2.0 TRACEABILITY GUIDELINES AND STANDARDS

2.1 TRACEFISH

As food buyers, consumers and regulators demand increasing volumes of information about seafood products, seafood industries around the world have recognized that there are an infinite number of data elements that could be recorded. The struggle that each industry faces is to determine what data elements should be recorded.

In 2005 the most significant initiative yet undertaken to define the data elements appropriate for the wild harvest fisheries and aquaculture sector was the Tracefish initiative, funded by the European Commission\(^2\) and coordinated by the Norwegian Institute of Fisheries and Aquaculture. As part of the Tracefish project\(^3\), over 100 major European fish exporters, processors, importers and research institutes participated in establishing a European consensus on what data should be recorded and transmitted in European seafood supply chain. These standards are now the basis for several traceability electronic solution providers, including TraceTracker\(^{\text{tm}}\)\(^4\).

The data elements deemed by Tracefish to be appropriate for full traceability of the wild harvest and aquaculture supply chains are presented in the following documents:

- *Traceability of fishery products – Specification of the information to be recorded in captured fish distribution chains*\(^5\)
- *Traceability of fishery products – Specification on the information to be recorded in farmed fish distribution chains. (November 2002)*

The full traceability data elements presented in these documents were primarily intended for companies operating in EU Member States and Non-EU countries exporting to EU Member States. However, the traceability standards established by Tracefish have formed a global benchmark for full traceability within seafood supply chains.

As a result of its global endorsement, in 2005 the Tracefish traceability data sets were adopted by this project as the level of traceability that BC fisheries and aquaculture industries should aim for when developing/evaluating their traceability systems. The Tracefish traceability data sets, therefore, form the basis of three tables located at the end of this document.

- **Appendix Table A - Wild Harvest Fisheries: Traceability Requirements** includes the tabular information presented in the Tracefish ‘Captured Fish’ document.
- **Appendix Table B - Finfish Aquaculture: Traceability Requirements** includes the tabular information presented in the Tracefish ‘Farmed Fish’ document.
- **Appendix Table C - Shellfish Aquaculture: Traceability Requirements** includes the identity-related traceability elements presented in the Tracefish ‘Farmed Fish’ document.

\(^2\) [www.eatip.eu/component/option,com_docman/task.doc.../gid,14/](http://www.eatip.eu/component/option,com_docman/task.doc.../gid,14/) for further information on TraceFish
\(^3\) [http://www.tracefish.org/](http://www.tracefish.org/)
\(^4\) [http://www.tracetracker.com/](http://www.tracetracker.com/)
The Tracefish farmed fish document was designed specifically for the finfish aquaculture supply chain. Therefore, the production history/quality/safety data elements defined in this document are not applicable to shellfish aquaculture. Tracefish (and subsequently ISO) have not undertaken a similar identification of shellfish-specific data requirements.

Data elements identified within these tables as mandatory are required to track/trace the identity of a trade unit along the supply chain from producer to processor. Data elements more associated with food safety and quality assurance are identified as either recommended or optional. Tracefish does not indicate how or where information is to be stored. Instead, the specific product identity information requirements (e.g. name, address, telephone) are detailed for each step in the chain. How information is stored (paper, electronic, specific software) will depend upon the traceability system implemented.

These Tracefish data elements are the basis of the two traceability standards (wild fisheries and finfish aquaculture) currently under development by the International Standards Organization (ISO) described below. The ISO standards use the terms Shall, Should and May as opposed to the Mandatory, Recommended and Optional used by earlier by Tracefish. To facilitate comparison with the original 2005 document we have continued to use the terms Mandatory, Recommended and Optional except in reference to the draft ISO standards.

2.2 ISO STANDARDS RELEVANT TO SEAFOOD TRACEABILITY

Three ISO standards are considered to be relevant to the development and implementation of seafood traceability programs. ISO 22005 (general traceability design), ISO draft standard 12877 (farmed finfish distribution chains) and ISO draft standard ISO 12875 (captured finfish distribution chains).

2.2.1 ISO Standard 22005

ISO Standard 22005 gives guidance on how an organization would determine which information would enter an organization-specific traceability program design. The framework established by this standard provides for a large degree of flexibility. ISO specifically states that the system may use when desired product quality aspects as well as classic one-up one-down traceability. This is a very general document which outlines the required elements of any traceability program without specifying what (e.g. a specific objective) or how (e.g. how much training and in what form).

