Data in Brief 7 (2016) 540–545

Contents lists available at ScienceDirect

Data in Brief

journal homepage: www.elsevier.com/locate/dib

Data Article

Abundance and recruitment data for *Undaria pinnatifida* in Brest harbour, France: Model versus field results

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ARTICLE INFO

Article history:
Received 4 February 2016
Received in revised form
16 February 2016
Accepted 27 February 2016
Available online 4 March 2016

Keywords:
Macroalgae
Individual-based model
Invasive species
Seaweed
Kelp
Undaria pinnatifida
Recruitment
Abundance

ABSTRACT

The data presented in this article are related to the research article entitled "A modelling approach to explore the critical environmental parameters influencing the growth and establishment of the invasive seaweed Undaria pinnatifida in Europe" [1]. This article describes raw simulation data output from a novel individual-based model of the invasive kelp species *Undaria pinnatifida*. It also includes field data of monthly abundance and recruitment values for a population of invasive *U. pinnatifida* (in Brest harbour, France) that were used to validate the model. The raw model output and field data are made publicly available in order to enable critical analysis of the model predictions and to inform future modelling efforts of the study species.

DOI of original article: http://dx.doi.org/10.1016/j.jtbi.2016.01.038
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http://dx.doi.org/10.1016/j.dib.2016.02.075

Specifications table

Subject area	*Biology*
More specific subject area	*Computational modelling of invasive macroalgae*
Type of data	*Tables*
How data was acquired	*Field survey, Individual-based model*
Data format	*Raw*
Experimental features	*Field data:* 64 aluminium panels set-up one metre below the water surface attached to pontoons in harbor setting.
Data source location	*Brest harbor, Brittany, France.*
Data accessibility	*Data is available with this article*

Value of the data

- This data facilitates the data collection of other researchers attempting to follow the same technique or to evaluate future methods for analysis of the data.
- There are limited public datasets available on the monthly abundance/recruitment of field populations of *U. pinnatifida* despite their importance for understanding invasion dynamics.
- Environmental parameters included so that the quantitative relationship between the population dynamics and environmental factors can be explored.
- Allows researchers to independently verify the model predictions versus field results.

1. Data

Tables 1–4 display raw model output and field data for populations of *Undaria pinnatifida* growing in a harbour setting. Model results are from simulations carried out using a spatially-explicit, individual-based model of *U. pinnatifida* population dynamics. A description of this model can be

Table 1
Raw model output from simulation of *Undaria pinnatifida* population. Abund = No. of sporophyte agents; Recruit = No. of new sporophyte agents (< 1 month old); Gameto = No. of gametophyte agents; Spores = total no. of spores in the environment; Temp = water temperature (°C); Solar = Solar radiation (Megajoules m^{-2} h^{-1}); D.L. = day length (day light hours).

Month	Abund	Recruit	Gameto	Spores	Temp	Solar	D.L.
1	0	0	4000	0	9.73	0.38	8.89
2	0	0	3704	0	9.22	0.65	10.17
3	40	40	3263	0	9.75	0.92	12.06
4	192	178	2943	0	11.12	1.12	13.95
5	171	84	3249	9.3E+09	13.15	1.24	15.39
6	66	15	10349	3.7E+10	15.35	1.27	16.01
7	13	12	12702	2.2E+09	16.89	1.24	15.62
8	16	13	12440	2.6E+09	17.54	1.12	14.30
9	78	75	11986	2.8E+09	17.05	0.93	12.47
10	190	167	11884	8.4E+09	15.59	0.67	10.58
11	287	221	11704	4.9E+09	13.46	0.40	9.09
12	279	151	10746	6.6E+08	11.39	0.27	8.49
13	319	153	9569	1.7E+03	9.78	0.38	8.89
14	565	359	8358	0	9.18	0.65	10.17
15	762	445	7329	0	9.68	0.92	12.06
16	859	421	6660	0	11.20	1.12	13.95
17	745	184	9933	7.5E+10	13.20	1.24	15.39
18	282	34	44969	1.8E+11	15.25	1.27	16.01