TECHNICAL AND COMPLIANCE COMMITTEE
FOURTEENTH REGULAR SESSION

Majuro, Republic of Marshall Islands
26 September - 2 October 2018

An assessment of the number of vessels fishing for south Pacific albacore south of 20°S

WCPFC-TCC14-2018/IP-14

Stephen Brouwer[1], Peter Williams and Graham Pilling

[1] **Oceanic Fisheries Programme, The Pacific Community (SPC)**

Contents

1 Introduction

The south Pacific albacore fishery is severely impacted by the economic conditions within the fishery (Williams and Reid, 2018), this is largely due to the relatively low value of the resource. The result of this is that catch rates need to be maintained at a relatively high level in order for vessels to remain economically viable units. While the resource is not overfished and overfishing is not taking place the Western and Central Pacific Fisheries Commission (WCPFC) has taken steps to limit the catch and effort on this resource through the development of a Conservation and Management Measure for south Pacific albacore (CMM 2015-02) in order to maintain the economic viability of the longline fisheries particularly in coastal states.

Included in CMM 2015-02 is an attempt to limit fishing effort on the south Pacific albacore stock. This CMM requires that *"CCMs shall report annually to the Commission . . .* ***the number of vessels actively fishing for South Pacific albacore****, in the Convention area south of 20^{o}S."* The CMM also notes that *"Initially this information will be provided for the period 2006-2014 and then updated annually."* However, the measure does not define **actively fishing for**. This paper presents some information to consider in an attempt to define actively fishing for, and presents effort information submitted to the WCPFC for CCMs fishing south of 20^{o}S.

2 Methods

Data were extracted from the SPC database that houses the WCPFC data. These data are from logsheets from longline vessels fishing between 2005 and 2017, where logsheet data are not available, data from submissions under CMM 2015-02 were used. For Chinese Taipei, while the data submission separates large and small vessels these are combined for this analysis. Troll vessels were not included as it is assumed that all troll vessels south of 20^{o}S were targeting albacore and can be considered separately. Vessels chartered by a coastal state are considered to be flagged to that state for the purposes of this analysis. Vessel flagged to Senegal and Portugal who fished in the Convention Area for a short time have also been excluded at this stage.

For each vessel that fished south of 20^{o}S at any stage between 2005 and 20017 catch data were extracted and tabled by vessel. As no targeting information are provided, fishing for albacore was inferred through the catch proportions in either weight or number of fish. The proportion of albacore in each vessels annual catch was grouped into one of three groups: Group 1 - vessels whose annual catch had less than 50% albacore; Group 2 - vessels with 50-59% albacore ; and Group 3 - vessels whose catch contained 60% or more albacore. These catch proportions were for the amount of albacore in the catch relative to the other main tunas in the catch (bigeye and yellowfin) as well as swordfish which is the other main target species south of 20^{o}S. Other species such as sharks, while included in the reporting requirements of the measure, were not included due to changes in their reporting through time and variability in reporting by Members, Cooperating Non-members and Participating Territories (CCMs).

Each vessels data were collated by year to avoid miss-specification caused by a singular anomalous catch event. These data are presented annually for each flag state, firstly the catch proportions by vessel are presented for the entire fishery (Figure 1) and for each fleet (Figure 2 - Figure 19) and then for each vessel (Figure 20 - Figure 39).

3 Discussion

Without explicit targeting information from the vessel captain determining whether a vessel is fishing for albacore is difficult. However, the catch proportions will infer targeting, as vessels are only likely to survive economically if they catch their intended target species. While other species will be retained and be important contributors to the catch the main target species is likely to be the predominant species in the catch.

Overall the analysis indicates that for vessels fishing south of 20^{o}S a high proportion of them have catch that is made up of more than 50% albacore (Figure 1).

The data show that it is important to consider catch in terms of both numbers and weight. This is largely due to the difference in the size of both the target albacore and other species. For example albacore further south are smaller and swordfish are larger in that area, the result is that vessels fishing further to the south will have high albacore catch proportions by number but low catch proportions by weight (e.g. Figure 14). Whereas, those vessels fishing in the mid-latitudes have similar catch proportions when considered by weight and number. In addition, some CCMs only report catch in weight (e.g. Figure 9) while other report in both weight and numbers.

The data presented here allow CCMs to consider how many vessels for each flag are fishing for albacore and how those numbers have changed through time. Furthermore, CCMs should decide on what catch proportion should be used for defining fishing for south Pacific albacore. Once this decision is made we can provide tables of numbers of vessels fishing for south Pacific albacore by year and CCM.

References

Williams, P. and Reid, C. (2018). Overview of Tuna Fisheries in the Western and Central Pacific Ocean, including Economic Conditions - 2017. Technical Report WCPFC-SC14-2018/GN-WP-01 Rev. 1.

Figures

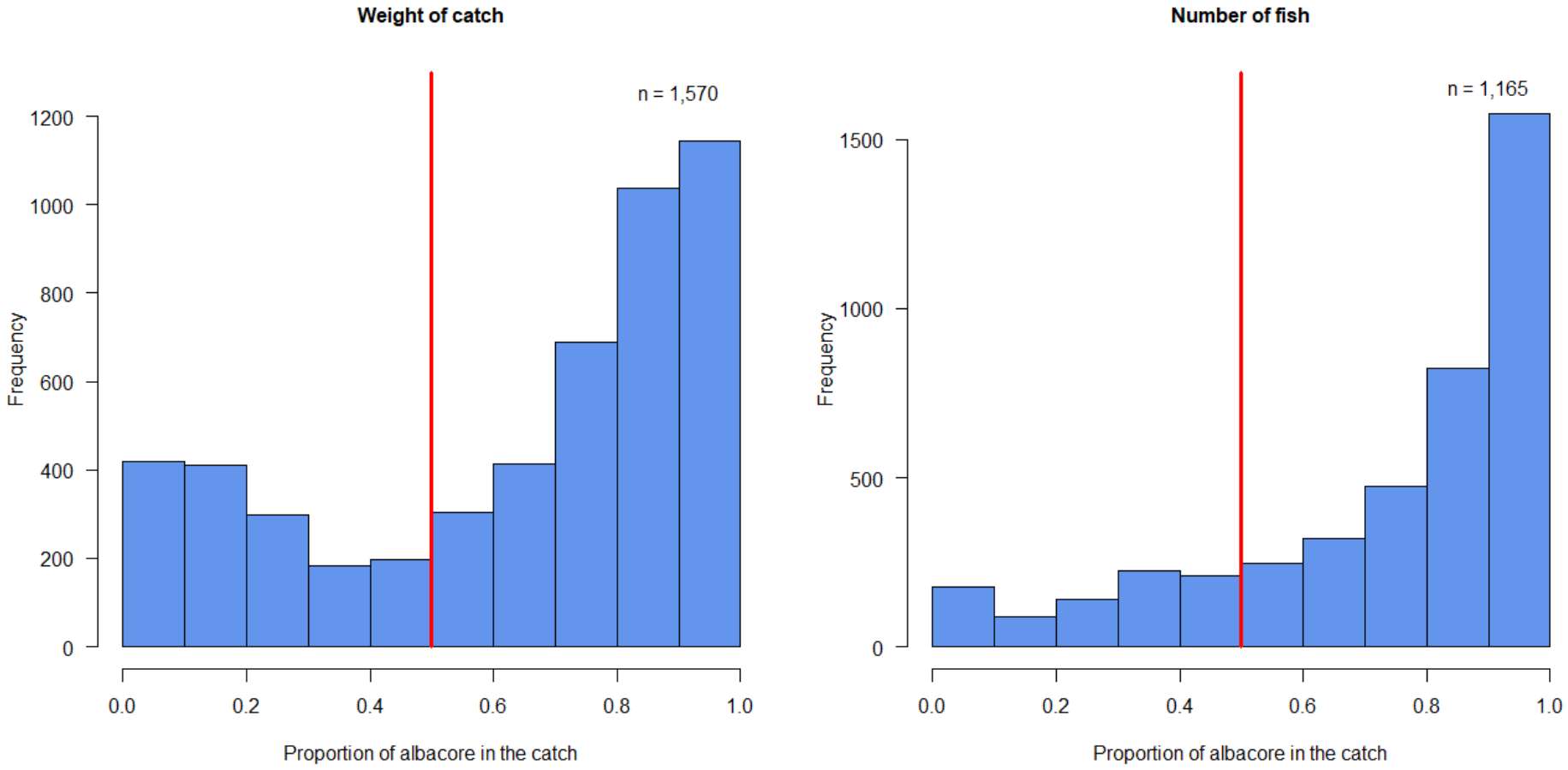

Figure 1: Trends in the number of vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

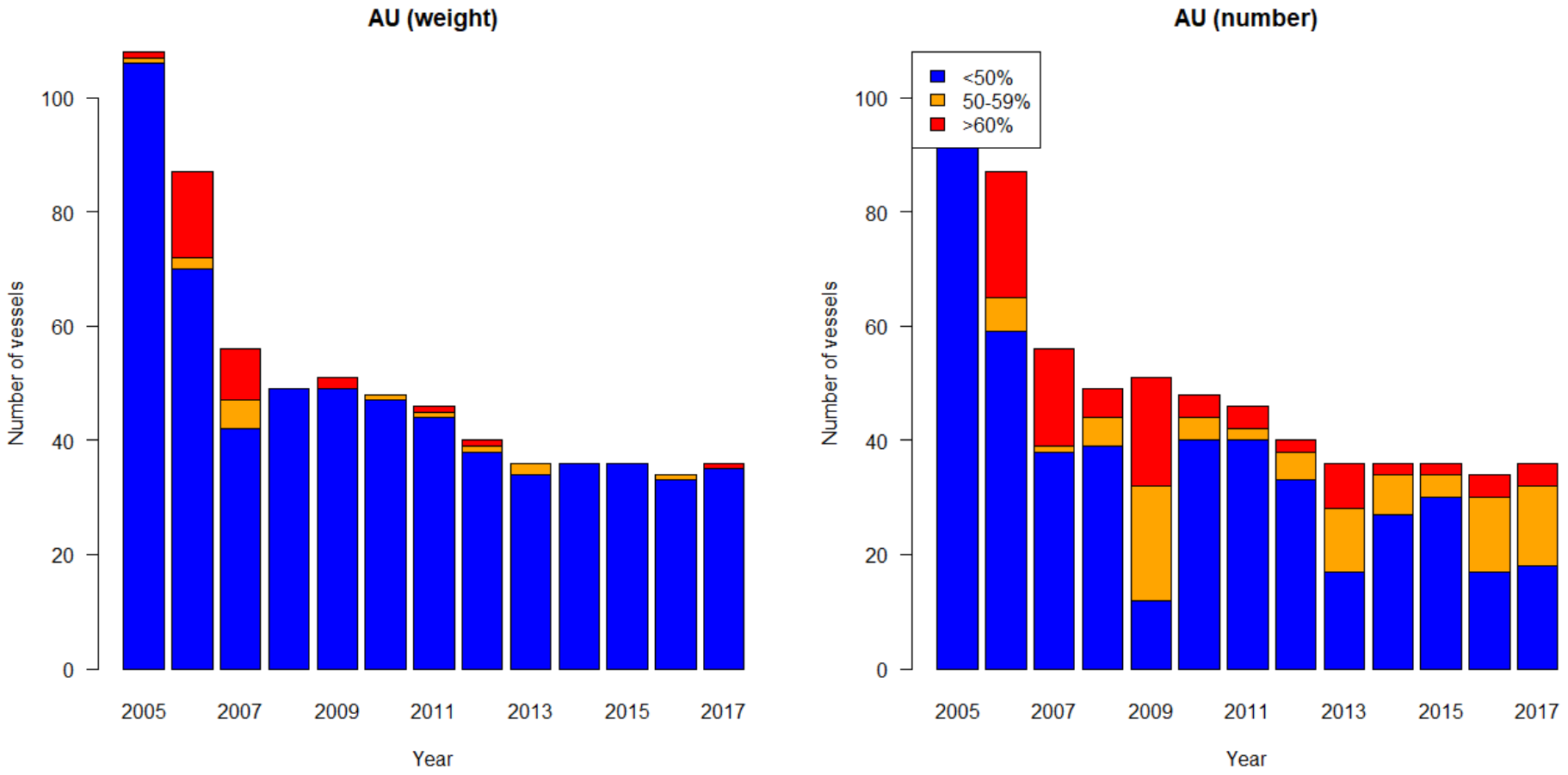

Figure 2: Trends in the number of Australian vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

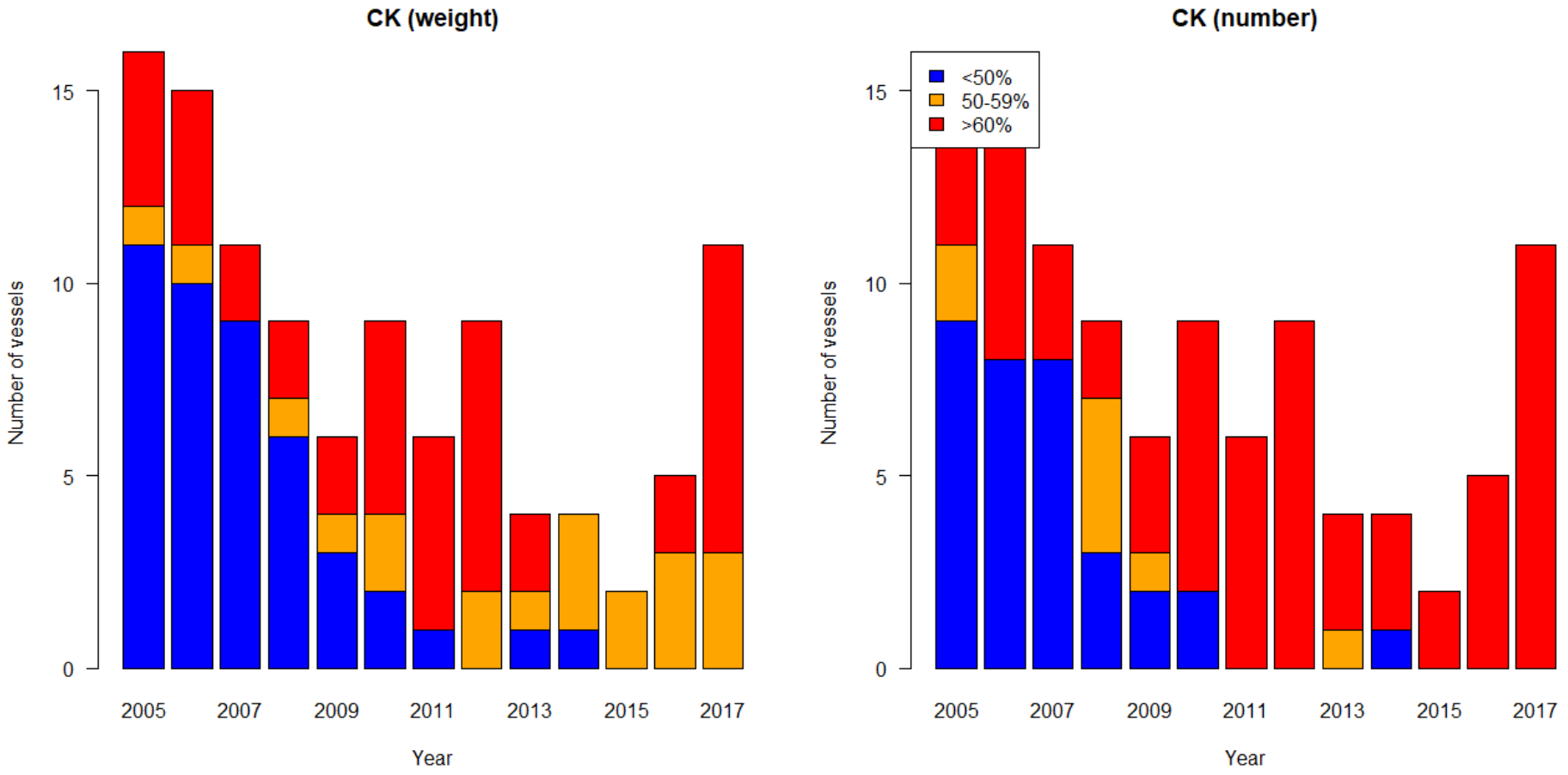

Figure 3: Trends in the number of Cook Island vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

