List of Tables

1 *FLR-shaped classes definition in the ISIS-FLR model.* 2

2 *Values for the related-effort model parameters for the set of simulated strategies.* 3

3 *Values of related-demographic model parameters for the simulated stocks.* 4

4 *Age-desagregated coefficients of migration between zones for M. merluccius.* 4

5 *Age-desagregated catchabilities ($*10^{-6}$) for M. merluccius and N. norvegicus obtained from calibration using observed landings.* 4

6 *Gear definition and attached selectivity equations with parameters (age: value of age class; m: mesh size in cm; SF: Selection Factor; SR: Selectivity Range; Cs:shape). Selectivity factors are values linking relative efficiencies of gears in regards to the gear of reference (with a value set to 1) and was obtained applying a logit generalized linear model (see Drouineau et al. 2006 for details).* 5

7 *Age-desagregated values of parameters (α and β) for supply and offer law in simulated markets (see Annex B).* 6

8 *Age-desagregated discards for simulated stocks.* 6

9 *Metier definition for french (A to H) and spanish (I to L) fleets.* 6

Table 1
FLR-shaped classes definition in the ISIS-FLR model.

	name	description
basic class	FLQuant	a 5-dimensional array of data i.e. Quant (e.g. Age), Year, Unit (e.g. Sex), Season, Area.
related-population classes	FLBiol2	a set of FLQuant objects storing related-population data such as weight, maturity, etc. useful to run population dynamics.
	FLCatch2	a set of FLQuant objects storing stock-metier specific parameters (catchability, etc.) and stock-specific metier catches, discards and landings.
related-exploitation classes	FLSetOfVessels	a set of objects describing sets of vessels sharing physical characteristics and practising possible metiers following a given strategy. Each object includes a list of FLMetier objects as many as possible metiers displayed by the fleet.
	FLMetier	the part of a a fleet activity usually corresponding to an unique arrangement of a target species, a gear and a fishing zone. a FLMetier object includes a list of FLCatch2 objects as many as stocks which can be fished by the metier.
	FLGear	store properties of the gears (selectivity equation, standard factor of the gear, etc.) used by fleets.
	FLDiscards	store the metier-specific discard hand-sorting behaviour (ogive of discards, etc.)
related-economic classes	FLCostFleet	store various input economic costs at fleet level.
	FLCostMetier	store various input economic costs at metier level.
	FLRevFleet	store various output economic variables at fleet level.
	FLRevMetier	store various output economic variables at metier level.
	FLMarket	store price equation parameters attached to a particular market place to compute variable fish price.
rules class	FLMgtRules	store various settings for implementing dynamic or static management rules.
manager class	FLIsis	compute simulation steps using three methods (1. hold data from a data set and create ISIS-FLR objects, 2. run a set of simulations, 3. run a Graphical Usuer Interface for automatic generation of various graphics from various simulations and viewing input data or results on the region map without getting into code details)

Table 2

Values for the related-effort model parameters for the set of simulated strategies.

strategy	vessel size	total number of vessels	proportion in the strategy	number of vessels in the strategy	ICES harbor cell	trip duration	number of operations per day	number of inactivity days
A	12-24m	123	0.38	46.98	24E6	1	5	0
B	>24m	83	0.67	55.61	24E6	5	5	2
C	12-24m	123	0.18	21.89	24E6	1	5	0
D	>24m	83	0.16	13.28	24E6	5	5	2
E	12-24m	123	0.40	49.20	24E6	1	5	0
F	>24m	83	0.17	14.11	24E6	5	5	2
G	12-24m	28	1	28	24E6	1	5	0
H	>24m	20	1	20	24E6	5	5	2
I	20-29m	15	0.27	4.05	15E6	5	5	2
J	30-39m	36	0.33	11.88	15E6	5	5	2
K	20-29m	15	0.73	10.95	15E6	5	5	2
L	30-39m	36	0.66	23.76	15E6	5	5	2

Table 3
Values of related-demographic model parameters for the simulated stocks.

