

FAO
Ontology Portal Prototypes

FISHERY

January 2004

Functionalities

1. Form versus meaning:
 - a) Traditional Search
 - b) Concept Search
2. Implemented functionalities:
 - a) synonym search
 - b) multilingual capability
 - c) terminology brokering
 - d) disambiguation
 - e) related concepts
 - f) query expansion
3. Basic natural language queries
4. Semantic navigation of bibliographical metadata
5. Semantic Navigation of Knowledge
 - a) Alphabetic list ... as a starting point
 - b) Core Fishery Concepts ... as a starting point


Additional Functionalities

Functionalities to further develop:

- a) Intelligent query expansion
- b) Natural language queries (paraphrasing)
 - a) check spelling
 - b) parsing
 - c) stemming
- c) Semantic Navigation of Knowledge
 - a) Thesaurus based

Demo

1) Form versus meaning: a) Traditional Search



Search type

- [traditional Search](#)
- [concept Search](#)

Concept based search

- [synonym search](#)
- [multilingual capability](#)
- [terminology brokering](#)
- [disambiguity and query expansion](#)
- [related concepts](#)

• [natural language queries](#)

- [browsing using metadata ontology](#)

Semantic Navigation of Knowledge

- [Alphabetic list](#)
- [Core Fishery Concepts](#)
- [Thesaurus based](#)

Ontology Application Prototypes

Search

vessel String search (not ontology)

Submit

RESULTS FOR vessel

FIGIS: [4](#) results

FAOBIB: Free text search: [2392](#) results [the problem](#)
Keyword search: [0](#) result [the problem](#)

ASFA: Keyword search (title, abstract, descriptor): [8714](#) results [the problem](#)

OneFISH: [2](#) topics | [590](#) Knowledge Objects | [191](#) Referenced Pages [incomplete](#)

Google: [3.410.000](#) results [the problem](#)

The system gets records from different portals using the **string vessel**

1) Form versus meaning:

a) Traditional Search

FAOBIB results

Using a free text search, the system retrieves all records containing the string “*vessel*” including records **not pertinent** to the user’s intended meaning of the term

FAOBIB:

Free text search: 2392 results the problem
Keyword search: 0 result the problem

The cardiovascular system (English) Hoar, W.S. (ed.) Randall, D.J. (ed.) Farrell, A.P. (ed.) In: Fish Physiology (USA), v. 12 / San Diego, CA (USA), Academic Press , 1992 , 2 v.

Accession No: 377706, **ISBN** 0-12-350435-X, **ISBN** 0-12-530436-8 , **Call No:** 597 H65 v.12 (FBL) **Notes:** Includes bibliographies

Descriptors: FISHES; ANIMAL PHYSIOLOGY; CARDIOVASCULAR SYSTEM; BLOOD VESSELS; MYOCARDIUM; ENERGY METABOLISM; BLOOD; CATECHOLAMINES

Using a keyword search, the system retrieves **0 results** as the thesaurus used in this portal does not use *vessel* as a keyword

FAOBIB:

Free text search: 2392 results the problem
Keyword search: 0 result the problem

FAO Online Catalog

EXPORT

Select records for export by marking checkboxes.

No matches found !

1) Form versus meaning:
b) Concept Search

Ontology Application Prototypes

Search for:

Result(s) for : vessel

[blood vessels@aq](#)

Synonyms:

- [vasos sanguineos@aq](#)
- [vaso sanguineo@aq](#)
- [vessel](#)
- [blood vessels@asfa](#)
- [vasos capilares@aq](#)

[ships@asfa](#)

Synonyms:

- [navio@aq](#)
- [bugues@aq](#)
- [embarcación](#)
- [vessel](#)
- [barco](#)
- [ships@aq](#)