It is clear from the ISO guidance that ISO traceability guidelines are primarily oriented to B2B (Business to Business) transactions and value chains. The standard provides no indication of utilization for regulatory purposes.
General notes on this standard are as follows (section references refer to the ISO 22005 document):

- Outlines the basic requirements for all food chain traceability programs,
- Traceability is defined as “ability to follow the movement of a feed or food through specified stage(s) of production, processing and distribution This definition is not the same as the definition provided in the ISO draft standard 12877 (below), which is broader and includes the phrase “but is also able to provide information on what they are made of and what has happened to them”....
- Requires that the objectives of any traceability system be clearly identified (Section 5.2).
- Requires that any regulatory requirements related to the stated objectives be identified (Section 5.3).
- Establishes the basic requirements for meeting “one up one down” traceability (Sections 5.4-5.7).
- Establishes a requirement for planning (implementation, training and designated responsibilities)

An example of the application of this standard as applied to aquaculture certification is the traceability component of the Irish Certified Quality Salmon Program.6

2.2.2 ISO Draft Standard 12877 Traceability of finfish products – Farmed Finfish

Specifications to be recorded in farmed finfish distribution chains (ISO ref: ISO/TC 234/WG 01N016)

This draft standard relates to traceability information in farmed finfish (aquaculture) value chains. The types of business identified in this document for farmed fish distribution chains are:

- fish feed production;
- breeders;
- hatcheries;
- fish farms;
- live fish transporters;
- processors;
- transporters and storers;
- traders and wholesalers; and
- retailers.

6 http://www.ifqc.ie/newsite/salmon/index.asp
This draft standard has been taken almost directly from Tracefish and is compared in Appendix Table B. Although this standard generally follows the Tracefish document there are two major changes:

1. Data elements are grouped in 3 categories “Shall, Should and May” these replace mandatory, recommended and optional used in Tracefish and;

2. A significant amount of the data elements designated as Mandatory (“Shall”) in Tracefish are now in listed as "Should" in the ISO document.

In addition there are less specific data requirements with a number of recommended and optional categories in Tracefish being deleted and the addition of “unassigned” specifications within the ISO Standard, presumably to allow individual programs to add specific data requirements relevant to their circumstance.

Businesses must record the Shall data elements, are recommended to record the Should data elements and may chose to record the May elements. Should or May data elements are not required to meet the standard. The data elements within the Shall category meet the basic requirements for “one up, one down traceability. Initial confusion among the ISO committee around the use of Should, Shall and May at the 2009 ISO meeting in Nanaimo, resulted in explanations to the definitions. These have been further defined in Table 2.1 below:

Table 2.1. Classification of informative elements.

<table>
<thead>
<tr>
<th>Definition</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shall</strong></td>
<td>This category contains recordings related to identifiers and transformations that are necessary in order to trace the history, application or location of an entity. This means the unique identity of trade and logistic units, as well as the dependencies between the identifiers of inputs and outputs in a process.</td>
</tr>
<tr>
<td><strong>Should</strong></td>
<td>This category contains parameters that describe and provide supporting information on the units being traced. Common parameters required by law, commercial requirements or good manufacturing practices are recorded, but only where an established international format or data list for the value exists.</td>
</tr>
<tr>
<td><strong>May</strong></td>
<td>This category contains parameters that describe and provide supporting information on the units being traced. It contains parameters that are not part of the 'should' category, but that may still be useful or relevant to record. It also contains parameters that may be deemed important, but where no established international format or data list exists.</td>
</tr>
</tbody>
</table>
2.2.3 ISO Draft Standard 12875 Traceability of finfish products – Captured Finfish

Specifications to be recorded in captured finfish distribution chains. (ISO Ref: ISO/TC 234/WG 01 N014)

This draft standard relates to traceability information in wild fishery (capture) value chains. The capture fishery standard does not include data groupings found in the aquaculture document such as feed manufacturer, breeder, farm etc. The types of businesses identified in this standard to make up the distribution chains for captured finfish are:

- fishing vessels, vessel landing businesses and auction market;
- processors;
- transporters and storers;
- traders and wholesalers; and
- retailers and caterers.

As with draft standard 12877, this draft standard has been taken almost directly from Tracefish and is summarized in Appendix Table A. The Standard includes the same changes from Tracefish as the farmed fish standard, “Shall, Should and May” replaces mandatory, recommended and optional used in Tracefish and a significant number of data elements designated as Mandatory (“Shall”) in Tracefish are now in listed as "Should" in the ISO document.