	Nephrops norvegicus	*Merluccius merluccius*
number of classes, proportion of female, number of eggs per female, egg mortality	9,1,1,0	9,1,1,0
Bertalanffy parameters (t0, Linf, K)	-1, 25, 0.10	-1, 114, 0.09
ICES squares	21E7-8 22E6-7 23E5-7 23E6-7 24E5-6	24E2-3 24E3-6 23E3-7 22E4-7 21E4-8 20E6-8 19E6-8 18E8 17E8 16E8
reproduction cells	21E7-8 22E6-7 23E5-7 24E5-6	24E3-4 23E3-4 22E4-5 21E5 20E6 19E6
recruitment cells	21E6-8 22E7 23E5-7 24E5-6	24E3-6 23E3-6 22E4-7 21E5-7 20E6-7 19E6-7
inshore cells	-	24E5-6 23E6-7 22E7 21E7 21E8 20E8 19E8 18E8 17E8 16E8
weight ogive	0, 0.010, 0.020, 0.030, 0.040, 0.050, 0.060, 0.060, 0.070	0.075, 0.146, 0.219, 0.344, 0.595, 0.963, 1.402, 1.958, 2.65
maturity ogive	0.09, 0.36, 0.6, 0.88, 1.25, 1.83, 2.62, 3.88, 6.01	0, 0, 0, 0.17, 0.81, 2.04, 3.11, 3.89, 5.58
initial population number	555162e3, 380567e3, 259802e3, 121356e3, 48339e3, 19541e3, 9159e3, 4641e3, 6740e3	115097e3, 294119e3, 132718e3, 74913e3, 47054e3, 31078e3, 19764e3, 8268e3, 7362e3
natural mortality ogive	0.3, 0.25, 0.25, 0.25, 0.25, 0.25, 0.25, 0.25, 0.25	0.2, 0.2, 0.2, 0.2, 0.2, 0.2, 0.2, 0.2, 0.2
spawning ogive	0, 0.5, 0.5, 0, 0, 0, 0, 0, 0, 0, 0	0, 0.165, 0.335, 0.335, 0.165, 0, 0, 0, 0, 0, 0
recruitment ogive	0, 0, 0, 0, 0, 0, 0, 0, 0, 0.5, 0.5	0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0

Table 4
Age-desagregated coefficients of migration between zones for M. merluccius.

Season	Departure	Arrival	Coefficients
jan	bio.cells	repro.cells	0, 0, 0, 1, 1, 1, 1, 1, 1
jan	recru.cells	repro.cells	0, 0, 1, 0, 0, 0, 0, 0, 0
apr	repro.cells	inshore.cells	0, 0, 0.6, 0.6, 0, 0, 0, 0, 0
jul	repro.cells	bio.cells	0, 0, 1, 1, 0, 0, 0, 1, 1
jul	inshore.cells	bio.cells	0, 0, 1, 1, 0, 0, 0, 0, 0

Table 5
Age-desagregated catchabilities ($*10^{-6}$) for M. merluccius and N. norvegicus obtained from calibration using observed landings.

	Age	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
M. merluccius	1	0	0	0	0	0	0	9.14	9.14	9.14	6.94	6.94	6.94
	2	3.34	3.34	3.34	6.90	6.90	6.90	3.81	3.81	3.81	3.14	3.14	3.14
	3	0.33	0.33	0.33	3.60	3.60	3.60	4.41	4.41	4.41	1.73	1.73	1.73
	4	0.09	0.09	0.09	1.84	1.84	1.84	3.81	3.81	3.81	1.89	1.89	1.89
	5	0.34	0.34	0.34	0.50	0.50	0.50	0.47	0.47	0.47	0.69	0.69	0.69
	6	0.34	0.34	0.34	0.48	0.48	0.48	0.44	0.44	0.44	0.44	0.44	0.44
	7	0.631	0.631	0.631	1.01	1.01	1.01	1.41	1.41	1.41	0.755	0.755	0.755
	8	1.44	1.44	1.44	1.93	1.93	1.93	3.30	3.30	3.30	1.26	1.26	1.26
	9	1.77	1.77	1.77	2.84	2.84	2.84	3.43	3.43	3.43	8.97	8.97	8.97
N. norvegicus	all	3.74	3.74	3.74	3.74	3.74	3.74	3.74	3.74	3.74	3.74	3.74	3.74

