The Seasonal Distribution of Macroplankton as shown by Catches in the 2-metre Stramin Ring-trawl in Off-shore Waters off Plymouth.

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In past years during the study of the vertical distribution of macroplankton much information has been obtained on the abundance of the different animals in the catches at different times of the year. Results have already been published to show the seasonal distribution of pelagic young fish (**4**), and also on the abundance and composition of the Sagitta population (**5**, p. 565). In this latter study the change over from the predominance of *Sagitta elegans* to that of *S. setosa* during the years 1930 to 1932 is striking. During the examination of catches it has been noticed that each year has been characterised at some time by the abundance of a species which may occur only in small numbers, if at all, in other years. This has been especially noticeable in the composition of the medusa population. It is necessary to follow these changes through a number of years to see if the presence of certain plankton organisms cannot be used as an index of conditions that may lead to other fluctuations such as those of the fisheries.

During 1930 and part of 1931 weekly catches of the 2-metre stramin ring-trawl were counted in order to obtain precise information on the seasonal abundance of the different animals throughout a whole year. The collections were made by oblique hauls of half an hour duration at the station 2 miles east of the Eddystone (**4**). Counts were made as on previous occasions by picking out directly distinctive and unusual animals and counting every animal in a $\frac{1}{10}$th sample of the remainder (**2**, p. 776).

The full results are given in the attached table which gives instructive information on the seasonal variation in abundance of the different animals, and their relative importance in numbers one to another. It seems unnecessary to analyse the tables further since any worker can abstract from it the data he may desire. One or two points must, however, be borne in mind.

1. The animals are all of a size that is normally retained in good condition by the stramin net. For instance, the medusæ are generally well-grown individuals; the earliest stages, while perhaps not small enough to pass through the meshes, are generally too badly damaged ~~to~~ allow of

definite identification. A useful indication of the size of disregarded medusæ is given by the absence of *Rathkea octopunctata* in Table I, which is common in tow-nettings in the earlier months of the year. This applies also to all other animal groups; the earliest stages of decapod larvæ do not appear in numbers in the catches as many will pass through the meshes.

In considering the seasonal distribution of any animal it must therefore be remembered that its first appearance in the catches does not imply the actual beginning of its abundance in the plankton. A period of two or three weeks should be allowed for the growth of the earliest stages to a size sufficient to appear in the catches.

2. The table does not contain any data on the abundance of young fishes which has been dealt with in another report (**4**).

3. In examining the data the vertical distribution of the various animals must be considered. The figures for *Tomopteris helgolandica* show, for instance, a great increase in July and August. This must only be regarded as an increase in abundance in the plankton; at other times the Tomopteris may actually be present in the area, but in the unsampled layers very near the bottom (see **3**, from which data can be obtained for most of the animals).

4. The names given in the table are those used in the Plymouth Marine Fauna (1931). Phialidium sp. will be mostly *Phialidium hemisphæricum*: *Phialella cymbaloides* will also occur though not so commonly, as also a few *Mitrocomella brownei*. It was not possible in the time to analyse all the Decapod larvæ into species: the species that comprise each group can be found in the Plymouth Marine Fauna, where also in many cases is given the time of year at which the larval stages are most prevalent. Pandalid larvæ must be taken to include all species contained under Pandalidæ, Hippolytidæ, and Processidæ. Mysid sp. in summer consist chiefly of young specimens.

5. Examination of catches over a number of years has shown that there are species which can normally be expected to appear regularly each year. It is felt that these results are a fairly reliable picture of the average ring-trawl plankton catches to be found throughout any year. The following species, however, appeared in exceptional numbers and cannot be regarded as characteristic, but only for the year in question at the times they appeared:—

Aglantha rosea, *Liriope exigua*, and *Stephanomia bijuga*: *Clione limacina* and adult *Meganyctiphanes norvegica* also appeared in unusual numbers at the beginning of the year, although the larvæ of the latter are usually present then.