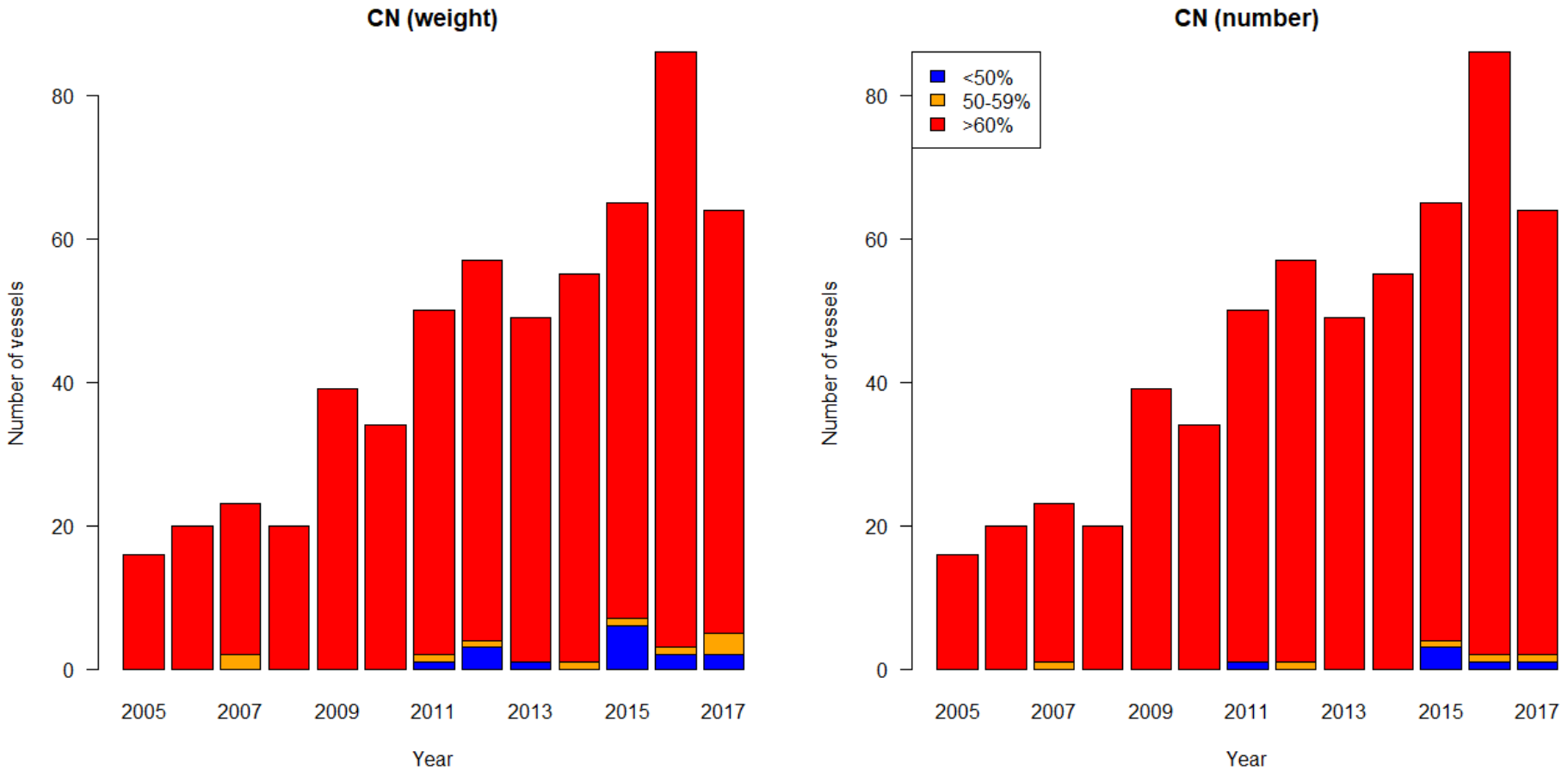

Figure 4: Trends in the number of Chinese vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

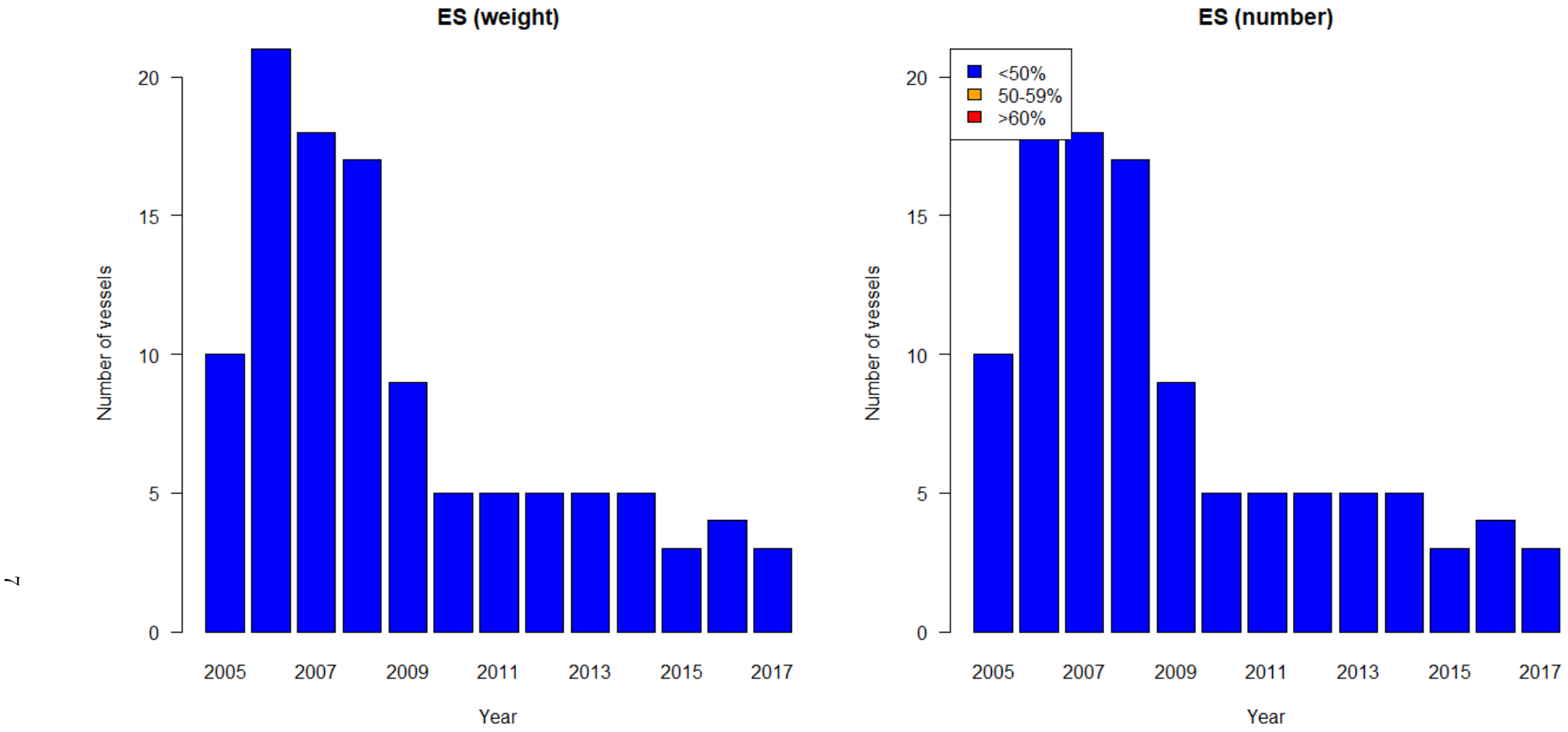

Figure 5: Trends in the number of EU (Spain) flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

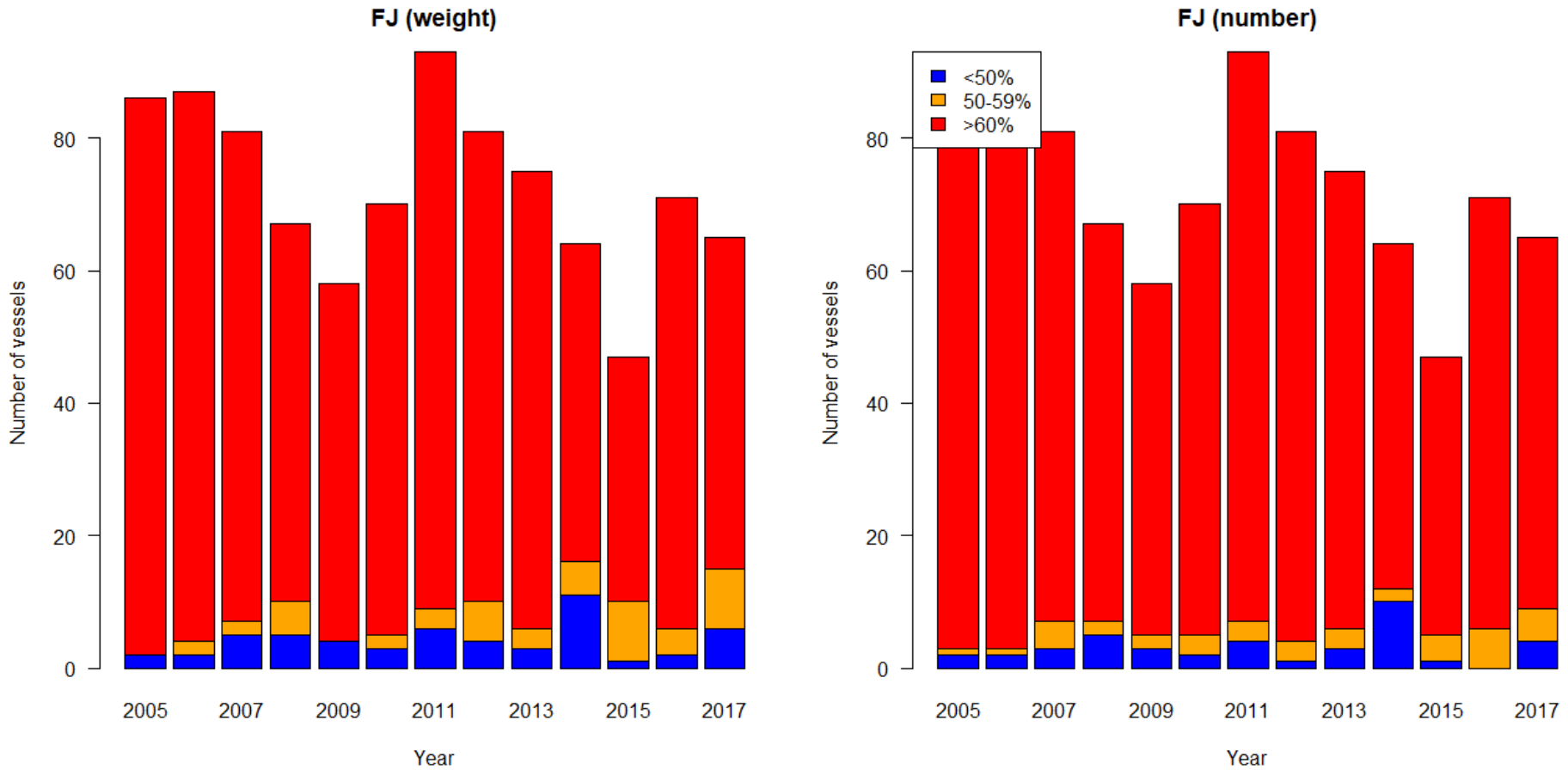

Figure 6: Trends in the number of Fijian flagged vessels fishing south of 20^{o}S and the proportion of their catch consisting of albacore tuna.

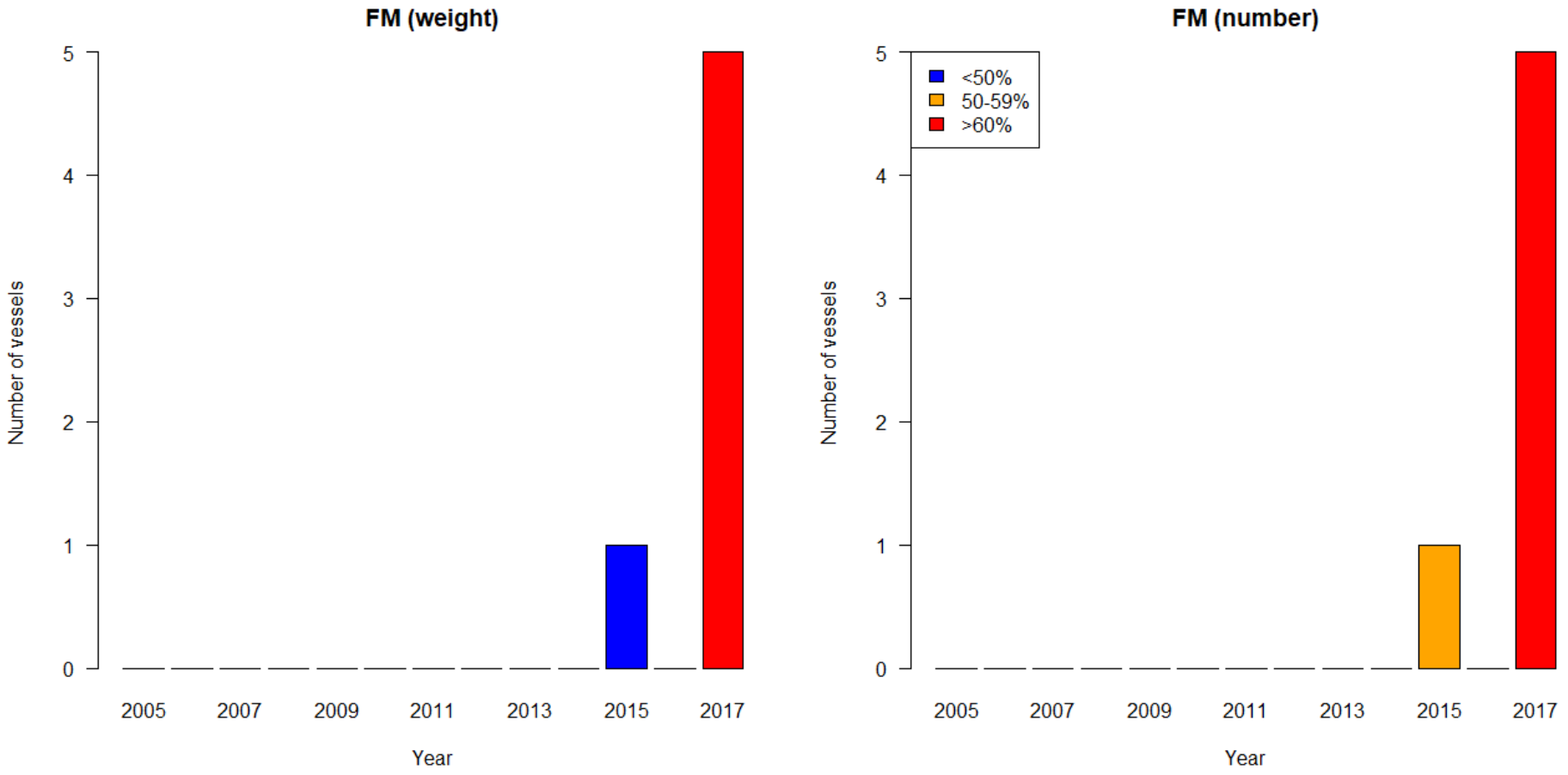

Figure 7: Trends in the number of Micronesia flagged vessels fishing south of 20^{o}S and the proportion of their catch consisting of albacore tuna.

