly, construction, service delivery, maintenance and disposal;
  - 3) human factors;
  - 4) how work is done
- previous incidents, internal or external to the organization, including emergencies, and the reasons for them;

- potential emergencies;
- people, including taking into account:
  - 1) those who have access to the workplace and their activities, including workers, contractors, visitors and others;
  - 2) those that are close to the workplace and which can be influenced by the organization's activities;
  - 3) workers in places not under the direct management of the organization;
- other issues, including consideration of:
  - 1) the form of processes, machinery/equipment, work areas, facilities, work methods and work organization, including their agreement to the demands and capabilities of the workers involved;
  - 2) conditions occurring in the general region of the workplace created by actions associated to works under the control of the company;
  - 3) conditions that are not controlled by the company and which happen in the general region of the workplace, which can create personal harm and illness in the workplace;
    - actual or proposed changes to the organization, its functioning, processes, activities and management system
    - changes in knowledge and hazard information.

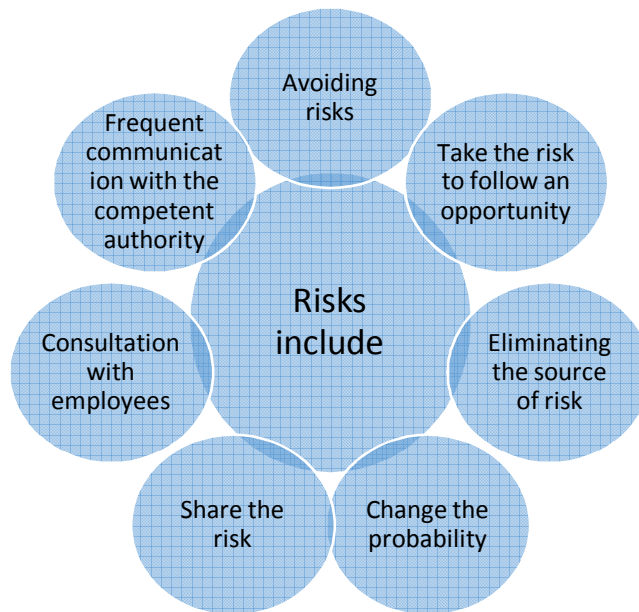
For more information see **Appendix D**.

The organization establishes implements and maintains processes to:

1. evaluate OH&S risks from the recognized hazards while examining the effectiveness of existing controls;
2. define and evaluate the other risks associated with building, executing, operating, and sustaining the OH&S management system.

The company's methodologies and standards for evaluating OH&S risks are established concerning the scope, nature and timing to guarantee they are proactive rather than reactive

and are practiced systematically. Documented data is sustained and held on the methodologies and standards.



**Figure 12: Risks**

### **3.5.1.3 Determination of legal requirements and other requirements**

The company constructs, executes and sustains a process(es) to:

1. define and possess access to up-to-date legal demands and other demands that connect to its hazards, OH&S risks and OH&S management system;
2. decide how these legal obligations and other obligations are relevant to the company and what requires to be communicated;
3. take these legal obligations and other obligations into consideration when building, executing, preserving and continually improving its OH&S management system.

The company preserves and holds documented information on its legal obligations and other obligations and assures that it is renewed to follow any modifications.

### **3.5.2 OH&S objectives and planning to achieve them**

#### **3.5.2.1 OH&S objectives**

According to the company's OHSMS manual in this section is described how the Organization sets the objectives of the OHS in the relevant functions and levels, in order to maintain and continuously improve the management system and the performance of the OHS. Greek Fish S.A. has established objectives at relevant functions, levels and processes needed for the OH&S management system. The established objectives:

- A. are consistent with the quality and OH&S policy;
- B. are measurable;
- C. considering:
  - 1) relevant requirements
  - 2) the outcomes of the threat and opportunity examination
  - 3) the results of the consultation with the employees and, where applicable, the employees' representatives.
    - 1. are related to the compliance of products and services and increase of customer satisfaction;
    - 2. are controlled and communicated;
    - 3. are renewed as appropriate.

Objectives of Greek Fish S.A. are properly documented in the relevant forms. Greek Fish S.A. in order to achieve its objectives has determined what shall be done, the required resources, the responsibilities, time frame and evaluation of the results.

#### **3.5.2.1 Planning to achieve OH&S objectives**

When planning how to achieve its OH&S objectives, the organization determines:

- 1. everything that will be performed;
- 2. what support will be needed;

3. who will be reliable;
4. when it is finished;
5. how the outcomes will be assessed, including key performance indicators for monitoring;
6. how the steps to complete OH&S goals will be blended into the organization's business methods.

The company maintains and retains documented information on the OH&S goals and plans to complete them.

### **3.6 Support**

The organization determines and provides the resources that are needed to implement the OHSMS successfully. Documented Information that supports competence evaluation and development is accessible. Employees are aware of risks & hazards related to them, also are aware of policy requirements and outcomes of incident investigations and required corrective measures. The organization establishes internal and external communications of the OHS Management System and evaluates its effectiveness.

#### **3.6.1 Resources**

According to Greek Fish S.A. available documents the way in which the Organization identifies and provides the resources required for the establishment, implementation, maintenance and continuous improvement of the management system of the OHS.

Greek Fish S.A. management is concerned about the sufficiency of available and invested capital, facilities and technical means, manpower as well as support services (information systems, internal control, etc.).

In the company, the provision of resources is carried out in accordance with the planned activities for OH&S management system. In determining the necessary resources, account shall be taken of:

- the capabilities and limitations of existing internal resources;

- reporting of outsourcing management needs.

### **3.6.2 Competence**

In order to recruit and keep the most competent people in all positions, the organization:

- A. defines the required competence of employees that influences or can influence its OH&S achievement;
- B. assures that employees are competent (including the knowledge to recognize hazards) based on proper education, training or experience;
- C. take steps to gain and sustain the required competence, and assess the effectiveness of the steps taken (where relevant);
- D. maintains relevant documented data as confirmation of competence.

The various criteria for the selection and recruitment of staff are determined according to the defined competence criteria.

The selection and recruitment of staff is based on the high demands on employees in terms of their qualifications, experience and personal qualities.

The criteria to be met by the staff are described in the job descriptions approved by the administration, which are reviewed and updated as necessary, as well as the establishment of changes to the establishment plan.

Companies are trained to cover all levels of staff and all activities affecting the OH&S. It is conducted according to:

- A training plan that is tied to a training budget and endorsed by the Human Resources Director.
- Training and Induction Training Management Procedure.
- Work Instructions for briefing of the employees on the rules for ensuring of healthy and safe working conditions, shipping safety rules, fire safety rules and standards for site operation.

The effectiveness of training on preparedness for response in emergencies and incidents is assessed through planned simulations and exercises.

In order to ensure and maintain the required competence and qualification of the personnel of the Organization, training shall be carried out:

- New recruited / recruited staff;
- To maintain the qualification required for a specific job / job;
- To upgrade the qualification;
- By the requirements of the normative documents - specialized training;
- By Organizations' Special Requirements;

Every new entrant passes initial training, regardless of prior education and qualification, according to an Introductory Program, prepared by the Human Resources Department.

Records of external trainings are stored in the form of copies of Certificates and / or Certificates at the Human Resources Department.

The records of internal trainings of the staff (present forms, evaluation forms, etc.) are stored in the Human Resources Department. An evaluation of the efficiency of the trainings is carried out when conducting the review by the management (**See Appendix E**).

### **3.6.3 Awareness**

Employees are always informed of:

1. the OH&S policy and OH&S goals;
2. their participation in the effectiveness of the OH&S management system, including the gains of increased OH&S performance;
3. the hints and possible consequences of not adhering to the OH&S management system demands;
4. occurrences and the results of examinations that are related to them;
5. hazards, OH&S risks and actions defined that are related to them;
6. the power to remove themselves from job conditions that they recognize presenting an immediate and (severe) risk to their life or health, as well as the systems for defending them from unfair consequences for doing so.

### **3.6.4 Communication**

#### **3.6.4.1 General**

In the available OHSMS manual the communication is described as the manner in which the Organization establishes, implements and maintains up-to-date the process (s) required for internal and external communication regarding the OSH management system.

Greek Fish S.A. has defined the internal and external communications relevant to the OH&S management system, as what & when should communicate, with whom & how to communicate, who communicates through its procedures and update trainings.

Greek Fish S.A. Management is responsible for establishing and implementing procedures for control of internal and external communications to ensure that relevant information is communicated accurately, promptly and effectively to personnel and /or to any other interested parties.

The management can designate qualified individuals / experts and / or management members to handle specific tasks such as media, public and regulatory communications.