The results are to form a basis with which future years can be compared. Marked differences have been noticed in other years and it is hoped to

publish these results in a separate report when sufficient data have been gathered. It should then be possible to decide on certain species whose appearance in the plankton should be watched for in future years. It is especially desirable to see whether any correlation can be found between the appearance of one characteristic species and that of another. The desirability of such observations was already stressed many years ago when Allen (1) prepared a list of species for special observation. Now that regular collections of these larger plankton animals are obtainable throughout the year an opportunity is afforded to attempt this study over a period of a number of years.

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TABLE I.

NUMBERS OF ANIMALS IN HALF-HOUR OBLIQUE HAULS WITH THE 2-METRE STRAMIN RING-TRAWL TAKEN 2 MILES EAST OF THE EDDYSTONE.

1930.	Dipurena (Slabberia) halterata.	Steenstrupia nutans.	Bougainvillia sp.	Amphinema dinema.°	Leuckartiara octona.	Laodicea undulata.	Cosmetira pilosella.	Obelia sp.	Phialidium sp.	Saphenia gracilis.	Aequorea forskalia	Aglantha rosea.	Liriope exigua.	Muggiaea atlantica.	Stephanomia bijuga.	Chrysaora isosceles.	Cyanea lamarcki.	Aurelia aurita.	Pleurobrachia pileus.	Beroe cucumis.	Peachia arvæ.	Arachnactis larvæ.
Feb. 4th	–	–	–	–	–	–	–	–	–	–	–	52	–	–	–	–	–	–	40	–	–	–
,, 12th	–	–	–	–	–	–	–	–	–	–	–	12	–	–	880*	–	–	–	80	–	–	–
,, 19th	–	–	–	–	–	–	–	–	–	–	–	7	–	–	–	–	–	–	3	–	–	–
,, 26th	–	–	–	–	–	–	–	–	–	–	–	8	–	–	1	–	–	–	3	–	–	–
Mar. 5th	–	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	6	2	–	–
,, 12th	–	–	–	–	–	–	–	–	–	–	–	2	–	–	800*	–	–	1†	10	2	–	–
,, 19th	–	–	–	–	–	–	–	–	–	–	–	–	–	–	210*	–	–	–	8	–	–	–
,, 27th	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–
April 2nd	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
,, 11th	–	–	–	–	–	–	–	–	40	–	–	7	–	–	632*	–	1	–	7	–	–	–
,, 16th	–	–	–	–	–	–	–	–	20	–	–	20	–	–	190*	–	–	–	1	–	–	–
,, 24th	–	–	–	–	1	–	–	–	140	–	–	7	–	–	450*	–	6	–	–	–	–	10
,, 29th	10	–	–	–	3	10	330	–	140	40	–	10	–	–	370*	1	1	–	10	–	–	–
May 7th	1	–	–	–	8	24	10	–	386	–	–	–	–	–	–	–	2	–	193	–	3	4
,, 15th	–	–	320	–	40	–	140	1,680	760	100	–	40	–	–	2,460*	–	1	–	520	–	–	41
,, 22nd	–	–	150	–	93	5	5	40	100	10	–	90	2	–	760*	–	1	–	520	–	1	–
June 10th	–	–	60	10	430	–	–	80	50	11	–	850	–	–	–	–	–	–	100	–	–	5
,, 19th	–	1	–	10	179	10	–	260	140	1	–	1,000	1	–	–	–	3	–	68	–	20	1
,, 26th	–	60	261	–	280	20	250	1,025	1,340	1	–	5,736	–	–	1,640*	–	1	–	180	–	2	2