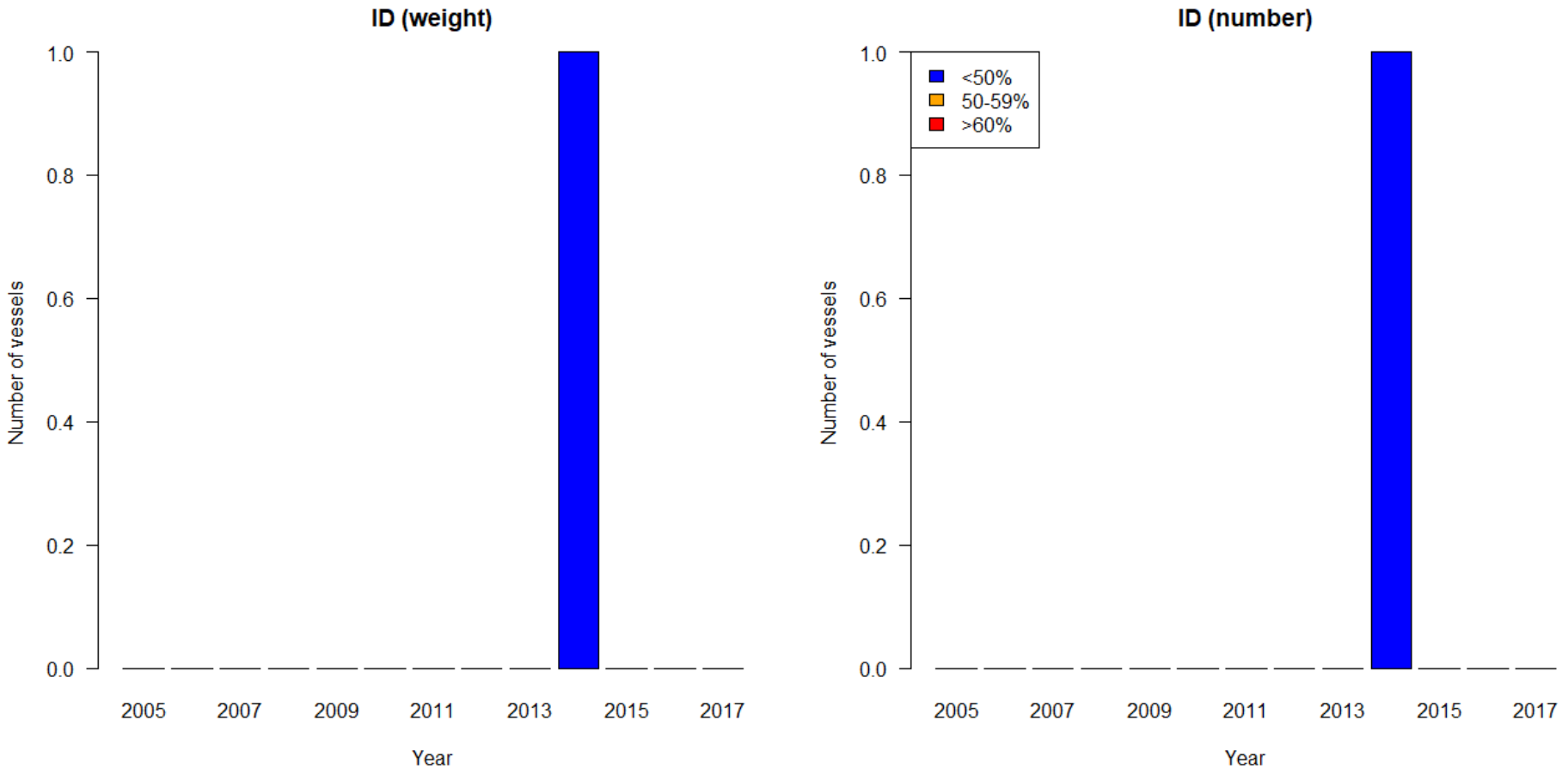

Figure 8: Trends in the number of Indonesian flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

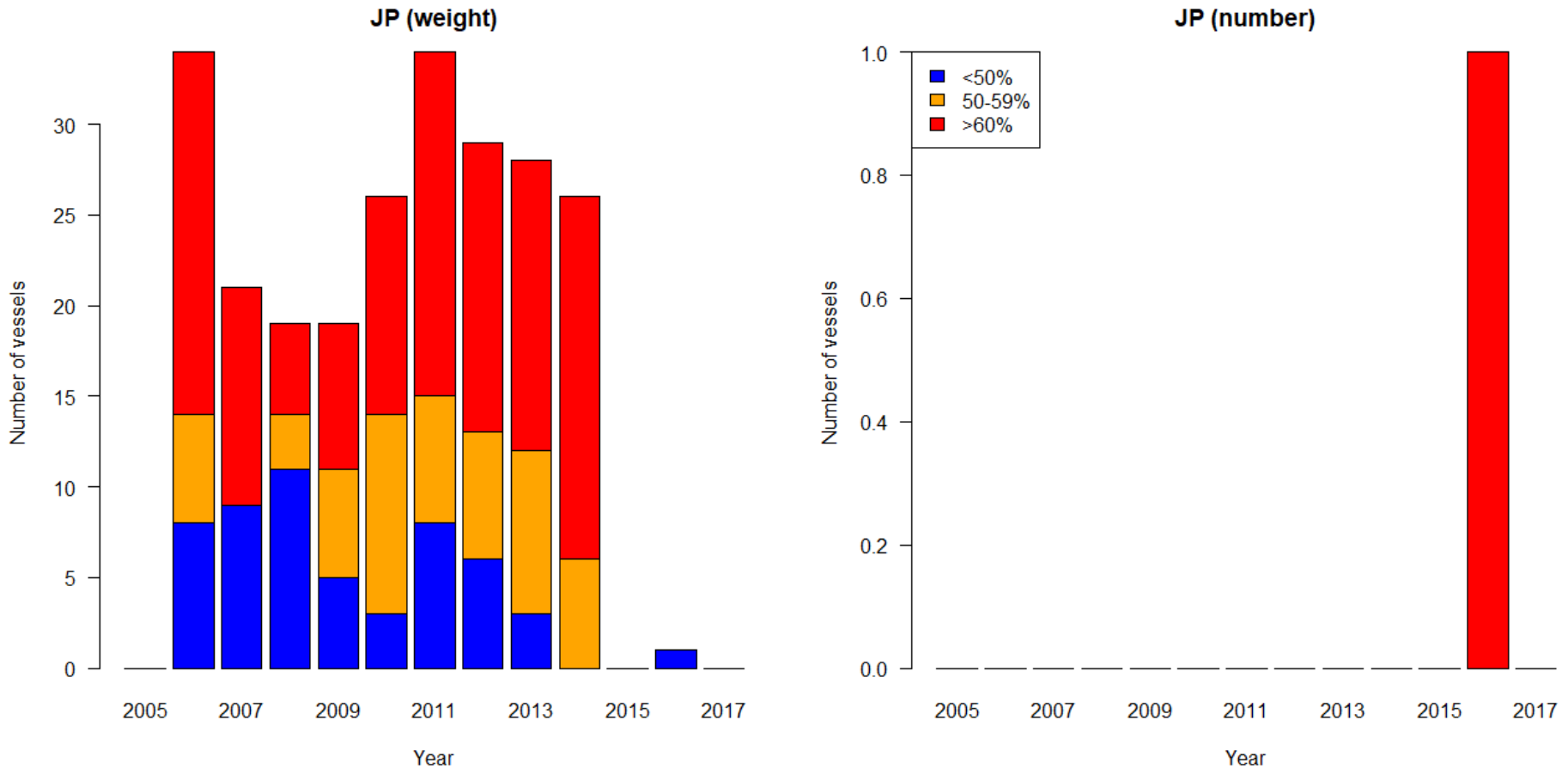

Figure 9: Trends in the number of Japanese flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

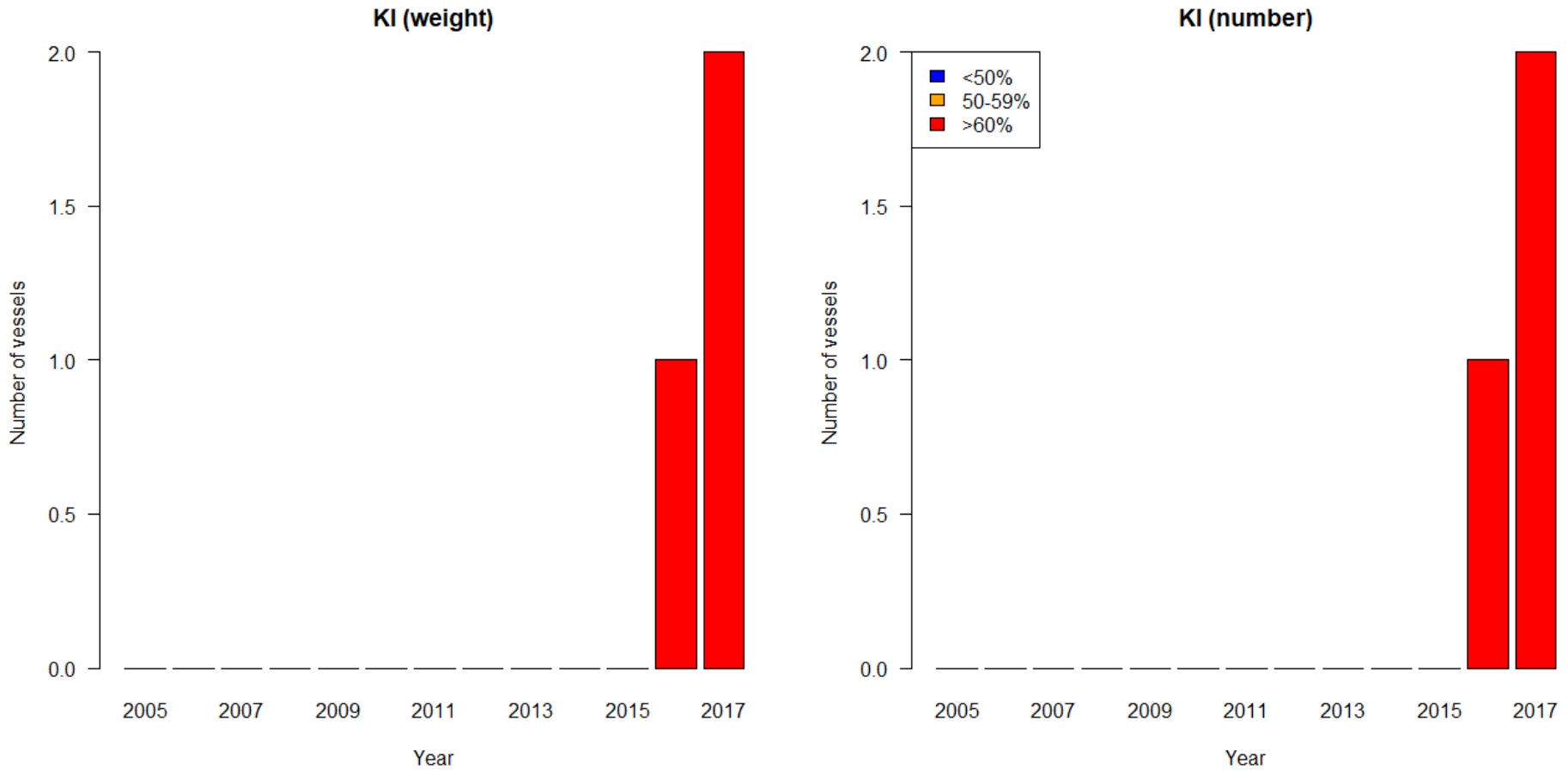

Figure 10: Trends in the number of Kiribati flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

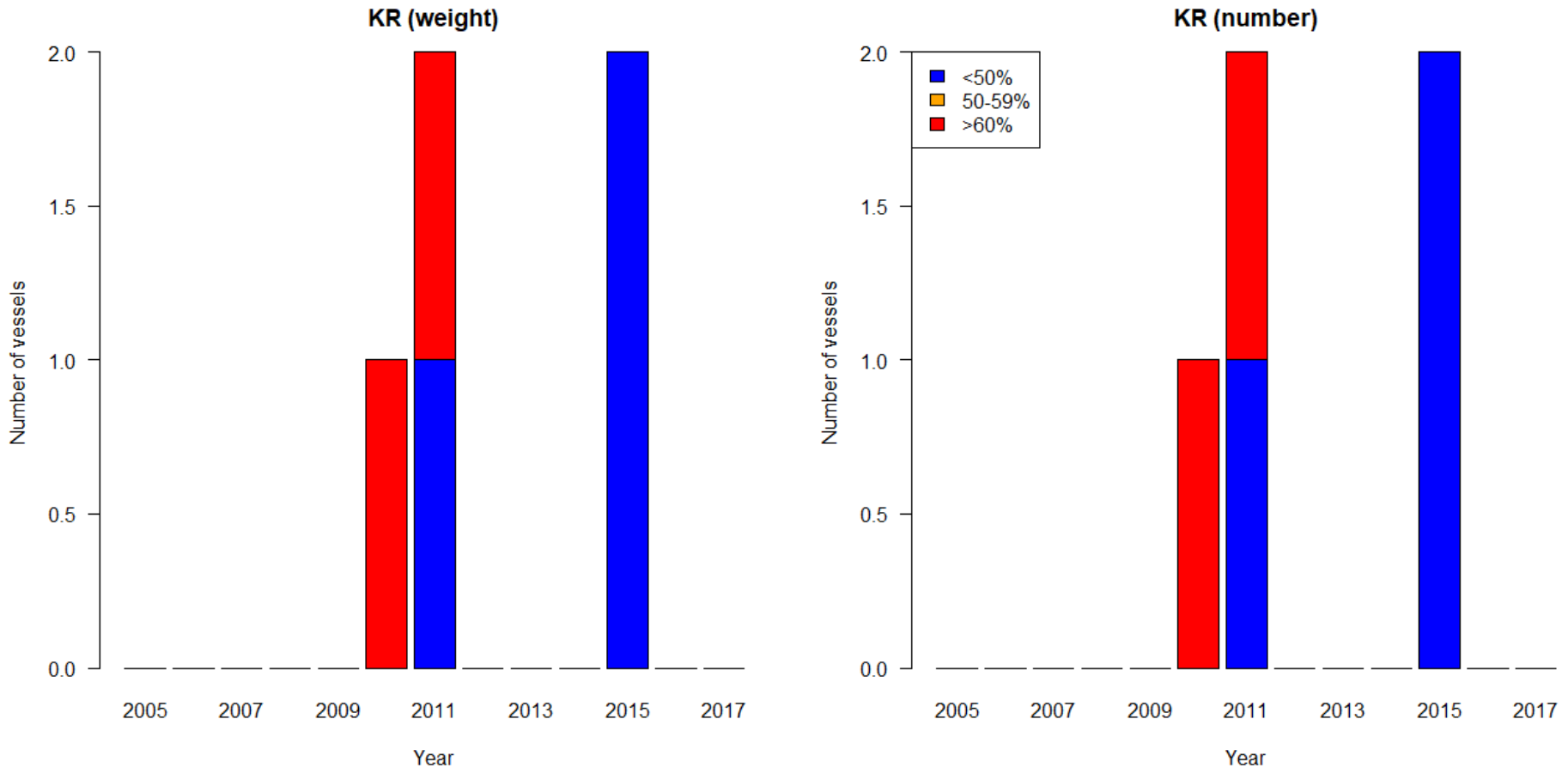

Figure 11: Trends in the number of Korean flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

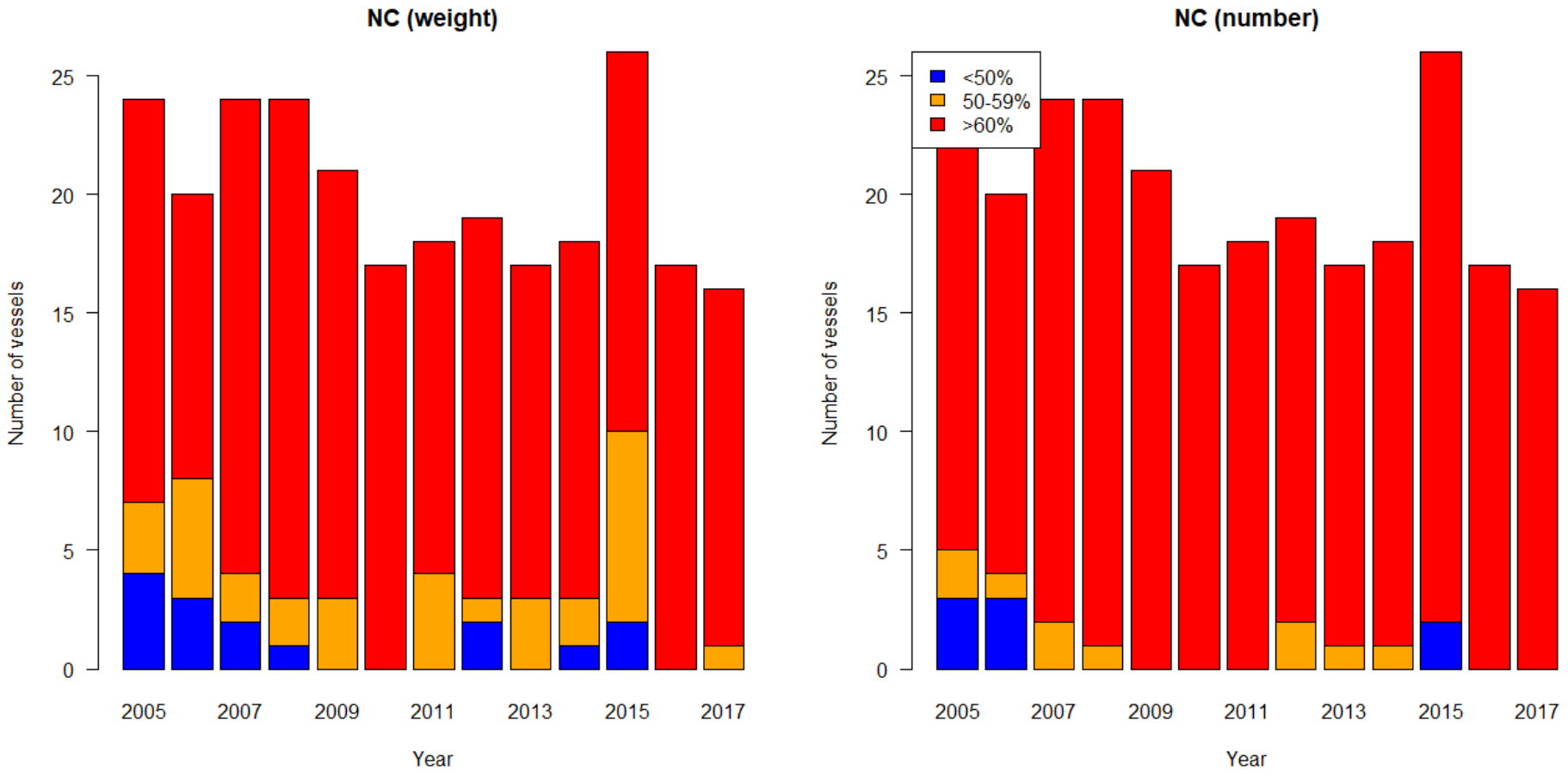

Figure 12: Trends in the number of New Caledonian flagged vessels fishing south of 20^{o}S and the proportion of their catch consisting of albacore tuna.

