Analyzing Age structures in IC

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This documet uses Table 2 from CatchAndSampleDataTables.txt from the InterCatch outputs to describe the raising procedures that were made.

In the following tables, CATON=WECA*CANUM/1000000 (in tonnes)

#Raised and imported datas

##Raised discards

In InterCatch, the first step consists in raising the discards volumes for strats with landings and no discards associated. These discards are called in the following table 'Raised_Discards'. The data called 'Imported_Data' are landings or discards volumes imported into InterCatch with or without length/age structure.

The proportion of Landings with Discards associated (same strata) is **83 percent**

The volumes (and associated proportion) of landings and discards imported (Imported_Data) or raised (Raised_Discards) are described in the following table.

Table 1: Summary of the imported/Raised data

CatchCategory	RaisedOrImported	CATON	perc
Discards	Raised_Discards	1092	24
Discards	Imported_Data	3503	76
Landings	Imported_Data	23985	100

##Total catch per gear

The following table gives a summary of the catch (Landings+discards(imported+raised)) per gear (3 first letters of the metier)

Table 2: Total catch (in tonnes) and Percentage of catches per gear

Stock	Gear	sumCatch	percCatch
aas-arct	OTB	24170	84.57
aas-arct	SDN	4411	15.43

##Length/Age distribution

For the imported landings/discards and the raised discards without age distribution, the length or age distribution is then computed using the defined allocation scheme. *Sampled_distribution* means that the data (ladings or discards) were input with age/length distribution. *Estimated_distribution* means that the inputed/raised valoumes were estimated using the allocation scheme.

Table 3: Summary of the imported/Raised/SampledOrEstimated data

CatchCategory	RaisedOrImported	SampledOrEstimated	CATON	perc
Landings	Imported_Data	Sampled_Distribution	23745	99
Landings	Imported_Data	Estimated_Distribution	240	1
Discards	Imported_Data	Sampled_Distribution	3503	76

CatchCategory	RaisedOrImported	SampledOrEstimated	CATON	perc
Discards	Raised_Discards	Estimated_Distribution	1092	24

Table 4: Summary of the imported/Raised/SampledOrEstimated data by area

CatchCategory	RaisedOrImported	SampledOrEstimated	Area	CATON	perc
Landings	Imported_Data	Sampled_Distribution	IIb	1765	100
Discards	Raised_Discards	Estimated_Distribution	IIb	890	100
Landings	Imported_Data	Sampled_Distribution	IIa	21980	99
Landings	Imported_Data	Estimated_Distribution	IIa	240	1
Discards	Imported_Data	Sampled_Distribution	IIa	3503	95
Discards	Raised_Discards	Estimated_Distribution	IIa	201.9	5

##Impact of the raising on the age/length structure

Once the samples imported or raised are identified, it is possible to check the impact of the allocation scheme on the mean age/length of the final age/length distribution of the stock. The following figures compare the mean age (computed as the weighted mean of the age per strata ("CatchCategory", 'RaisedOrImported', "SampledOrEstimated", "Country", "Area", "Season", "Fleet", "Sex")) of the estimated stratas compared to the imported ones and the final distribution. Each individual included in the boxplot corresponds to the weighted mean age of a strata.

