



NEPTUNUS PROJECT

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Abstract	The aim of this deliverable is to serve as guide for the use of the NEPTUNUS WEF 1.0 tool.



This project is co-financed by the Interreg Atlantic Area Programme through the European Regional Development Fund (EAPA_576/2018 –NEPTUNUS).

NEPTUNUS WEF (Water-Energy-Food) 1.0 tool, developed within the framework of NEPTUNUS project (EAPA_576/2018) financed by the Interreg Atlantic Area, has as its main objective the environmental assessment of the seafood sector supply chain using Water- Energy- Seafood Nexus methodology and under a Life Cycle Assessment (LCA) approach.

1. General tool information

Throughout this document, the eco-label NEPTUNUS WEF 1.0 tool operation will be briefly described. This tool is developed in **Excel format**, due to that fact, it will be mandatory to have it already installed on the computer.

General information about the NEPTUNUS project is presented on the main page, as well as the methodology on which the tool is based. This NEXUS methodology is based on four footprints (Carbon, Energy, Water and Nutritional Footprints) calculated according to an **LCA approach**. These footprints are normalized using maximum and minimum values and, finally, they are weighted to reach at the NEXUS index which is between a **range of 0-100**.

Besides, within this page we find **two drop-down cells** that must be completed in order to guarantee the proper tool functioning. The first drop-down relates to the **language** chosen to work with and the second one corresponds to the **profile type** to be analysed (fishing, aquaculture, processing or consumer).

2. Data input

When the two drop-down cells on the main page, language and system type, have been filled out, data window will be next. This page will be different depending on the type of the selected system. Within this window, for all analysed systems, it will show up a **diagram with the considered system boundaries**, and the optional and mandatory items. Then, fields will be displayed in which the necessary inventory data must be filled in. In a general way, we will find **three types of cells or boxes**:

1. Cells to be filled in with **numerical data** and which are in light grey colour.
2. Dark grey **drop-down cells**, in which the drop-down option shows up on the right-hand side of the cell.
3. Cells marked with (*) in which data can be input, if known or, on the contrary, the tool will automatically adopt data **by default** based on the NEPTUNUS inventory. The columns on the right indicate the data that will be adopted in case the cells marked with (*) are left empty.

A representation of the different types of cells is shown in **Figure 1**:

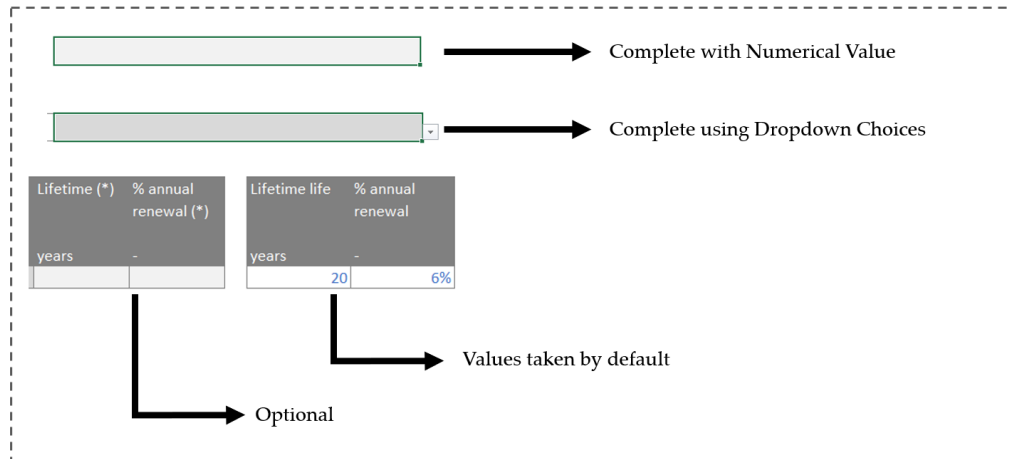


Figure 1. Summary of the three types of cells that can appear when data is provided.

NEPTUNUS WEF 1.0 tool structures the processing of fishery products in two sections: the seafood **processing activities** and the product **packaging stage**. Furthermore, it considers the analysis of **different products** within the same company with **different types of processing** (frozen, canned or smoked). Therefore, it is necessary to indicate, within the specific box for the general production data, for which type of processing each input is used by means of a drop-down cell as shown in **Figure 2**:

1.1. Annual production (data of net weights of processed fish produced)

Concept	Quantity	Unit
Frozen	10.00	ton
Canned food	5.00	ton
Smoked		

1.2. Annual consumption of fuels and electricity

Concept	Quantity	Unit	Is it used in frozen	Is it used in canning	Is it used in smoking
Electricity	5,000.00	MJ	YES	YES	
Diesel	100.00	L	YES	NO	
Natural gas	4,552.00	m3	NO	YES	-

Figure 2. Example of data filling for a processing system when you wish to analyse several products with different types of processing, in this case frozen and canned.