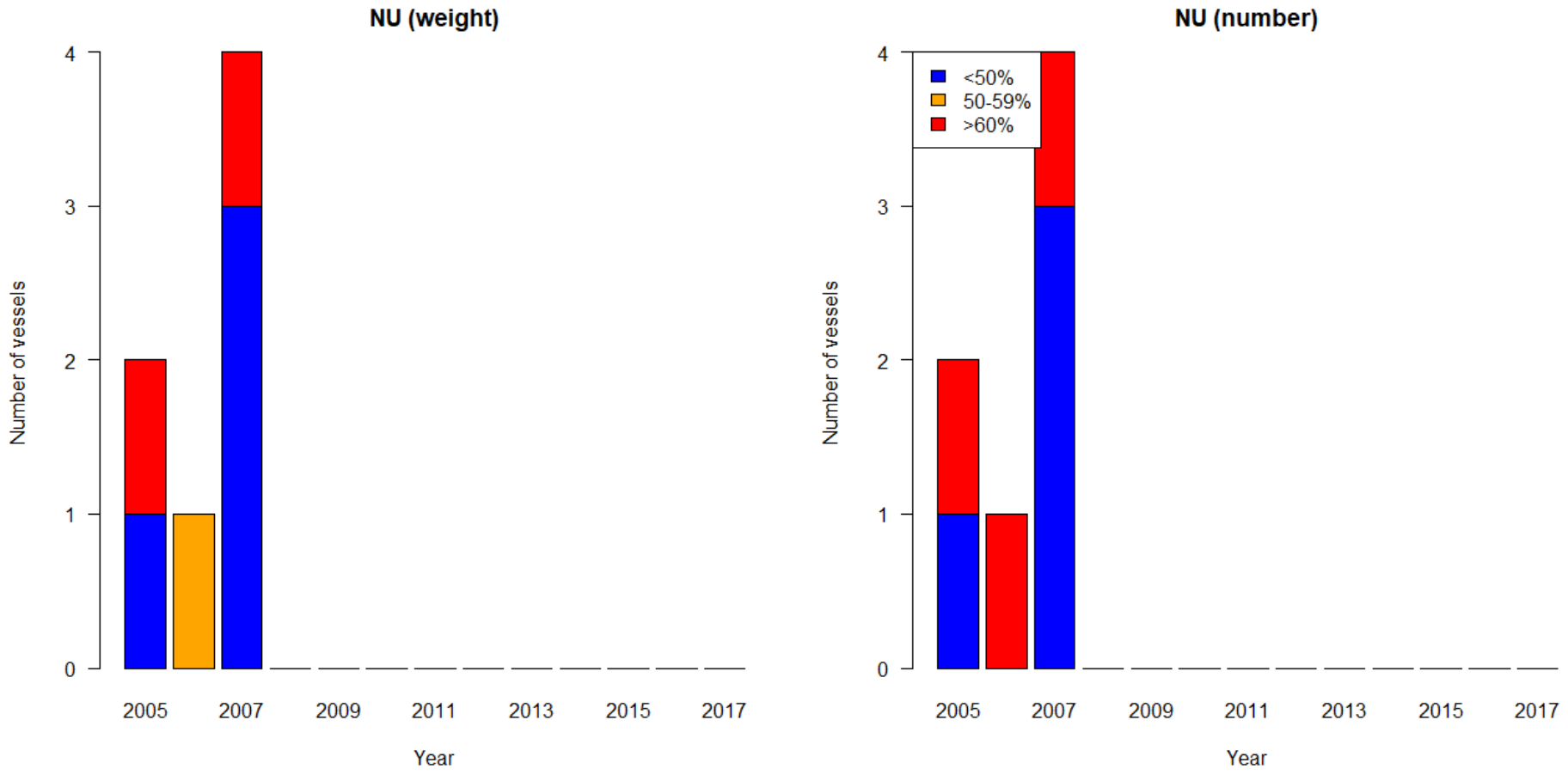

Figure 13: Trends in the number of Niuean flagged vessels fishing south of 20^{o}S and the proportion of their catch consisting of albacore tuna.

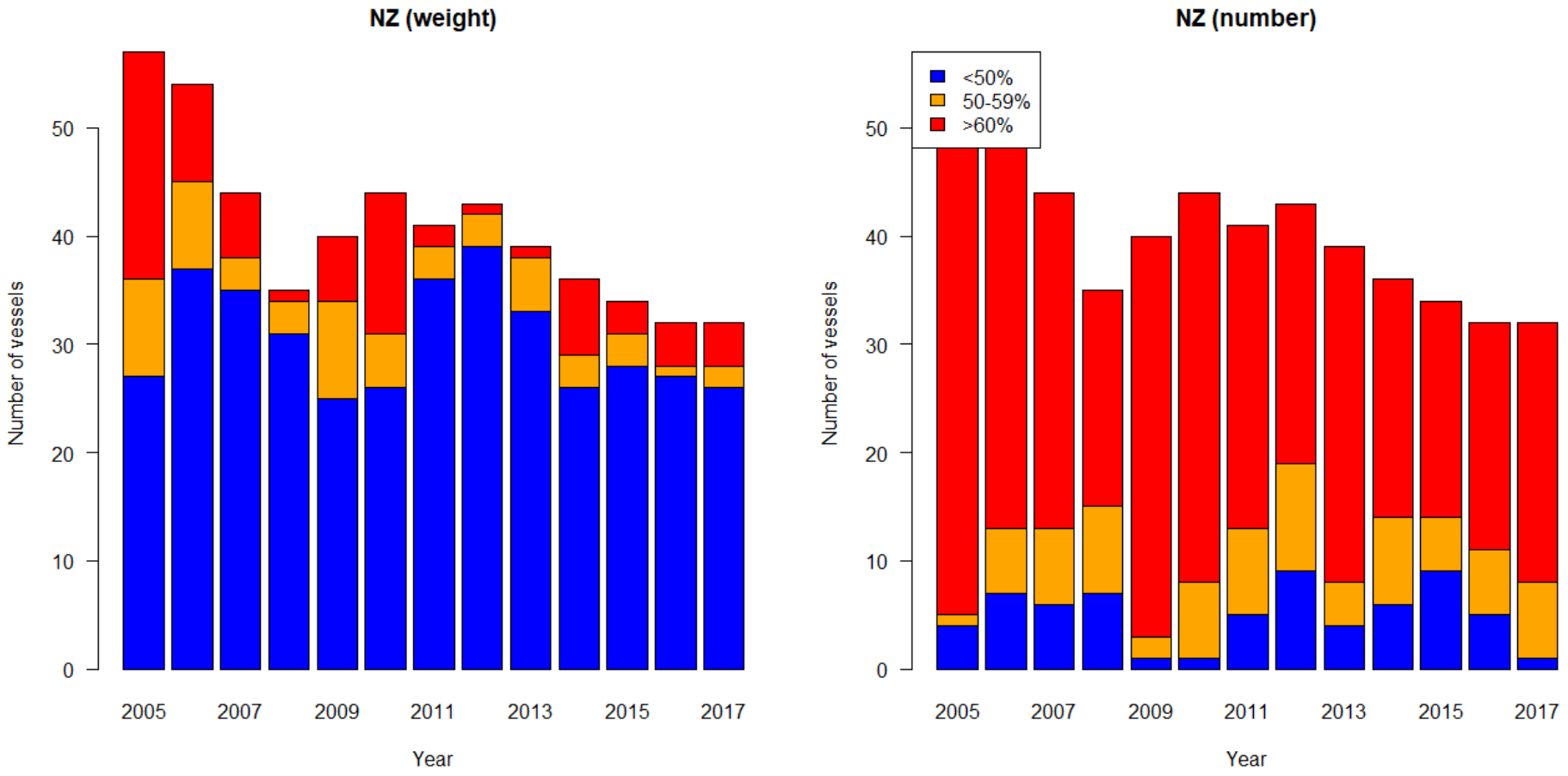

Figure 14: Trends in the number of New Zealand flagged vessels fishing south of 20^{o}S and the proportion of their catch consisting of albacore tuna.

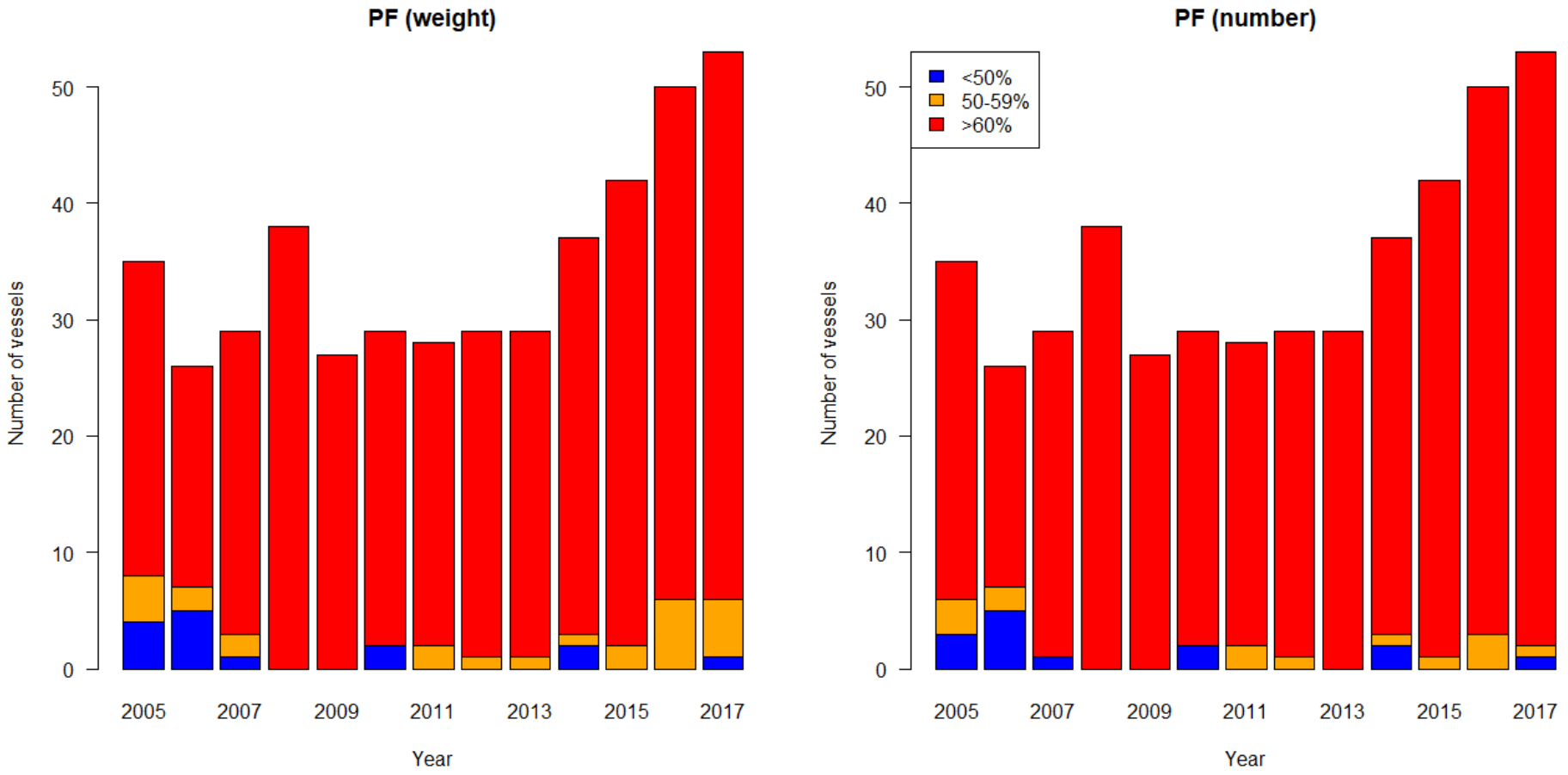

Figure 15: Trends in the number of French Polynesian flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

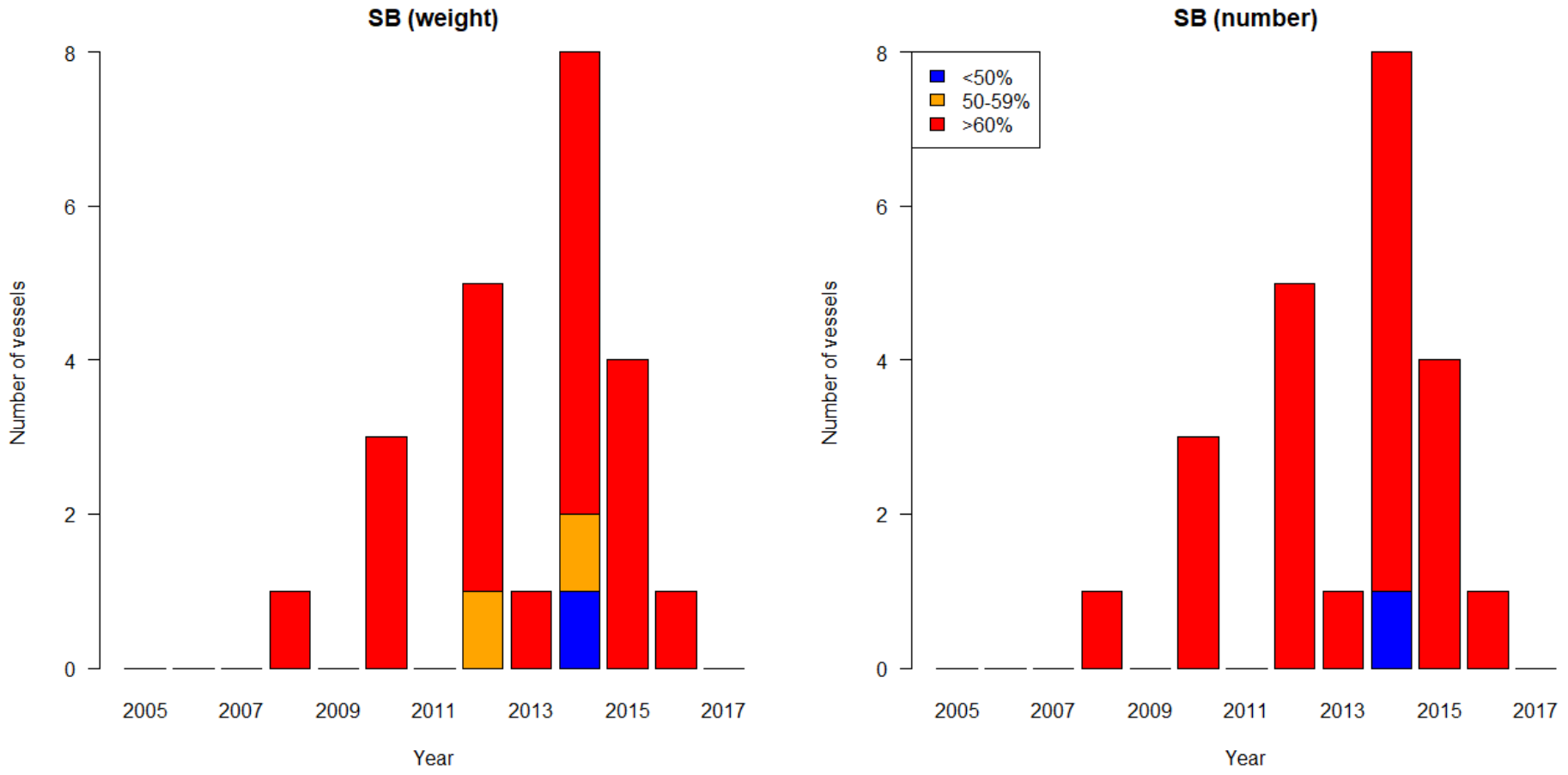

Figure 16: Trends in the number of Solomon Island flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