###Global mean age

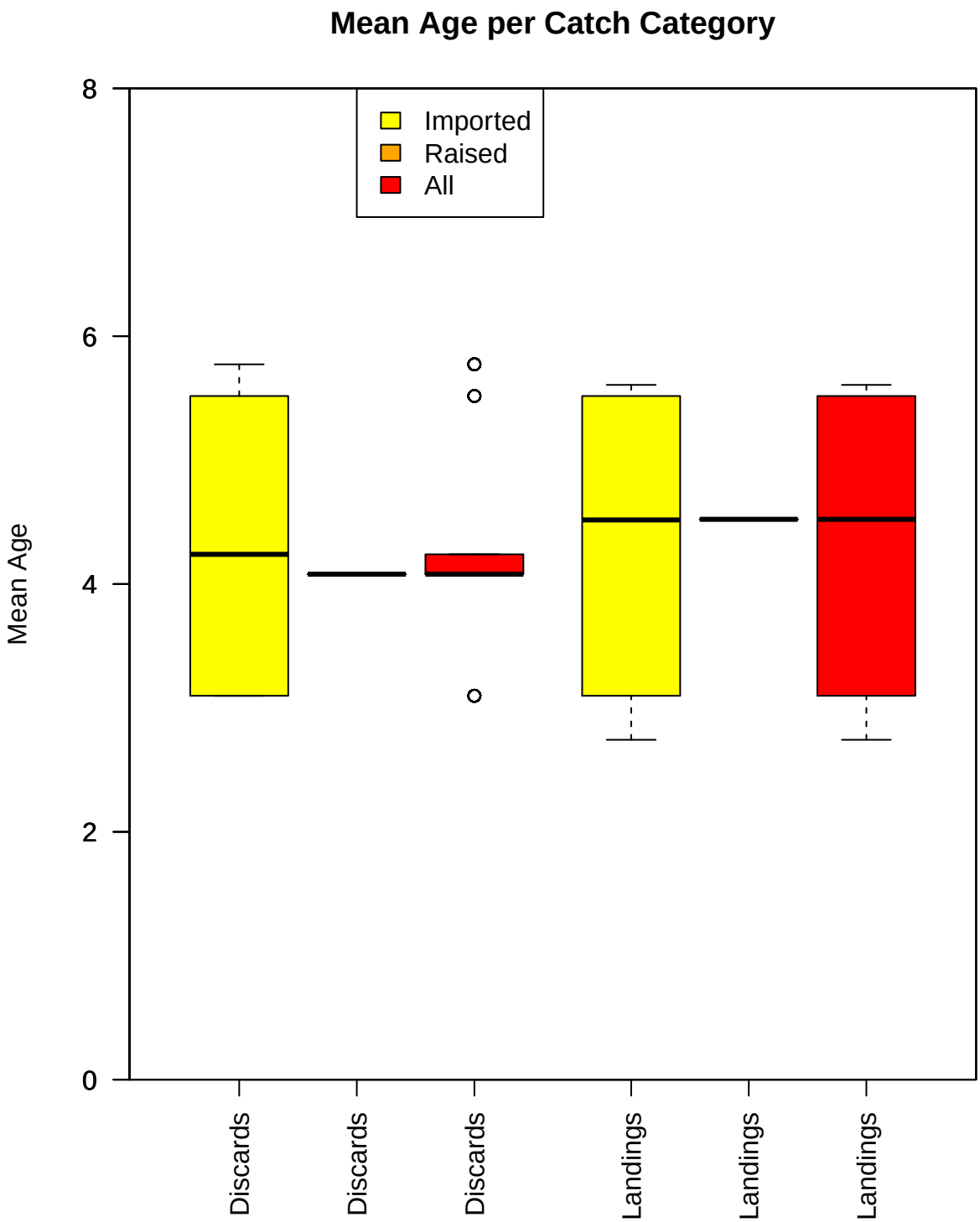

Figure 1: Mean Age in the Landings by catch category

###Mean Age per sex

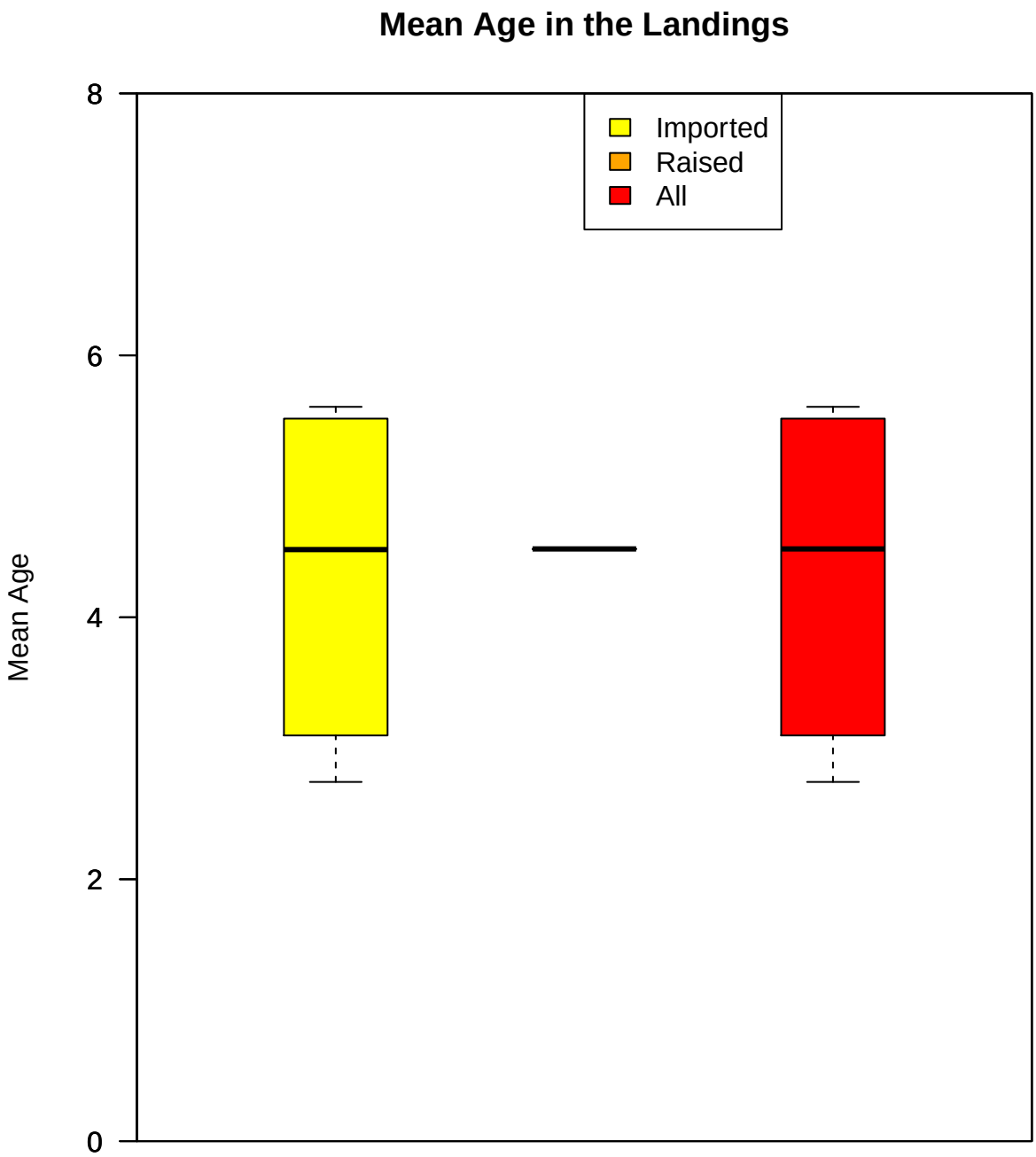

Figure 2: Mean Age in the Landings by sex