When considering communication needs the Agency takes into account a variety of aspects such as gender, language, culture, literacy, disabilities.

The Organization shall keep substantiated information as evidence of its disclosure, as appropriate.

#### **3.6.4.2 Internal communication**

Management of the Company promotes and encourages internal communication that helps flow of information and decision-making process. Higher and middle management level staff meets regularly for expressing views, issue resolution and taking decisions in order to anticipate work progress. Decisions are announced inside the company by the regular staff meetings that are held in every department.

Internal Communication processes relating to environmental matters are documented in relevant Procedures and Instructions.

Greek Fish S.A. has established procedures which ensure that all personnel receive relevant information in the languages understood by them and that individuals are able to communicate effectively in the execution of their duties.

The information exchange process enables workers to contribute to the continuous improvement of the OH&S. The internal exchange of information includes conducting trainings, briefings, lectures, meetings, OSH events, STOP working cards, etc.

#### **3.6.4.3 External communication**

External communication management is focused on relations with the various stakeholders and implements actions of company social responsibility.

External Communication is affected as it is documented in relevant procedures and instructions.

Controlled procedures are implemented for receiving, documenting and responding to relevant communications from external interested parties.

The nature of the exchange of information with external stakeholders is determined by senior management. In case of work with subcontractors or external contractors of the sites - they are informed about their responsibilities related to the management of the OH&S with explicit text in the contract with them or in an additional agreement.

### **3.6.5 Documented information**

#### **3.6.5.1 General**

Greek Fish S.A. has established and maintains procedures and records in order to obtain necessary documented information for the effectiveness of the OH&S management system and its operations:

- Objective (scope).
- Process model.
- The (written) OH&S Policy.

- Objectives & Programs.
- Evidence, technical competence of personnel.
- Rules on the issuance, review and control of documented procedures.
- Written procedures (where these are not described in detail in the OH&S Manual).
- Other documentation of the OH&S MS required for the operation and control of the company's processes.
- Records to be complied with ISO 45001:2018.

### **3.6.5.2 Creating and updating**

Greek Fish S.A. creates and updates the documented information whenever necessary, using specific processes to control documentation. Documents of the OH&S MS are as follows:

- The OHSMS Manual.
- The Procedures of the OHSMS.
- Working documents (forms) used by the company in daily production activity.
- Working documents used to ensure the efficient design, operation and control of the company's processes (management review form, non-conformities and corrective actions, etc.).
- The above are the internal documents of the company.
- External Documents (Legislation, Standards, etc.).
- The company ensures that the above documents are controlled, i.e.:
- Approved prior to issue by the Top Management.
- Ensure that they are distributed to those who use them.
- Reviewed and updated whenever necessary. Regular review of documents takes place at least once a year in the context of the Management Review. Old versions of documents are kept as files.
- Ensure that the latest versions of documents are always used.
- Documents for which older versions may be used.
- Recognized through a unique code and their current version.

- In each new release the changes are marked in the beginning of the document, so they can be easily identified.

For the internal documents of the OH&S there is a list of up-to-date versions of procedures and other documents, which also records the distribution of documents to the relevant departments. If a document is modified, the entire list is updated.

Documents used in electronic form are regularly stored up to ensure the integrity of the data. The same applies to the electronic format of all documents. The Manager Responsible for OH&S Management is responsible for the above procedure.

The OH&S MS records are:

- All used / completed forms of the OH& MS.
- Incoming documents from customers (OH&S Requirements), external providers (transportation companies, divers) or even third parties (OH&S Services Company Occupational Risk Assessment Study and reports, reports and certificates from Certification Bodies).
- Other external documents.

All records occurred from the implementation of the OH&S MS are kept in good condition and are kept by the personnel responsible. Access to all files is provided to the Top Management, the OH&S Manager, the Responsible of Departments and as appropriate, internal or external OH&S system inspectors and state control bodies.

The records are kept for at least two years, unless otherwise specified for specific records in a related process. The responsible for the OH&S MS is authorized to follow the above procedure. For more information see Appendix F.

### **3.6.5.3 Control of documented information**

Greek Fish S.A. has established and maintains procedures in order to control the documented information and ensure that it is available and suitable for use and it is adequately protected. Greek Fish S.A. has established and maintains procedures according to the:

- distribution, access, retrieval and use of documented information

- storage and preservation, including preservation of legibility
- control of changes (version)
- retention and disposition

DOCUMENT CODE - DOCUMENT TITLE - ISSUE NUMBER - ISSUE DATE	'RECORD KEEPING	DURATION OF STORAGE	CENTRAL OFFICES	SITE 1	SITE 2	SITE 3
<b>D2 Normative references</b>						
<b>D4. Context of the organization</b>						
<b>D5 Leadership and worker participation</b>						
<b>D.....</b>						

**Table 6: List of Documents**

## **3.7 Operation**

### **3.7.1 Operational planning and control**

#### **3.7.1.1 General**

The manner in which the Organization plans, implements, controls and maintains the processes needed to meet the requirements of the OHS management system, as well as to implement the actions set out in the Planning section.

Greek Fish S.A plans, implements, controls and maintains the processes needed to meet requirements of the OH&S management system, by:

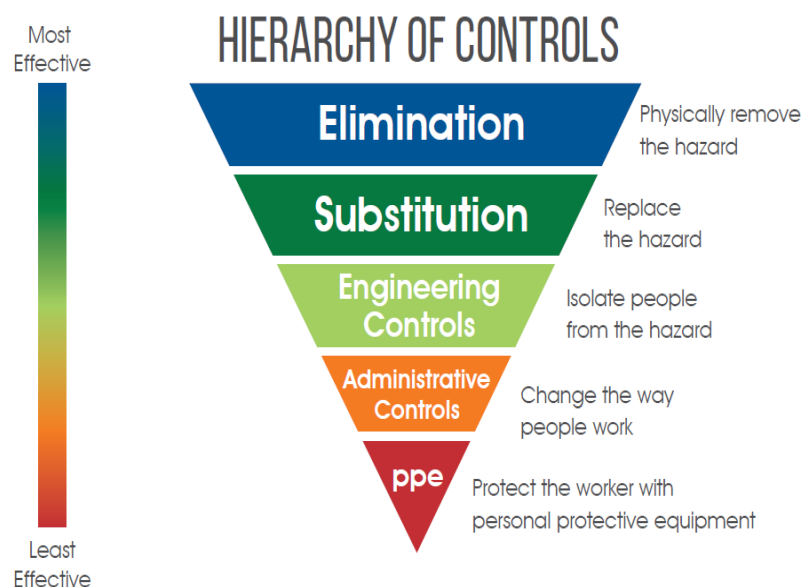
- A. setting standards for the methods;
- B. performing management of the processes following the standards;
- C. sustaining and preserving documented information to the degree needed to have certainty that the processes have been done as proposed;
- D. readjusting work to employees.

### 3.7.1.2 Eliminating hazards and reducing OH&S risks

The organization establishes implements and maintains processes for the elimination of hazards and reduction of OH&S risks using the following “hierarchy of control”:

- A. eliminates the hazard;
- B. substitutes with less hazardous processes, operations, materials or equipment;
- C. uses engineering controls and reorganization of work;
- D. uses administrative controls, including training (warning signs / signals and / or administrative measures);
- E. uses adequate personal protective equipment.

Organization establishes a process and determines controls for achieving mitigation of OH&S risks using the hierarchy below:



**Figure 13: Hierarchy of Controls (NIOSH, 2015)**

- Hazard elimination: Avoiding risks and readjusting work to employees.
- Substitution: Substituting the dangerous with the less or non – dangerous.
- Engineering controls: Performing collective protecting actions.
- Administrative controls: Providing relevant guidance to employees
- Personal protective equipment: Providing PPE and instructions for PPE use/maintenance (shoes/ glasses/lifebuoys etc.). For more data, see Appendix G.

### **3.7.1.3 Management of change**

The manner in which the Organization establishes a process(ies) for the implementation and control of planned temporary and permanent changes that affect the performance of the OHS. The way, in which the Organization reviews the consequences of unintentional changes, taking action to reduce to an acceptable level any adverse effects.

Greek Fish S.A practices processes for the implementation and management of organized short and constant changes that influence OH&S performance, including:

1. new goods, services and processes, or changes to existing goods, services and processes, including:
  - 1.1. workplace areas and surroundings;
  - 1.2. work design;
  - 1.3. working conditions;
  - 1.4. equipment;
  - 1.5. workforce;
2. changes to legal obligations and other obligations;
3. changes in knowledge about hazards and OH&S risks;
4. progress in information and technology.

