



## DATA DICTIONARY

### *Potential and actual escapement of silver eel*

Final version

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*August 2011 – version v0.4*

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# I – FEATURE DICTIONARY

## I.1 – Batch

Definition:

Set of individuals grouped by taxon and development stage. The batch is sampled during observation. A batch can be split into several batches, which can be ultimately individuals.

- Attributes:

- [Batch ID](#)
- [Sub-batch ID](#)
- [Batch level](#)
- [Species](#)
- [Stage](#)
- [Individual status](#)
- [Value type](#)
- [Quantity type](#)
- [Quantity](#)

## I.2 – Biological characteristics

Definition:

Each batch is characterized by their biological characteristics.

- Attributes:

- [Biological characteristic ID](#)
- [Value type](#)
- [Biological characteristic type](#)
- [Biological characteristic value](#)

## I.3 – Chemical obstruction

Definition:

characteristics of the obstruction to migration of chemical origin

- Attributes:

- [Chemical type](#)
- [Coverage unit](#)
- [Coverage value](#)

## I.4 – Data provider

Definition:

Person who provides the data

- Attributes:

- [Data provider ID](#)
- [Data provider name](#)

## I.5 – Differentiation

Definition:

Describe the action to move from the undifferentiated sex to female or male

- Attributes:

- [Rate](#)
- [Sex](#)

## I.6 – Ecological status

Definition:

Ecological status is defined from biological and physicochemical parameters underlying biology (see Water Framework Directive).

- Attributes:

- [Ecological status class](#)

## I.7 – Electrofishing

Definition:

Scientific method for observation on fishery resources

- Attributes:

- [Fishing method](#)
- [Fishing mean](#)
- [Wetted area](#)
- [Fished length](#)
- [Fished width](#)
- [Number of pass](#)

## I.8 – Environmental characteristics

Definition:

Each observation place can be describe by its environment characteristics.

- Attributes:

- [Characteristic ID](#)
- [Temperature](#)
- [Slope](#)
- [Distance to the sea](#)
- [Habitat type](#)
- [Wetted area](#)
- [Ecological productivity](#)

- [Non calcareous percentage](#)

## I.9 – Establishment

Definition:

Organization who responsible to provide the data

- Attributes:

- [Establishment ID](#)
- [Establishment name](#)

## I.10 – Fishery

Definition:

Term to describe the collective enterprise of taking fish, usually used in conjunction with reference to the species, gear or area involved. ([www.fishbase.org](http://www.fishbase.org))

- Attributes:

- [Fisher type](#)
- [Gear type](#)

## I.11 – Gear characteristic

Definition:

Describe the characteristic of the gear used during scientific gear fishing

- Attributes:

- [Gear characteristic ID](#)
- [Gear characteristic type](#)
- [Gear characteristic value](#)

## I.12 – Growth

Definition:

Change over time of the body mass (approximately body weight) of a fish; a linear dimension of size (e.g., total length) may be used instead of weight, to express growth, as long as this linear dimension can be conveniently related to weight. ([www.fishbase.org](http://www.fishbase.org)). Here growth in length is used

- Attributes:

- [Growth rate](#)
- [Asymptotic length](#)
- [Growth constant](#)

## I.13 – Habitat loss

Definition:

Damage on habitat caused by anthropogenic action.

- Attributes:

- [Habitat loss type](#)
- [Unity type](#)

- [Habitat loss value](#)

## I.14 – Maturation

Definition:

Describe the action to move from yellow stage to silver eel stage

- Attributes:

- [1st parameter of the maturation equation](#)
- [2nd parameter of the maturation equation](#)
- [Maturation length](#)
- [standard deviation](#)
- [Sex](#)

## I.15 – Migration

Definition:

Systematic movement of fish from one region to another, usually at a definite stage in the life cycle ([www.fishbase.org](http://www.fishbase.org))

- Attributes:

- [Migration proportion](#)
- [Migration speed unity](#)
- [Migration speed](#)
- [Section arrival ID](#)

## I.16 – Migration monitoring

Definition:

System to survey the migration of fish in particular point, usually on a dam.

- Attributes:

- [Monitoring type](#)
- [Migration direction](#)
- [Escapement rate](#)

## I.17 – Mortality

Definition:

Rate of death from various causes ([www.fishbase.org](http://www.fishbase.org))

- Attributes:

- [Mortality type](#)

## I.18 – Observations

Definition:

General characteristics of population or pressure survey.

- Attributes:

- [Observation ID](#)



- [Observation origin](#)
- [Observation type](#)
- [Period type](#)
- [Period starting date](#)
- [Period ending date](#)

## I.19 – Observation places

Definition:

Place where the observation is happening.

- Attributes:

- [Observation place ID](#)
- [GIS system name for location id](#)
- [GIS layer name for location id](#)
- [Observation place type](#)
- [Location ID](#)
- [Place name](#)

## I.20 – Obstruction

Definition:

Chemical or physical element who stop or slow down the fish migration.

- Attributes:

- [Obstruction type](#)
- [Obstruction number](#)

## I.21 – Physical obstruction

Definition:

Physical element, like a dam, who stop or slow down the fish migration.

- Attributes:

- [Obstruction passability](#)
- [Obstruction height](#)
- [Turbine number](#)

## I.22 – Predation

Definition:

Capture of fish by wildlife or fisher. For direct or indirect consumption

- Attributes:

- [Predation type](#)
- [Predator number](#)
- [Effort unit](#)
- [Effort value](#)
- [Maximum length](#)

- [Minimum length](#)

## **I.23 – Scientific observation**

Definition:

Population survey using scientific method

- Attributes:

- [Scientific observation method](#)

## **I.24 – Scientific fishing**

Definition:

Fish survey using fishing gears or electrofishing

- Attributes:

- [Fishing duration unit](#)
- [Duration](#)

## **I.25 – Scientific gear fishing**

Definition:

Scientific method for observation using fishing gears

- Attributes:

- [Gear type](#)
- [Gear number](#)
- [Fishing effort type](#)
- [Fishing effort value](#)

## **I.26 – Stocking**

Definition:

The practice of releasing (usually) young eel caught in another place in order to enhance the stock.

- Attributes:

- [Mortality rate](#)
- [Population origin](#)

## **I.27 – Wildlife**

Definition:

Wild animals animals living in a natural, undomesticated state that can be predator of eel.

- Attributes:

- [Species](#)

## II – ATTRIBUTES DICTIONARY

### II.1 – 1st parameter of the maturation equation

Object/Link name: [MATURATION](#)

Data type: numeric

Definition:

First parameter of the maturation equation. As no data has been entered in this table, the project hasn't defined a standard form for this equation.

### II.2 – 2nd parameter of the maturation equation

Object/Link name: [MATURATION](#)

Data type: numeric

Definition:

Second parameter of the maturation equation. As no data has been entered in this table, the project hasn't defined a standard form for this equation.