###Mean Age per area

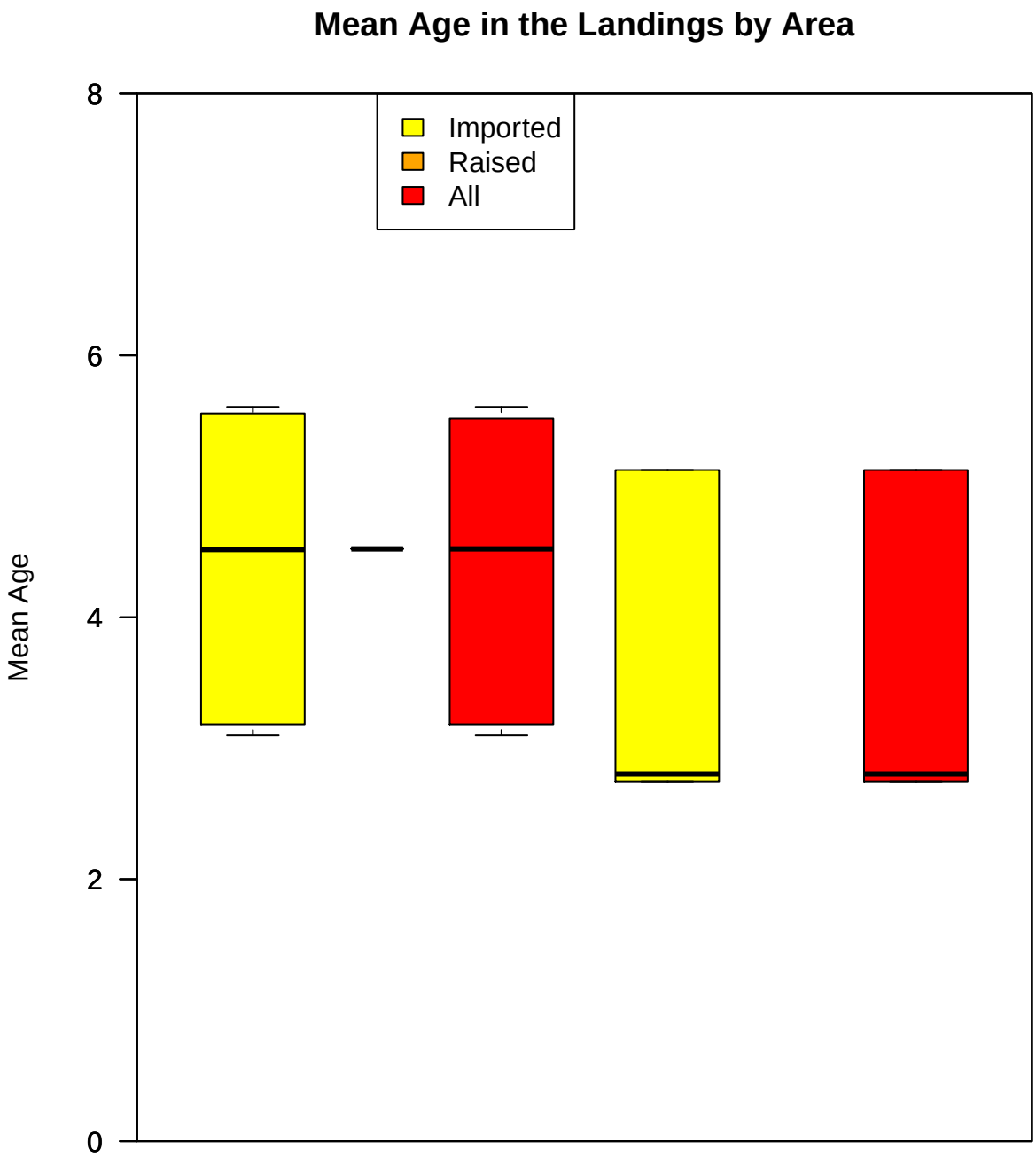

Figure 3: Mean Age in the Landings by Area

###Mean Age per fleet

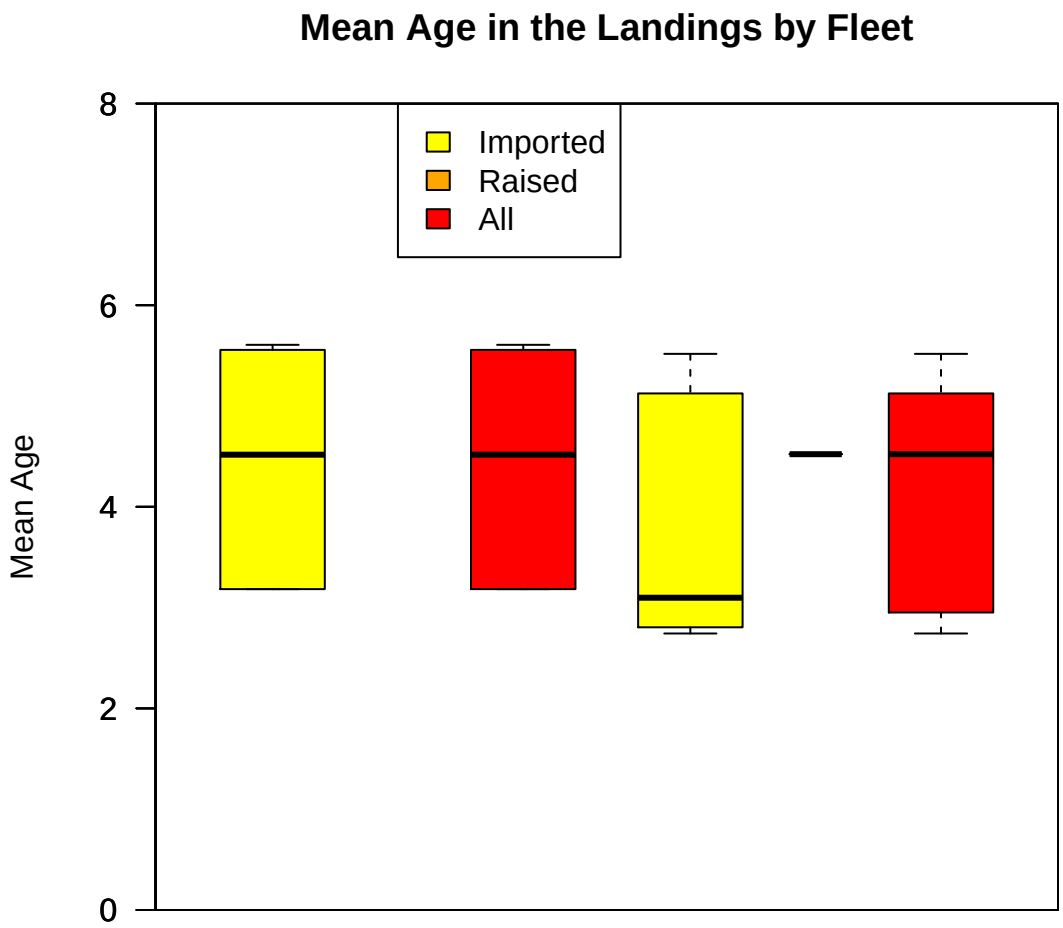

Figure 4: Mean Age in the Landings by Fleet

###Resulting age structure

The following plot shows the percentage of each age/length for the sampled strata, estimated and the final age structure for the landing and discard fractions.