July	4th	–	–	161	–	129	–	180	800	920	–	–	1,932	–	–	–	–	–	–	80	20	4	–
,,	9th	–	120	–	–	270	–	600	43,800	3,780	90	–	6,150	1	–	30	–	–	–	–	120	15	–
,,	14th	–	–	–	1,110	180	–	180	24,540	2,970	90	–	11,040	–	–	–	–	–	–	–	30	94	–
,,	23rd	–	–	–	330	180	–	1,530	1,080	5,790	150	1	28,440	–	–	–	–	2	–	–	21	127	–
,,	29th	–	–	–	990	60	–	870	810	3,750	–	–	23,040	–	–	–	–	3	–	–	39	35	–
Aug.	7th	–	–	–	–	150	300	–	330	1,620	–	1	40,020	–	–	–	–	–	–	–	26	–	–
,,	14th	–	–	–	1	44	120	60	160	4,020	40	–	33,220	446	–	–	–	–	1	–	137	–	–
,,	21st	–	6	–	–	9	500	–	–	3,240	28	–	8,360	17,442	20	641*	–	–	–	–	33	–	–
,,	28th	–	–	–	–	120	3,240	–	–	2,540	20	–	3,540	7,440	20	2*	–	–	–	–	32	–	–
Sept.	3rd	–	1	–	–	92	9,800	–	80	180	80	–	1,080	11,600	20	40*	–	–	–	1	8	17	–
,,	11th	20	–	–	–	21	4,160	–	100	4,300	–	–	340	4,280	–	–	1	–	–	161	33	55	–
,,	16th	–	–	–	–	53	2,310	10	30	100	–	–	51	2,800	30	–	–	–	–	220	6	20	–
,,	24th	–	–	–	–	77	10	–	–	640	–	–	180	3,760	20	–	–	–	–	800	4	–	–
Oct.	1st	–	–	–	–	18	–	–	–	60	–	–	50	180	–	–	–	–	–	1,370	3	–	–
,,	7th	–	–	–	–	3	–	–	–	340	–	–	20	660	–	–	–	1	–	500	4	–	–
,,	14th	–	–	–	–	–	–	–	20	510	–	–	–	4,100	20	–	–	–	–	–	–	–	–
,,	16th	–	–	–	–	–	–	–	10	330	–	–	–	1,680	–	–	–	–	–	–	–	–	–
Nov.	6th	–	–	–	–	–	–	–	–	20	–	–	–	1,650	–	–	–	–	–	–	–	–	–
,,	13th	–	–	–	–	10	–	–	–	20	–	–	–	980	50	–	–	–	–	20	–	–	–
,,	20th	–	–	–	–	–	–	–	–	10	–	–	10	1,390	10	–	–	–	–	–	–	–	–
,,	26th	–	–	–	–	–	–	–	–	10	–	–	–	710	10	–	–	–	–	–	–	–	–
Dec.	3rd	–	–	–	–	–	–	–	–	100	–	–	–	1,115	–	–	–	–	–	10	–	–	–
,,	10th	–	–	–	–	–	–	–	–	20	–	–	–	1,020	20	–	–	–	–	1	–	–	–
,,	17th	–	–	–	–	–	–	–	–	–	–	–	–	690	50	–	–	–	–	–	–	–	–
,,	22nd	–	–	–	–	–	–	–	–	–	–	–	–	140	10	–	–	–	–	–	–	–	–
1931.																							
Jan.	1st	–	–	–	–	–	–	–	–	–	–	–	–	310	130	–	–	–	–	–	–	–	–
,,	5th	–	–	–	–	–	–	–	–	–	–	–	–	230	170	–	–	–	–	–	–	–	–
,,	15th	–	–	–	–	–	–	–	–	70	–	–	–	970	1,166	–	–	–	–	–	–	–	–
,,	22nd	–	–	–	–	–	–	–	–	30	–	–	–	104	130	–	–	–	–	–	–	–	–
,,	26th	–	–	–	–	–	–	–	–	–	–	–	–	10	10	–	–	–	–	–	–	–	–
Feb.	6th	–	–	–	–	–	–	–	–	–	–	–	–	–	30	–	–	–	–	–	–	–	–
,,	12th	–	–	–	–	–	–	–	–	30	–	–	–	–	–	–	–	–	1†	–	–	–	–
,,	20th	–	–	–	–	1	–	–	–	10	–	–	–	–	30	–	–	–	–	–	–	–	–
,,	23rd	–	–	–	–	20	–	–	–	80	–	–	–	2	–	–	–	–	–	–	–	–	–
‡Mar.	17th	–	–	–	–	2	–	–	–	1,820	–	–	–	–	–	–	–	20	–	–	–	–	–
,,	26th	–	–	–	–	10	30	–	70	4,520	–	–	–	–	180	–	–	16	–	–	–	–	–
April	1st	–	–	–	–	2	–	20	–	220	–	–	–	–	20	–	–	3	–	20	–	–	–
,,	16th	–	–	–	–	–	–	660	–	12,120	–	–	–	–	–	–	–	23	–	40	–	–	1,480