The company reexamines the results of unintended changes, taking steps to mitigate any unfavorable results as needed.

#### **3.7.1.4 Procurement**

The organization establishes, implements and maintains a process(es) to control the procurement of goods and services in order to assure for their conformity to its OH&S management system.

As it is described in the company's OHS management system manual, the procurement process is about:

The manner in which, the Organization coordinates the procurement process (s) with its contractors in order to identify risks and to evaluate and control the OHS process.

The manner in which the Organization ensures that the requirements of the OAS management system are met by the contractors and their employees.

The procurement process (s) of the Organization defines and applies the Health and Safety at Work standards for the appraisal of contractors.

Greek Fish S.A organizes its procurement process(es) with its contractors to recognize hazards and to evaluate and control the OH&S risks resulting from the:

- A. contractors' exercises and processes that influence the company;
- B. company's exercises and processes that influence the contractors' employees;
- C. contractors' exercises and processes that influence other involved parties in the workplace.

The company assures that contractors and their employees match the conditions of its OH&S management system.

The company's procurement process(es) describes and practices occupational health and safety standards to decide contractors.

When buying and managing the supplies, in the selection of suppliers / contractors, the criteria of the OH&S are set and applied related to:

- Providing evidence of compliance with the requirements of the OH&S for delivered products;
- Compliance with the rules of the OH&S in the performance of services.

- Criteria are taken into account when evaluating and selecting suppliers, and by management's decision are also included in the contractual relationship.

The company assures that outsourced duties and processes are managed. Moreover, it assures that its outsourcing agreements are harmonious with legal obligations and other obligations and with delivering the expected results of the OH&S management system. The nature and level of control to be implemented to these functions and processes are established within the OH&S management system.

### **3.7.2 Emergency preparedness and response**

The manner in which the Organization establishes, implements and keeps up to date the processes required to prepare for and deal with emergencies.

Greek Fish S.A builds, executes and sustains processes required to prepare for and react to possible emergencies, including:

- A. building a designed response to emergencies, including the store of first aid;
- B. giving training for the planned response, regularly checking and drilling the intended response capability;
- C. assessing achievement and, as needed, revising the proposed response, including after testing and after the appearance of emergencies;
- D. communicating and giving appropriate information to all employees on their tasks and responsibilities and delivering related information to emergency response services, government authorities, contractors, visitors, and, as suitable, the regional community;
- E. recognizing the requirements and capabilities of all applicable involved parties and assuring their engagement, as proper, in evolving the intended response.

The company sustains and holds documented data on the processes and plans for reacting to possible emergencies.

Emergency Plans have been developed to ensure emergency preparedness in Greek Fish S.A. Theoretical exercises and practical exercises set out in the Training Plan are conducted to assess emergency preparedness. The sessions are documented in an Emergency training Protocol.

In the company necessary facilities are provided to ensure the emergency response (alarm systems, emergency lighting and emergency power supply, fire-fighting equipment, first-aid facilities, means of communication, etc.) are identified and provided.

In the event of incidents or emergencies, responses are made to these plans, and after managing the situation, the responsible managers review their respective adequacy plans and, if necessary, amend them.

In connection with the developed emergency plans, it is ensured:

- communicating and giving relevant data to all employees about their jobs and responsibilities;
- giving related knowledge to emergency services, government bodies, contractors, visitors and, as appropriate, the local community
- taking into account the requirements and capabilities of all involved parties and assuring their support, when relevant, in improving the intended response.

Planning documents and emergency drills records are stored. The process of provision and management of emergency preparedness and response capability is regulated in the relevant procedure.

### **3.8 Performance evaluation**

#### **3.8.1 Monitoring, measurement, analysis and performance evaluation**

##### **3.8.1.1 General**

In order for the company to ensure that the OHSMS is successfully integrated, an evaluation of performance has to be performed. According to the OHSMS manual, Performance Evaluation is how the Organization establishes, implements and maintains process(es) for monitoring, measuring, analyzing and evaluating performance.

Greek Fish S.A. has defined, planned and implemented measurement, monitoring, analysis and improvement processes to ensure that the OH&S Management System processes and services conform to requirements set by all interested parties.

The nature, place, timing and frequency of estimations and the demands for documents are determined. The effectiveness of proposals executed is regularly assessed. The company names and uses relevant statistical instruments. The outcomes of data examination and development actions are information into the Management Review process.

For the monitoring of the OH&S, a monitoring plan and a matrix of measurements of working environment factors determine the periodicity and the way of measurement, as well as the records in which the measurement results are documented.

Documentation of monitoring is carried out in protocols, certificates and checklists and other records of observations and measurements.

After monitoring and / or measurements, the results obtained are reviewed and evaluated at management review meetings. If necessary, it is decided to undertake specific actions on operational management.

For the measurements made, only the correct means of monitoring and measurement shall be used by the accredited laboratories and institutions carrying out the respective measurements.

The results of the examinations and measurements are considered during the conduct of the review by the management to assess the effectiveness of the management of the OH&S and the effectiveness of the management system.

The Organization shall keep adequately documented information:

- as evidence of the results of monitoring, measuring (for more information see Appendix H), analyzing and evaluating harmful agents and overall OHS performance
- for the maintenance, calibration or verification of measuring equipment.

### **3.8.1.2 Evaluation of compliance**

The manner in which the Organization establishes, implements and maintains a process (s) for assessing regulatory compliance with legal and other requirements.

Greek Fish S.A. establishes implements and maintains processes for evaluating compliance with legal requirements and other requirements.

The organization:

- A. determines the frequency and methods for the assessment of conformity;
- B. evaluates conformity and act if applicable;
- C. maintains information and understanding of its conformity status with legal demands and other demands;
- D. maintains records of the conformity assessment outcomes.

For this purpose, a working group is formed with the participation of representatives from the HS Department, Legal department, HR Department, Managers/Supervisors, OH&S Services Company which reviews the applicable legal and other requirements to the OH&S and the amendments thereto. Conformity assessment and action taken, if necessary, shall be documented by the working group in the Conformity Assessment Protocol (in terms of regulatory requirements). For more information see Appendix I.

### **3.8.2 Internal audit**

#### **3.8.2.1 General**

Greek Fish S.A. has established a process for performing objective audits in order to determine if the OH&S Management System has been effectively implemented and maintained.

In addition, audits are carried out to identify potential opportunities for improvement.

The manner in which the Organization conducts, at regular intervals, internal audits to provide information on the OHS management system:

- a) complies with:
  - 1. the requirements of the Agency Organization itself for the OHS management system, including the OHS policy and objectives;
  - 2. the requirements of ISO 45001 International Standard.
- b) is effectively implemented and kept up to date.

### **3.8.2.2 Internal audit program**

The company's audit method, including the program, is based on the rank and consequence of the projects, fields, or objects to be audited and the outcomes of earlier audits. Internal inspections are carried out at least one (1) year.

The planning of internal inspections considers the following:

- The results of previous internal inspections or inspections by the Certifying Body or State Control Bodies.
- If recent changes have been made to Processes / Delivery Procedures, Production, Maintenance, Handling, etc.
- The inclusion of new staff whose activities affect the quality of the product or service provided.
- Repeated customer complaints concerning specific activities of the Company.

Internal Audits are performed by the Company's OH&S Management Representative and other appropriate personnel, always independent of the activity inspected, to ensure the objectivity and impartiality of the process inspection, or to be outsourced to an expert inspector.

During the audit, the inspector examines:

- If the specific operation inspected is performed in accordance with the relevant procedures, taking into account the relevant records.
- If the mode (process) is effective or needs improvement.
- If possible, commitments (corrective actions) taken as a result of previous inspections have been followed.

In order to ensure the completeness of the internal inspection, the company uses the appropriate inspection forms / questionnaires.

All findings are recorded in the relevant forms, communicated to the competent personnel, and care is taken to implement corrective actions and to verify their effectiveness.

In addition to planned audits, it is possible to carry out extraordinary audits (at one or more departments / units) when changing their way of working or finding a large number of inconsistencies in previous audits.

An essential requirement for auditing is that the auditors are independent of the audited entity. It is permissible for the internal audit to be carried out by an external qualified auditor, such as the assignment and control of the performance of the audit activities in accordance with the Internal Audit Procedure.

Upon completion of the audit/inspection, the audit team presents the results in a report that serves to analyze and identify corrective and preventive actions in the Review by the management. For more information see Appendix J.

### **3.8.3 Management review**

Greek Fish S.A. has developed and keeps an OH&S Management System method for management revision. The revision involves assessing the demand for adjustments to Company's OH&S Management System, including policy and objectives. Management, at all intervals determines, reexamines the OH&S Management System to assure its continuing appropriateness, sufficiency and effectiveness.