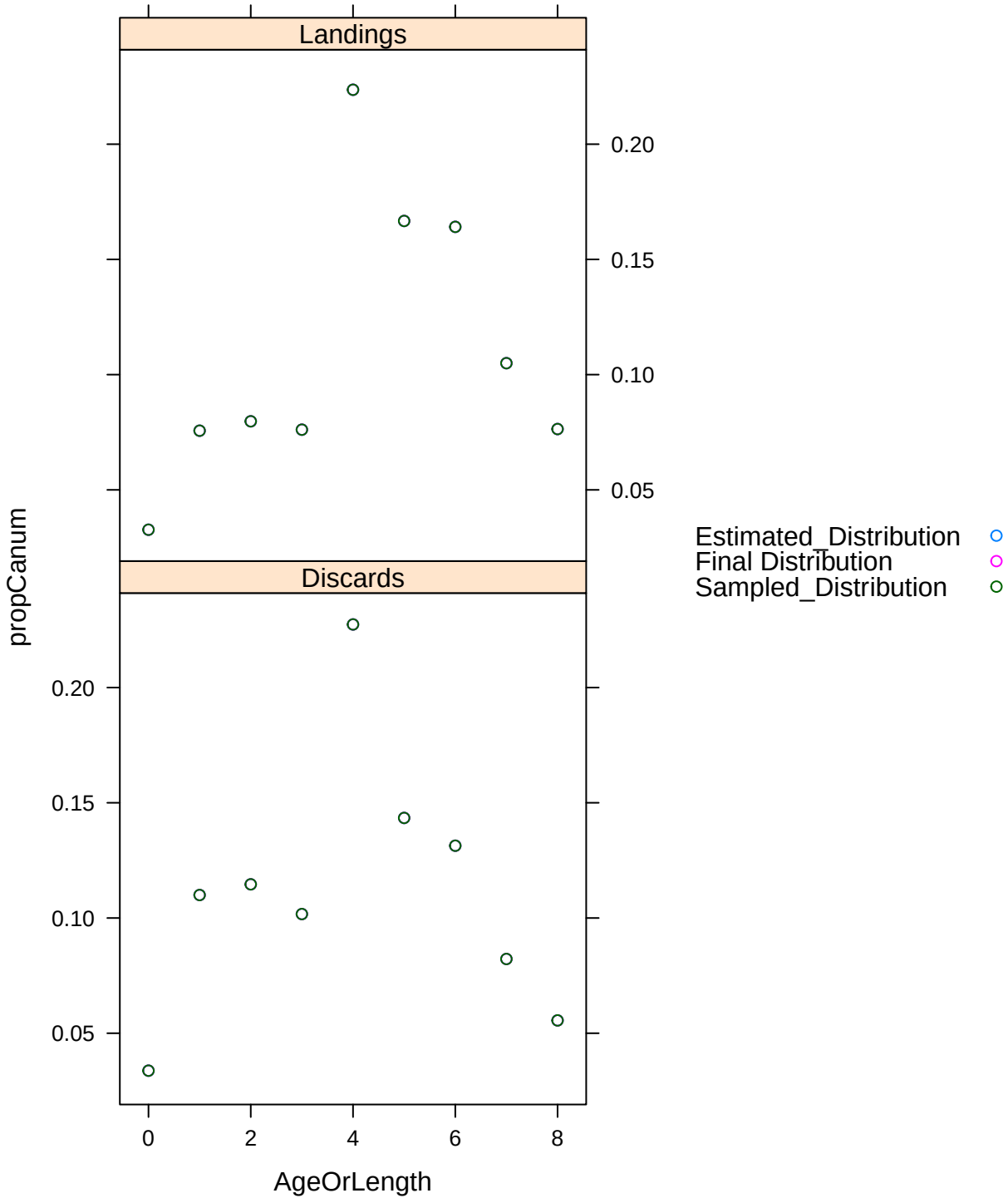

Figure 5: Age structure

##Mean weight at age/length

the catchAndSampleData also provide the weight at age per strata for the Sampled/Estimated stratas. One would also want to check the sampled/estimated and resulting weight at length/age. This is produced in the following graph, each boxplot representing the distribution of the weight at age/length for the different

stratas.