° Possibly a few *A. rugosa*.

‡ Medusæ only counted.

* Nectophores.

† Ephyra.

TABLE I—*continued.*

1930.	Tomopteris helgolandica.	Terebellid larvæ.	Pœcilochætus serpens larvæ.	Sagitta elegans.	Sagitta setosa.	Calanus finmarchicus.	Euchæta hebes.	Metridia lucens.	Candacia armata.	Anomalocera patersoni.	Labidocera wollastoni.	Caligus sp.	Mysid sp.	Nyctiphanes couchii adult.	Euphausiid larvæ.	Meganyctiphanes norvegica.	Apherusa sp.	Hyperia galba.	Themisto gracilipes.	Idotea sp.	Cumacea.
Feb. 4th	140	2	–	11,360	–	1,200	–	–	20	–	–	–	100	4,218	–	150	–	–	112	–	–
,, 12th	770	–	–	16,270	130	540	–	–	–	–	–	1	–	–	380	–	–	–	–	–	–
,, 19th	251	–	–	10,411	389	1,280	–	–	60	–	–	1	–	20	–	–	–	–	1	–	–
,, 26th	3	–	–	452	110	580	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mar. 5th	165	–	–	1,517	93	450	–	–	–	–	–	–	–	4	–	–	–	–	1	–	–
,, 12th	33	–	–	455	5	260	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
,, 19th	–	–	–	8	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–
,, 27th	3	–	–	1,860	–	420	–	–	–	–	–	2	–	2	–	–	–	–	–	–	–
April 2nd	–	–	–	24	1	10	–	–	–	38	–	1	–	–	–	–	–	–	1	–	–
,, 11th	3	–	–	240	–	440	–	60	–	–	–	1	–	2	–	–	–	–	–	–	–
,, 16th	–	–	–	21	–	16,890	–	70	60	30	–	1	–	1	310	1	–	–	–	–	–
,, 24th	–	–	10	860	–	7,630	–	–	510	–	–	1	–	–	1,140	–	–	–	130	–	–
,, 29th	–	–	–	39	1	960	–	60	80	–	–	–	–	1	540	–	–	–	2	–	–
May 7th	7	386	–	77	2	318,450	–	193	772	–	–	–	–	2	2,702	–	–	–	–	3	–
,, 15th	10	60	–	243	7	24,720	–	80	260	–	–	–	–	–	580	–	–	–	–	–	–
,, 22nd	10	–	–	101	–	11,210	–	–	50	20	–	1	–	–	450	–	–	–	–	–	–
June 10th	63	–	110	1,324	–	1,968	–	–	200	4	–	1	1	4	40	–	–	–	–	–	–
,, 19th	25	–	–	637	6	6,592	–	–	220	22	–	2	–	–	20	–	–	5	–	–	–
,, 26th	95	–	–	760	–	3,560	–	40	320	13	–	2	2	–	40	–	20	–	20	–	–
July 4th	10	–	–	2,218	–	2,023	–	–	200	62	–	2	2	–	–	–	20	–	1	–	–
,, 9th	664	–	–	4,377	8	6,132	–	–	2,160	60	–	2	360	–	–	–	60	–	1	–	–
,, 14th	741	–	–	3,942	4	8,370	–	–	930	†	–	–	152	–	30	–	–	–	–	–	–
,, 23rd	759	–	30	2,142	10	2,910	–	30	1,860	10	–	2	60	8	30	–	750	–	–	–	–
,, 29th	376	–	–	1,423	12	1,007	–	30	270	–	–	4	6	–	–	–	240	–	1	–	–