Regarding the product packaging, there are **two options** for filling in the data:

1. Fill in the **specific weights** of each packaging unit and the **units of product** it contains.
2. If not known, the tool **estimates the weight** of the packaging based on the net weight of the product and the data collected in the NEPTUNUS project.

3. Interpretation of the results

Once the inventory data for the system to be analysed has been entered, the results are obtained as shown in **Figure 3**.

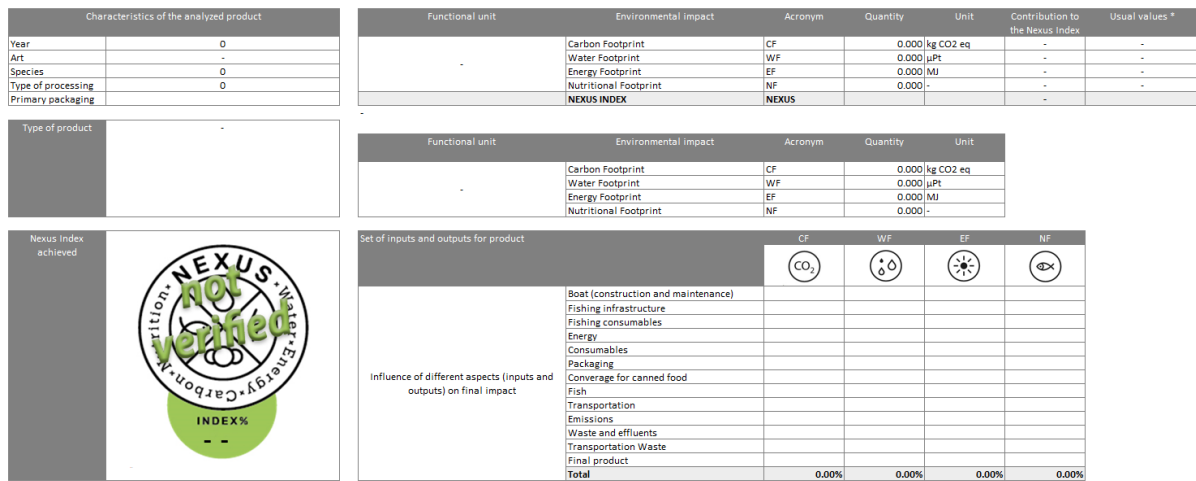


Figure 1. Structure of the results after filling in the necessary inventory data.

As set out in **Figure 3**, the tool provides the **characteristics of the analyzed product** such as the reference year, type of gear, species analyzed, type of processing and primary packaging; as well as the **system analyzed** (fishery, aquaculture, processing or consumer perspective). Likewise, it provides the **results of the four footprints** calculated per functional unit defined as 1 kg of product and the **ranges** of values obtained in the NEPTUNUS project. If the exact weight of the product has been entered, it also provides the values of the footprints per this functional unit (e.g., per 100 grams of canned product). In the same way, **the influence of the different inputs and outputs of the process** on the final impact can be seen in the results section as a percentage contribution of each input/output for each of the footprints over the total; hence, improvement opportunities should focus on these critical points. Finally, the **NEXUS index value** and the **NEXUS eco-label** are displayed. The label would have a different color depending on the percentage achieved for each product, as shown in **Figure 4**:

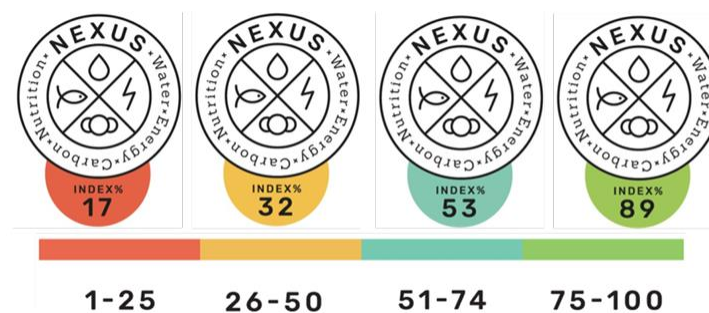


Figure 2. NEPTUNUS NEXUS eco-label.

4. Results validation

The NEPTUNUS WEF 1.0 tool is an **open and free tool**, so any entity/user can use it to calculate the NEXUS index of a given system. However, to use the eco-label, it will be necessary to **verify and validate** the data entered by the University of Cantabria. Hence, as shown in **Figure 5**, the eco-label displays a **watermark** indicating that the obtained value is not verified. If the user wishes to obtain the ecolabel without the watermark, the completed Excel file should be sent to the following email address: jara.laso@unican.es. **The data entered will be checked** and if everything is correct, the file will be returned with the ecolabel **without the watermark**, so that it can be used freely.



Figure 3. Ecolabels with the unverified label watermark on the NEXUS eco-label.