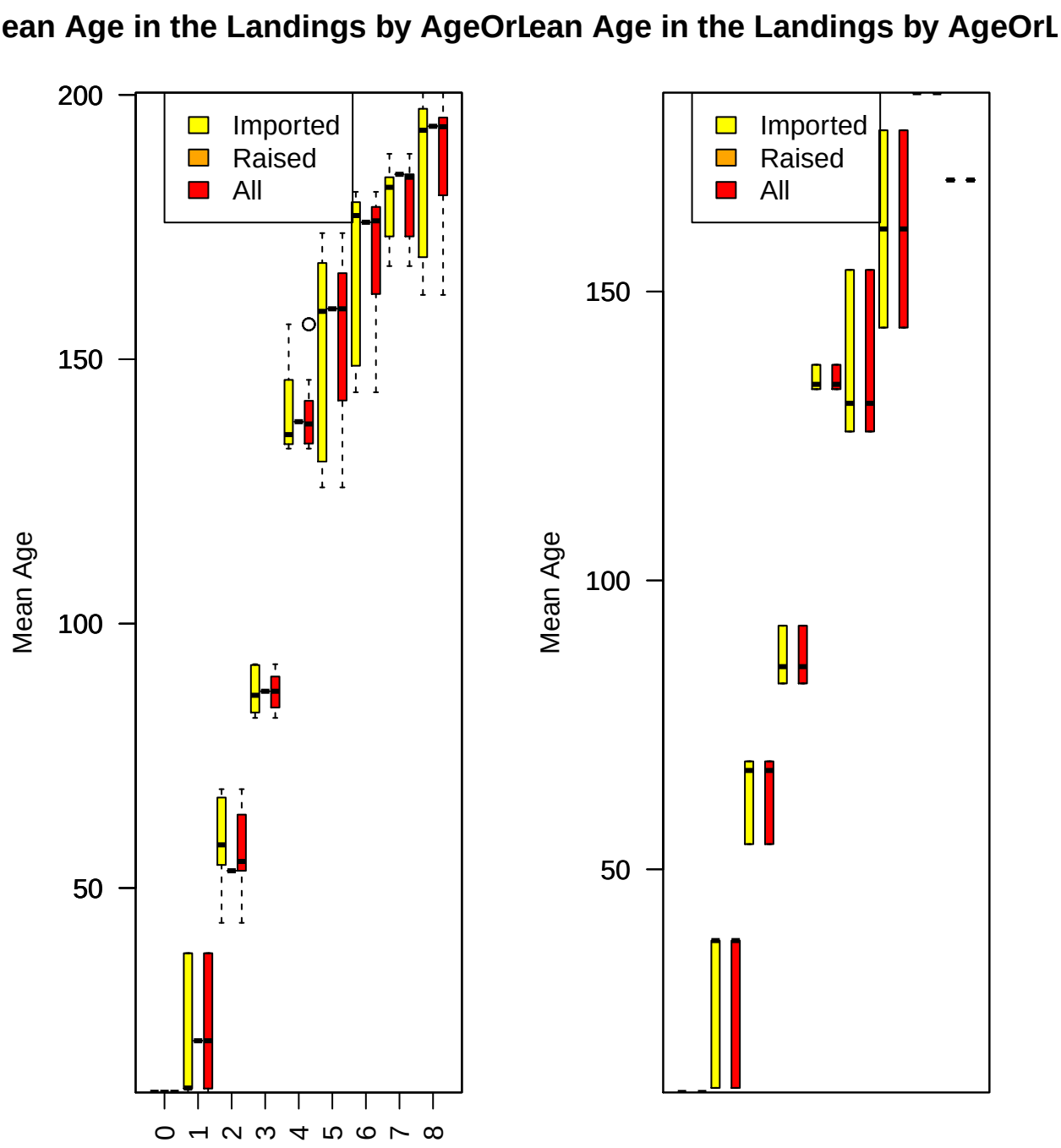

Figure 6: Mean Age in the Landings by Area

The outliers (more than 3 times the standard deviation) are extracted and can be investigated from the following table.

Table 5: Samples that are higher or lower than the average weigth at age/length +/- 3*standard deviation

Table 5: Table continues below

Country	Fleet	CatchCategory	WECA	AverageWtSize

AgeOrLength	Area

##Time-series of catch and discard reporting

Next temporal trends in total catch and discard reporting vs raised discard numbers are inspected