Aug. 7th	1,602	–	–	7,800	36	2,730	–	–	450	–	–	5	94	102	–	–	30	–	1	–	–
,, 14th	222	1*	–	5,210	5	1,041	–	–	220	1	–	8	17	–	140	–	200	–	1	–	–
,, 21st	42	1†	–	2,038	–	803	–	–	200	–	–	4	–	–	20	–	240	–	21	–	20‡
,, 28th	4	–	–	1,018	–	402	–	–	80	–	–	1	–	–	–	–	140	–	22	–	–
Sept. 3rd	179	–	–	1,222	47‖	363	–	–	140	1	–	–	20	–	–	–	360	–	1	–	–
,, 11th	–	–	–	4,398	760	612	–	–	560	3	–	7	–	1	20	–	100	–	25	–	–
,, 16th	26	1°	–	558	46	233	–	–	40	1	10	–	–	–	–	–	–	–	3	–	–
,, 24th	4	–	–	270	87	35	–	–	–	53	–	–	–	–	7	–	–	–	2	1	–
Oct. 1st	8	–	–	102	45	70	–	–	20	–	–	1	–		–	–	–	–	2	–	–
,, 7th	–	–	–	74	369	263	–	–	30	–	–	1	–	–	–	–	–	1	–	–	–
,, 14th	3	–	–	303	683	–	–	–	150	–	–	2	1	–	–	–	–	–	–	–	–
,, 16th	1	–	–	229	258	118	–	–	10	10	–	–	–	–	–	–	–	–	–	–	–
Nov. 6th	–	–	–	441	300	–	–	–	10	–	–	1	1	–	–	–	–	–	–	–	5
,, 13th	–	–	10	159	120	99	–	–	40	–	–	–	–	1	10	–	–	–	–	–	–
,, 20th	–	1**	–	32	73	7	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–
,, 26th	1	–	–	61	84	14	–	–	20	–	–	–	–	–	–	–	–	–	–	–	–
Dec. 3rd	–	–	–	730	1,080	107	–	–	40	–	–	1	–	–	–	–	–	–	–	–	–
,, 10th	–	–	–	360	162	129	–	–	100	–	–	1	–	–	121	–	–	–	1	–	–
,, 17th	–	–	–	262	372	169	–	–	70	–	–	–	–	–	30	–	–	–	1	–	–
,, 22nd	–	–	–	72	78	98	–	–	90	–	–	–	–	–	10	–	–	–	–	–	–
1931.																					
Jan. 1st	1	–	–	210	249	20	–	–	60	–	–	2	–	–	–	–	–	–	–	–	–
,, 5th	–	–	–	109	59	80	10	–	120	–	–	1	–	–	10	–	–	–	–	–	–
,, 15th	1	–	–	1,765	339	190	–	–	150	–	–	–	10	3	–	–	–	–	–	–	–
,, 22nd	–	–	–	172	270	56	–	–	20	–	–	1	–	–	8	–	–	–	–	–	–
,, 26th	–	–	–	117	101	19	10	–	20	–	–	–	–	–	7	–	–	–	–	–	–
Feb. 6th	–	–	–	51	2	–	–	–	20	–	–	–	–	–	–	–	–	–	–	–	–
,, 12th	–	–	–	83	17	40	–	–	10	–	–	1	–	–	–	–	–	–	–	–	–
,, 20th	–	–	–	816	239	446	–	–	220	–	–	1	–	–	–	–	–	–	–	–	–
,, 23rd	–	–	–	474	134	343	–	–	420	–	–	1	–	–	20	–	–	–	–	–	–
Mar. 17th	7			7,502	221									36			Rest of sample not counted				
,, 26th	25	321††	–	491	333	110	–	–	50	–	–	3	–	–	–	–	–	–	–	–	–
April 1st	–	60	–	935	1,048	320	–	–	220	–	–	–	–	–	–	–	–	–	–	–	–
,, 16th	30	200	–	764	385	1,260	–	–	180	–	–	1	–	–	–	–	40	–	–	–	–

* Young Syllid. † Glycera. ‡ Gravel in catch, near bottom. ‖ 1 *S. serratodendata*. ° 1 large polychæte, fair amount of gravel. ** 1 Autolytus. †† 1 Autolytus.