### II.3 – Asymptotic length

Object/Link name: [GROWTH](#)

Data type: numeric

Definition:

Parameter of the Von Bertalanffy curve which expresses the mean length of the fish of a given stock would reach if they could grow an infinitely long period. This parameter is usually denoted  $L_{inf}$  or  $L_{\infty}$ . It is expressed in centimetres. (adapted from [www.fishbase.org](http://www.fishbase.org))

### II.4 – Batch ID

Object/Link name: [BATCH](#)

Data type: numeric

Attribute type: Primary key

Definition:

Identifying non-significant assigned to each batch

### II.5 – Batch level

Object/Link name: [BATCH](#)

Data type: numeric

Definition:

Give the level of the batch or sample batch in the interlinks of batch

## II.6 – Biological characteristic ID

Object/Link name: [BIOLOGICAL CHARACTERISTICS](#)

Data type: numeric

Attribute type: primary key

Definition:

Identifying non-significant assigned to each biological characteristic.

## II.7 – Biological characteristic type

Object/Link name: [BIOLOGICAL CHARACTERISTICS](#)

Data type: numeric

Definition: Precision of biological characteristic type used according to this nomenclature value list:

ID	Type	Name	Label	Unit	Data type
38	Biological characteristic type	Unknown	Unknown	Unknown	Unknown
42	Biological characteristic type	Weight	Weight	g	real
43	Biological characteristic type	Age	Age	year	integer
44	Biological characteristic type	Sex	Sex	Dimensionless	nomenclature
45	Biological characteristic type	Stage	stage	Dimensionless	nomenclature
46	Biological characteristic type	Rate	rate	%	real
48	Biological characteristic type	Density	Density	nb/m <sup>2</sup>	real
39	Biological characteristic type	Length	Total length	mm	real
41	Biological characteristic type	Upper length	Total length - upper bound	mm	real
40	Biological characteristic type	Lower length	Total length - lower bound	mm	real
47	Biological characteristic type	Number	Number	Dimensionless	Integer
232	Biological characteristic type	Number p2	Number in the second pass	Dimensionless	Integer
231	Biological characteristic type	Number p1	Number in the first pass	Dimensionless	Integer
233	Biological characteristic type	Number p3	Number in the 3rd pass	Dimensionless	Integer
234	Biological characteristic type	Number p4	Number in the 4th pass	Dimensionless	Integer
235	Biological characteristic type	Number p5	Number in the 5th pass	Dimensionless	Integer

## II.8 – Biological characteristic value

Object/link name: [BIOLOGICAL CHARACTERISTICS](#)

Data type: numeric

Definition:

Biological characteristic value depending on biological characteristic type. see [biological characteristic type](#)

## II.9 – Characteristic ID

Object/Link name: [ENVIRONMENTAL CHARACTERISTIC](#)

Data type: numeric

Attribute type: Primary key

Definition:

Identifying non-significant assigned to each environmental characteristic

## II.10 – Chemical type

Object/Link name: [CHEMICAL OBSTRUCTION](#)

Data type: numeric

Definition: type of chemical obstruction according to this nomenclature.

ID	Type	Name
236	Chemical obstruction	Anoxia
237	Chemical obstruction	Other

## II.11 – Coverage unit

Object/Link name: [CHEMICAL OBSTRUCTION](#)

Data type: numeric

Definition:

Unit of extent of the chemical obstruction according the [unit type](#) nomenclature.

## II.12 – Coverage value

Object/Link name: [CHEMICAL OBSTRUCTION](#)

Data type: numeric

Definition:

Extent of the chemical obstruction expresses in [Coverage unit](#)

## II.13 – Data provider ID

Object/Link name: [DATA PROVIDER](#)

Data type: numeric

Attribute type: Primary key

Definition:

Identifying non-significant assigned to each data provider.

## II.14 – Data provider name

Object/Link name: [DATA PROVIDER](#)

Data type: character

Length : 60

Definition:

Name of the responsible people who provide the data.

## II.15 – Distance to the sea

Object/Link name: [ENVIRONMENTAL CHARACTERISTIC](#)

Data type: numeric

Definition:

Length expresses in kilometres between observation place and the sea boundary calculated along the river

course.

## II.16 – Duration

Object/Link name: [SCIENTIFIC FISHING](#)

Data type: numeric

Definition:

Elapsed time to complete the scientific fishing. It can be for example the electrofishing pass duration, tow duration, or the number of fyke net nights. It expresses in [Fishing duration unit](#).

## II.17 – Ecological productivity

Object/Link name: [ENVIRONMENTAL CHARACTERISTIC](#)

Data type: numeric

Definition:

productivity indicator of the observation place according the following nomenclature.

Code	Type	Name
215	Ecological productivity	Unknown
216	Ecological productivity	Good productivity
217	Ecological productivity	Bad productivity

## II.18 – Ecological status class

Object/Link name: [ECOLOGICAL STATUS](#)

Data type: numeric

Definition:

Ecological status is defined from biological and physicochemical parameters underlying biology. Five state class existing according the following nomenclature.

Code	Type	Name
90	Ecological status class	High
91	Ecological status class	Good
92	Ecological status class	Moderate
93	Ecological status class	Poor
94	Ecological status class	Unclassified

## II.19 – Effort unit

Object/link name: [PREDATION](#)

Data type: numeric

Definition: Precision of effort unit [Fishing effort type](#) nomenclature.

## II.20 – Effort value

Nom de l'objet/Lien : [PREDATION](#)

Data type: numeric

Definition:

All means of predation implemented by the predator during an observation for a given period. Expressed by the defined [Effort unit](#).

## II.21 – Escapement rate

Object/Link name: [MIGRATION MONITORING](#)

Data type: numeric

Definition:

Estimate of the percentage of eel avoiding the migration monitoring.

## II.22 – Establishment ID

Object/Link name: [ESTABLISHMENT](#)

Data type: numeric

Attribute type: Primary key

Definition:

Identifying non-significant assigned to each organization.

## II.23 – Establishment name

Object/Link name: [ESTABLISHMENT](#)

Data type: character

Length : 100

Definition:

Name of organization who responsible to provide the data.

## II.24 – Fished length

Object/Link name: [ELECTROFISHING](#)

Data type: numeric

Definition:

The fished length (in metres) is the electrofished river length.

## II.25 – Fished width

Object/Link name: [ELECTROFISHING](#)

Data type: numeric

Definition:

The fished width (in metres) is the electrofished river width.

## II.26 – Fisher type

Object/Link name: [FISHERY](#)

Data type: numeric

Definition:

Precision of fisher type according the following nomenclature.

Code	Type	Name
95	Fisher type	Unknown
96	Fisher type	Professional fishing
97	Fisher type	Amateur fishing
98	Fisher type	Other

## II.27 – Fishing duration unit

Object/Link name: [SCIENTIFIC FISHING](#)

Data type: numeric

Definition:

Gives the unit of fishing duration according the nomenclature of [Period type](#) or [Fishing effort type](#).

## II.28 – Fishing effort type

Object/Link name: [SCIENTIFIC GEAR FISHING](#)

Data type: numeric

Definition:

The amount of time and fishing power used to harvest fish ([www.fishbase.org](http://www.fishbase.org)) according the following nomenclature.

Code	Type	Name
99	Effort type	Unknown
100	Effort type	Number of gear
101	Effort type	Duration days
102	Effort type	Area in square meters
103	Effort type	Volume in cubic meters
104	Effort type	Number gear par days
105	Effort type	Number gear per month

## II.29 – Fishing effort value

Object/Link name: [SCIENTIFIC GEAR FISHING](#)

Data type: numeric

Definition:

Amount of fishing effort expresses in unit of the nomenclature [Fishing effort type](#).