#### **Management review inputs**

The company's management re-examination involves periodical examinations of current execution and advancement possibilities linked to:

- a) the state of progress from early management reviews;
- b) differences in outside and inside concerns that are connected to the OH&S management system, including:
  - 1) the requirements and expectations of affected parties;
  - 2) legal obligations and other obligations;
  - 3) risks and opportunities;
- c) the degree to which the OH&S policy and the OH&S objectives have been reached;
- d) report on the OH&S execution, including trends in:
  - 1) incidents, nonconformities, remedial actions and continual improvement;

- 2) monitoring and measurement results;
- 3) results of the assessment of compliance with legal obligations and other conditions;
- 4) audit outcomes;
- 5) discussion and cooperation of workers;
- 6) risks and opportunities;
- e) sufficiency of resources for sustaining an efficient OH&S management system;
- f) related communication(s) with affected parties;
- g) possibilities for continual advancement.

### **Management review outputs**

The results from a Company's management revision include steps linked to:

- the continuing appropriateness, sufficiency and effectiveness of the OH&S management system in delivering its expected results;
- persistent improvement opportunities;
- any need for changes to the OH&S management system;
- support needed;
- further steps, if needed;
- opportunities to enhance integration of the OH&S management system with other company methods
- Any hints for the strategic orientation of the company

Outcomes of management reviews are documented and registered.

## **3.9 Improvement**

### **3.9.1 General**

Greek Fish S.A. continually develops the OH&S Management System. The Company has built procedures that define the implementation of the OH&S Policy, goals, internal audit

outcomes, interpretation of data, remedial and preventive steps and management review to promote continual improvement.

### **3.9.2 Incident, nonconformity and corrective action**

The company develops, executes and sustains processes, including reporting, investigating and taking steps, defining and handling incidents and nonconformities.

When an incident or nonconformity happens, the company:

1. responds on time to the incident or nonconformity and, as appropriate:
  - 1.1. acts to restrain and improve it;
  - 1.2. deals with the outcomes;
2. assesses, with the cooperation of employees and the engagement of other related involved parties, the demand for remedial action to eradicate the root cause(s) of the incident or nonconformity, in order that it does not recur or occur elsewhere, by:
  - 2.1. studying the incident or reviewing the nonconformity;
  - 2.2. discovering the originator(s) of the incident or nonconformity;
  - 2.3. deciding if similar incidents have happened, nonconformities exist, or if they could happen;
3. reviews existing assessments of OH&S risks and other risks as suitable;
4. defines and executes any step required, including remedial action, following the hierarchy of controls and the management of change;
5. assesses OH&S risks that link to new or modified hazards before acting;
6. reviews the effectiveness of any step taken, including remedial action;
7. makes adjustments to the OH&S management system, if required.

The company preserves documented data as confirmation of:

- the type of the incidents or nonconformities and any following steps that are taken;

- the outcomes of any action and remedial action, including their effectiveness.

The company informs the relevant employees and, where they are available, employees' representatives, and other relevant interested parties with this documented information. For more information, see Appendix K.

### **3.9.3 Continual improvement**

In all processes, the Company applies appropriate monitoring and / or measurement methods. As part of the review of the Company's OH&S Management System, but also earlier (Internal Audits, Employee & Contractor Complaints, etc.), the effectiveness of the processes is reviewed, and corrective actions are taken to ensure product compliance.

## **3.10 Challenges on developing and implementing the OHSMS in Greek Fish S.A.**

There were various challenges in developing and implementing the OH&S management system in the Greek aquaculture company Greek Fish S.A. One of them was to understand OHSMS roles and responsibilities and describe them throughout the organization. It was a challenge to define the accountability, responsibility for safety and the SMS, and line managers' roles and responsibilities.

Another challenge was to identify the sources of hazard information and to develop a reporting culture that would not, in any case, place any blame on the person that reported it. Specifically, the H&S department developed the process and performed training on all level managers and employees about the triggers of hazard identification and the process of reporting (who, how and when). After implementing this process, the maintenance of records helped identify trends and patterns of occurrence of incidents and the compelling investigation and route cause analysis.

Regarding the safety assessments, time and resources were needed to prioritize hazards and the objective assessment of risks.

One more challenge was the definition of key safety performance indicators (KPIs). The key performance indicators were selected, considering the stakeholders' requirements and focusing on leading rather than lagging indicators. The challenge was to define targets that are considered S.M.A.R.T. (specific, measurable, achievable, related to business and time-bound).

Furthermore, the company uses external services and subcontractors on various aspects of operations, including high-risk operations, like divers. Therefore, it was a challenge to define the procurement requirements, the method that the performance of third parties will be monitored and generally how to integrate subcontractors on the company's SMS. Regarding the emergency response plans, the biggest challenge was establishing arrangements for effective communication with the agencies and governmental authorities, like Port authorities and emergency responders, for incidents occurring at sea.

Greek Fish is implementing other Management systems related to quality, sustainability, environment and food safety. The integration of all management systems, including OHSMS, was also a big challenge for the organization.

Finally, according to information from people of the H&S department, the biggest challenge was to make the necessary improvements in the safety culture of the organization and proceed in an increased level of safety culture maturity, where OHS becomes a fundamental part of all aspects of Greek Fish business.

#### **4. Conclusions, limitations and suggestions for further research**

The organization's commitment to OSH should not only have the same focus as product quality, environmental sustainability, and food safety, but the main advantage of ISO 45001 is that it can be integrated in the organization on full cooperation with other management systems, leading to high performance organizations. Integrating ISO 45001 appropriately provides an OHSMS suitable for company's different settings, that ensures compliance with European and national legislation, adoption of international codes, better risk evaluation and management of OSH, adoption of technological innovations, effective OSH regulation and enforcement, adequate resources, training and information. Incidents and safety culture may significantly affect the company's overall performance if it can be the subject of proper planning and monitoring. From a series of studies, it is confirmed that when controlling risks in the all stages of the management process it minimizes both the probability of incidents and the severity whenever an incident occurs, motivates employees, increases local community's acceptance level, prevents unnecessary delays and increases productivity. Organizations that systematically address OHS on their risk management through ISO 45001, build resilience and are better prepared for even world level crisis such as the Covid-19 pandemic.

Aquaculture in Greece is a sector that historically competes with the tourism sector for space, natural and human resources. The years to come this competition may be even harder by the offshore wind farms or oil platforms that probably will fight for their share of the country's economic activity. The positive impact of aquaculture on the socioeconomic status of their employees that occurs with the incorporation of ISO 45001 indicates that profitable commercial activities are compatible with growth of communities. In aquaculture it is very important the need to use effective health and safety management systems, which can lead to the promotion of employees' wellbeing.

According to the reports of higher management to the executives' team and shareholders, the development and implementation of the ISO 45001 management system standard significantly improved leading and lagging indicators measuring organizations performance

regarding OHS, company's maturity towards building and sustaining a safety culture at all levels and as a result the company's overall value was increased.

More specifically, leading indicators monitored by the company were improved. Risk assessments of all establishments are reviewed and updated more frequently, quality of training has been improved and includes all level managers and contractors' employees, as well as the training hours are increased. Level of reporting of incidents like near-misses and unsafe behaviors or conditions, by all employees including contractors' employees is significantly improved. Top and middle level managers, supervisors, team leaders and first line employees have started to place safety as a top priority in all operations. Leading indicators are evidence of a much more mature approach towards safety that will result in building a strong safety culture that will sustain and continuously improve OHS performance in the future.

The lagging indicators like number of LTIs per 1 million working hours and absenteeism due to LTIs was reduced by the impressive number of 60% the first year after the full implementation of the standard and those numbers were sustained for at least one more year since then. The same applied for high severity incidents, since there were no incidents that caused more than 182 days lost, an amputation or a fatality after the OHSMS implementation. Furthermore, new tools, equipment and buildings were purchased or designed and constructed to be safer for the users and the visitors. Maintenance of existing equipment and machinery was improved. This resulted in better working conditions that inherently increased the level of safety for the users and the quality of the product. There were also less damages of equipment and less loss of product during operations.

All audits by customers or independent certification bodies that the customers in the market trust as auditors, that use OHS performance and other social criteria on their audits, were conducted with successful results for the company resulting in increased sales and entrance in new markets with consumers more sensitive on social sustainability targets.

There were no new claims by any company's employee or contractor regarding compensation for incidents related to health and safety at work.