TABLE I—*continued.*

1930.	Leander sp. larvæ.	Pandalid larvæ.	Alpheid larvæ.	Crangonid larvæ.	Pontophilus spinosus larvæ.	Homarus vulgaris larvæ.	Phyllosoma larvæ.	Galatheid larvæ.	Galatheid post-larvæ.	Upogebia sp. larvæ.	Upogebia sp. post-larvæ.	Callianassa subterranea larvæ.	Axius stirhinchus larvæ.	Pagurid larvæ.	Pagurid glaucothoë larvæ.	Porcellana sp. zoea.	Porcellana sp. post-larvæ.	Ebalia sp. zoea.	Ebalia sp. megalopa.	Crab zoea.	Crab megalopa.	Squilla sp. larvæ.	Larval gastropods.	Echinospira larvæ.	Limacina retroversa.	Clione limacina.	Cephalopod young.	Young starfish.	Oikopleura.	Tomaria larvæ.	Fish eggs.	Total.
Feb. 4th	–	–	–	–	–	–	–	20	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	20	17,787
„ 12th	–	–	–	–	–	–	–	–	–	–	–	–	–	20	–	–	–	–	–	30	–	–	–	–	–	17	–	–	–	–	160	19,280
„ 19th	–	10	–	–	–	–	–	40	–	–	–	10	–	40	–	–	–	–	–	1,150	–	–	–	–	–	10	–	–	–	–	110	13,792
„ 26th	–	–	–	–	–	–	1	100	–	–	–	–	–	40	–	–	–	–	–	2,540	–	–	–	–	–	5	–	–	–	–	–	3,844
Mar. 5th	–	–	–	200	–	–	2	90	–	–	–	–	–	470	–	–	–	–	–	4,850	–	–	–	–	–	2	1	–	10	–	4,020	11,888
„ 12th	–	–	–	40	–	–	–	10	–	–	–	–	–	20	–	–	–	–	–	910	–	–	–	–	–	1	–	–	–	–	2,500	4,041
„ 19th	–	20	–	20	–	–	1	140	–	–	–	–	–	580	–	–	–	–	–	16,780	–	–	–	–	–	–	–	–	–	–	5,620	23,177
„ 27th	–	–	–	–	–	–	1	–	–	–	–	–	–	270	–	–	–	–	–	8,270	–	–	–	–	–	5	–	–	–	–	2,750	13,799
April 2nd	–	–	–	50	–	–	2	160	–	–	–	–	–	40	–	–	–	–	–	930	–	–	–	–	–	–	–	–	140	–	4,590	5,987
„ 11th	–	30	–	–	1	–	1	10	–	–	–	–	–	10	–	–	–	–	–	130	–	–	–	–	–	–	–	–	90	–	740	2,445
„ 16th	–	170	–	60	90	–	10	870	–	–	–	–	–	480	–	40	–	–	–	3,650	110	–	–	–	–	–	–	–	–	–	3,850	26,945
„ 24th	–	30	–	390	30	–	4	300	–	–	–	–	–	260	–	50	–	–	–	12,810	650	–	–	–	70	–	–	–	–	–	800	26,419
„ 29th	–	40	–	90	40	–	–	330	–	–	–	–	–	110	–	190	–	–	–	1,420	61*	–	–	–	–	–	–	–	100	–	900	5,888
May 7th	–	386	–	–	–	–	9	1,737	–	–	–	–	–	–	3	386	–	–	–	7,334	386	–	–	–	–	–	–	–	579	–	1,737	335,784
„ 15th	–	200	–	40	120	–	–	3,540	–	–	–	–	–	440	–	960	–	–	–	14,640	280	–	+	–	140	–	–	–	20	–	860	53,302
„ 22nd	–	390	–	80	30	–	32	2,890	–	10	–	–	–	540	–	810	–	–	–	8,430	550	–	+	10	90	–	–	–	–	–	190	27,671
June 10th	–	660	–	250	7	–	24	1,140	–	60	–	–	–	150	–	1,120	–	–	–	9,530	400	–	+	–	280	–	–	–	10	–	350	19,291
„ 19th	–	300	–	100	8	–	5	780	–	180	–	–	–	80	–	220	–	20	–	4,580	520	–	80	20	280	–	–	–	–	–	300	16,696
„ 26th	–	480	–	320	21	–	41	3,020	–	440	–	–	–	860	–	880	–	940	–	8,440	140	–	80	–	4,320	–	–	–	–	440	960	37,052
July 4th	2	80	–	20	–	–	3	380	–	–	–	–	–	140	40	800	–	–	–	1,540	180	–	40	–	600	–	1	–	–	120	1,120	13,830
„ 9th	31	300	–	120	1	–	–	2,130	–	1,170	–	90	–	1,560	60	300	–	420	–	13,410	900	–	300	–	1,710	–	1	–	–	4,890	120	96,342
„ 14th	35	510	–	240	–	–	78	2,730	–	1,980	30	60	–	360	–	3,060	120	780	–	12,900	1,230	–	+	–	23,310	–	1	–	–	3,030	180	105,037
„ 23rd	3	1,020	–	390	–	–	70	3,390	30	360	–	60	–	1,710	60	1,740	120	360	570	17,220	2,280	–	+	–	8,790	–	1	–	–	720	30	85,176
„ 29th	–	780	–	90	–	–	1	540	30	930	1	120	12	750	–	2,550	–	30	90	4,920	1,500	–	+	–	2,250	–	4	–	30	930	30	48,554