## II.30 – Fishing mean

Object/Link name: [ELECTROFISHING](#)

Data type: numeric

Definition:

Mean used to realize the observation according the following nomenclature.



Code	Type	Name
70	Electrofishing mean	Unknown
71	Electrofishing mean	By foot
72	Electrofishing mean	By boat
73	Electrofishing mean	Mix

## II.31 – Gear characteristic ID

Object/Link name: [GEAR CHARACTERISTIC](#)

Data type: numeric

Attribute type: Primary key

Definition:

Identifying non-significant assigned to each gear characteristic

## II.32 – Gear characteristic type

Object/Link name: [GEAR CHARACTERISTIC](#)

Data type: numeric

Definition:

Precision of gear characteristic type according to the following nomenclature.

Code	Type	Name
200	Gear characteristic type	Unknown
201	Gear characteristic type	Stretched mesh size (in mm) by the trap net
202	Gear characteristic type	Sieve area (in m <sup>2</sup> ) by net
203	Gear characteristic type	Net length (in m)

## II.33 – Gear characteristic value

Object/Link name: [GEAR CHARACTERISTIC](#)

Data type: numeric

Definition:

Gear characteristic value according to the [Gear characteristic type](#) nomenclature.

## II.34 – Gear number

Object/Link name: [SCIENTIFIC GEAR FISHING](#)

Data type: numeric

Definition:

Total number of gear used during the observation.

## II.35 – Gear type

Object/Link name: [SCIENTIFIC GEAR FISHING](#)

Object/Link name: [FISHERY](#)

Data type: numeric

Definition:

Type of gear used according the FAO International Standard Statistical Classification of Fishing Gear (ISSFG)

nomenclature.

Code	Type	Name	isscfg_code	Main gear	Eel specific gear
106	Gear type	Unknown	01.0.0	SURROUNDING NETS	
107	Gear type	Surrounding Nets with Purse Lines (Purse Seines)	01.1.0	SURROUNDING NETS	
108	Gear type	Surrounding Nets with Purse Lines - one boat	01.1.1	SURROUNDING NETS	
109	Gear type	Surrounding Nets with Purse Lines - two boats	01.1.2	SURROUNDING NETS	
110	Gear type	Surrounding Nets without Purse Lines	01.2.0	SURROUNDING NETS	
111	Gear type	Unknown	02.0.0	SEINE NETS	
112	Gear type	Beach Seines	02.1.0	SEINE NETS	
113	Gear type	Boat Seines	02.2.0	SEINE NETS	
114	Gear type	Boat Seines	02.2.1	SEINE NETS	
115	Gear type	Boat Seines	02.2.2	SEINE NETS	
116	Gear type	Boat Seines	02.2.3	SEINE NETS	
117	Gear type	Boat Seines	02.9.0	SEINE NETS	
118	Gear type	Unknown	03.0.0	TRAWLS	
119	Gear type	Unknown	03.1.0	TRAWLS	
120	Gear type	Beam trawls	03.1.1	TRAWL NETS	
121	Gear type	Bottom otter trawls	03.1.2	TRAWL NETS	
122	Gear type	Bottom pair trawls	03.1.3	TRAWL NETS	
123	Gear type	Unknown	03.1.4	TRAWLS	
124	Gear type	Unknown	03.1.5	TRAWLS	
125	Gear type	Unknown	03.1.9	TRAWLS	
126	Gear type	Unknown	03.2.0	TRAWLS	
127	Gear type	Midwater otter trawls	03.2.1	TRAWL NETS	
128	Gear type	Midwater pair trawls	03.2.2	TRAWL NETS	
129	Gear type	Unknown	03.2.3	TRAWLS	
130	Gear type	Unknown	03.2.9	TRAWLS	
131	Gear type	Otter Twin Trawls	03.3.0	TRAWL NETS	
132	Gear type	Otter Twin Trawls	03.4.9	TRAWL NETS	
133	Gear type	Otter Twin Trawls	03.5.9	TRAWL NETS	
134	Gear type	Otter Twin Trawls	03.9.0	TRAWL NETS	
135	Gear type	Boat Dredges	04.0.0	DREDGES	
136	Gear type	Boat Dredges	04.1.0	DREDGES	
137	Gear type	Hand Dredges	04.2.0	DREDGES	
138	Gear type	Portable Lift Nets	05.0.0	LIFT NETS	
139	Gear type	Portable Lift Nets	05.1.0	LIFT NETS	
140	Gear type	Boat Operated Lift Nets	05.2.0	LIFT NETS	
141	Gear type	Shore Operated Lift Nets	05.3.0	LIFT NETS	
142	Gear type	Shore Operated Lift Nets	05.9.0	LIFT NETS	
143	Gear type	Cast Nets	06.0.0	FALLING GEAR	
144	Gear type	Cast Nets	06.1.0	FALLING GEAR	
145	Gear type	Falling Gear (Not Specified)	06.9.0	FALLING GEAR	
146	Gear type	Set Gillnets (Anchored)	07.0.0	GILLNETS AND ENTANGLING NETS	
147	Gear type	Set Gillnets (Anchored)	07.1.0	GILLNETS AND ENTANGLING NETS	
148	Gear type	Drifting Gillnets (Driftnets)	07.2.0	GILLNETS AND	

Code	Type	Name	isscfg_code	Main gear	Eel specific gear
149	Gear type	Encircling gillnets	07.3.0	ENTANGLING NETS GILLNETS AND ENTANGLING NETS	
150	Gear type	Fixed Gillnets (on Stakes)	07.4.0	GILLNETS AND ENTANGLING NETS	
151	Gear type	Trammel Nets	07.5.0	GILLNETS AND ENTANGLING NETS	
152	Gear type	Trammel Nets	07.6.0	GILLNETS AND ENTANGLING NETS	
153	Gear type	Trammel Nets	07.9.0	GILLNETS AND ENTANGLING NETS	
154	Gear type	Trammel Nets	07.9.1	GILLNETS AND ENTANGLING NETS	
155	Gear type	Unknown	08.0.0	TRAPS	
156	Gear type	Stationary Uncovered Pound Nets	08.1.0	TRAPS	
157	Gear type	Pots	08.2.0	TRAPS	Eel pots
158	Gear type	Fyke Nets	08.3.0	TRAPS	Eel fyke nets
159	Gear type	Stow Nets	08.4.0	TRAPS	Dideau
160	Gear type	Barriers, Fences, Weirs, Corrals, etc.	08.5.0	TRAPS	
161	Gear type	Aerial Traps	08.6.0	TRAPS	
162	Gear type	Aerial Traps	08.9.0	TRAPS	
163	Gear type	Handlines and Pole-Lines (Hand Operated)	09.0.0	HOOKS AND LINES	
164	Gear type	Handlines and Pole-Lines (Hand Operated)	09.1.0	HOOKS AND LINES	
165	Gear type	Handlines and Pole-Lines (Mechanized)	09.2.0	HOOKS AND LINES	
166	Gear type	Set Longlines	09.3.0	HOOKS AND LINES	
167	Gear type	Drifting Longlines	09.4.0	HOOKS AND LINES	
168	Gear type	Longlines (Not Specified)	09.5.0	HOOKS AND LINES	
169	Gear type	Trolling Lines	09.6.0	HOOKS AND LINES	
170	Gear type	Trolling Lines	09.9.0	HOOKS AND LINES	
171	Gear type	Unknown	10.0.0	GRAPPLING AND WOUNDING	
172	Gear type	Harpoons	10.1.0	GRAPPLING AND WOUNDING	
173	Gear type	Pumps	11.0.0	HARVESTING GEAR	
174	Gear type	Pumps	11.1.0	HARVESTING GEAR	
175	Gear type	Mechanized Dredges	11.2.0	HARVESTING GEAR	
176	Gear type	Pumps	11.9.0	HARVESTING GEAR	
177	Gear type	Miscellaneous	20.0.0	MISCELLANEOUS	Glass eel scoop net and push net
178	Gear type	Recreational fishing gear	25.0.0	RECREATIVE FISHING GEAR	
179	Gear type	Unknown	99.0.0	UNKNOWN	

## II.36 – GIS layer name for location id

Object/Link name: [OBSERVATION PLACES](#)

Data type: character

Length : 30

Definition:

Name of the referential layer from the GIS referential system used to defined the observation places elements.