Finally, during the Covid-10 pandemic, the disruption on operations was minimized due to the company's prompt respond to this new risk and crisis by taking advantage of the already

developed knowledge, culture and employees' trust on leaders, resulting in a successful risk and crisis management. The organization acted promptly implementing appropriate control measures, developing, instructions of work, updated risk assessments and emergency plans to include Covid-19, from the first days of the pandemic.

On the other hand, people of management are concerned regarding the complexity of the OHSMS and the bureaucracy that is added on the system making the administration process heavy and unproductive.

The effective adoption of ISO 45001 means that it uses the already available experience of people and adds to the existing know-how by elaborating and refining guidelines, avoiding to add much bureaucracy to people of operations. This was succeeded by adopting new tools that technology provides like software, safety and emergency devices and most importantly by building a strong safety culture throughout the company that can recognise risks on source and address them before they become threats to people's health or safety. The operation of a system, like ISO 45001 build and operate an OHS management system within a well-defined and clear framework, which at the same time is flexible to business needs and expectations. In this way also emphasis is given on the health and safety of the human resource and that's why the leadership of modern companies, like Greek Fish S.A. planed in a systematic way the implementation of this health and safety management system, based on the specific characteristics of the company.

The main restriction of the present case study is the fact that regardless that the Greek Fish S.A is one of the biggest companies in the Mediterranean, the dissertation is limited in only this one aquaculture company. Nevertheless, the conclusions of this study can be used for the further study of this theme and the evaluation of development and implementation of modernized health and safety management systems in other aquaculture companies in the Mediterranean, Europe or worldwide.



*Fotios Tzatzakis, Occupational Health and Safety Management Systems (OHSMSs): The Case of the Development of an OHSMS in a Greek Aquaculture Organization according to ISO 45001:2018 Standard.*

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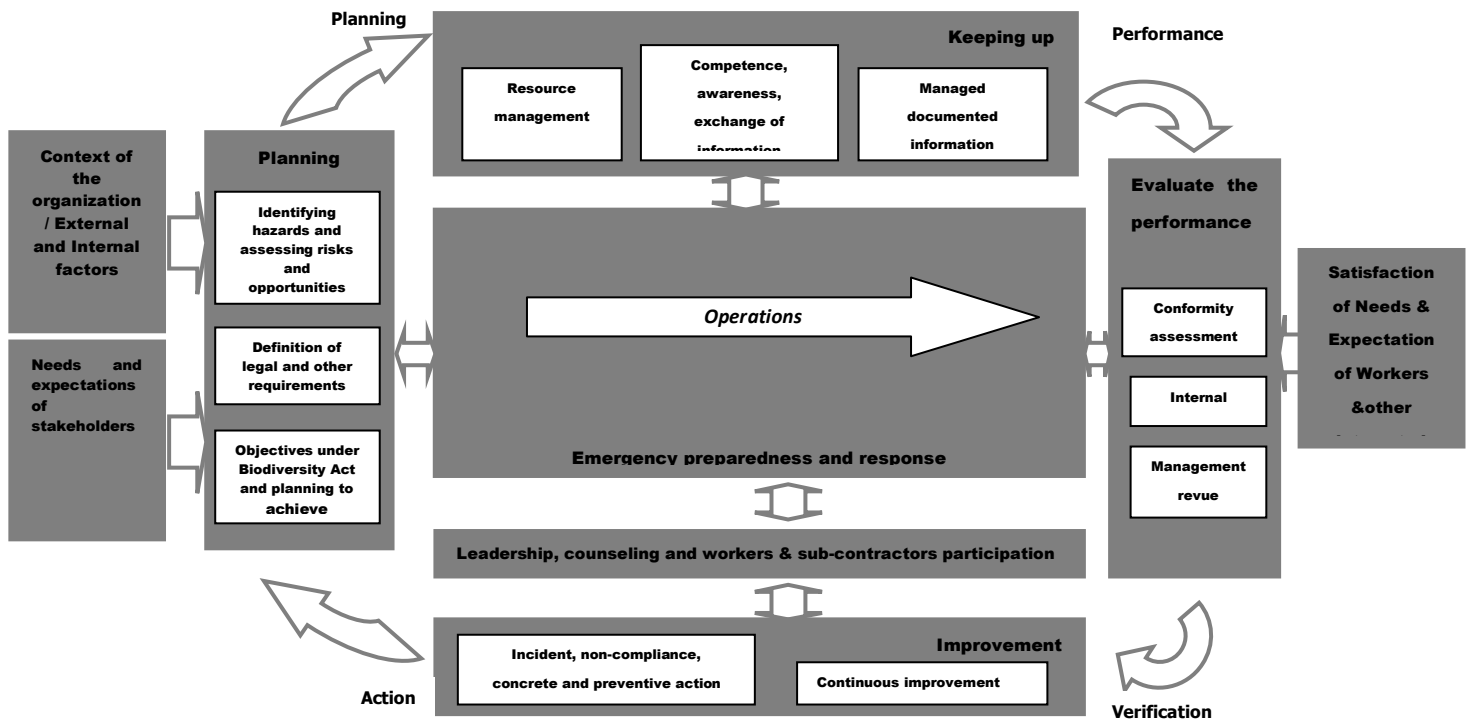
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## Appendix A: Scheme of OHS Management process



## **Appendix B: Regulatory requirements related to the management of OHS**

### **General Legislation**

- |  |  |
|--|--|
| 1.N. 3850/2010 (ΦΕΚ 84/Α` 2.6.2010).               |  |
| 1.2 Π.Ν.Π. 2020 (ΦΕΚ 68/Α` 20.3.2020)              | 6. Υ.Α. 130197/2005 (ΦΕΚ 196/Β` 15.2.2005)                 |
| 1.3 Ν. 3996/2011 (ΦΕΚ 170/Α` 5.8.2011)             | 7. Υ.Α. 39278/1823/2018 (ΦΕΚ 3001/Β` 25.7.2018)            |
| 2. Π.Δ. 157/1992 (ΦΕΚ 74/Α` 12.5.1992)             | 7.1.1. Υ.Α. οικ.59730/2576/2019 (ΦΕΚ 4762/Β` 24.12.2019)   |
| 3. Υ.Α. 29164/755/2019 (ΦΕΚ 2686/Β` 2.7.2019)      | Occupational diseases                                      |
| 4. Υ.Α. 50067/28/2017 (ΦΕΚ 3952/Β` 10.11.2017)     | 8. Π.Δ. 41/2012 (ΦΕΚ 91/Α` 19.4.2012)                      |
| 4.1. Υ.Α. 17314/Δ9.914/2019 (ΦΕΚ 1470/Β` 3.5.2019) | 9. Υ.Α. Φ10221/οικ. 26816/929/2011 (ΦΕΚ 2778/Β` 2.12.2011) |
| 4.2. Υ.Α. 32126/1463/2018 (ΦΕΚ 2404/Β` 25.6.2018)  | Workplace specifications                                   |
| 4.3. Υ.Α. 16974/758/2018 (ΦΕΚ 1242/Β` 4.4.2018)    | 10. Π.Δ. 16/1996 (ΦΕΚ 10/Α` 18.1.1996)                     |
| 5. Υ.Α. 131784/2003 (ΦΕΚ 1624/Β` 5.11.2003)        | 11. Υ.Α. οικ. 32205/Δ10.96/2013 (ΦΕΚ 2562/Β` 11.10.2013)   |
|  | 12. Π.Δ. 105/1995 (ΦΕΚ 67/Α` 10.4.1995)                    |
|  | 12.1. Π.Δ. 52/2015 (ΦΕΚ 81/Α` 17.7.2015)                   |

### **Legislation for Professional Machinery & Equipment**

- |  |  |
|--|--|
| General provisions - Machinery             | 13.2. Π.Δ. 89/1999 (ΦΕΚ 94/Α` 13.5.1999)   |
| 13. Π.Δ. 395/1994 (ΦΕΚ 220/Α` 19.12.1994)  | 13.3. Π.Δ. 304/2000 (ΦΕΚ 241/Α` 3.11.2000) |
| 13.1. Διορθ. Σφ. 1995 (ΦΕΚ 6/Α` 25.1.1995) | 13.4. Π.Δ. 155/2004 (ΦΕΚ 121/Α` 5.7.2004)  |

#### Personal Protective Equipment

14. Π.Δ. 57/2010 (ΦΕΚ 97/Α` 25.6.2010)
- 14.1. Π.Δ. 81/2011 (ΦΕΚ 197/Α` 9.9.2011)
15. Π.Δ. 396/1994 (ΦΕΚ 220/Α` 19.12.1994)
- 15.1. Διορθ. Σφ. 1995 (ΦΕΚ 6/Α` 25.1.1995)
16. Υ.Α. 27450/1314/2018 (ΦΕΚ 1957/Β` 1.6.2018)
17. Υ.Α. 10169/109/151-α/2009 (ΦΕΚ 2039/Β` 22.9.2009)
- Conveyor belts

18. Π.Δ. 212/1976 (ΦΕΚ 78/Α` 6.4.1976)
- 18.1. Ν. 4144/2013 (ΦΕΚ 88/Α` 18.4.2013)
- Portable ladders
19. Π.Δ. της 22-12/1933 (ΦΕΚ 406/Α` 29.12.1933)
20. Π.Δ. 17/1978 (ΦΕΚ 3/Α` 12.1.1978)
- 20.1. Ν. 4144/2013 (ΦΕΚ 88/Α` 18.4.2013) .
- Thermoplastic presses
21. Π.Δ. 151/1978 (ΦΕΚ 31/Α` 25.2.1978)
- 21.1. Ν. 4144/2013 (ΦΕΚ 88/Α` 18.4.2013)

#### **Legislation for Physical, Chemical & Biological Agents**

- Generally for Physical, Chemical and Biological Agents
22. Π.Δ. 77/1993 (ΦΕΚ 34/Α` 18.3.1993)
23. Ν. 3850/2010 (ΦΕΚ 84/Α` 2.6.2010).