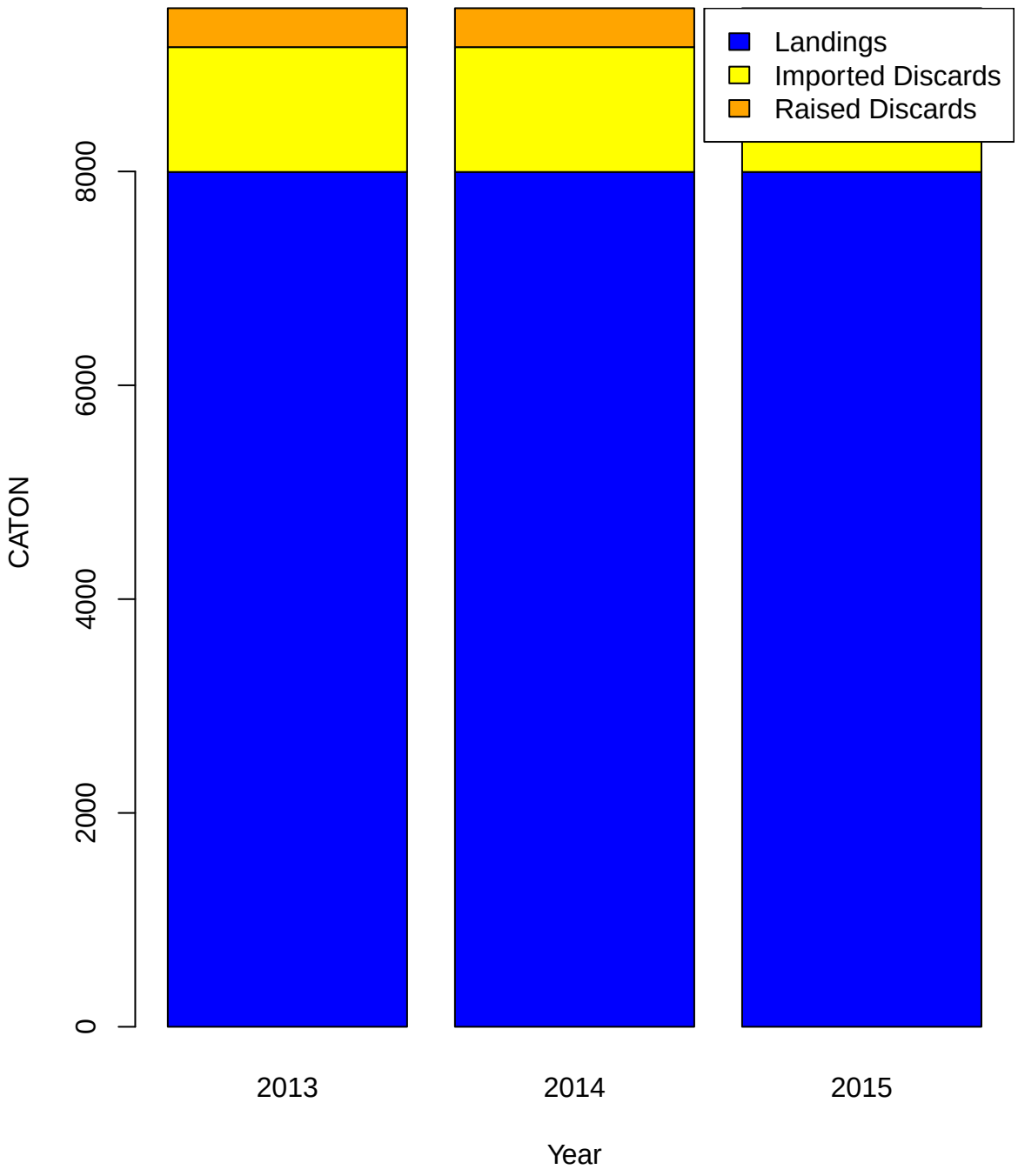

Figure 7: Catch represented in landings, imported discards, or raised discards by year

Next temporal trends in total catch (Landings+imported discards+raised discards) by gear are inspected