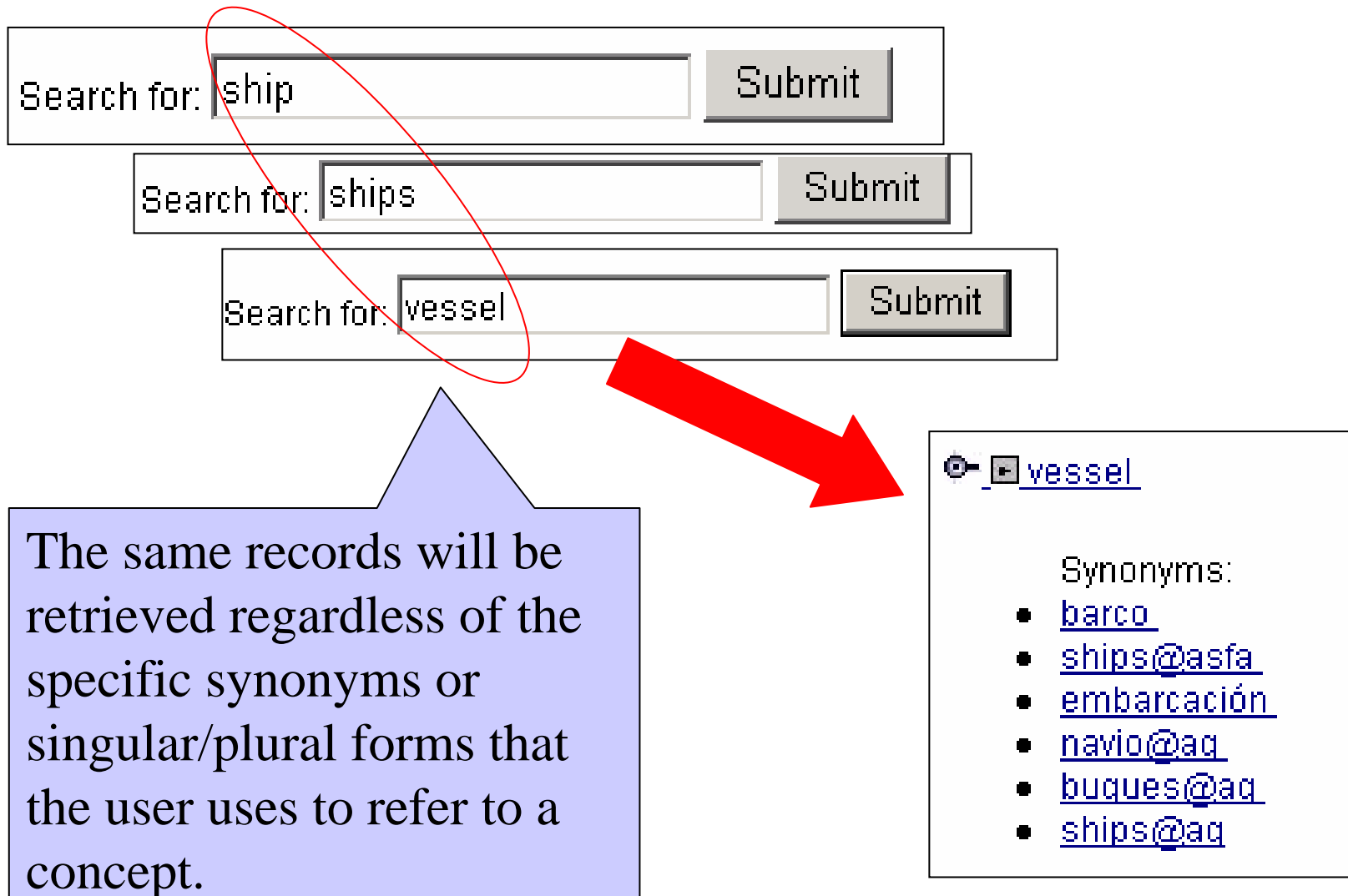
In a **concept based search** the system retrieves all meanings represented by the term *vessel*.

For example:

- *vessel* can refer to the concept *blood vessel*
- *vessel* can also be interpreted as *ship*

2) Implemented functionalities:

a) synonym search



2) Implemented functionalities: b) multilingual capability

Search for:

Search for:

The system is also able to understand a concept even when different languages are used.