#### Legislation on Physical factors

##### Noise

24. Π.Δ. 149/2006 (ΦΕΚ 159/Α` 28.7.2006)

##### Vibrations

25. Π.Δ. 176/2005 (ΦΕΚ 227/Α` 14.9.2005)
26. Π.Δ. 82/2010 (ΦΕΚ 145/Α` 1.9.2010)

##### Electromagnetic fields

27. Π.Δ. 120/2016 (ΦΕΚ 203/Α` 26.10.2016)

28. Π.Δ. 338/2001 (ΦΕΚ 227/Α` 9.10.2001)
- 28.1. Π.Δ. 52/2015 (ΦΕΚ 81/Α` 17.7.2015)

#### Legislation on Chemical Agents

29. Π.Δ. 307/1986 (ΦΕΚ 135/Α` 29.8.1986)
- 29.1. Π.Δ. 77/1993 (ΦΕΚ 34/Α` 18.3.1993)
- 29.2. Π.Δ. 90/1999 (ΦΕΚ 94/Α` 13.5.1999)
- 29.3. Π.Δ. 339/2001 (ΦΕΚ 227/Α` 9.10.2001)
- 29.4. Π.Δ. 162/2007 (ΦΕΚ 202/Α` 23.8.2007)
- 29.5. Π.Δ. 12/2012 (ΦΕΚ 19/Α` 9.2.2012)

- |   |  |
|---|--|
| 29.6. Π.Δ. 82/2018 (ΦΕΚ 152/Α` 21.8.2018)       | 33. Π.Δ. 94/1987 (ΦΕΚ 54/Α` 22.4.1987)     |
| 29.7 Π.Δ. 26/2020 (ΦΕΚ 50/Α` 6.3.2020)          | 33.1.Π.Δ. 338/2001 (ΦΕΚ 227/Α` 9.10.2001)  |
| 30. Π.Δ. 399/1994 (ΦΕΚ 221/Α` 19.12.1994)       | 34. Α.Ν. 1204/1938 (ΦΕΚ 177/Α` 29.4.1938)  |
| 30.1. Π.Δ. 26/2020 (ΦΕΚ 50/Α` 6.3.2020)         | 34.1. Ν. 4144/2013 (ΦΕΚ 88/Α` 18.4.2013)   |
| 30.2. Π.Δ. 52/2015 (ΦΕΚ 81/Α` 17.7.2015)        | 34.2. Π.Δ. 94/1987 (ΦΕΚ 54/Α/22.4.1987)    |
| 30.3. Π.Δ. 43/2003 (ΦΕΚ 44/Α` 21.2.2003)        | 34.3. Ν. 1414/1984 (ΦΕΚ 10/Α/2.2.1984)     |
| 30.4. Π.Δ. 127/2000 (ΦΕΚ 111/Α` 6.4.2000)       | 35. Ν. 61/1975 (ΦΕΚ 132/Α` 7.7.1975)       |
| 30.5. Διορθ. Σφ. 1995 (ΦΕΚ 6/Α` 25.1.1995)      | 36. Υ.Α. 1179/1980 (ΦΕΚ 302/Α` 30.12.1980) |
| 31. Π.Δ. 212/2006 (ΦΕΚ 212/Α` 9.10.2006)        | Legislation on biological agents           |
| 32. Υ.Α. 15616/398/2010 (ΦΕΚ 1340/Β` 31.8.2010) | 37. Π.Δ. 102/2020 (ΦΕΚ 244/Α` 7.12.2020)   |

### **Legislation for Special Tasks**

#### **Manually handling Cargo**

38. Π.Δ. 397/1994 (ΦΕΚ 221/Α` 19.12.1994)

#### **Welding**

39. Π.Δ. 95/1978 (ΦΕΚ 20/Α` 17.2.1978)
- 39.1. Ν. 4144/2013 (ΦΕΚ 88/Α` 18.4.2013)

#### **Loaders and unloaders**

40. Ν. 4455/2017 (ΦΕΚ 22/Α/23.2.2017)

#### **Health Sector**

41. Π.Δ. 6/2013 (ΦΕΚ 15/Α` 21.1.2013)

#### **Construction and technical projects**

42. Π.Δ. 778/1980 (ΦΕΚ 193/Α` 26.8.1980)

- 43.Π.Δ. 1073/1981 (ΦΕΚ 260/Α` 16.9.1981)

44. Ν. 1396/1983 (ΦΕΚ 126/Α` 15.9.1983)

45. Υ.Α. 130646/1984 (ΦΕΚ 154/Β` 19.3.1984)

46. Π.Δ. 305/1996 (ΦΕΚ 212/Α` 29.8.1996)



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47. Y.A. 14867/825/2014 (ΦΕΚ 1241/Β`  
15.5.2014)

### **COVID-19 Legislation**

- 48. Π.Ν.Π. (ΦΕΚ 161/Α` 22.8.2020)
  - 49. Υ.Α. 37095/1436/2020 (ΦΕΚ 4011/Β` 18.9.2020)
  - 50. Υ.Α. 39363/1537/2020 (ΦΕΚ 4262/Β` 30.9.2020)
  - 51. Υ.Α. 43889/1815/2020 (ΦΕΚ 4750/Β` 27.10.2020)
- <http://elinyae.gr/sites/default/files/2020-03/12313.pdf>

### **Circulars**

#### Thermal stress

- 1.Αρ. Πρωτ. Οικ.: 20716/23.6.2015

#### Extreme weather conditions

- 2.Αρ. Πρωτ. 30354/8.3.2011
- 3 Εγκ. 17312/Δ9.506/4.5.2020

### **Legislation from other Ministries Related to OSH in Aquaculture**

#### Fisheries

- 1. Π.Δ. 49 (ΦΕΚ 107/Α/6-6-2020)
- 2. Ν. 4532/2018 (ΦΕΚ 63/Α` 5.4.2018)
- 3.Π.Δ. 277/1997, (ΦΕΚ 197/Α/2.10.1997)
- 4.Π.Δ. 376/1995 (ΦΕΚ 206/Α` 5.10.1995)

#### Fire safety - Fire protection

- 5.Εγκ. 73841 Φ. 701.1/2019 (ΦΕΚ /-- 18.11.2019)
- 6.Πυρ.Διατ. 14/2014 (ΦΕΚ 2434/Β` 12.9.2014)

#### Ionizing radiation

- 7.Υ.Α. 43374/2020 (ΦΕΚ 1881/Β` 18.5.2020)
- 8.Υ.Α. 45872/2019 (ΦΕΚ 1103/Β` 3.4.2019)
- 9.Π.Δ. 101/2018 (ΦΕΚ 194/Α` 20.11.2018)

#### Mining and quarrying activities

- 10. ΥΑ2223 ΦΕΚ122714/06/11

#### Diving

- 11. General Regulation of Port no. 10 "For diving work". ΥΑ. 3131.1/20/1995 - ΦΕΚ 978/Β/28-11-1995



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## **Appendix C: OH&S Group Communication – Consulting & Information Form**

### **OH&S GROUP COMMUNICATION - CONSULTING & INFORMATION FORM**

**a / a:**

**Date:**

**Department / Installation:**

**Committee Nmaes/ Signatures**

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.