## II.37 – GIS system name for location id

Object/Link name: [OBSERVATION PLACES](#)

Data type: character

Length : 20

Definition:

Name of the GIS referential system used to defined the observation places elements.

## II.38 – Growth constant

Object/Link name: [GROWTH](#)

Data type: numeric

Definition:

Growth constant value used in the growth equation of Von Bertalanffy. This parameter give the speed at which asymptotic length is approach. Express in year<sup>-1</sup> and usually denoted K (adapted of [www.fishbase.org](http://www.fishbase.org))

## II.39 – Growth rate

Object/Link name: [GROWTH](#)

Data type: numeric

Definition:

Individual elongation mean value by year, express in centimetre per year.

## II.40 – Habitat loss type

Object/Link name: [HABITAT LOSS](#)

Data type: numeric

Definition:

Precision of habitat type according the following nomenclature.

Code	Type	Name
190	Habitat loss type	Unknown
191	Habitat loss type	Marshland
192	Habitat loss type	Lake
193	Habitat loss type	Sea
194	Habitat loss type	Estuary
195	Habitat loss type	River

## II.41 – Habitat loss value

Object/Link name: [HABITAT LOSS](#)

Data type: numeric

Definition:

Quantity of habitat loss expressed in terms of [Habitat loss type](#).

## II.42 – Habitat type

Object/Link name: [ENVIRONMENTAL CHARACTERISTIC](#)

Data type: numeric

Definition:

Precision of habitat type according the [Habitat loss type](#) nomenclature.

## II.43 – Individual status

Object/Link name: [BATCH](#)

Data type: numeric

Definition:

Status of all individual within a batch given the following nomenclature.

Code	Type	Name
49	Individual status	Alive
50	Individual status	Dead
51	Individual status	extracted from the aqu. env.
52	Individual status	added to the aquatic env.
53	Individual status	Other

## II.44 – Location ID

Nom de l'objet/Lien : [OBSERVATION PLACES](#)

Data type: numeric

Definition:

ID value of the place code in the used [GIS layer](#).

## II.45 – Maturation length

Object/Link name: [MATURATION](#)

Data type: numeric

Definition:

Mean length of maturation, expressed in centimetre, to which the individual shifts from yellow eel to silver eel stage.

## II.46 – Maximum length

Object/Link name: [PREDATION](#)

Data type: numeric

Definition:

Maximum length beyond no eel is caught. This length can be legally defined or to be an usual length.

## II.47 – Migration direction

Object/Link name: [MIGRATION MONITORING](#)

Data type: numeric

Definition:

Direction of controlled migration flows according the following nomenclature.

Code	Type	Name
204	Migration direction	Unknown
205	Migration direction	Upstream migration
206	Migration direction	Downstream migration

## II.48 – Migration porportion

Object/Link name: [MIGRATION](#)

Data type: numeric

Definition:

Proportion (in %) of individuals migrating from the starting section towards the [Arrival section](#).

## II.49 – Migration speed

Object/Link name: [MIGRATION](#)

Data type: numeric

Definition:

Distance travelled by a fish expressed in the chosen [Migration speed unit](#).

## II.50 – Migration speed unit

Object/Link name: [MIGRATION](#)

Data type: character

Length : 30

Definition:

Time unit chosen to assess the migration speed.

## II.51 – Minimum length

Object/Link name: [PREDATION](#)

Data type: numeric

Definition:

Minimum length beyond no eel is caught. This length can be legally defined or to be an usual length.

## II.52 – Monitoring type

Object/Link name: [MIGRATION MONITORING](#)

Data type: numeric

Definition:

Classification of different types of migration monitoring according to their method of counting.  
(French Nomenclature SANDRE 131).

Code	Type	Name
84	Control type	Unknown
85	Control type	Trapping
86	Control type	Resistivity fish counter
87	Control type	Visual image analysis
88	Control type	Acoustic counter
89	Control type	Optoelectronics

## II.53 – Mortality rate

Object/Link name: [STOCKING](#)

Data type: numeric

Definition:

Factor of natural mortality, which expresses the additional mortality suffered by individuals stocked versus natural individuals.

## II.54 – Mortality type

Object/Link name: [MORTALITY](#)

Data type: numeric

Definition:

Precision of the mortality value type used by the following nomenclature.

Code	Type	Name
184	Mortality type	Unknown
185	Mortality type	Natural
186	Mortality type	Total anthropogenic mortality
187	Mortality type	Total mortality
188	Mortality type	Fishing Mortality
189	Mortality type	Anthropogenic mortality other than fishing

## II.55 – Non calcareous percentage

Object/Link name: [ENVIRONMENTAL CHARACTERISTIC](#)

Data type: numeric

Definition:

River basin proportion (in%) of non calcareous basement.

## II.56 – Number of pass

Object/Link name: [ELECTROFISHING](#)

Data type: numeric

Definition:

The number of electrofishing pass during the observation.

## II.57 – Observation ID

Object/Link name: [OBSERVATIONS](#)

Data type: numeric

Attribute type: Primary key

Definition:

Identifying non-significant assigned to each observation.

## II.58 – Observation origin

Object/Link name: [OBSERVATIONS](#)

Data type: numeric

Definition:

Origin of the data (observation) according the following nomenclature.

Code	Type	Name
11	Observation origin	Raw data
12	Observation origin	Modelling result

## II.59 – Observation place ID

Object/Link name: [OBSERVATION PLACES](#)

Data type: numeric

Attribute type: Primary key

Definition:

Identifying non-significant assigned to each observation places

## II.60 – Observation place type

Object/Link name: [OBSERVATION PLACES](#)

Data type: numeric

Definition:

Geographical precision of the observation place according the following nomenclature.

Code	Type	Name	Subtype name
1	Observation place	Unknown	Unknown
2	Observation place	Country	Administrative
3	Observation place	Region	Administrative
4	Observation place	River Basin District	Administrative
5	Observation place	EMU	Administrative
6	Observation place	Waterbody	Geographic
7	Observation place	River Basin	Geographic
8	Observation place	River	Geographic
9	Observation place	River stretch	Geographic
10	Observation place	Sampling station	Geographic



## II.61 – Observation type

Object/Link name: [OBSERVATIONS](#)

Data type: numeric

Definition:

Type of observation according the following nomenclature.