Table 6

Gear definition and attached selectivity equations with parameters (age: value of age class; m: mesh size in cm; SF: Selection Factor; SR: Selectivity Range; Cs:shape). Selectivity factors are values linking relative efficiencies of gears in regards to the gear of reference (with a value set to 1) and was obtained applying a logit generalized linear model (see Drouineau et al. 2006 for details).

Gear	Selectivity factor	Parameter	Value (cm)	*Selectivity equation*	*Selectivity parameters*
BAKAnets	7.50	mesh size	8	$s(age) = \frac{exp(2 \times log(3) \times ((\frac{age - m \times Cs)}{(age - 0.435 \times Cs)}))}{(1 + exp(2 \times log(3) \times (\frac{(age - m \times Cs)}{(age - 0.435 \times Cs)})))}$	$Cs_{Nephrops} : 4.8, Cs_{Hake} : 4.8$
VHVOnets	6.00	mesh size	10		$Cs_{Nephrops} : 3.71, Cs_{Hake} : 3.71$
OTBLN	1.00	mesh size	7	$s(age) = \frac{exp(\frac{1}{(m * SF * SR)} \times 2 \times log(3) \times (age - m \times SF))}{1 + exp(\frac{1}{(m \times SF \times SR)} \times 2 \times log(3) \times (age - m \times SF))}$	$SR_{Nephrops} : 0.43, SR_{Hake} : 4.32$ $SF_{Nephrops} : 0.5, SF_{Hake} : 0.35$
TTBLN	1.39	mesh size	7		$SR_{Nephrops} : 0.43; SR_{Hake} : 4.32$ $SF_{Nephrops} : 0.5, SF_{Hake} : 0.35$
GNS	0.37	-	-	$s(age) = A \times exp(-1/2 \times ((\frac{(age/10) - alpha)}{beta})^2) + K$	$A_{Hake} : 0.985, K_{Hake} : 0.015$ $alpha_{Hake} : 6.442, beta_{Hake} : 0.722$

Table 7
Age-desagregated values of parameters (α and β) for supply and offer law in simulated markets (see Annex B).

	N. norvegicus	*M. merluccius*
french market	α : 3.50, 3.50, 3.80, 3.80, 4.10, 4.10, 4.30, 4.30, 4.30 $-\beta$: 0.18, 0.18, 0.20, 0.20, 0.25, 0.25, 0.30, 0.30, 0.30	α : 36.78, 36.78, 36.78, 36.78, 30.81, 30.81, 30.81, 30.81, 30.81 $-\beta$: 0.40, 0.40, 0.40, 0.40, 0.33, 0.33, 0.33, 0.33, 0.33
spain market	-	-

Table 8
Age-desagregated discards for simulated stocks.

	N. norvegicus	*M. merluccius*
discards [a]	0.96, 0.75, 0.28, 0.07, 0.04, 0.04, 0.01, 0.01, 0	1, 0.9, 0.15, 0.01, 0, 0, 0, 0, 0

[a] not metier-specific

Table 9
Metier definition for french (A to H) and spanish (I to L) fleets.