#### **TOPICS FOR DISCUSSION:**

- Topics from the Occupational Health and Safety Risk Study
- Issues of the Safety Technician and the Occupational Physician
- Incident Investigation Issues and Emergency Scenarios. Procedures and Instructions
- Non-Compliances and Corrective / Preventive Actions
- Suggestions or complaints that have been recorded by employees and / or other interested parties. Suggestions for improvement
- Education Issues
- Degree of implementation of the Goals and Monitoring & Measurement of Performance for the OSH

- The progress of implementation of the programs for the OSH
- Results Internal Inspections/ Audits and Self-Controls (especially some tasks with a high risk for the OSH)
- Modifications to working conditions, staffing, raw materials or products (e.g. new activities, division or new tasks, etc.)
- New requirements that may arise from the Periodic Search for Legislation.
- Conformity assessment
- Issues from external interesting places
- Other Topics

#### **COMMUNICATION:**

#### **DECISIONS:**

## **Appendix D: Guidelines for Occupational Risk Assessment in Greek Fish S.A.**

### **CONTENTS**

#### **1.Introduction**

Occupational Risk Assessment for the company's facilities **Greek Fish S.A.** includes the identification of risks for the safety and health of staff.

This Assessment comes to cover both the legal obligation of the company under the P.D.17/1996 and Presidential Decree 159/1999, as codified by Law 3850/2010, as well as the essential need to identify and limit occupational risk.

It has the following objectives:

- Identification of all potential hazards in the workplace.
- Assessment of the severity of these risks.
- Investigation of the frequency of exposure of employees to risks.
- Assessment of the probability of occurrence of these risks.
- Formulate the necessary corrective measures to eliminate or minimize them their risks

The facilities referred to in this Assessment include:

- Land facilities (administration-staff offices, warehouses for food, materials & auxiliary products, workers' accommodation houses)
- On – growing Fish floating Unit (Sea Pens)
- Fish Packing Unit

This Assessment refers to all areas of the company taking into account the particularities that apply to each space separately which employs xxxxxxxx employees.

#### **2. Method**

##### **2.1.Generally**

The risk assessment of the sources of risk was performed with:

- Configuration of staff groups exposed to each source of risk.
- a safety and health risk assessment was made ,from the identified risk sources . The methodology for risk assessment is described in next paragraph.

-Prioritize sources of risk according to security risk and staff health.

## **2.2. Methodology for risk assessment.**

The qualitative approach was applied for the risk assessment, which consists of the detailed quality assessment of each of the factors that shape the risk.

This method is the most appropriate for occupational risk assessment and is in line with the «Memento for evaluation of occupational risks» of the DGV Directorate-General of the European Commission.<sup>(1)</sup>

(1) Mémento pour l'évaluation des risques professionnels  
- <https://op.europa.eu/en/publication-detail/-/publication/645861af-fe08-4807-bfdd-aab813c1c745>

## **3. Results**

The main hazards identified in the area of fish on – growing units, are mainly related to the specificity of the workplace, which is performed on special "Cages" or "fish cages" anchored at the bottom of the sea and carrying perimeter wooden or plastic corridors (mainly plastic), in combination with nature of the work performed at each stage of the fattening process, in diving work, in the packaging, etc..

Specifically, the most common risk factors and procedures and / or the places where they appear are:

1. Drowning:
2. Use of industrial gas appliances:
3. Self-vaccination - Upper limb piercings:
4. Handling of large loads:
5. Upper limb cuts:
6. Object drops:
7. Electric shock:
8. Inhalation of harmful factors:
9. Impact on fixed objects-occupied access corridors:
10. Slippery working floors:
11. Improper use of Personal Protective Equipment:

#### **4. Evidence of illness and accidents at work**

##### **4.1. Generally**

The analysis of diseases and accidents is the first stage of its Assessment Occupational Risk. From the analysis of the data of diseases and accidents identify the risk factors that occur most often in the business.

It also gives an indication of their frequency, their severity and by extending their costs to the business.

4.2. Disease data.

4.3. Accident data.

##### **5. Facility hazard analysis.**

5.1. Escape plan.

5.1.1 Procedure.

5.1.2 Corridors - escape exits.

5.1.3 Security marking.

5.1.4 Security light.

5.1.5 Training – Practice.

5.2. Fire protection.

5.2.1 Fire extinguishers.

5.2.2 Signing.

5.2.3 Maintenance.

5.2.4 Areas of special requirements

5.2.5 Procedure (fire protection team, study, briefing P.Y.).

5.2.6 Training – Practice.

Suggestions

5.3. Ventilation - air conditioning.

5.3.1 Aeration.

5.3.2 Air conditioning.

5.3.3 Maintenance.

Suggestions.

5.4. E / M facilities – equipment.

5.4.1 Boiler room.

5.4.2 Distribution boards.

5.4.3 Generators.

Suggestions.

5.5. Lighting.

5.5.1. Natural (obstacles, orientation).

5.5.2. Artificial.

5.5.3. Lighting problems.

Suggestions.

5.6. Kitchens – Pharmacies.

5.6.1 Kitchen area.

5.6.2 Electrical devices.

5.6.3 Aeration.

5.6.4 Pharmacies.

Suggestions.

5.7. Break areas – WC.

5.7.1. Tidiness – Cleanliness.

5.7.2. Locker room.

5.7.3. Sanitary facilities – WC.

Suggestions.

5.8. Freezer.

Suggestions.

5.9. Vessels, boats.

Suggestions.

**6. Risk analysis (office)**

6.1. Office equipment.

Suggestions.

6.2. Natural environment.

6.2.1 Workplace lighting.

6.2.2 Noise.

6.2.3 Thermal comfort.

6.2.4 Other factors.

Suggestions.

## **7. Cars - Drivers**

Suggestions.

## **8. Special Issues.**

8.1. Pregnant -childbed - breastfeeding workers.

Suggestions.

8.2. Disabled.

Suggestions.

8.3. Protection of workers from electromagnetic fields.

Suggestions.

8.4. Protection of workers from Legionnaires' disease.

Suggestions.

8.5. Driving on arrival and departure from the company.

Suggestions.

## **9. Risk analysis (inland installations, on-growing floating units)**

9.1. Risk analysis per department of production.

9.2. On-growing floating units.

9.3. Inland installations.

A. Nets Maintenance.

B. Nets washing.

C. Warehouse.

D. Other Inland installations.

9.4. Fish packing Plant

9.5. Department of Mechanical - Electrical Maintenance.

9.6. Dining rooms.

## **BASIC MATERIAL FOR WORK INSTRUCTIONS AND TRAINING ISSUES**

- Personal protective Equipment (PPE)
- Safety instructions for electrical work
- Safety instructions in the operation of forklifts
- Instructions for the safe use of gas cylinders and in particular oxygen cylinders
- Safety instructions in fish On-growing units
- Safety instructions for diving
- Floating Units safety instruction
- Guideline for safe management of vessels
- Safe towing - transport of fish cage
- Instruction for safe transport of compressed gas containers and cylinders by vehicles
- Instructions for use of chemicals
- General precautions for operators in case of self-vaccination with oily and / or water-soluble injectable Vaccine.
- Occupational Risk Assessment for **COVID-19**:
  1. General terms
  2. Workplace risk analysis.
    - 2.1. Ways of virus transmission
    - 2.2 Contact with people
    - 2.3 Contact with objects and food
    2. 4 Space cleaning works

Suggestions.

- Occupational Safety & Health Legislation.

## Appendix E: Training form

<b>Training Description :</b>	
<b>Instructor:</b>	
<b>Duration (time):</b>	
<b>Date:</b>	

A/A	Name of Trainee	Department / Position	Signature

**Instructor (Name and Signature):**

## **Appendix F: Documented Information**

- ☐ Safety and Health Plan (§ 4.3)
- ☐ Safety & Health Policy (§ 5.2)
- ☐ Roles & responsibilities in the Organization (Duties) (§ 5.3)
- ☐ Risk & opportunities & actions to address them (§ 6.1.1)
- ☐ Methodology & actions to be taken by the Organization used to address the risks & opportunities  
(risk assessments & procedure) (§ 6.1.2)
- ☐ Information on legal requirements & other requirements concerning OSH (§ 6.1.3)
- ☐ Safety & Health Objectives, their implementation programs (§ 6.2.1 / 6.2.2)
- ☐ Proof of staff competence (§ 7.2)
- ☐ Documented information as proof of communication between the employees in the Organization (§ 7.4.1)
- ☐ Documented information that the Organization considers for the proper functioning of the OSH (§ 7.5 / 7.5.1 / 7.5.2)
- ☐ Documented information that will prove the proper operational control of the Agency's OSH (§ 8.1)
- ☐ Procedure & data from the organization's actions in possible emergencies (§ 8.2)
- ☐ Maintaining documented information required as evidence that the Agency maintains, verifies & verifies the equipment he maintains (§ 9.1.1)
- ☐ Maintaining documented information regarding the Agency's compliance with legal requirements & other requirements regarding the Agency's OSH (§ 9.1.2)
- ☐ Evidence of implementation of the internal audit program & results of internal audit (§ 9.2.2)
- ☐ Evidence of results of management review (§ 9.3)