Code	Type	Name	Type class name
13	Observation Type	Unknown	Unknown
14	Observation Type	Pression - Impact	Pression - Impact
15	Observation Type	Habitat loss	Pression - Impact
16	Observation Type	Obstruction	Pression - Impact
17	Observation Type	Stocking	Pression - Impact
18	Observation Type	Predation	Pression - Impact
19	Observation Type	Ecological status	Pression - Impact
20	Observation Type	Scientific Observation	Scientific Observation
21	Observation Type	Gear fishing	Scientific Observation
22	Observation Type	Electro-fishing	Scientific Observation
23	Observation Type	Migration monitoring	Scientific Observation
24	Observation Type	Biological process	Biological process
25	Observation Type	Migration	Biological process
26	Observation Type	Maturation	Biological process
27	Observation Type	Growth	Biological process
28	Observation Type	Mortality	Biological process
29	Observation Type	Differentiation	Biological process

## II.62 – Obstruction height

Object/Link name: [PHYSICAL OBSTRUCTION](#)

Data type: Numeric

Definition:

Elevation, in metres, between the top of the obstruction and water surface or cumulative value of elevation of obstruction in the observation place.

## II.63 – Obstruction number

Object/Link name: [OBSTRUCTION](#)

Data type: numeric

Definition:

Total number of obstruction in the observation place.

## II.64 – Obstruction passability

Object/Link name: [PHYSICAL OBSTRUCTION](#)

Data type: numeric

Definition:

Describes the difficulty level to pass an obstruction according the following nomenclature.

Code	Type	Name
208	Obstruction impact	Unknown
209	Obstruction impact	Unobtrusive and/or no barrier
210	Obstruction impact	Passable without apparent difficulty
211	Obstruction impact	Passable with some risk of delay
212	Obstruction impact	Difficult to pass
213	Obstruction impact	Very difficult to pass
214	Obstruction impact	Impassable

## II.65 – Obstruction type

Object/Link name: [OBSTRUCTION](#)

Data type: numeric

Definition:

Precision of obstruction type (chemical or physical) according the following nomenclature.

Code	Type	Name
218	Obstruction type	Unknown
219	Obstruction type	Physical obstruction
220	Obstruction type	Chemical obstruction

## II.66 – Period ending date

Object/Link name: [OBSERVATIONS](#)

Data type: Date

Definition:

Date of the ending of the observation period.

## II.67 – Period starting date

Object/Link name: [OBSERVATIONS](#)

Date type: Date

Definition:

Date of the starting of the observation period.

## II.68 – Period type

Object/Link name: [OBSERVATIONS](#)

Data type: numeric

Definition:

Time step used for observation period according the following nomenclature.

Code	Type	Name
74	Period type	Unknown
75	Period type	Daily
76	Period type	Weekly
77	Period type	Semimonthly
78	Period type	Monthly
79	Period type	Bimonthly
80	Period type	Quarterly
81	Period type	Half-yearly
82	Period type	Yearly
83	Period type	Other

## II.69 – Place name

Object/Link name: [OBSERVATION PLACES](#)

Data type: character

Length : 250

Definition:

Identifying of the place based on the name.

## II.70 – Population origin

Object/Link name: [STOCKING](#)

Data type: character

Length : 60

Definition:

Origin place of a stocking batch

## II.71 – Predation type

Object/Link name: [PREDATION](#)

Data type: numeric

Definition:

Precision of predation type according the following nomenclature.

Code	Type	Name
221	Predation type	Unknown
222	Predation type	fishery
223	Predation type	wildlife

## II.72 – Predator number

Object/Link name: [PREDATION](#)

Data type: numeric

Definition:

Total number of predators or fishers.

## II.73 – Quantity

Object/Link name: [BATCH](#)

Data type: numeric

Definition:

This data depend on the attribute [Quantity type](#).

## II.74 – Quantity type

Object/Link name: [BATCH](#)

Data type: numeric

Definition:

Mean quantity measure on the batch following [Biological characteristic type](#) nomenclature.

## II.75 – Rate

Object/Link name: [DIFFERENTIATION](#)

Data type: numeric

Definition:

The differentiation rate is defined by the percentage of fish differentiating in female or male according to the [Sex](#) parameter.

## II.76 – Scientific observation method

Object/Link name: [SCIENTIFIC OBSERVATION METHOD](#)

Data type: numeric

Definition:

Type of method used during the scientific sampling according to the following nomenclature.

Code	Type	Name	Category
60	Scientific observation type	Unknown	Unknown
61	Scientific observation type	Unknown	Electro-fishing
62	Scientific observation type	Whole	Electro-fishing
63	Scientific observation type	Partial1bank	Electro-fishing
64	Scientific observation type	Partial2banks	Electro-fishing
65	Scientific observation type	Partialrandom	Electro-fishing
66	Scientific observation type	Partialprop	Electro-fishing
67	Scientific observation type	Other	Electro-fishing
68	Scientific observation type	Unknown	Gear fishing
84	Scientific observation type	Unknown	Migration monitoring
85	Scientific observation type	Trapping	Migration monitoring
86	Scientific observation type	Resistivity fish counter	Migration monitoring
87	Scientific observation type	Visual image analysis	Migration monitoring
88	Scientific observation type	Acoustic counter	Migration monitoring
89	Scientific observation type	Optoelectronics	Migration monitoring

## II.77 – Section arrival ID

Object/Link name: [MIGRATION](#)

Data type: numeric

Definition:

Identifying non-significant assigned to each section arrival referring to [Observation place ID](#).

## II.78 – Sex

Object/Link name: [MATURATION](#)

Object/Link name: [DIFFERENTIATION](#)

Data type: numeric

Definition:

Description of the sex of an individual

Code	Type	Name
180	Sex	Unknown
181	Sex	Male
182	Sex	Female
183	Sex	Undifferentiated

## II.79 – Slope

Object/Link name: [ENVIRONMENTAL CHARACTERISTIC](#)

Data type: numeric

Definition:

Slope made by the river's surface calculated over the entire length of the observation place and expresses in ‰.

## II.80 – Species

Object/Link name: [BATCH](#)

Object/Link name: [WILDLIFE](#)

Data type: numeric

Definition:

Code uniquely identifying a taxon (*Anguilla anguilla*) according to the following nomenclature. Note that only eel is in this nomenclature at present, but all predators are supposed to be in this table. This remains to be coded.

Code	Type	Name	Vernacular name
30	Species	Anguilla anguilla	Eel

## II.81 – Stage

Object/Link name: [BATCH](#)

Data type: numeric

Definition:

Characterization of a development stage according the following nomenclature.

Code	Type	Name
224	Stage	Unknown
225	Stage	Glass eel
226	Stage	Yellow eel
227	Stage	Silver eel
228	Stage	Glass & yellow eel mixed
229	Stage	Yellow & silver eel mixed
230	Stage	G, Y & S eel mixed

## II.82 – Standard deviation

Object/Link name: [MATURATION](#)

Data type: numeric

Definition:

Standard deviation, expressed in cm, around the average length at maturation.

## II.83 – Sub-batch ID

Object/Link name: [BATCH](#)

Data type: numeric

Definition:

Identifying non-significant assigned to each sub-batch

## II.84 – Temperature

Object/Link name: [ENVIRONMENTAL CHARACTERISTIC](#)

Data type: numeric

Definition:

Value expressed in degrees Celsius of the air.

