Discussion document:

Towards a unique ID code for stocks and fisheries

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FAO’s FIRMS, the RAM database and FishSource each manage databases of stocks and assessment units, but they are not yet in a unique, standardized and shareable format. The GRSF project will be bringing these together into a global record of stocks, providing a basis from which to draw the unique identifier codes.

In order to be used to trace sustainability, a fishery must be uniquely associated with a single stock. This requires that the code for a fishery is restricted to being associated with a pre-constructed stock code, and limited to a single association. SFP proposes that this link between the stock code and a fishery also be captured within the fishery code as a semantic, human-readable element. In order to ensure that only accepted stocks can be referenced, and also to reduce potentially lengthy assessment area elements, the database of stock codes could be mapped to a new standard identifier, that uniquely identifies the species and the assessment area using an identifier such as a 6-letter string concatenating the ASFIS 3a code with a new code for the stock, and that this new code be included in the fishery semantic code.

Although management of stocks should ideally operate at the level of the biological stock, there are many reasons why in practice it does not, including independent management of transboundary and straddling stocks. In order to capture the potentially differing quality of management, FishSource uses the concept of a **management unit**, meaning the most basic unit wherein one or more management entities, within a set management area, distinctly manage a stock or resource of a species. This may distinguish waters of different states from federal waters in the case of shrimp fisheries in the US Gulf of Mexico, or may separate the Moroccan and Senegalese distributions of North African sardine. The intricacies of management are often complex: management within an EEZ may be the responsibility of that country’s ministry in charge of fisheries, or may be devolved to regional-level entities. Countries may collaborate bilaterally or multilaterally in managing shared stocks, but the treaties signed may or may not be binding, and countries often differ in how closely they uphold the agreements. The situation in the high seas is equally fuzzy: where RFMOs are managing high seas stocks, their mandate will generally be species-specific and their regulatory powers may vary widely. While some RFMOs adopt binding measures, others have effectively little more than an advisory role, either not reaching agreement on measures, or member states not transposing them to national law, leaving final management responsibilities to the fishing states themselves. In short, management units are a heterogeneous and variable concept, and there is no single solution as to how to track them. The concept currently used by FishSource is not free from subjectivities, including questions such as how distinct must management measures be in order to differentiate two units, and whether to consider management measures not explicitly aimed at conserving the target stock, but potentially aimed at other ecosystem elements.

In addressing management, the current code prototype includes two elements: the **management entity/ies** and the **jurisdiction area(s)**. On paper, this could in effect build the management unit when constructing the code. However, we have two main concerns with the current proposal. The first is that the current proposed definition of the jurisdiction area encompasses the entire area where the specified management entity/ies exert their mandate. This adds some redundancy, in that the jurisdiction area is already an implicit part of a management entity’s legal remit. As an example, for a NAFO-managed stock, the management entity would be <Org:NAFO> and the jurisdiction <RFB:NAFO>. On this point, capturing jurisdictions as a part of a database of management organizations would remove the need for that redundancy. But the current proposal also limits the capacity to differentiate multiple management units within a single jurisdiction. Frequently, the resolution of the entire jurisdiction will be too broad to capture distinct measures set at a smaller scale, e.g. Russian pollock TACs are set at federal level (i.e. by the same management entity) for 14 different management areas, which are imperfectly aligned with the stock areas. In European waters, there are similar examples e.g. of the five haddock stocks in the North Sea that are at least partially under EU jurisdiction, just one of them (in the Irish Sea) has a TAC that is aligned with the assessment unit, the other four being covered by TACs whose total area are broader or overlapping.

The second concern is the lack of a separate standard to ensure that there is consistency in the combination of management entity and jurisdiction areas when building codes for the same stock of the same species. It’s essential to the concept of a unique code that there are no partial overlaps or subsets included when intending to refer to the same management unit.

Another field which is raising questions for SFP in the proposed code is **fishing area(s)**, currently defined as the area in which the fishery operates. There will be no attempt to capture the area associated with hauls or specific trips, and this field is intended to coincide with the jurisdiction area when managed by a competent authority, so may be superfluous. SFP’s vision is that fishers will enter the species and their Lat-Long coordinates in a code resolver, which will return the corresponding management unit (and when paired with flag country and the fishing gear used, will return the complete fishery code). But further details about where they are fishing within that management unit would not serve any additional purpose or add any value in terms of tracking compliance. In fact, the multiplicity of potential fishing area combinations that could be generated would result in additional codes, potentially adding confusion and, again, not meeting the criterion of uniqueness.

The next element of the code is the **flag country**, which is determinant of the nationality of catches, and is also an essential component of the FishSource definition of a fishery. This information has the potential to enable compliance with catch quotas and other regulations to be tracked. A flag country may fish under more than one management unit, but is subject to each one’s regulations and to its reporting requirements.

The final element, common to both FishSource and the semantic ID proposal is the **fishing gear** used. A fishery’s compliance with potential gear-specific management measures in force may also be tracked using this field, but additionally the fishing gear is a major determinant of impacts by a fishery on other elements of the surrounding ecosystem, and should be tracked and identified.

The resulting semantic ID for a fishery has the following proposed structure:

<Species> + <Assessment areas (TBD)> + <Fishing Area(s)> + <Jurisdiction area(s)> + <Management Entity(ies)> + <Gear type> + <Flag State>.

A fishery unit is the proposed term for a fishery that is strictly defined in the terms described, with single entries permitted for each element except for the management entities field if there is joint management, and the area fields. The three planned fields which describe areas raise a practical problem in that there is no global standard which covers all marine areas, and that even within FAO’s existing area standard, the resolution is not always at the level needed. It’s been agreed that a range of different standards must be acceptable for use in defining these areas, including geospatial coordinates if required. However, this could result in very long and unwieldy semantic codes, not fitting the brief of practicality.

*Proposals:*

In addition to the suggested development of a new standard for stocks, SFP proposes as a solution to the concerns raised around the management fields that a collaborative parallel project be developed, with the aim of compiling a database of management units. These could then be uniquely referred to in the semantic code by a shortened code, removing the onus of having a long or complex area description. Active participation from management authorities worldwide would be required in providing their specific information, including geospatial data. This would clearly take some time to build, and should not hold up the launch of the codes, but instead be seen as an ongoing strengthening of the concept.