[vessel](#)

Synonyms:

- [bugues@aq](#)
- [navio@aq](#)
- [ships@aq](#)
- [embarcación](#)
- [barco](#)
- [ships@asfa](#)

2) Implemented functionalities: c) terminology brokering

Search

fishing vessel

Result

User query terms are converted into the respective corresponding variants used in a given information system

AGROVOC	ASFA	FIGIS	OTHER
fishing vessels (English) embarcaciones de pesca (Español) embarcação de pesca (Portuguese)	fishing vessels (English)	fishing vessels not specified (English) other fishing vessels (English)	fishing vessel (English) ???? (Chinese)

2) Implemented functionalities: d) disambiguation

Search

Your query is ambiguous (has more than one meaning). To continue your search click one of the following

- vessel* (circulatory system)
- vessel* (surface craft)

When the query term is ambiguous all concepts that correspond to that term are displayed to the user and disambiguated using the parent concept

2) Implemented functionalities: e) related concepts

The image shows a search interface with a search box containing the text 'vessel' and a 'Submit' button. Below the search box, a list of related concepts is displayed: **_vessel (English)** | navio (Portuguese Agrovoc) | ships (English Agrovoc) | buques (Español Agrovoc) | barco (Español) | embarcación (Español) | ships (English Asfa). A red arrow points from the search box to this list. Below the list, a 'Properties:' section is shown with a red arrow pointing to it. The properties include: flag state (country), carries (equipment, deck equipment, fishing gear), origin port (city), and power location (power region). A blue callout box with a white pointer contains the text: 'Concepts related to the user query are displayed (e.g. for query refinements, etc.)'.

Search

vessel

Submit

_vessel (English) | navio (Portuguese Agrovoc) | ships (English Agrovoc) | buques (Español Agrovoc) | barco (Español) | embarcación (Español) | ships (English Asfa)

Properties:

flag state

- **_country**

carries

- **_equipment** | gear | equipment(Asfa) | equipment(Agrovoc)
- **_deck equipment(Asfa)** | deck equipment(Agrovoc)
- **_fishing gear(Asfa)** | fishing equipment | fishing gear(Agrovoc)

origin port

- **_city**

power location

- **_power region**

Concepts related to the user query are displayed (e.g. for query refinements, etc.)

2) Implemented functionalities: f) query expansion (ex. 1)

fishing equipment (English term)
fishing gear (Agrovoc English term)
fishing gear (Asfa English term)

Combine your query with related concepts:

fishery industry equipment (Asfa English)

Update your search

The query can be refined using one or more related concept(s)

Query expansion

Search

Search for: fishing equipment OR fishing gear AND fishery industry equipment

[Google](#)

Search keywords field

Search in:	Search for:
EIMS	fishing equipment OR fishing gear AND fishery industry equipment
Figis	fishing equipment OR fishing gear AND fishery industry equipment
OneFish	fishing equipment OR fishing gear AND fishery industry equipment
FAOBIB	fishing gear
Asfa	fishing gear AND fishery industry equipment

fishing vessel (English term)
fishing vessels (Agrovoc English term)
fishing vessels (Asfa English term)
fishing vessels not specified (Figis English term)
other fishing vessels (Figis English term)

2) Implemented functionalities: f) query expansion (ex. 2)

Combine your query with related concepts:

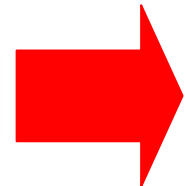
- capture fishery
- drilling (Asfa)
- drilling vessel (Core Fishery term)
- drilling vessels (Asfa)
- fishing (Asfa)
- fishing vessel
- fishing vessels (Agrovoc)
- fishing vessels not specified (Figis)
- other fishing vessels (Figis)
- pelagic fisheries (Asfa)
- perdurant
- platform
- ships (Agrovoc)
- vessel
- work 1
- work platform (Core Fishery term)
- work platforms (Asfa)

Expand your query with translations:

- embarcaciones de pesca (Agrovoc Espanol)
- embarcação de pesca (Agrovoc Portuguese)
- ???? (Chinese)

To improve query results (in terms of quality and quantity), it is possible to select one or more **translations** or **related terms**...