## II.85 – Turbine number

Object/Link name: [PHYSICAL OBSTRUCTION](#)

Data type: Numeric

Definition:

Total number of turbines on an obstruction or obstruction group in the observation place.

## II.86 – Unit type

Object/Link name: [HABITAT LOSS](#)

Data type: numeric

Definition:

Precision of unit type used according the following nomenclature.

Code	Type	Name	Unit
196	Type of unit	Unknown	Unknown
197	Type of unit	Area	m <sup>2</sup>
198	Type of unit	Linear	m
199	Type of unit	Percent	%

## II.87 – Value type

Object/Link name: [BATCH](#)

Object/Link name: [BIOLOGICAL CHARACTERISTICS](#)

Data type: numeric

Definition:

Precision of value type according the following nomenclature.

Code	Type	Name
54	Value type	Unknown
55	Value type	Raw data or Individual data
56	Value type	Mean value
57	Value type	Class value
58	Value type	Elaborated data
59	Value type	Cumulated data

## II.88 – Wetted area

Object/Link name: [ENVIRONMENTAL CHARACTERISTIC](#)

Object/Link name: [ELECTROFISHING](#)

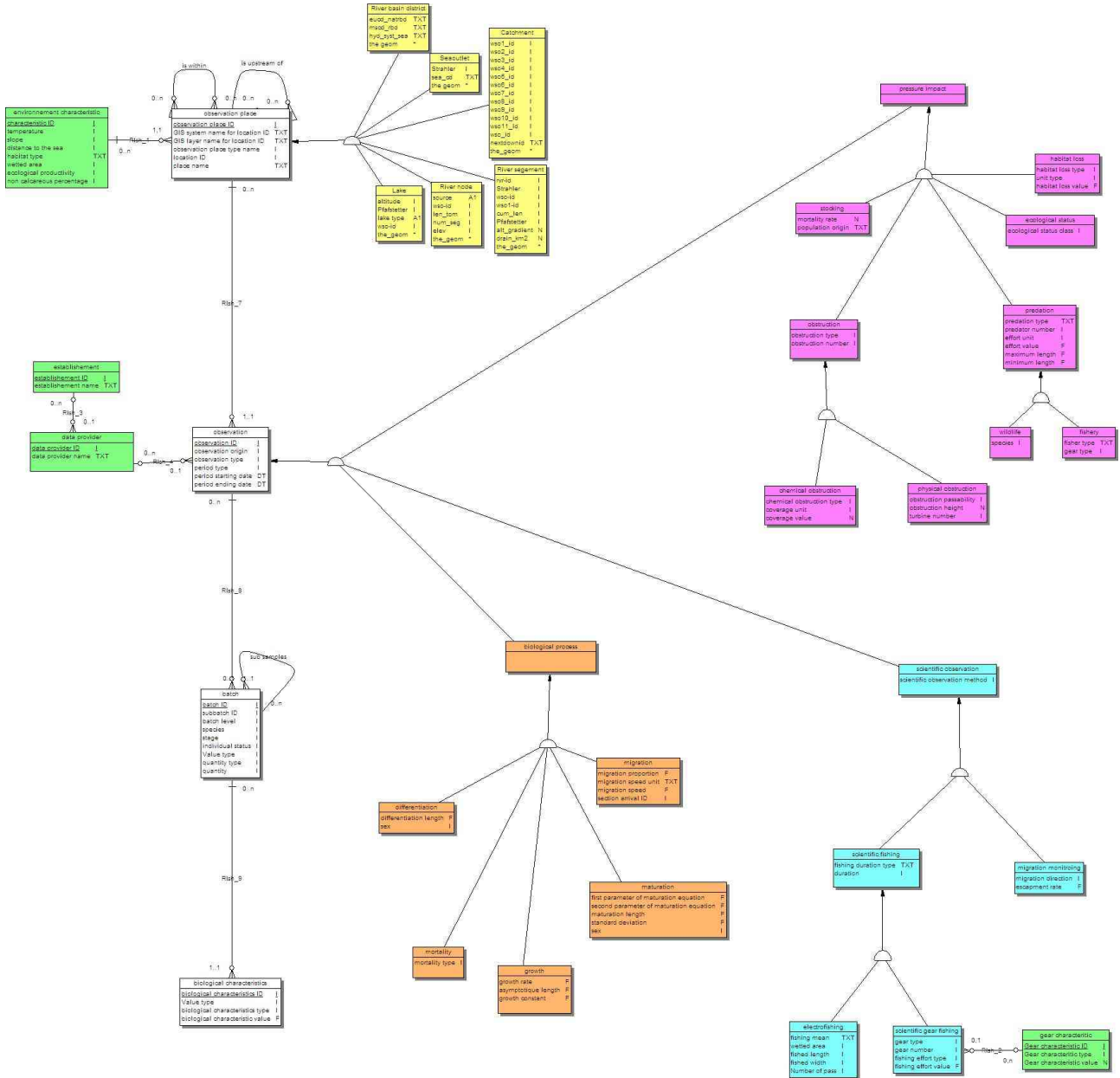
Data type: numeric

Definition:

Total wetted area of the observation place, express in square meter.