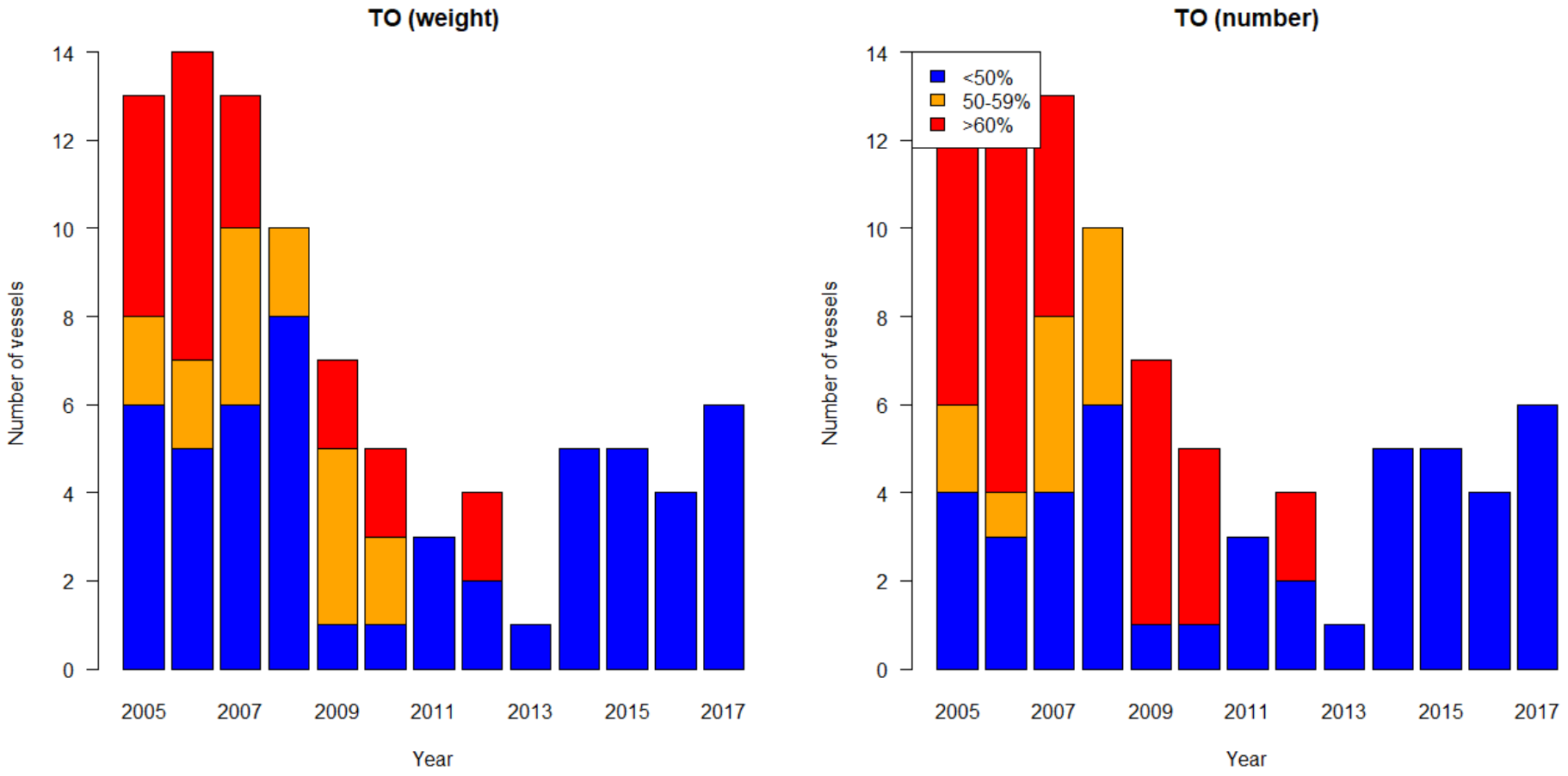

Figure 17: Trends in the number of Tongan flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

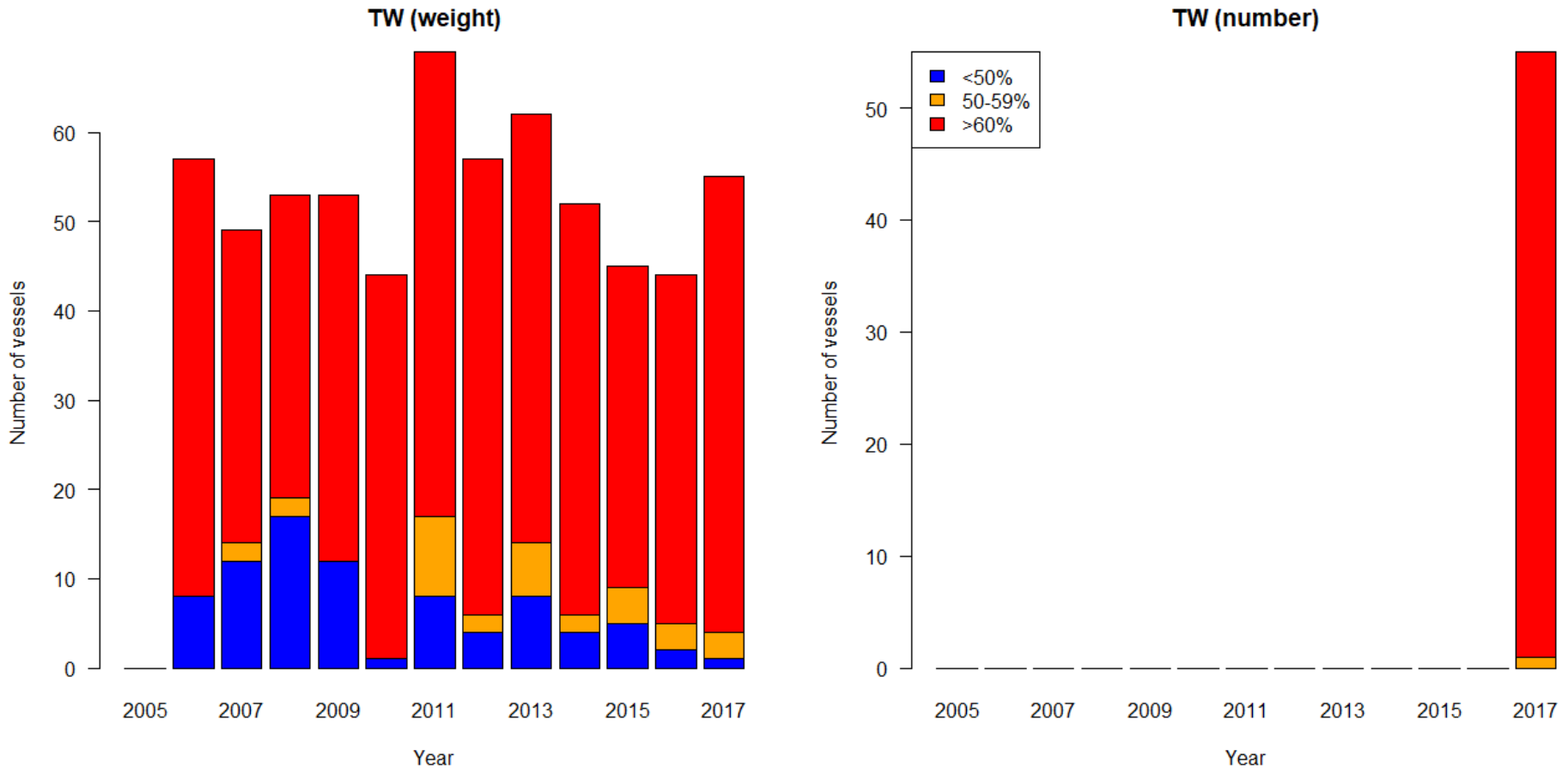

Figure 18: Trends in the combined number of large and small vessels flagged to Chinese Taipei fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

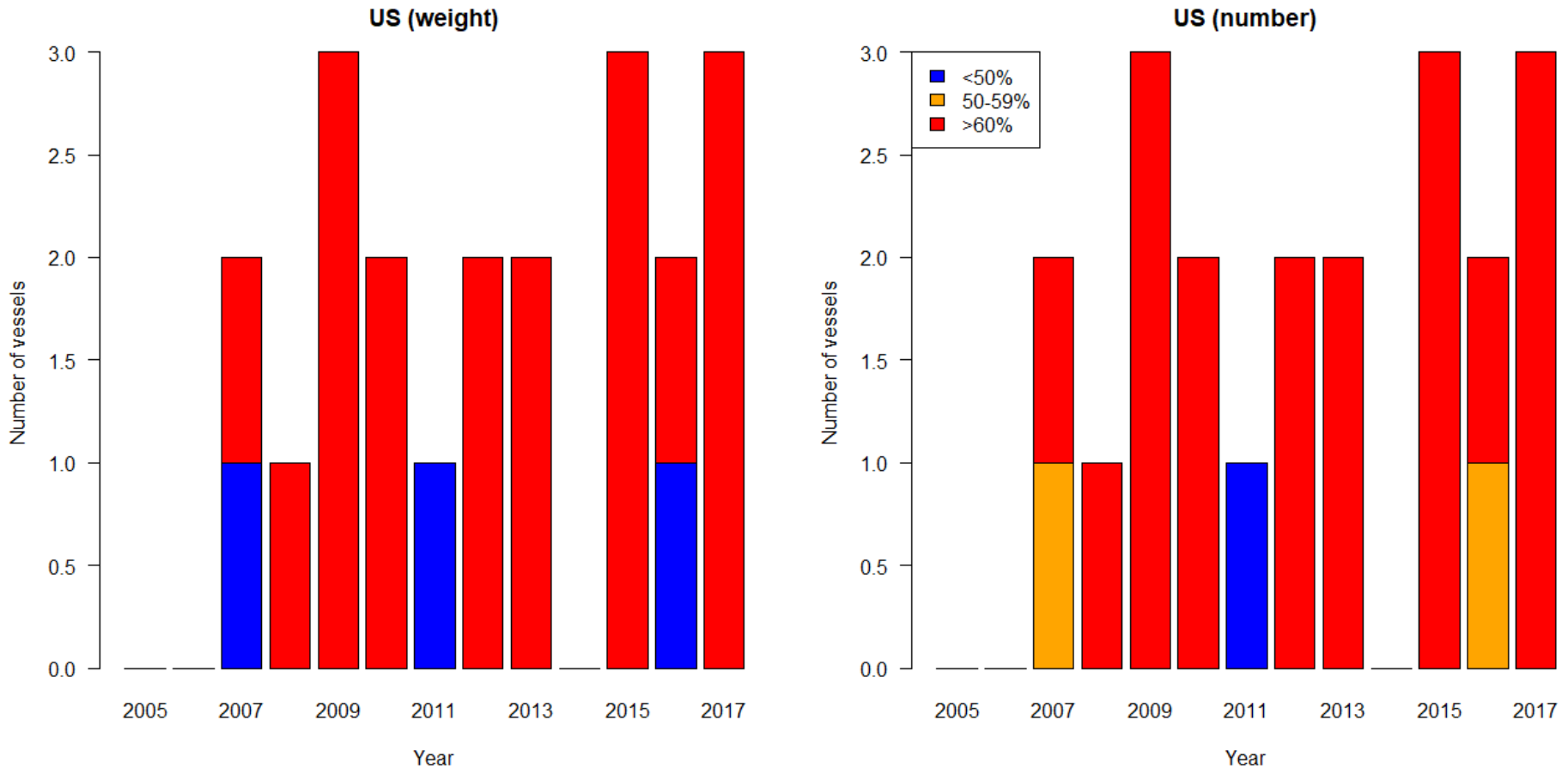

Figure 19: Trends in the number of USA flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

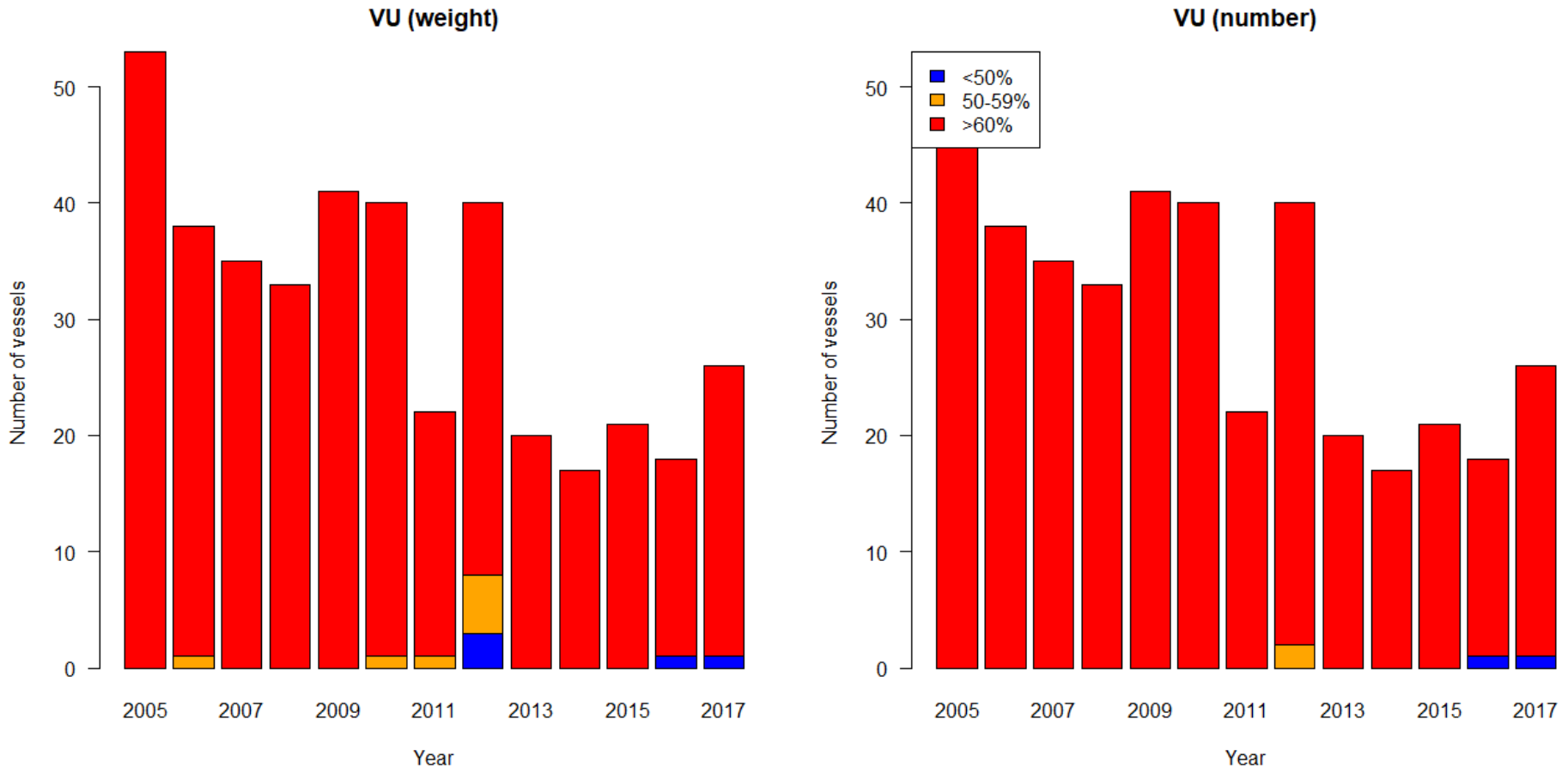

Figure 20: Trends in the number of Vanuatu flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna.