Update your search



...The query will then take into consideration all selected lexicalizations to improve the query.

The system will broker the refined query using the terms from a given portal..

Query expansion

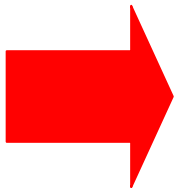
Search

Search for: fishing vessel OR fishing vessels not specified OR fishing vessels OR other fishing vessels AND (capture fishery OR drilling vessels OR fishing vessels OR work platforms)

[Google](#)

Search keywords field

Search in:	Search for:
EIMS	fishing vessel OR fishing vessels not specified OR fishing vessels OR other fishing vessels AND (capture fishery OR drilling vessels OR fishing vessels OR work platforms)
Figis	fishing vessels not specified OR other fishing vessels
OneFish	fishing vessel OR fishing vessels not specified OR fishing vessels OR other fishing vessels AND (capture fishery OR drilling vessels OR fishing vessels OR work platforms)
FAOBIB	fishing vessels
Asfa	fishing vessels AND (drilling vessels OR fishing vessels OR work platforms)

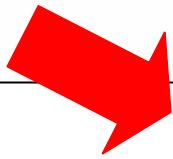


3) Basic natural language queries

Search

fishing vessels in kenya

Submit



Results from FAOBIB using fishing vessels in kenya

Kenya - Tuna longline fishing and inshore fishing - Report to the government.

Descriptors: [COASTAL WATERS](#); [DESIGN](#); [FISHERY DATA](#); [FISHERY MANAGEMENT](#); [FISHING GEAR](#); [FISHING GROUNDS](#); [FISHING OPERATIONS](#); [FISHING VESSELS](#); [KENYA](#); [MARINE FISHERIES](#); [PELAGIC ENVIRONMENT](#); [TUNA](#); [YIELDS](#);

- [MIYAMOTO H](#)
- [Kenya - Tuna longline fishing and inshore fishing - Report to the government.](#)

Kenya - Survey of longline fishing resources in East African waters - Report to the government.

Descriptors: [COASTAL WATERS](#); [EAST AFRICA](#); [FISHING VESSELS](#); [GEOGRAPHICAL DISTRIBUTION](#); [INDIAN OCEAN](#); [INTERNATIONAL WATERS](#); [JAPAN](#); [KENYA](#); [LINE FISHING](#); [MARINE FISHERIES](#); [MARLINS](#); [PELAGIC ENVIRONMENT](#); [SURVEYING](#); [TUNA](#); [YIELDS](#);

- [BELL RR](#)
- [OCHI TAKENAD](#)
- [Kenya - Survey of longline fishing resources in East African waters - Report to the government.](#)

Report of travel to Kenya, Tanzania, Uganda, Zambia and Malawi, from 19 March to 20 April 1967 to study replacement of dugout canoes.

Descriptors: [FISHING VESSELS](#); [KENYA](#); [MALAWI](#); [PRICES](#); [SHIPBUILDING](#); [SMALL BOATS](#); [TANZANIA](#); [UGANDA](#); [WOOD](#); [ZAMBIA](#);

- [GULBRANDSEN O](#)
- [LUNDBERG H](#)

Bibliographical records related to fishing vessel in Kenya

4) Semantic navigation of bibliographical metadata

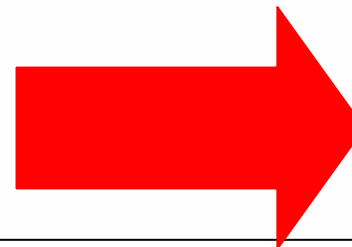
MIYAMOTO H (Personal Author)

This author wrote the following:

- Kenya - Tuna longline fishing and inshore fishing - Report to the government
- On the relation between otter trawl gear and towing power.
- On the relation between otter trawl gear and towing power.
- On the relation between otter trawl gear and towing power.
- Experiments on fishing net preservation
- Recent development in trawl-fishing for shrimps with trawls from small mechanised boats on the West Coast of peninsular India.
- Brazil - Introduction of synthetic fibers to the brazilian fishing industry - Report to the government.
- India - Establishment of a fishing gear research laboratory report to the government.
- India - Establishment of a fishing gear research laboratory report to the government - Chap. 5, Design, construction and operation of fishing gear

[Click here](#) to show what the author wrote about...