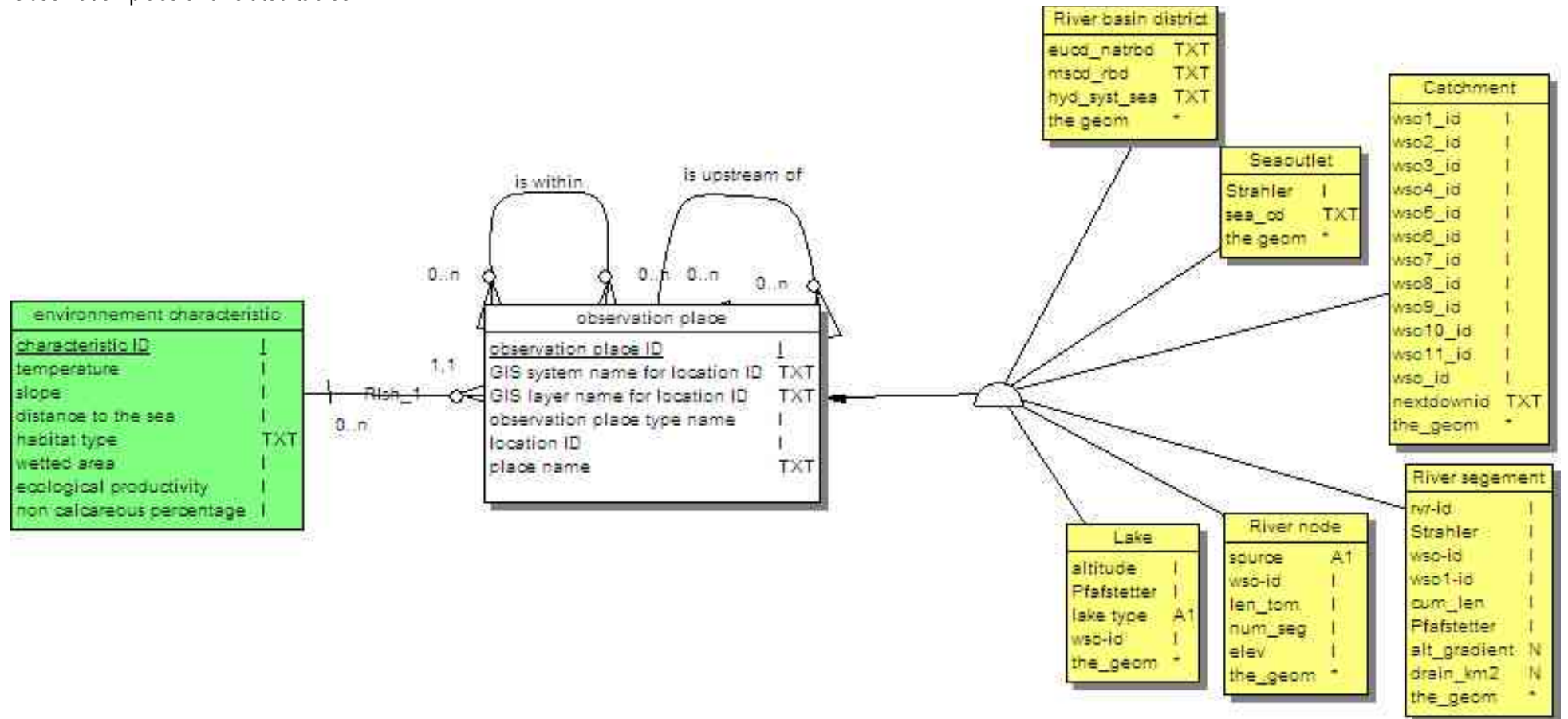
# III – CONCEPTUAL MODEL

## Overview

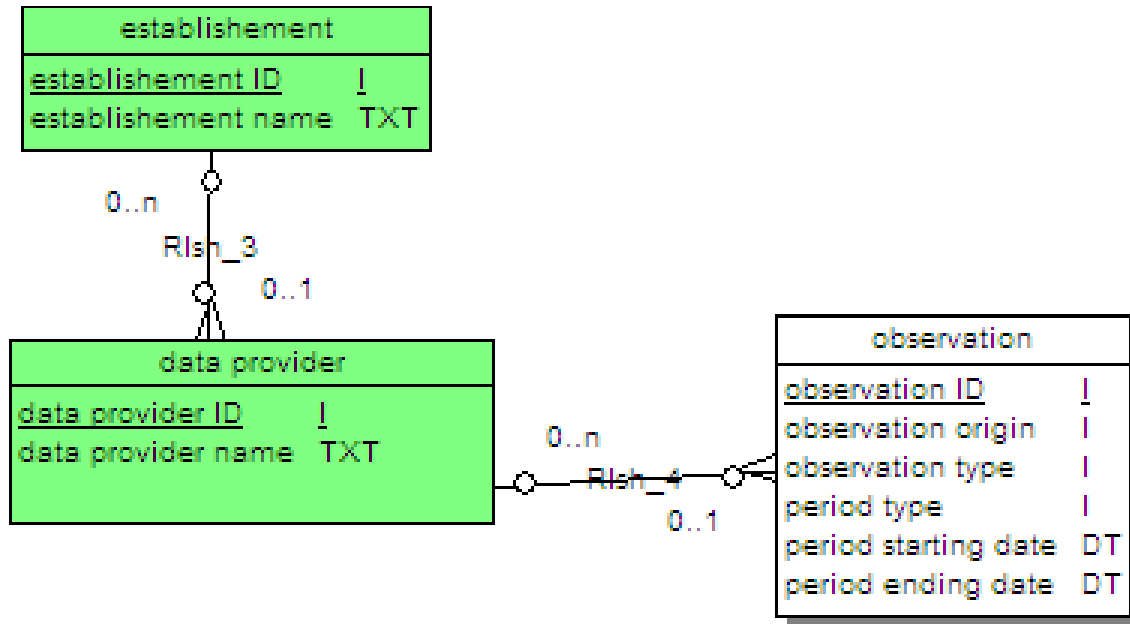




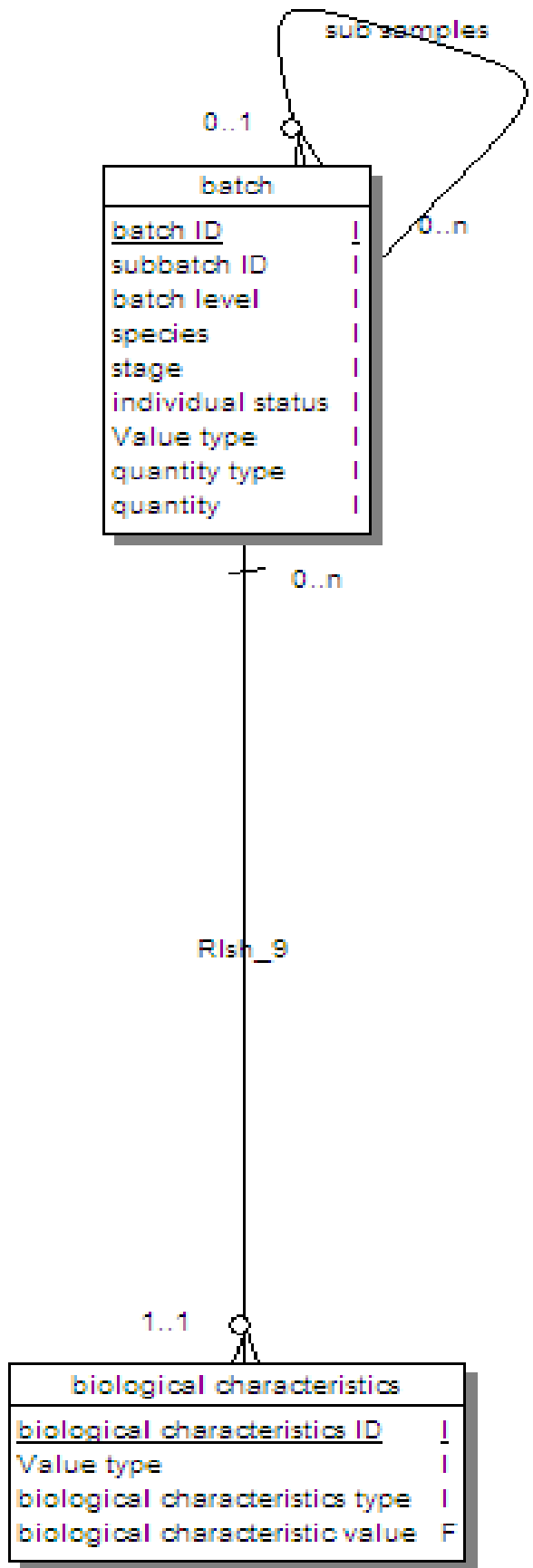
## Observation place and related tables



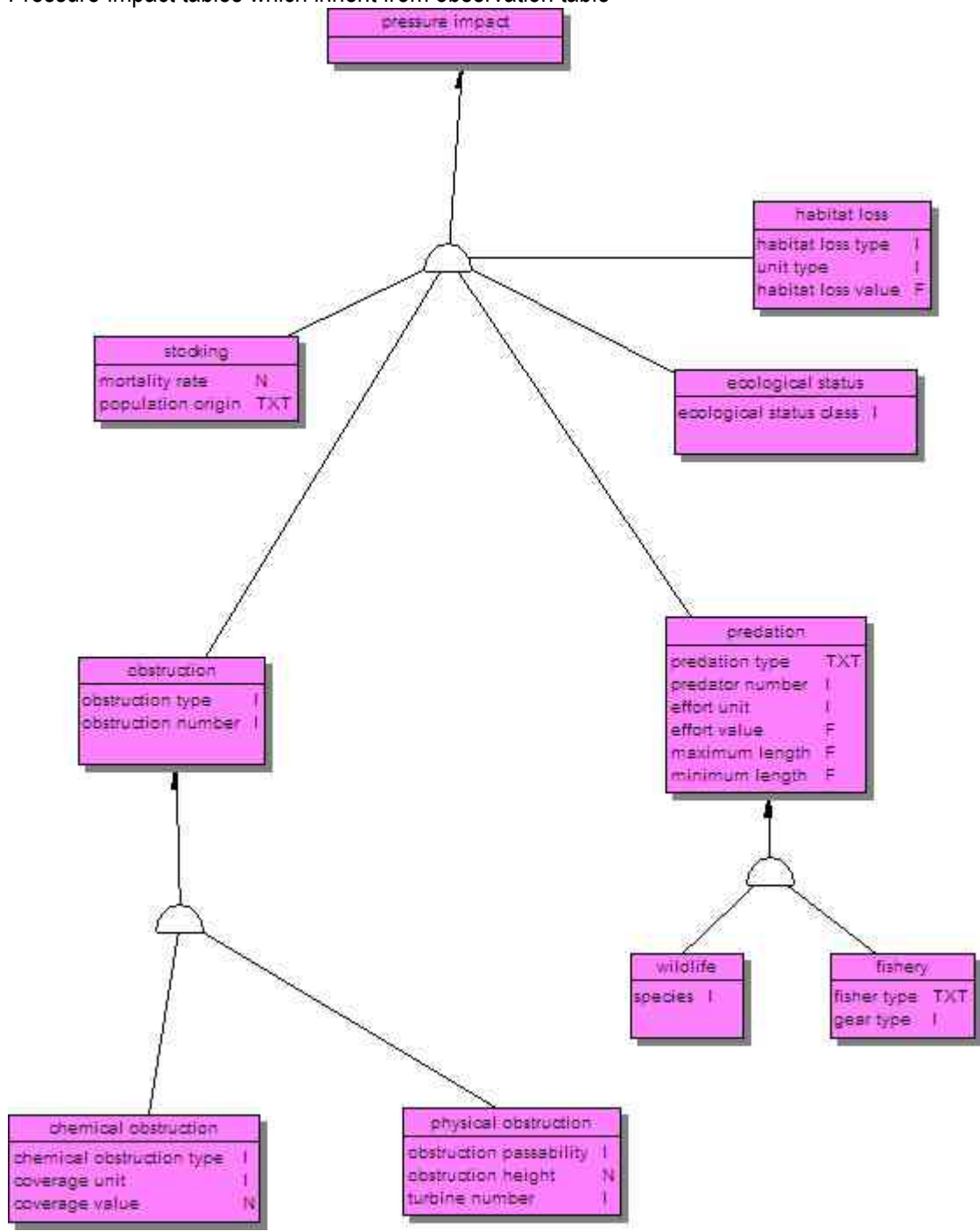
Observation and related tables