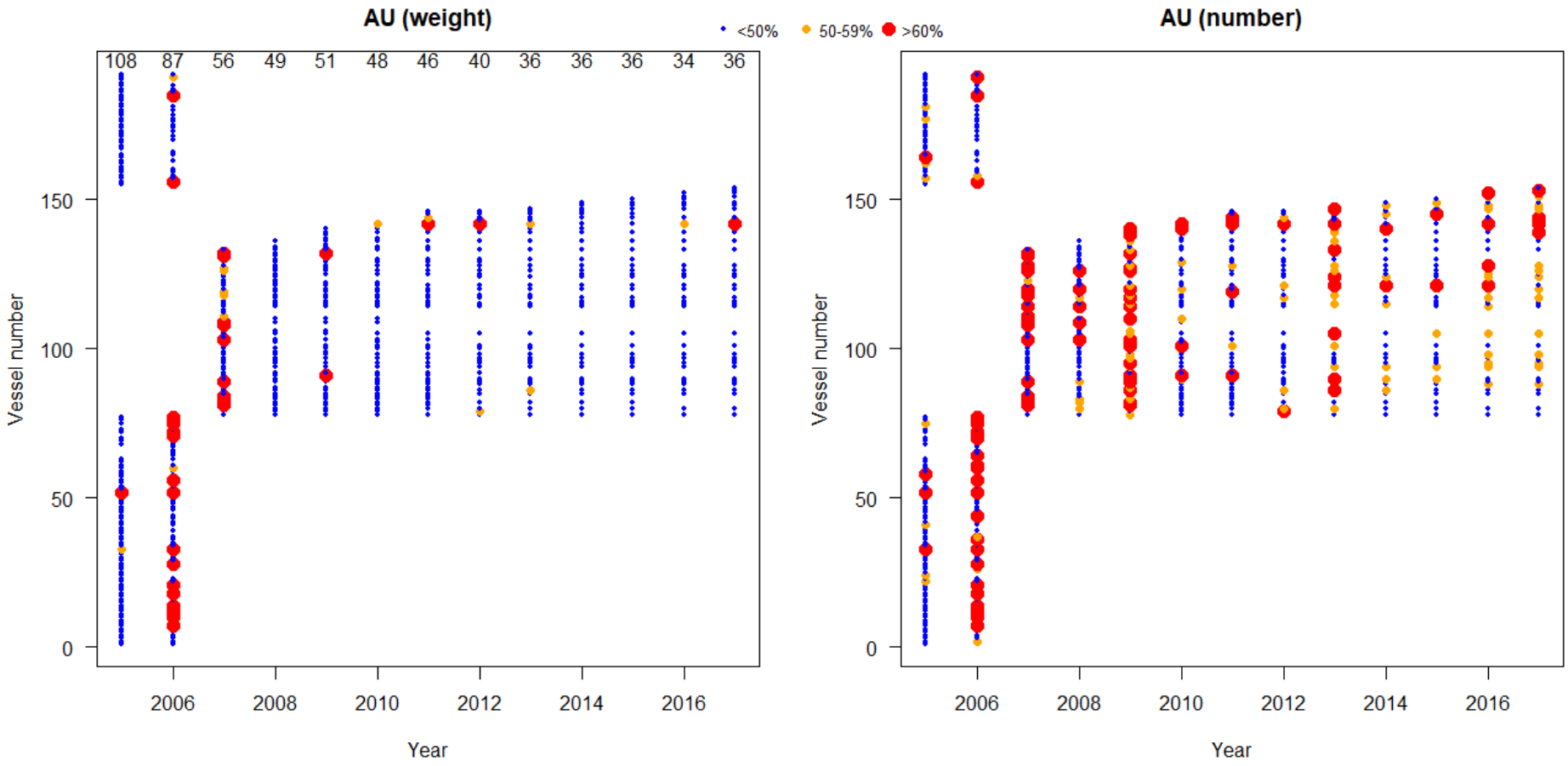

Figure 21: The number of Australian flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

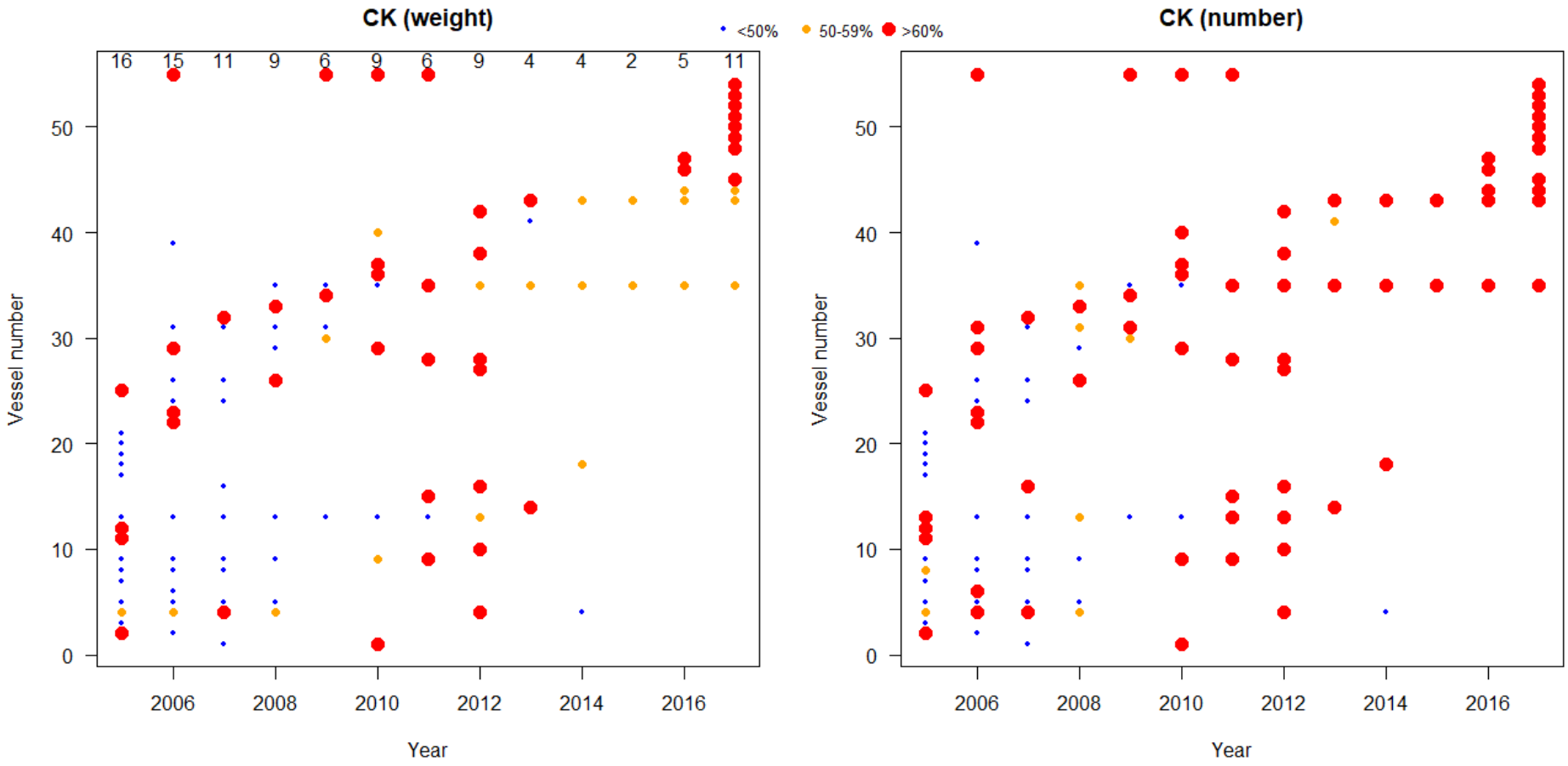

Figure 22: The number of Cook Island flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

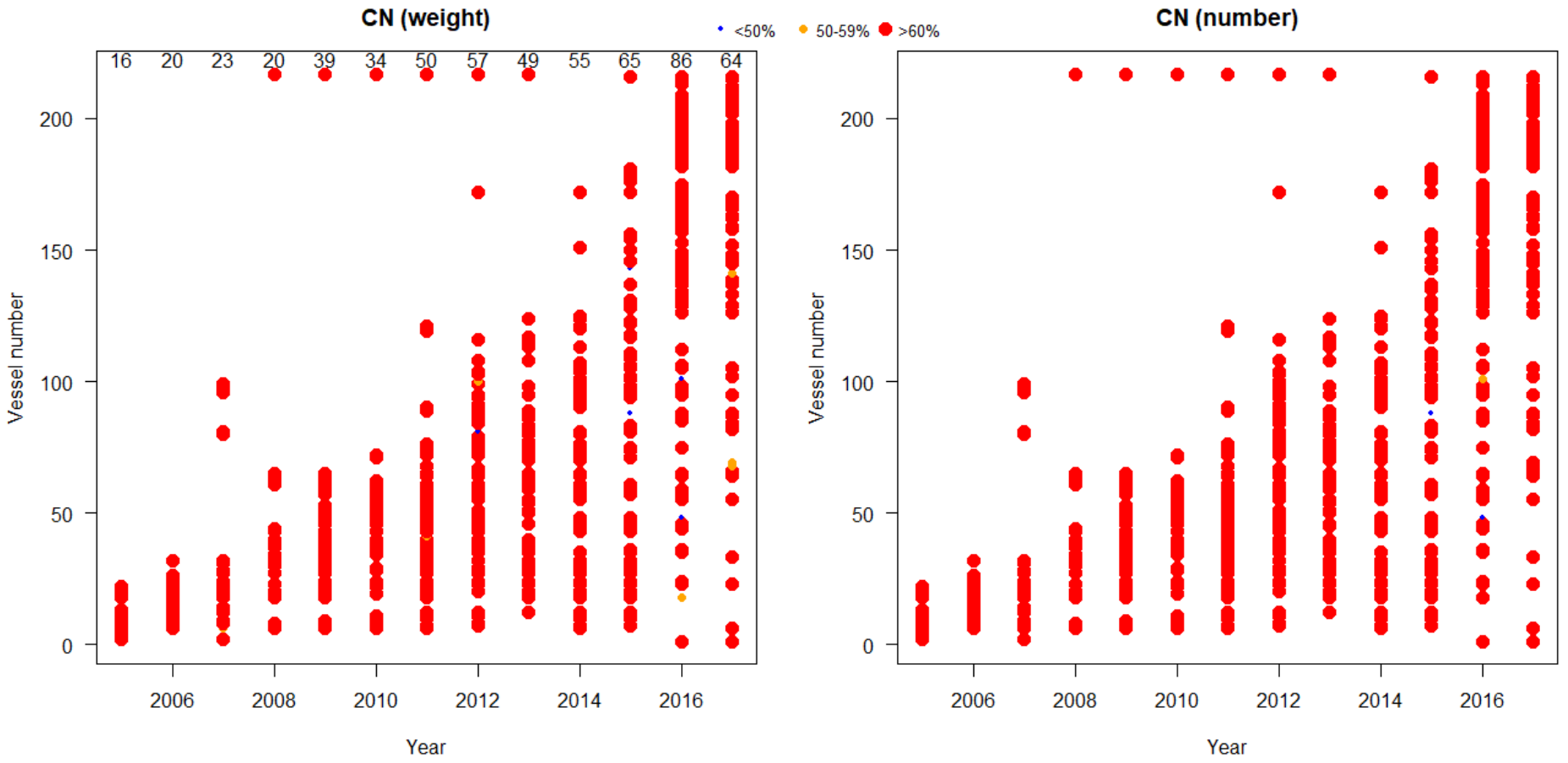

Figure 23: The number of Chinese flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

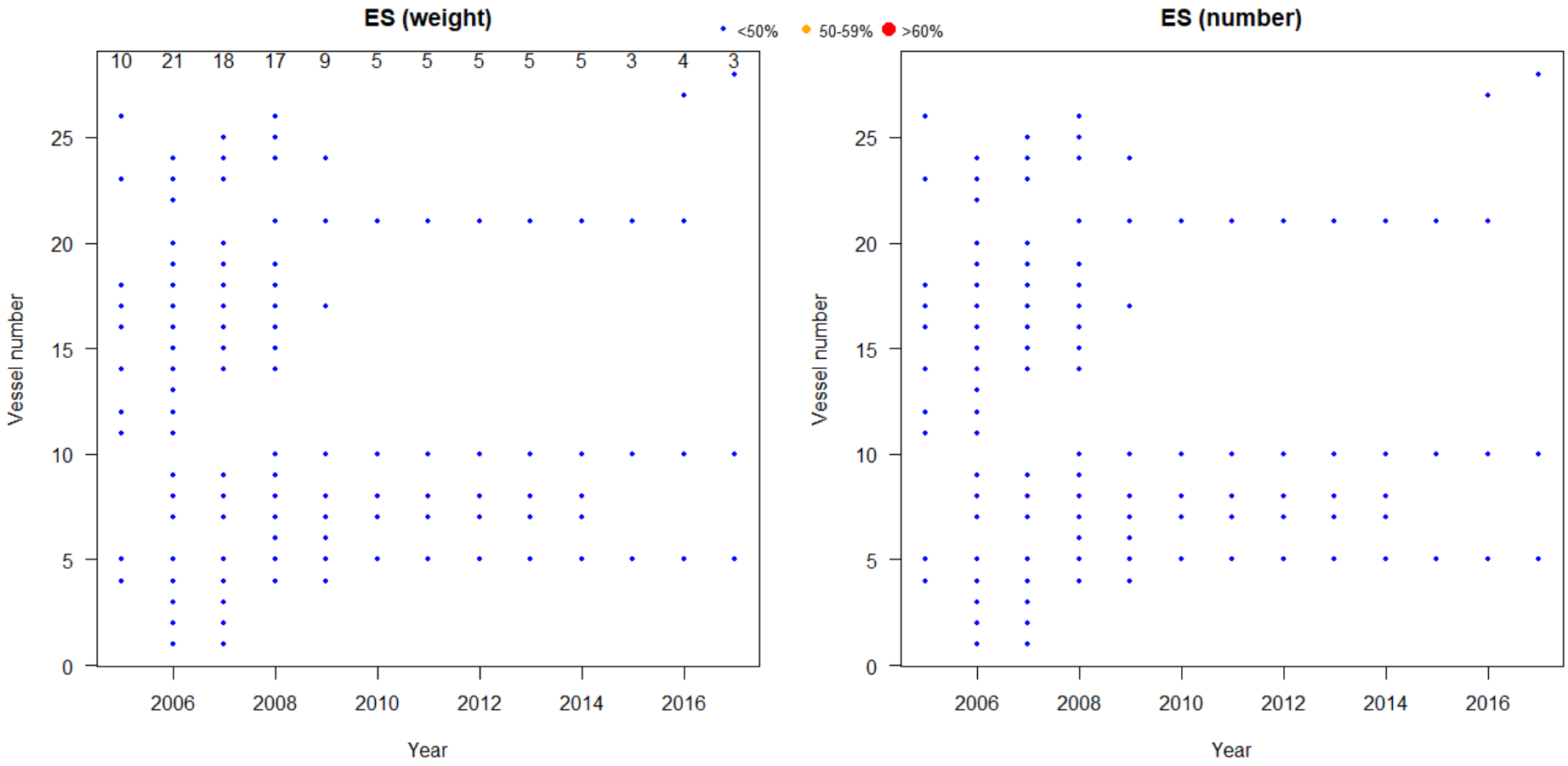

Figure 24: The number of EU (Spain) flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

Figure 25: The number of Australian Fijian vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

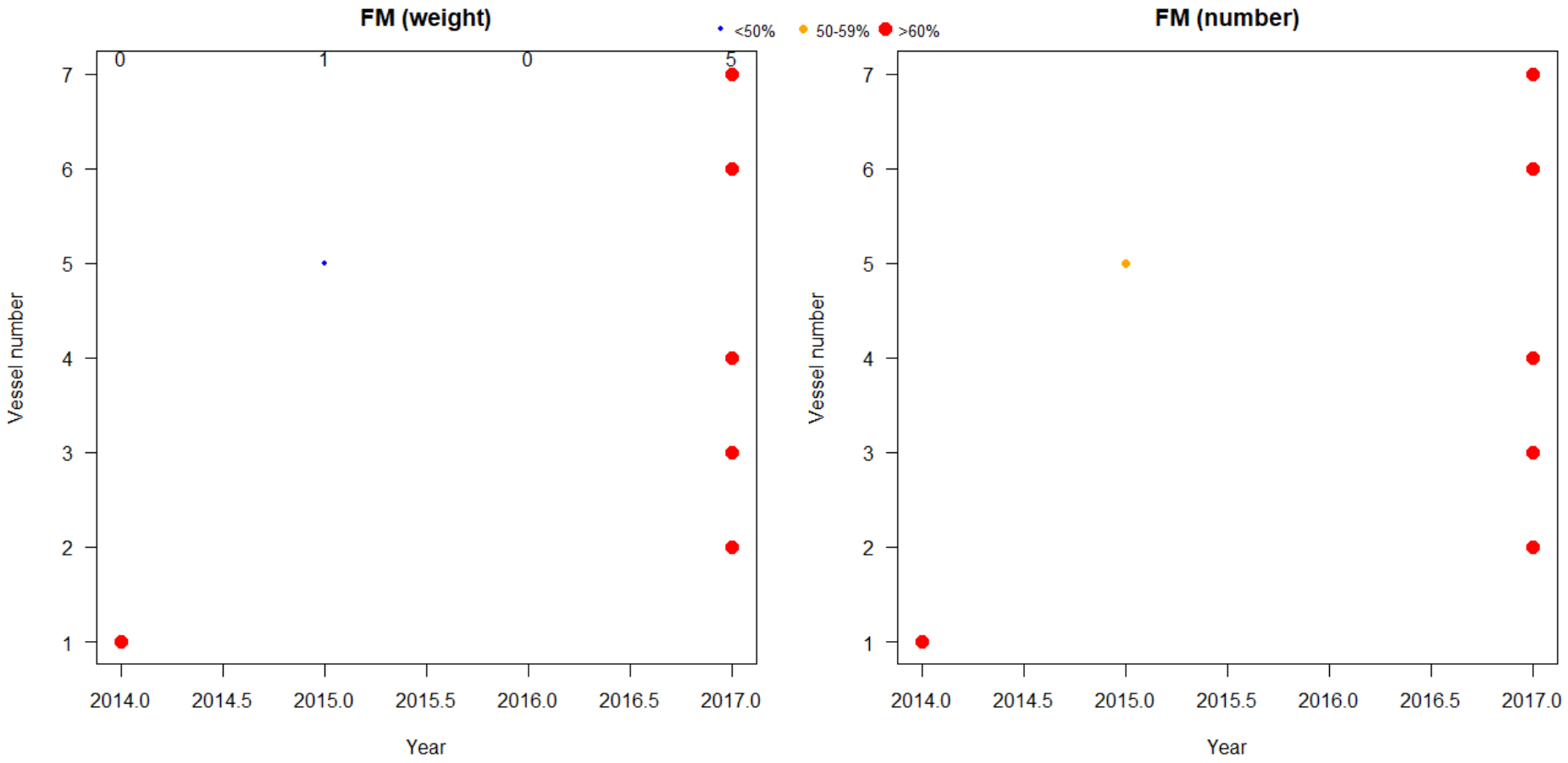

Figure 26: The number of Micronesian flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