[Click here](#) to find email address...



MIYAMOTO H

This author wrote about:

- [BRAZIL](#)
- [COASTAL WATERS](#)
- [DESIGN](#)
- [ENGINEERING](#)
- [EQUIPMENT PARTS](#)
- [EQUIPMENT PERFORMANCE](#)
- [EXPERIMENTATION](#)
- [FISHERIES](#)
- [FISHERY DATA](#)
- [FISHERY MANAGEMENT](#)
- [FISHING GEAR](#)
- [FISHING GROUNDS](#)
- [FISHING NETS](#)
- [FISHING OPERATIONS](#)
- [FISHING VESSELS](#)
- [GILLNETS](#)
- [INDIA](#)
- [KENYA](#)
- [LABORATORIES](#)

5) Semantic Navigation of Knowledge:

a) Alphabetic list ... as a starting point

Ontology Application Prototypes

English

[A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [Q](#) | [R](#) | [S](#) | [T](#) | [U](#) | [V](#) | [W](#) | [X](#) | [Y](#) | [Z](#)

- [anchor seiner \(Core Fishery\)](#)
- [acentrogobius viridipunctatus](#)
- [argentinian hake fillets, frozen](#)
- [antipathidae](#)
- [animal performance \(Agrovoc\)](#)
- [aerobic respiration \(Asfa\)](#)
- [agrosilvopastoral systems \(Agrovoc\)](#)
- [ambassis gymnocephalus](#)
- [asra turcomanus](#)
- [arius \(Agrovoc\)](#)
- [aporops bilinearis](#)
- [aetapcus maculatus](#)
- [atolls \(Agrovoc\)](#)
- [anomia ephippium](#)
- [aphyocharacidium melandetum](#)
- [antarctic front \(Asfa\)](#)
- [alternate task](#)
- [above country](#)

^ | v

5) Semantic Navigation of Knowledge:

b) Core Fishery Concepts ... as a starting point

Ontology Application Prototypes

English

- [aquatic organism](#)
- [management method](#)
- [microorganism](#)
- [physical region](#)
- [plants/flora](#)

parent concept(s)

children concept(s)

- [life form](#)
- [_aquatic organism \(English \)](#)
 - [demersl marine fish frsh](#)
 - [all aquatic organisms](#)
 - [marine fishes](#)
 - [aquatic organisms\(Agrovoc\)](#)
 - [pisces](#)
 - [pelagic marine fish frsh](#)
 - [aquatic organisms\(Asfa\)](#)
 - [mollusca](#)
 - [mlluscs excl cephlp frsh](#)
 - [amphibia, reptilia](#)
 - [invertebrata aquatica](#)
 - [aquatic animals nei](#)

Additional Functionalities

a) Intelligent query expansion

- japanese fishing vessel
 - The system search for documents related to Japan and fishing vessel
 - If 0 results are retrieved, the system search for Asia and fishing vessel
- etc.

b) Natural language queries (paraphrasing)

- japanese fishing vessel
 - tuna ships in the Caribbean sea
 - etc.
-
- The System check first for spelling errors, parse the query

c) Semantic Navigation of Knowledge: a) Thesaurus based

English Show subconcepts

Show 10 Records

[A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [Q](#) | [R](#) | [S](#) | [T](#) | [U](#) | [V](#) | [W](#) | [X](#) | [Y](#) | [Z](#)

List of Fishery Thesauri Terms:
(665 concepts starting with "A")

- [abaca \(Agrovoc\)](#)
- [abalone meat, canned](#)
- [abalone meat, frozen](#)
- [abalone shells](#)
- [abalones \(Agrovoc\)](#)
- [abalones, shucked or not, fresh or chilled](#)
- [abandoned land \(Agrovoc\)](#)
- [abdomen \(Asfa\)](#)

Highlighting the originator thesaurus. User can select a specific thesaurus to look for.