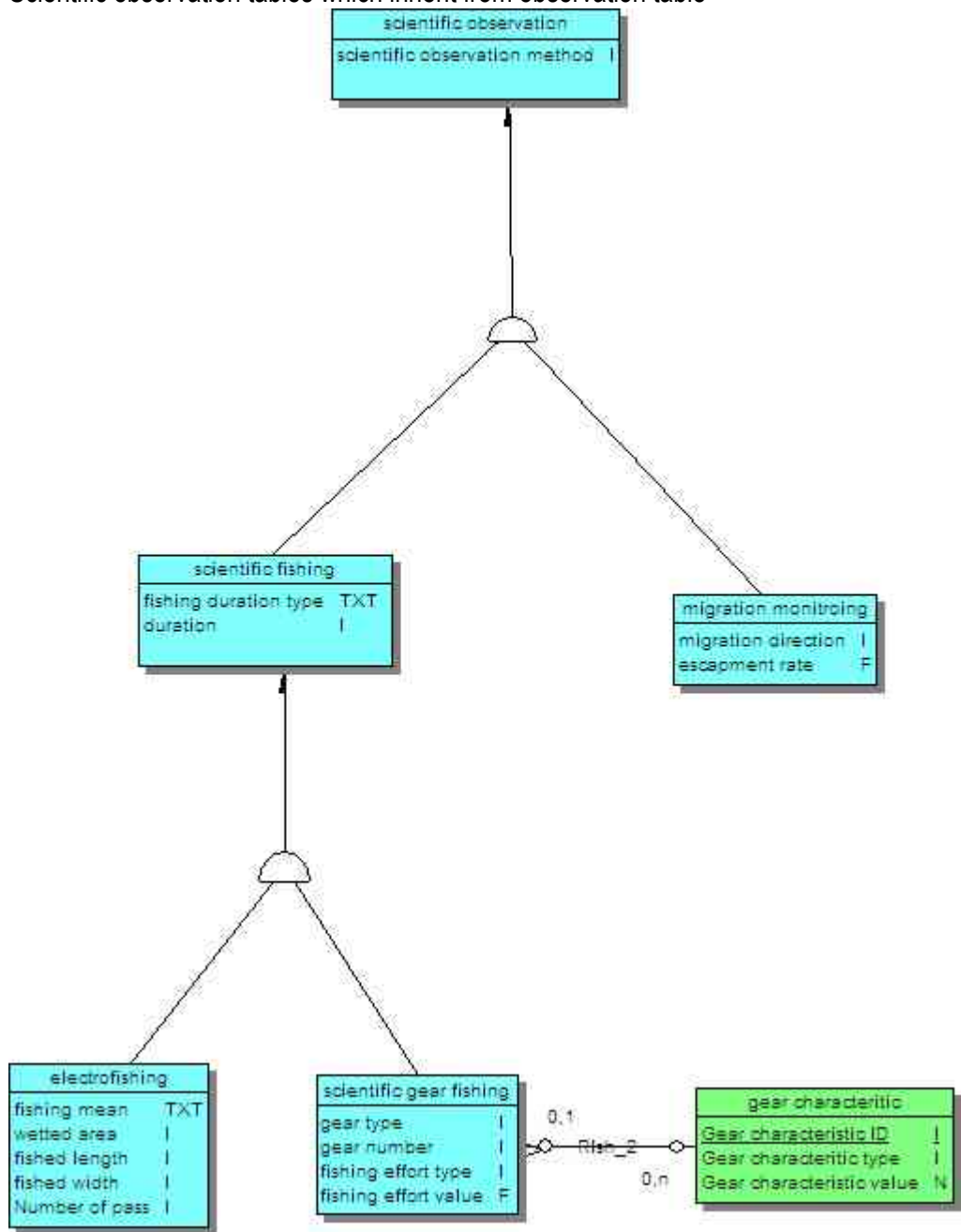
Batch and biological characteristic tables



Pressure-impact tables which inherit from observation table



Scientific observation tables which inherit from observation table



Biological process tables which inherit from observation table