Metier	Target species	Gear	Nephrops target factor	Hake target factor	ICES squares
A1	hake	OTBLN	0.07	0.09	24E4-6 23E5-7 22E6-7
A2	hake	TTBLN	0.07	0.09	24E4-6 23E5-7 22E6-7
B1	hake	OTBLN	0.07	0.09	24E4-6 23E5-7 22E6-7 21E6-7 21E8 20E8 19E8 18E8 17E8
B2	hake	TTBLN	0.07	0.09	24E4-6 23E5-7 22E6-7 21E6-7 21E8 20E8 19E8 18E8 17E8
C1	hake	OTBLN	0.07	0.09	24E4-6 23E5-7 22E6-7
C2	hake	TTBLN	0.07	0.09	24E4-6 23E5-7 22E6-7
C3	nephrops	OTBLN	0.74	0.14	24E5-6 23E5-6 22E6
C4	nephrops	TTBLN	0.74	0.14	24E5-6 23E5-6 22E6
C5	hake	OTBLN	0.00	0.60	24E4-6 23E6 23E7
C6	hake	TTBLN	0.00	0.60	24E4-6 23E6 23E7
D1	hake	OTBLN	0.07	0.09	24E4-6 23E5-7 22E6-7 21E6-8 20E8 19E8 18E8 17E8
D2	hake	TTBLN	0.07	0.09	24E4-6 23E5-7 22E6-7 21E6-8 20E8 19E8 18E8 17E8
D3	nephrops	OTBLN	0.74	0.14	24E5-6 23E5-6 22E6 21E7 20E7 20E8
D4	nephrops	TTBLN	0.74	0.14	24E5-6 23E5-6 22E6 21E7 20E7 20E8
D5	hake	OTBLN	0.00	0.60	24E4-6 23E6-7 22E7 21E7-8 20E7-8 19E8 18E8 17E8
D6	hake	TTBLN	0.00	0.60	24E4-6 23E6-7 22E7 21E7-8 20E7-8 19E8 18E8 17E8
E1	hake	OTBLN	0.07	0.09	24E4-6 23E5-7 22E6-7
E2	hake	TTBLN	0.07	0.09	24E4-6 23E5-7 22E6-7
E3	nephrops	OTBLN	0.74	0.14	24E5-6 23E5-6 22E6
E4	nephrops	TTBLN	0.74	0.14	24E5-6 23E5-6 22E6
E5	hake	OTBLN	0.00	0.60	24E4-6 23E6-7
E6	hake	TTBLN	0.00	0.60	24E4-6 23E6-7
F1	hake	OTBLN	0.07	0.09	24E4-6 23E5-7 22E6-7 21E6-8 20E8 19E8 18E8 17E8
F2	hake	TTBLN	0.07	0.09	24E4-6 23E5-7 22E6-7 21E6-8 20E8 19E8 18E8 17E8
F3	nephrops	OTBLN	0.74	0.14	24E-6 23E5-6 22E6 21E7 20E7 20E8
F4	nephrops	TTBLN	0.74	0.14	24E5-6 23E5-6 22E6 21E7 20E7 20E8
F5	hake	OTBLN	0.00	0.60	24E4-6 23E6-7 22E7 21E7-8 20E7-8 19E8 18E8 17E8
F6	hake	TTBLN	0.00	0.60	24E4-6 23E6-7 22E7 21E7-8 20E7-8 19E8 18E8 17E8
G1	hake	GNS	0.00	0.87	24E-6 23E5-7 22E6-7 21E-7 20E7-8 19E8 18E8 17E8
H1	hake	GNS	0.00	0.87	23E5-7 24E5-6 22E-7 21E6-7 20E7-8 19E8 18E8 17E8
I2	hake	VHVOnets	0.00	0.76	24E2-6 23E3-7 22E4-7 21E5-8 20E6-8 19E6-8 18E7-8 17E8 16E8
J2	hake	VHVOnets	0.00	0.76	24E2-6 23E3-7 22E4-7 21E5-8 20E6-8 19E6-8 18E7-8 17E8 16E8
K1	hake	BAKAnets	0.00	0.13	24E2-6 23E3-7 22E4-7 21E5-8 20E6-8 19E6-8 18E7-8 17E8 16E8
L1	hake	BAKAnets	0.00	0.13	24E2-6 23E3-7 22E4-7 21E5-8 20E6-8 19E6-8 18E7-8 17E8 16E8