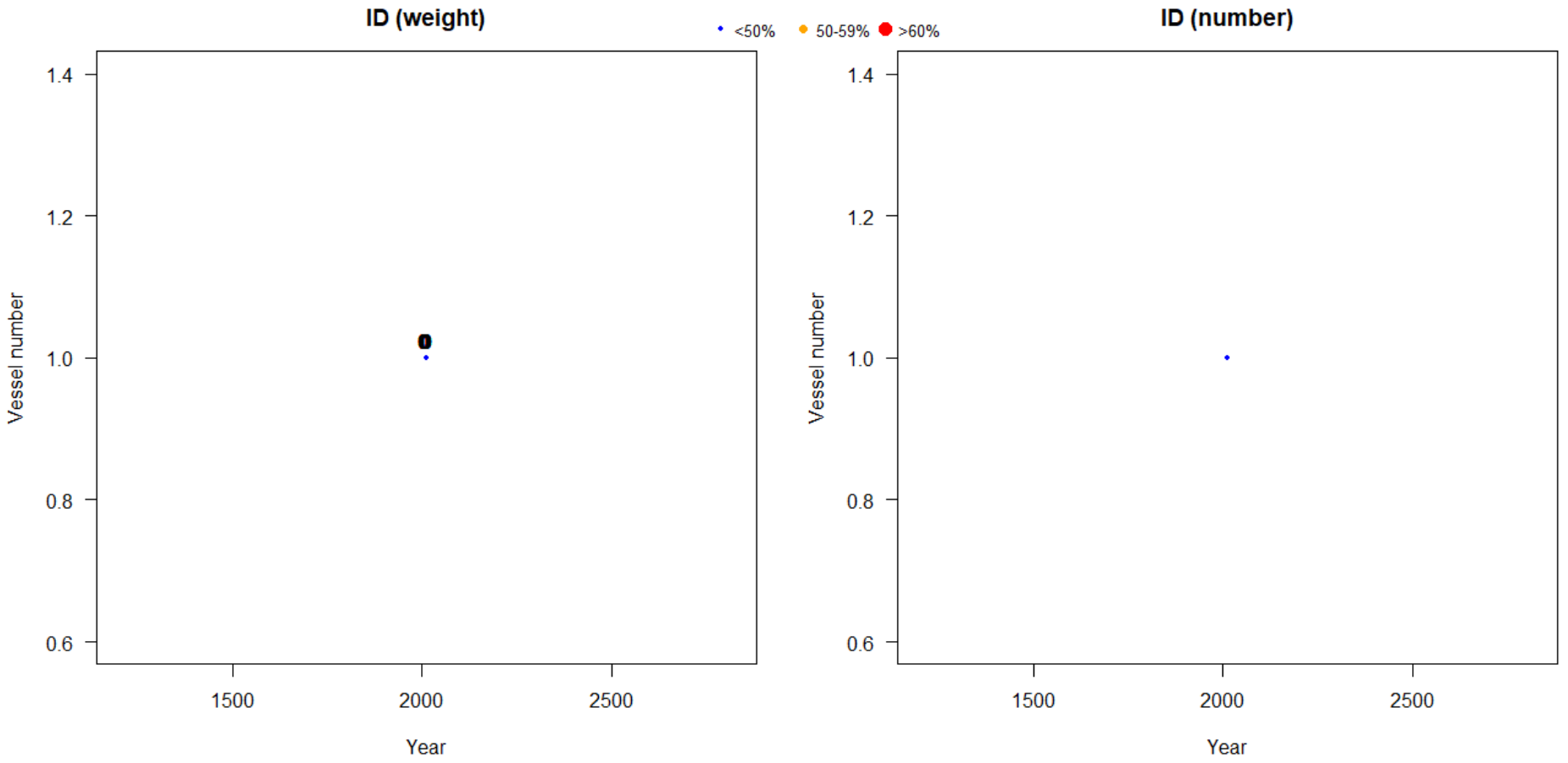

Figure 27: The number of Indonesian flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

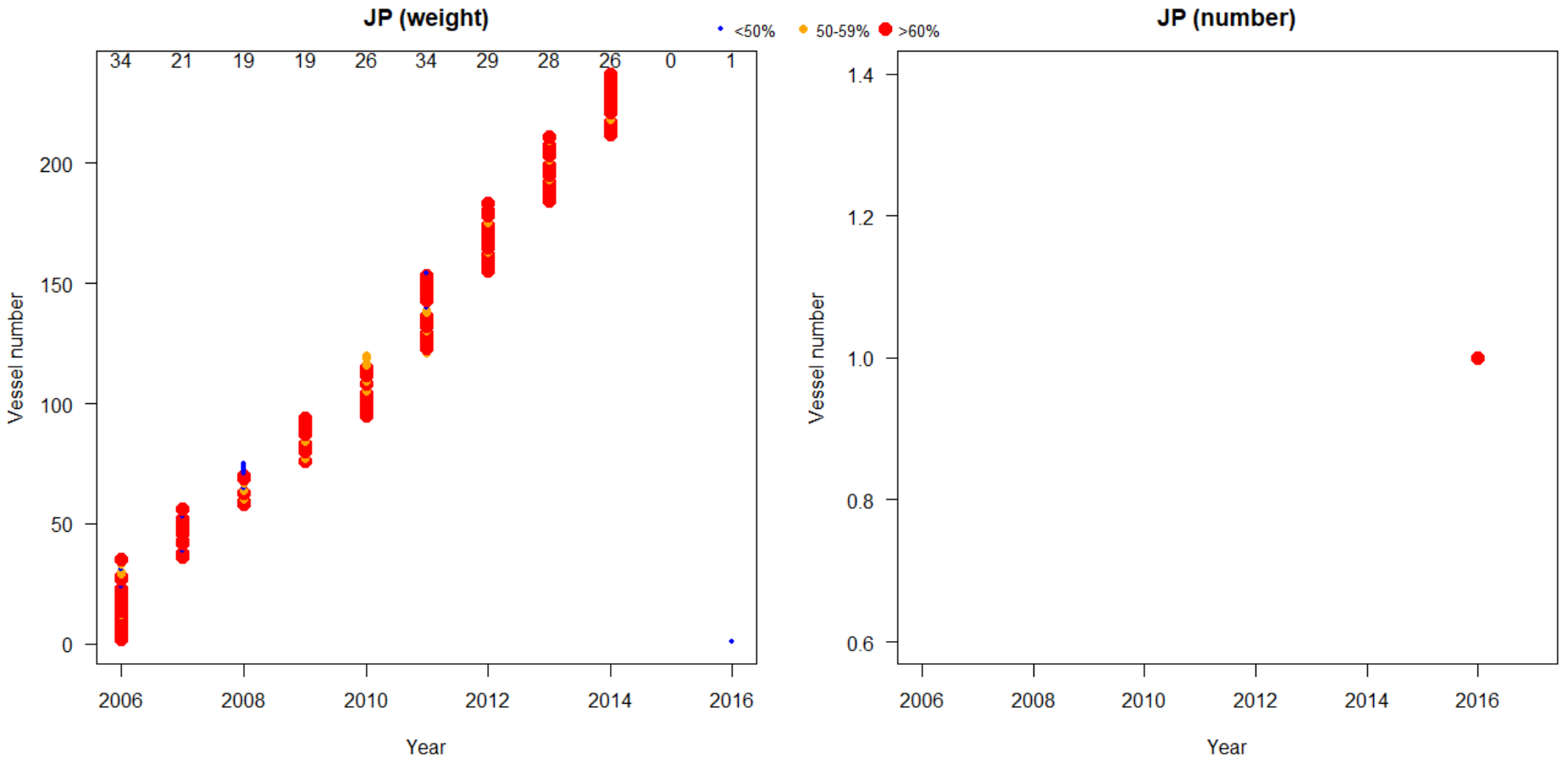

Figure 28: The number of Japanese flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

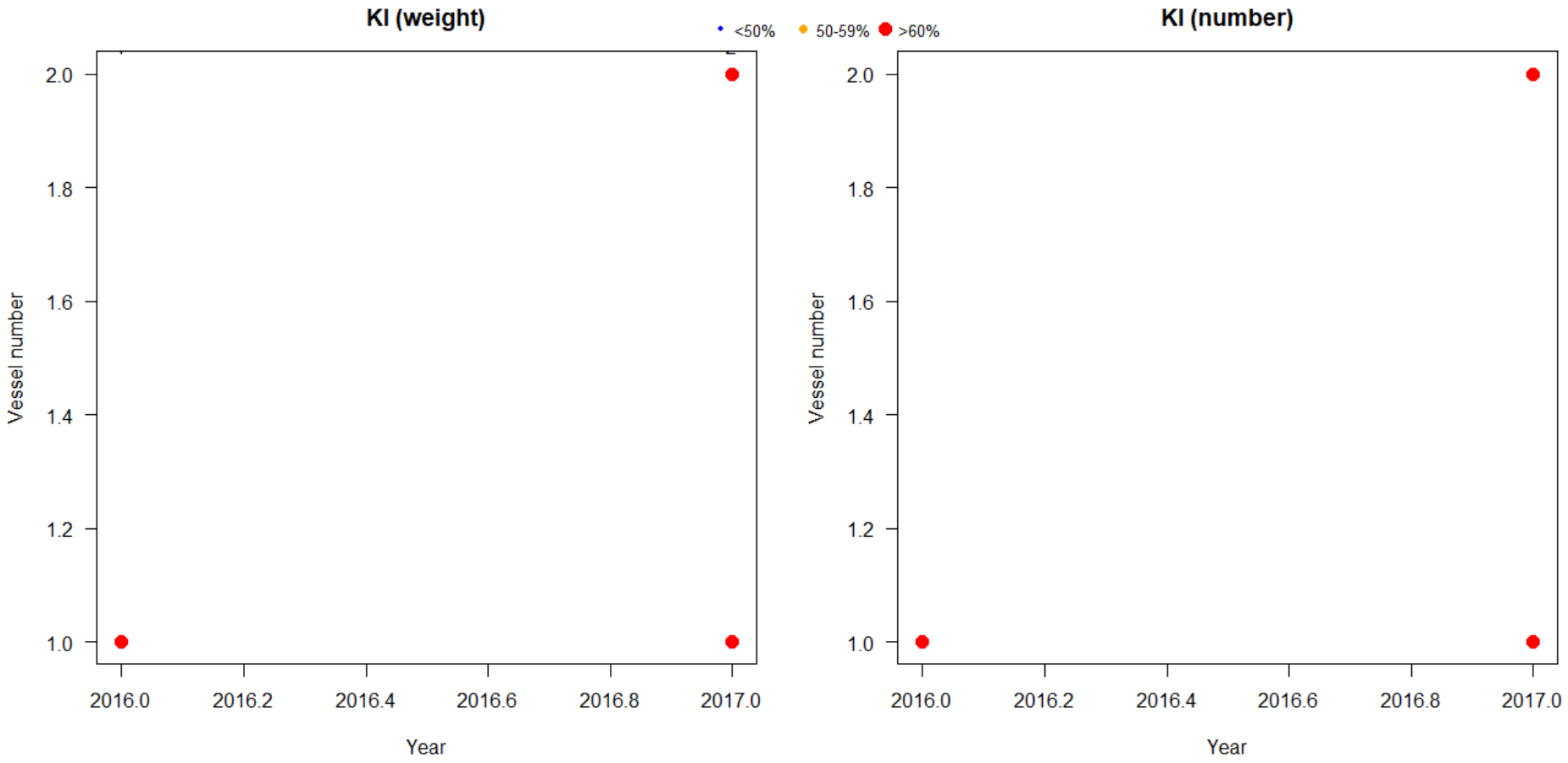

Figure 29: The number of Kiribati flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

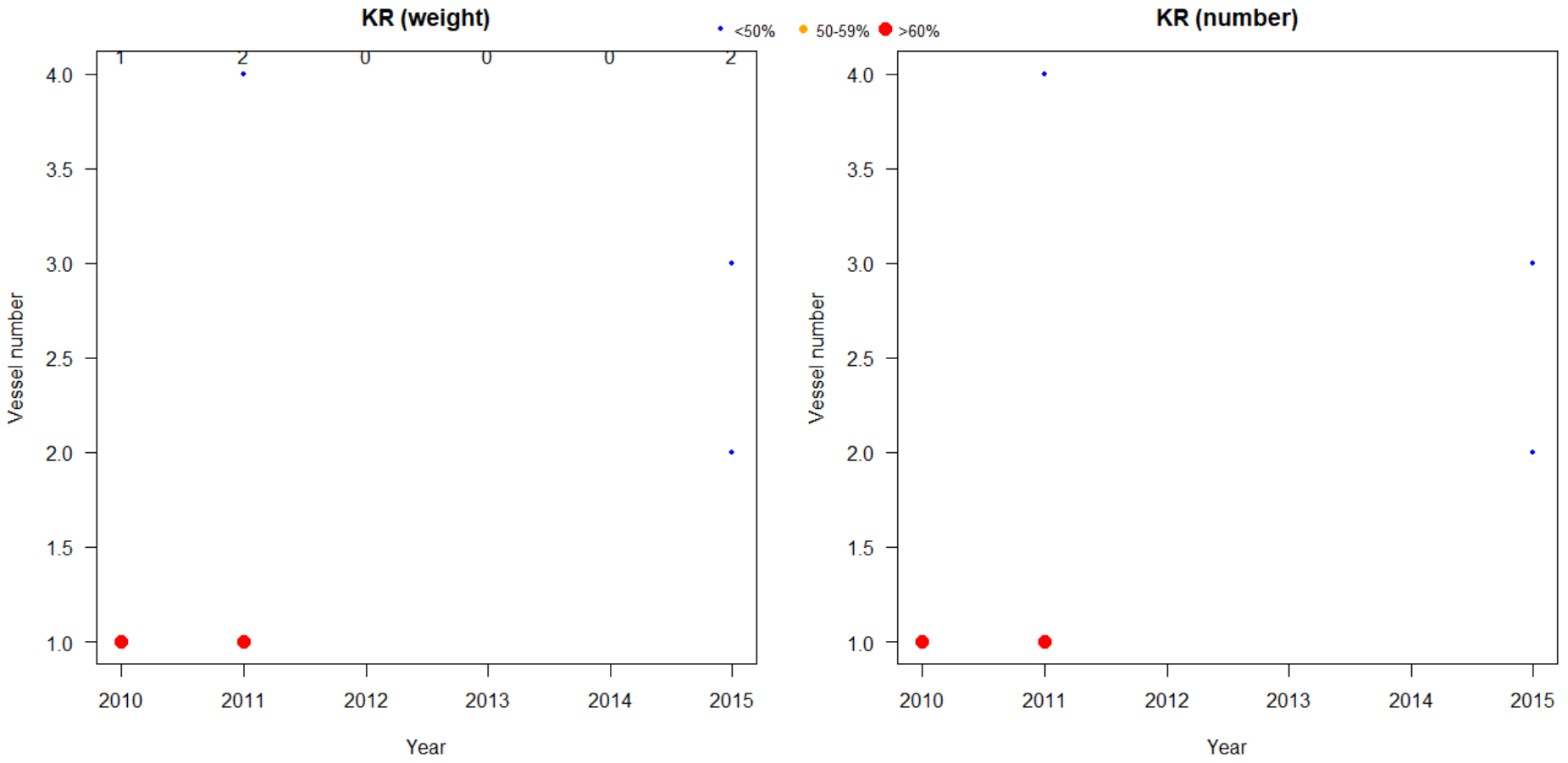

Figure 30: The number of Korean flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