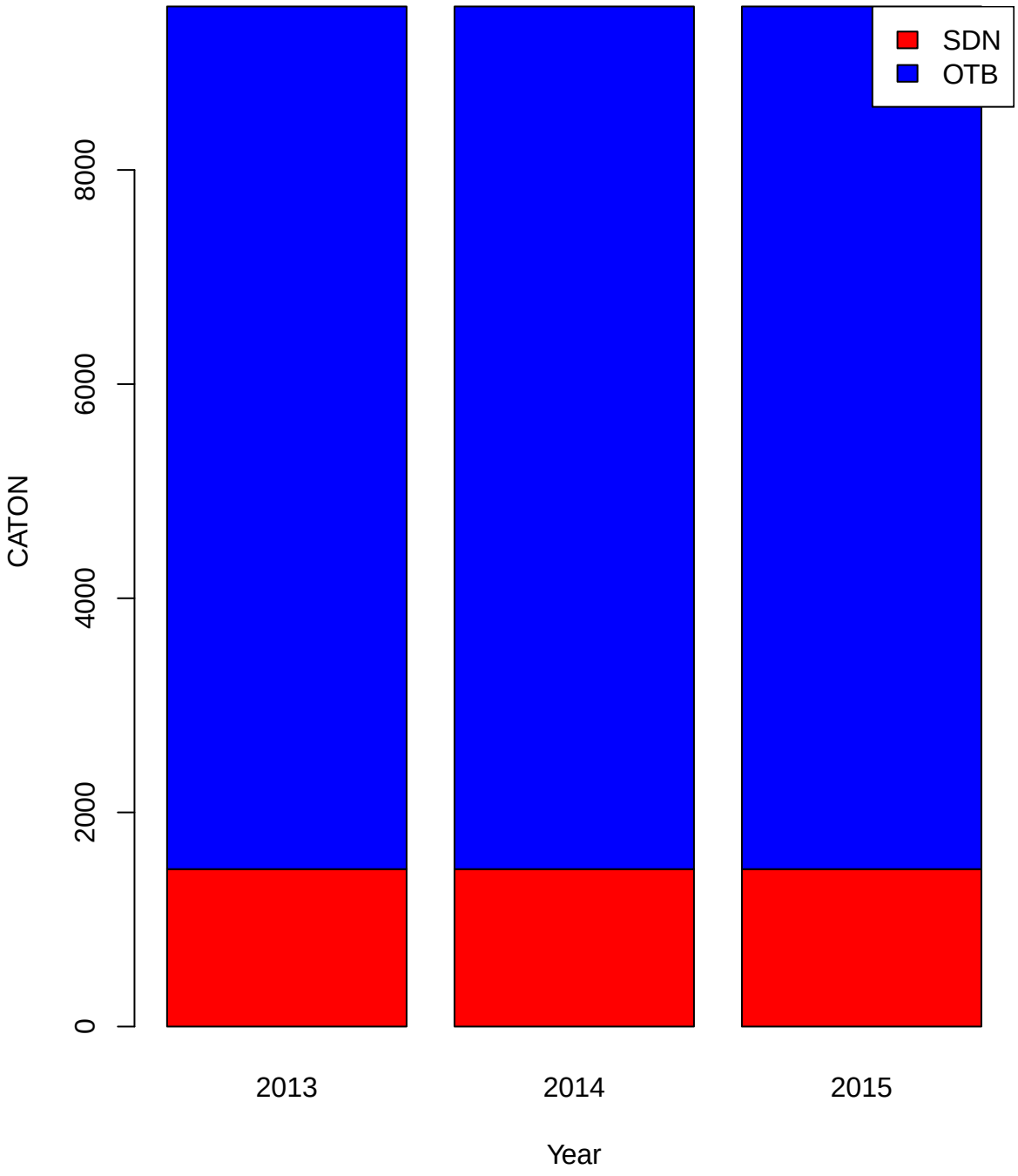

Figure 8: Annual catch by gear

Next temporal trends in total catch (Landings+imported discards+raised discards) by area are inspected

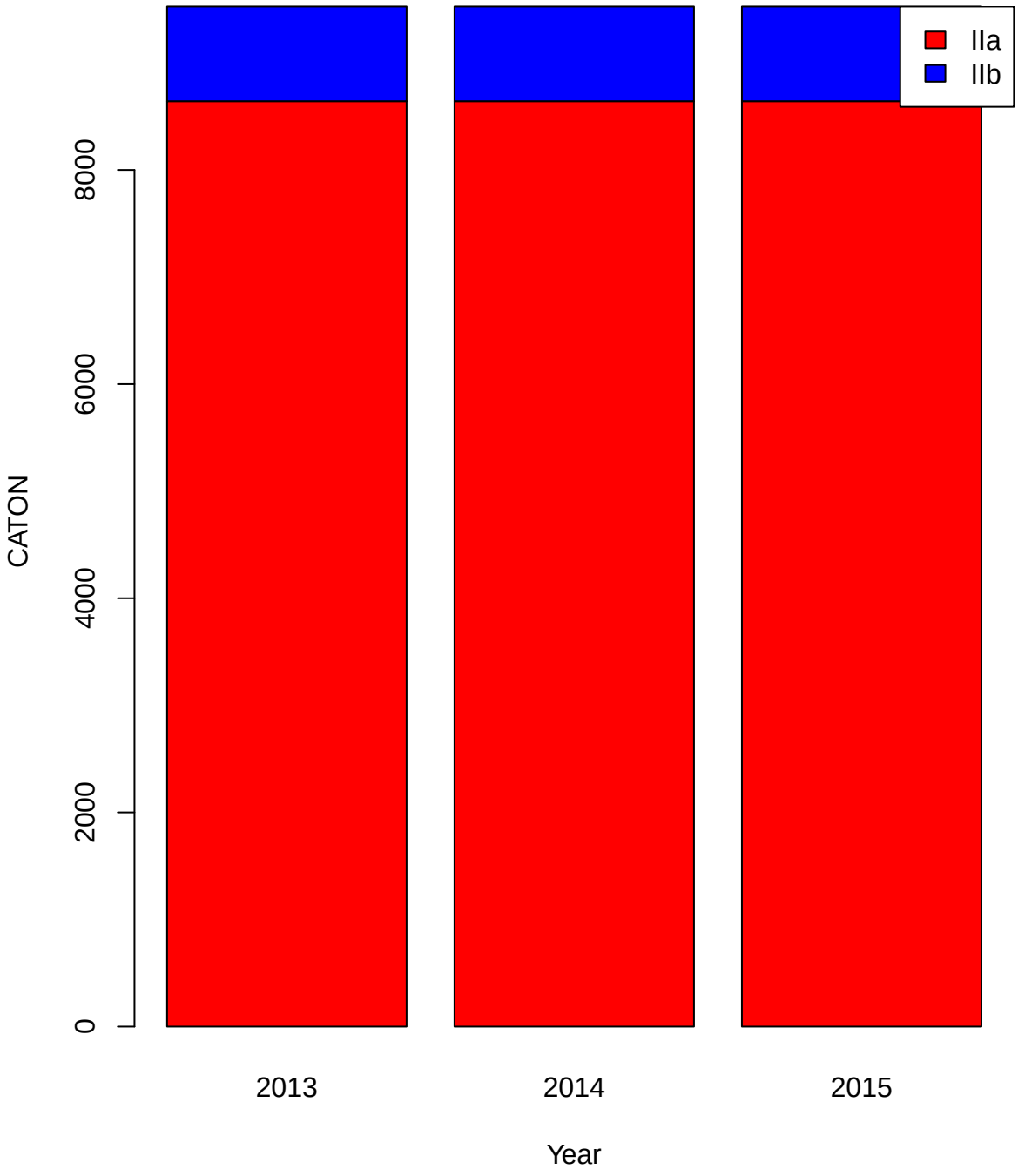

Figure 9: Annual catch by area