- ☐ Incidents, non-compliances & corrective action results (§ 10.2)
- ☐ Documented information as evidence of the continuous improvement of the Agency's OSH (§ 10.3)

## Appendix G: PPE Provision Form

Employee data:

**Name:** .....  
.....

**Police ID number:** .....

**Social security registration number:** .....

**Specialization:** ..... **Main activity:**  
.....

Kind of item	Date of receipt / signature	Date of inspection / signature	Date of replacement / signature
<b>Clothing</b>			
<b>Footwear</b>			
<b>Hand protection</b>			
<b>Protection of the head, eyes, breath and hearing</b>			

## Appendix H: Noise Measurement Report

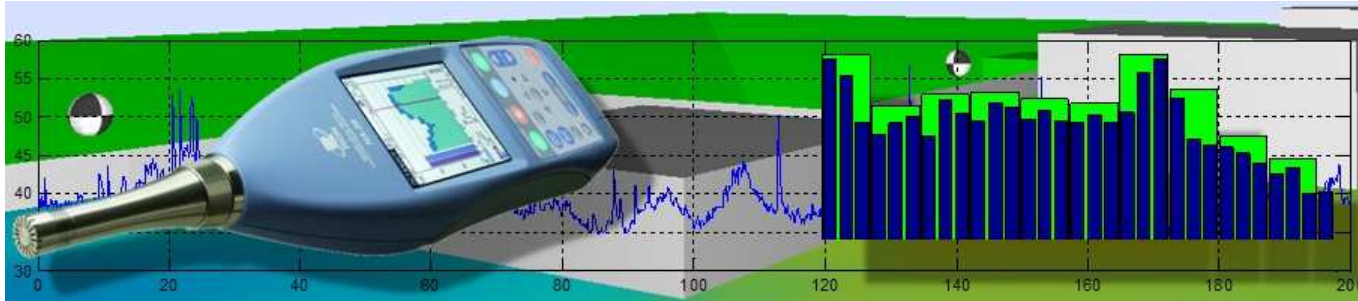
- **TARGET:** Locating and limiting the daily individual exposure of employees to noise during the operation of the installation, as well as the burden on the environment from the noise emitted at the boundaries of the plot.

-**LEGISLATIVE FRAMEWORK:** is Presidential Decree 149/2006 concerning the protection of workers - those present at the site from the dangers they face due to their exposure to noise at work and Presidential Decree 1180/1981 which define the prescribed environmental limits.

**The evaluation of the results** for the environmental noise is based on the Presidential Decree 1180/1981 in comparison with the environmental limits determined by it. The environmental noise limits are given in the following table, and depend on the use designation of the area.

Area	Noise upper limit dB (A)
Legislated industrial areas	70
Areas in which the industrial element prevails	65
Areas in which the industrial and the urban element prevail equally	55
Areas in which the urban element prevails	50

-**MEASURING EQUIPMENT:** To measure the noise level of both the workplace and the environment sound level meters are used, which have been calibrated and verified by accredited external laboratories. The instrument must be accompanied by all documents required by law (CE declaration of conformity and operating manual).



## **-MEASUREMENT RESULTS:**

### **A.PREMISSSES AND WORKPLACES NOISE**

Weighted noise level measurements are performed at selected locations throughout the installation. The exact point of measurements must been shown in a valid floor plan.

Table of weighted noise level measurement results (static with sound meter):

a/a	Point of Measurement	Stationary noise level, dB (A)	Minimum noise level, dB (A)	Maximum noise level, dB (A)
1.				
2				
3				

Table of results of daily noise level measurements at selected production workplaces

a/a	Workplace	Daily noise exposure
<u>1</u>		
<u>2</u>		

### **B. ENVIRONMENTAL NOISE**

Weighted noise level measurements at various points around the plant's property boundaries are to be.

Table for Measurements for "Equivalent A - sound level ", which expresses the average noise level captured by the human organ of hearing.

a/a	Measurement Point	LAeq - Weighted
-----	-------------------	-----------------

		noise level, dB (A)
1		
2		

## **-EVALUATION OF RESULTS CONCLUSIONS AND SUGGESTIONS:**

### **1) NOISE IN WORKPLACES AND PREMISES**

In accordance with the above defined by Presidential Decree 149/2006 which sets 80 dBA as the lowest value for action and 85dBA as the highest value for action, in the installation we distinguish the following cases:

a.....

b.....

### **2) ENVIRONMENTAL NOISE**

From the measurements taken at several different points on the boundaries of the plot and in combination with what is provided in Presidential Decree 1180/1981 it is found that:

a.....

b.....

### **3) SUGGESTIONS:**

The employer has to inform the employees about:

the potential risks to their hearing, the measures taken by the company, the personal hearing protection provided to reduce the noise level, the proper use of the above instruments and the their obligation to comply with the preventive technical and organizational measures decided by the company.

Employees are entitled to control their hearing and monitored by a qualified Physician.

The employer has to: place relevant signs on the workplaces where exceedances are observed, prepare and implement a program of technical measures and / or measures for its organization to reduce worker exposure.

It is also recommended to establish an annual audit of the hearing ability of the staff through audiograms.

## Appendix I: Evaluation of Compliance

Greek Fish S.A	Evaluation of compliance		
REQUIREMENTS	VALID	OBSERVATIONS	CORRECTIVE ACTIONS
<b>GENERAL</b>			
<b>Administrative Acts in force</b>			
Occupational Risk Assessment Study			
<b>Fire Safety and Fire Protection Issues</b>			
Μελέτη Εκτίμησης Επαγγελματικού Κινδύνου			
<b>Lifting machines</b>			
<b>Floating means of transport</b>			
<b>OTHER</b>			
<b>Measurments</b>			
Noise			

<b>Other</b>			
MSDS			
<b>OH&amp;S</b>			
Security technician			
OH&S Group			
Occupational Physician			
OPERATOR LICENSES (lifting - floating - welding)			
<b>GENERAL - CONTRACTS</b>			
<b>TRUCKS / BUSINESS CARS</b>			

## Appendix J: Annual Schedule for Internal Inspections

**Department / Installation:**

**Year:**

A/ A	INSPECTED PROCEDURE/ ACTIVITY	Date of Inspection	Inspector Signature	Additional Inspection	Inspector Signature and date	Unannounced Inspection	Inspector Signature and date



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0.							
1.							
2.							

**Date:**

**OH&S Manager:**

## Appendix K: OH&S Incident Reporting & Investigation

GENERAL DESCRIPTION			
SECTOR	DATE	TIME OF INCIDENT	TIME OF ARRIVAL OF EMERGENCY SERVICES
INJURY / INCIDENT SUMMARY/ DETAILS:			
MAIN CAUSE:			
IDENTITY AND CONDITION OF AN INJURED PERSON :			
-Transport to the hospital & stay for treatment, -TESTIMONIALS , -DESCRIPTION OF LOSS OR LOSS OF PROPERTY (INCLUDING ALL VEHICLES AND EQUIPMENT).			
ACTIONS OF THE COMPANY			
POLICE NOTIFICATION	INTRODUCTION TO THE BOOK OF EVENTS	NOTICE TO HEALTH AND SAFETY AUTHORITIES	CORRECTIVE ACTIONS

YES/NO	YES/NO	YES/NO	YES/NO
DESCRIPTION OF ACTIONS TO AVOID RECURRENCE OF THE INCIDENT:			
SIGNATURE:			
<b>CAUSES OF EVENT</b>			
<b>PROBABLE CAUSES</b>		<b>SPECIALIZING DETAILS</b>	
PPE			
SIGNS/MARKING			
INSTRUCTIONS			
MACHINERY			
WORKPLACE			
TRAINING			
UNSECURE WORK			
INSPECTIONS-CONTROLS			
SECURITY MEASURES			
<b>TYPE OF INJURY/DISEASE</b>		<b>BODY PART</b>	

**Author's Statement:**

I hereby expressly declare that, according to the article 8 of Law 1559/1986, this dissertation is solely the product of my personal work, does not infringe any intellectual property, personality and personal data rights of third parties, does not contain works/contributions from third parties for which the permission of the authors/beneficiaries is required, is not the product of partial or total plagiarism, and that the sources used are limited to the literature references alone and meet the rules of scientific citations.