Aug.	7th	.	11	330	–	120	–	–	5	2,160	30	3,210	–	1,740	–	1,230	–	810	–	180	30	8,880	1,650	–	+	–	660	–	3	60	–	210	120	76,736
„	14th	.	1	600	–	80	–	1	1	980	–	1,180	5	360	3	1,080	1	2,840	100	20	40	2,620	980	–	1	–	480	–	9	42	–	–	60	56,799
„	21st	.	1	160	–	80	–	–	–	80	–	140	5	300	–	80	21	440	–	–	–	580	400	–	40	–	–	–	4	11	–	–	–	36,010
„	28th	.	1	100	12	60	–	–	5	140	–	1,160	–	860	–	360	–	940	120	–	40	3,220	680	30	–	–	–	–	3	45	–	–	–	26,397
Sept.	3rd	.	2	320	23	160	–	1	2	60	20	80	–	1,380	–	380	2	120	60	80	100	1,840	540	5	40	–	–	–	–	90	–	20	–	30,658
„	11th	.	–	40	–	–	–	–	–	60	–	40	–	280	–	160	41	140	–	–	20	360	100	–	–	–	–	–	1	51	–	–	20	21,279
„	16th	.	10	30	2	10	–	–	–	20	–	30	–	160	–	60	–	–	–	–	–	470	40	10	–	–	–	–	–	167	20	–	10	7,587
„	24th	.	1	–	–	–	–	–	–	–	–	50	–	20	–	10	–	300	–	–	–	900	80	2	–	–	–	–	2	2	20	–	10	7,369
Oct.	1st	.	1	–	2	–	–	–	–	–	–	–	–	–	–	50	–	60	–	–	–	20	30	1	–	–	–	–	–	3	100	–	–	2,196
„	7th	.	–	10	1	–	–	–	–	10	–	20	–	–	–	20	–	170	–	–	–	260	40	–	–	–	–	–	1	62	80	–	–	2,930
„	14th	.	–	–	2	–	–	–	–	–	–	50	–	–	1	10	–	210	–	–	–	210	20	–	–	–	–	–	1	–	10	–	10	6,316
„	16th	.	–	1	7	–	–	–	–	–	–	190	–	–	–	60	–	440	–	–	–	440	20	–	–	–	–	–	–	–	240	–	–	4,044
Nov.	6th	.	–	–	–	–	–	–	–	–	–	–	–	–	–	10	–	10	–	–	–	60	10	–	–	–	–	–	–	10	–	–	–	2,528
„	13th	.	–	–	3	30	–	–	–	–	–	–	–	10	–	30	–	–	–	–	–	30	10	–	–	–	–	–	–	–	190	–	10	1,832
„	20th	.	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	10	–	–	–	–	–	–	–	–	40	–	492†	2,070
„	26th	.	–	–	–	–	–	–	–	–	–	–	–	–	–	30	–	–	–	–	–	70	10	–	–	–	–	–	–	–	–	–	160†	1,180