Figure 31: The number of New Caledonian flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

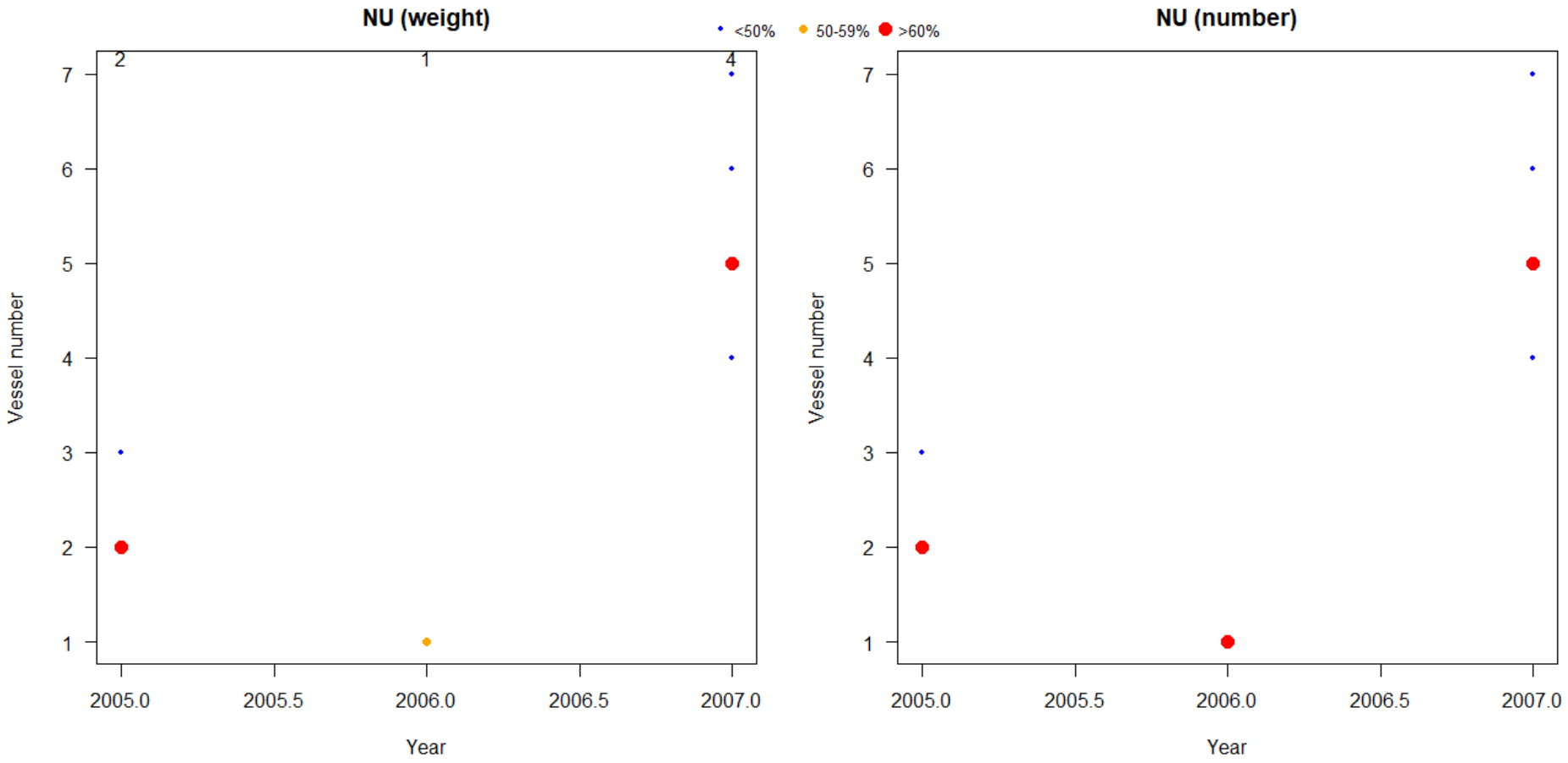

Figure 32: The number of Niuean flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

Figure 33: The number of New Zealand flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

Figure 34: The number of French Polynesian flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

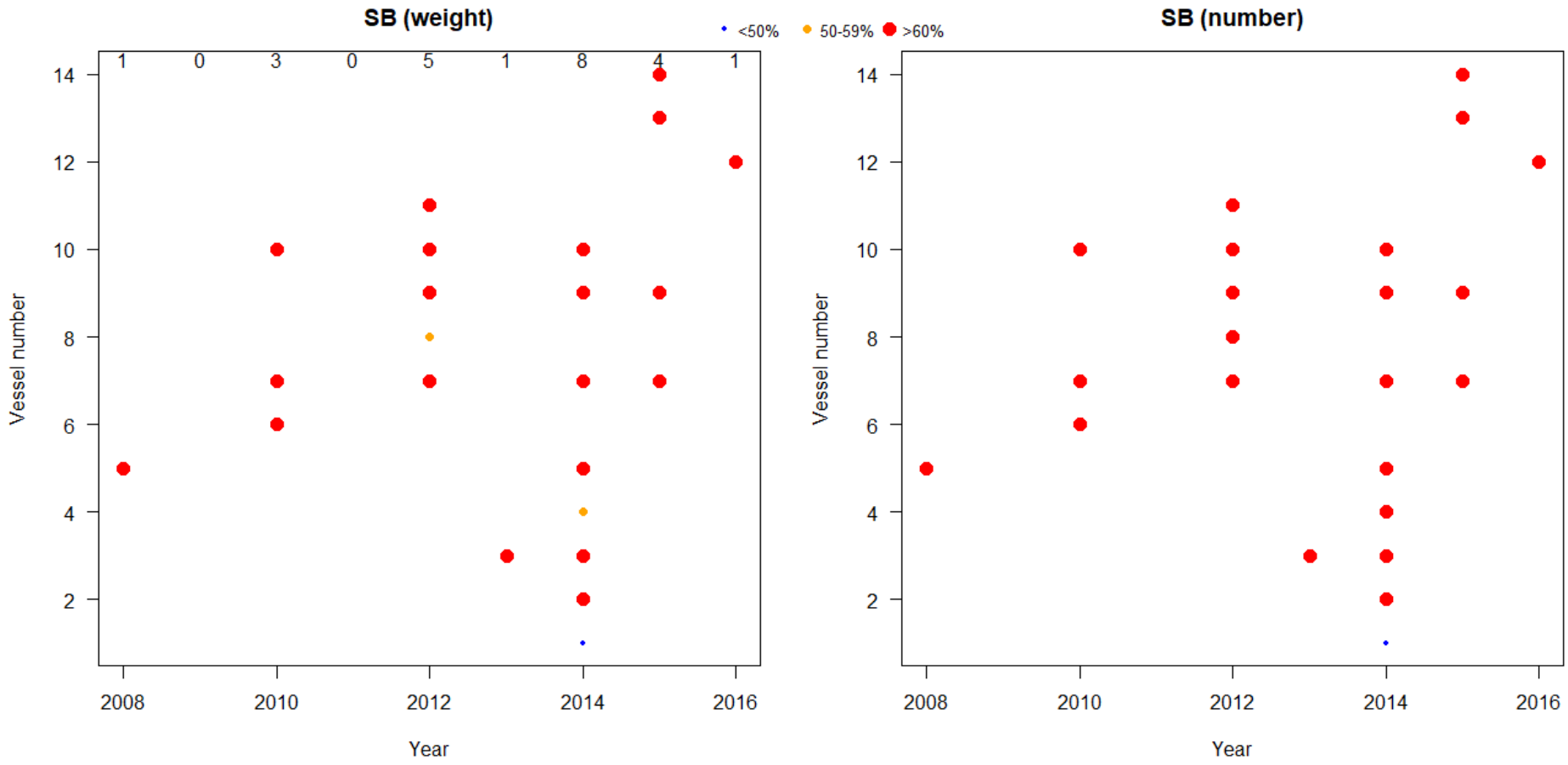

Figure 35: The number of Solomon Island flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

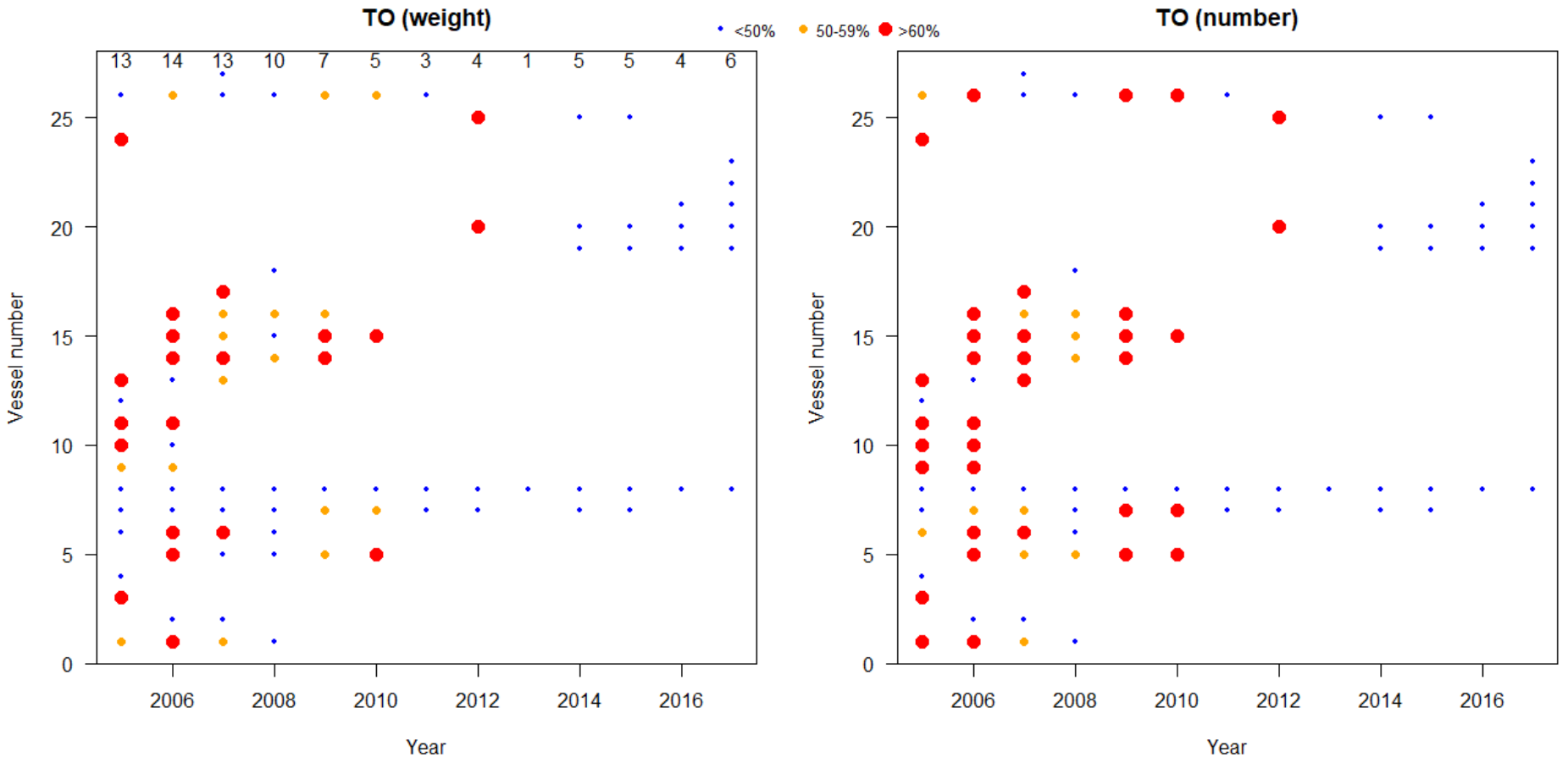

Figure 36: The number of Tongan flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

Figure 37: The combined number of large and small vessels flagged to Chinese Taipei fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

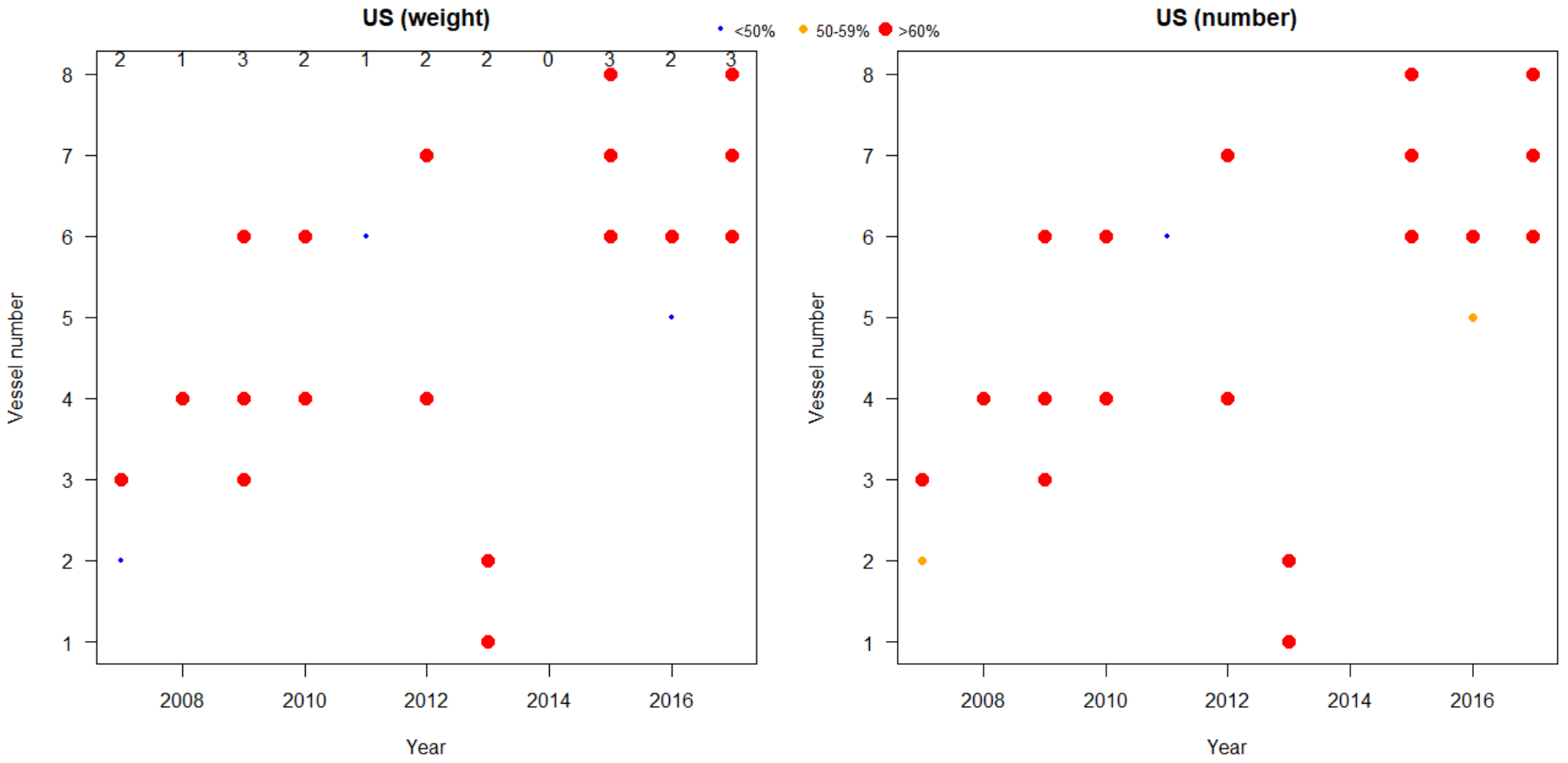

Figure 38: The number of USA flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.

Figure 39: The number of Vanuatu flagged vessels fishing south of 20°S and the proportion of their catch consisting of albacore tuna for each individual vessel from 2005-2017. The numbers on the top of the left panel represent the total number of vessels each year fishing south of 20°S. the coloured points represent a vessels catch proportion: blue <50% albacore; orange 50-59% albacore; and red >60% albacore.