Supplementary Material

Appendix S1

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Information sources for Figure 1

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IMO [International Maritime Organization] (2010) *Report to the maritime safety committee and the marine environment protection committee*. Sub-committee on bulk liquids and gases, 14th session, BLG 14/17, 12 March 2010, London.

MRAC [Maritime Research Advisory Commission] (1960) *Proposed program for Maritime Administration research*. National Academy of Sciences-National Research Council, Washington DC. 302pp

Rodrigue, J.-P., Comtois, C., Slack, B. (2009) *The Geography of Transport Systems, Second Edition*. Routledge, New York.

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Information sources & data for Figure 2

USA

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Hawaii

Carlton, J.T. & Eldredge, L.G. (2009) *Marine bioinvasions of Hawaii: the introduced and cryptogenic marine and estuarine animals and plants of the Hawaiian archipelago*. Bishop Museum Press, Honolulu, Hawaii, USA.

Carlton, J.T. & Eldredge, L.G. (2015) Update and revisions of the Marine bioinvasions of Hawaii: the introduced and cryptogenic marine and estuarine animals and plants of the Hawaiian

archipelago. In: Evenhuis, N.L. & Carlton, J.T. (eds.) *Lucius G. Eldredge III memorial volume: tribute to a polymath*. Bishop Museum Press, Honolulu, Hawaii, USA. pp. 25-48.

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Port Philip Bay (PPB), Australia
Hewitt, C., Campbell, M., Thresher, R., Martin, R., Boyd, S., Cohen, B., Currie, D., Gomon, M., Keough, M., Lewis, J., Lockett, M., Mays, N., McArthur, M., O'Hara, T., Poore, G., Ross, J., Storey, M., Watson, J., Wilson, R., 2004. Introduced and cryptogenic and species in Port Phillip Bay, Victoria, Australia. Marine Biology. 144: 183–202.

Ukraine
Alexandrov, B., Boltachev, A., Kharchenko, T., Lyashenko, A., Son, M., Tsarenko, P., Zhukinsky, V. (2007) Trends of aquatic alien species invasions in Ukraine. Aquatic Invasions. 2: 215-242.

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Mead, A., Carlton, J.T., Griffiths, C.L., Rius, M. (2011) Revealing the scale of marine bioinvasions in developing regions: a South African re-assessment. Biological Invasions. 13: 1991-2008.

Israel
Galil, B.S. (2007) Seeing red: alien species along the Mediterranean coast of Israel. Aquatic Invasions. 2: 281-312.

Germany
Gollasch, S., Nehring, S. (2006) National checklist for aquatic alien species in Germany. Aquatic Invasions. 1: 245-269.

Norway
Hopkins, C.C.E. (2001) *Actual and potential effects of introduced marine organisms in Norwegian waters, including Svalbard*. Research report 2001-1. Directorate for Nature Management, Trondheim, Norway.

Location	Number of invert & algae NIS	Number NIS associated with shipping introduction	% associated with shipping
USA	450	351	78
Hawaii	263	200	76
New Zealand	124	122	98
PPB, Australia	95	95	100

Ukraine	106	90	85
South Africa	86	78	91
Israel (Med)	234	41	18
Germany	60	35	58
Norway	41	20	49

Data & sources for Figure 3

Data

	Proportion of World Fleet	US Foreign Arrivals	Average WSA	Niche WSA	Typical port duration	Typical speed	% of US arrivals discharging BW	Average discharge
Auto-carrier	2913	4091	6239	10	28.8	16.70	0.09	813
Bulker	11560	6619	8965	7	127.7	13.09	0.56	17,077
Containership	5057	9065	9372	9	28.7	18.96	0.07	2,472
General Cargo	14375	3431	3273	9	70.2	13.77	0.28	2,582
Miscellaneous	14108	2194	2128	15	88.1	10.89	0.12	1,214
Passenger	7227	4521	2980	27	21.2	16.91	0.30	895
Tanker	16296	9084	8930	9	80.2	13.42	0.42	11,185
Units	**number of ships**	**vessel arrivals**	**m^2**	**% of total WSA**	**hours**	**knots**	**% of vessels**	**m^3**

Sources

World Fleet data: from IHS Fairplay (London, UK)

U.S. foreign arrivals: from the National Ballast Information Clearinghouse (Edgewater, Maryland, USA) data for 2014, sourced in February 2017; https://invasions.si.edu/nbic/

Average WSA (Wetted Surface Area): from a simple average of two data sets reporting WSA by ship type. These sources used different but comparable underlying fleet data and approaches to calculate WSA;

Davidson, I., Ruiz, G., Sytsma, M. (2006) The implications of maritime vessel traffic, wetted surface area, and port connectivity for hull-mediated marine bioinvasions on the U.S. West Coast. Report to the California State Lands Commission, Marine Invasive Species Program, Sacramento, California. (n=29, 282 ships)

Moser, C.S., Wier, T.P., Grant, J.F., First, M.R., Tamburri, M.N., Ruiz, G.M. et al. (2016) Quantifying the total wetted surface area of the world fleet: a first step in determining the potential extent of ships' biofouling. Biological Invasions. 18, 265-277. (n=120,252 ships)

Niche WSA: from Moser et al. (2017) which reported niche surface areas as a simple percentage of overall WSA per ship type;

Moser, C.S., Wier, T.P., First, M.R., Grant, J.F., Riley, S.C., Robbins-Wamsley, S.H. *et al.* (2017) Quantifying the extent of niche areas in the global fleet of commercial ships: the potential for "super hot spots" of biofouling. Biological Invasions. 19:1745-1759. doi:10.1007/s10530-017-1386-4.

Typical Port Duration: from a simple average (per ship type) of three data sources;

Entec UK Limited (2005) *Service contract on ship emission: assignment, abatement and market-based instruments*. European Commission Directorate General Environment, Brussels, Belgium. (no sample size reported)

Falkner, M., Dobroski, N., Scianni, C., Gehringer, D., Takata, L. (2009) 2009 biennial report on the California marine invasive species program. Report to the California State Legislature, Sacramento, California. (n=400 ships)

California State Lands Commission (Sacramento, California, USA) 2014 data from the state's Hull Husbandry Reporting Form (HHRF); accessed January 2017. (n=1756 ships).

Typical Speed: from a simple average of two data sources per ship type;

Falkner, M., Dobroski, N., Scianni, C., Gehringer, D., Takata, L. (2009) 2009 biennial report on the California marine invasive species program. Report to the California State Legislature, Sacramento, California. (n=400 ships)

California State Lands Commission (Sacramento, California, USA) 2014 data from the state's Hull Husbandry Reporting Form (HHRF); accessed January 2017. (n=1756 ships).

% of US arrivals discharging BW: from the National Ballast Information Clearinghouse (Edgewater, Maryland, USA) data for 2014, sourced in February 2017; https://invasions.si.edu/nbic/

Average BW discharged: from the National Ballast Information Clearinghouse (Edgewater, Maryland, USA) data for 2014, sourced in February 2017; https://invasions.si.edu/nbic/