Dec.	3rd	.	–	–	–	–	–	–	–	10	–	–	–	–	–	–	–	–	1	–	–	40	–	–	–	–	–	–	–	–	20	–	20	3,274
„	10th	.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	20	–	–	–	–	–	–	–	–	40	–	190	2,185
„	17th	.	–	–	–	10	–	–	–	–	–	–	–	–	–	120	–	–	–	–	–	40	20	–	–	–	–	–	–	–	100	–	20	1,958
„	22nd	.	–	–	–	10	–	–	–	–	–	–	–	–	–	20	–	–	–	–	–	40	–	–	–	–	–	–	–	–	70	–	70	708
1931.																																	
Jan.	1st	.	–	–	–	–	–	–	–	10	–	–	–	–	–	90	–	–	–	–	–	90	20	–	–	–	–	–	–	–	60	–	90	1,342
„	5th	.	–	–	–	1	–	–	–	–	–	–	–	–	–	70	–	–	–	–	–	210	10	–	–	–	–	–	–	–	40	–	100	1,220
„	15th	.	–	10	–	–	–	–	–	–	–	–	–	–	–	80	–	–	–	–	–	80	10	–	–	–	–	–	–	–	590	–	1,270	6,704
„	22nd	.	–	10	–	–	–	–	–	50	–	–	–	–	–	30	–	–	–	–	–	140	–	–	–	–	–	–	–	–	110	–	1,300	2,431
„	26th	.	–	–	–	–	–	–	–	–	–	–	–	–	–	50	–	–	–	–	–	80	–	–	–	–	–	–	–	–	70	–	640	1,134
Feb.	6th	.	–	–	–	10	–	–	–	90	–	10	–	–	–	20	–	–	–	–	–	370	–	–	–	–	–	–	–	–	50	–	910	1,563
„	12th	.	–	–	–	–	–	–	–	90	–	–	–	–	–	90	–	–	–	–	–	240	–	–	–	–	–	–	–	–	80	–	530	1,182
„	20th	.	–	–	–	–	20	–	–	810	–	–	–	–	–	260	–	–	–	–	–	6,840	30	–	–	–	–	–	–	–	110	–	7,140	16,973
„	23rd	.	–	30	–	10	10	–	–	750	–	–	–	–	–	710	–	–	–	–	–	7,170	90	–	–	–	–	–	–	–	–	–	7,090	17,354
„	26th	.	–	–	–	20	10	–	–	90	–	–	–	–	–	40	–	–	–	–	–	4,840	10	–	–	–	–	–	–	–	–	–	780	11,949
April	1st	.	–	80	–	20	–	–	–	80	–	–	–	–	–	600	–	–	–	–	–	14,480	20	–	–	–	–	–	–	140	–	–	80	18,368
„	16th	.	–	140	–	60	–	–	–	200	–	20	–	20	–	1,460	–	360	–	–	–	11,060	140	–	–	–	–	–	–	–	–	–	1,040	31,633

* 1 small ♂ pea crab. † Pilchard.