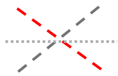
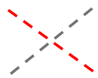
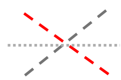
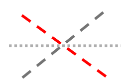
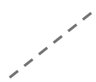
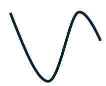
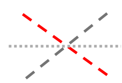
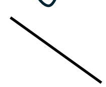
Table S1. Theoretical and empirical patterns of reproductive phenology, reproductive output, and offspring performance with latitude (Low = Equatorial or Subtropical; High = Temperate or Polar) or environmental seasonality (low to high) in marine taxonomic orders. Studies on anadromous fish (†) or terrestrial taxa (‡) are noted separately. Estimates of fecundity that were measured at the clutch level in iteroparous species (e.g. gonadosomatic index) are represented as clutch size. Offspring provisioning measurements were proxied by egg volume and diameter. Latitudinal patterns in traits are denoted as linear positive (+), linear negative (–), no correlation (ns), or unimodal (*).

Trait		**Literature**	**Present Study**	**Interspecific variation**	**Intraspecific variation**			
		Low → High	*Low → High*		Chordata	Arthropoda	Mollusca	Other
Reproductive phenology	Season length			(–) 301 fish spp.[42] (–) 11 Decapod spp.[43] (–) Sygnathiformes spp. [44] (–) Balanomorpha spp. [45]	(+) Scombriformes[29] (–) Acanthuriformes[27] (–) Atheriniformes[10,12] (–) Centrarchiformes[37] (–) Cypriniformes[14] (–) Cyprinodontiformes[15] (–) Perciformes[16,17,18] (ns) Perciformes[36†]	(–) Decapoda[30,35]	(–) Cardiida[41] (–) Cardiida[32, 33] (–) Venerida[34] (ns) Venerida[55] (ns) Pectinida [55] (ns) Mytilida[54]	(–) Scleractinia[38]
	Clutch number			(–) 11 Decapod spp.[43] (–) 272 Rodent spp. [47‡] (–) Marine invertebrates[52]	(+) Clupeiformes[13†]		(–) Mytilida[54]	
	Clutch size			(+) 1458 avian spp.[49‡] (–) 11 Decapod spp.[43] (ns) Sygnathiformes spp. [44] (ns) Balanomorpha spp. [45]	(+) Acanthuriformes[27] (+) Clupeiformes[13†] (+) Perciformes[17,18] (–) Perciformes[16] (–) Atheriniformes[10,11] (*) Centrarchiformes[37]	(+) Decapoda [3,4,5,6,8,28,30] **(–)** Decapoda[7] (+) Canuelloida[1,2] **(ns)** Decapoda[9] (*) Decapoda[39]	(+) Chitonida[26] (+) Neogastropoda[22] (+) Trochida[40]	(*) Actiniaria[31] (ns) Echinoida[25] (ns) Scleractinia[38]
Reproductive output	Fecundity			(–) Marine invertebrates[52] (ns) Scleractinia spp.[53]	(+) Atheriniformes[10,11] (+) Perciformes[19] (+) Salmoniformes[20†,21†] (–) Clupeiformes[13†]			
Offspring performance	Offspring size			(+) Sygnathiformes spp. [44] (+) Marine/freshwater spp.[50]		(+) Decapoda[7]		
	Offspring provisioning			(+) Sygnathiformes spp. [44] (+) 278 fish spp. [46] (+) 39 arthropod spp.[51] (+) Marine invertebrates[52] (ns/+) 10 teleost families[48] (ns) Scleractinia spp.[53]	(+) Perciformes[17,23] (–) Salmoniformes[20†,21†] (ns) Atheriniformes[10]	(+) Isopoda[24] (+) Decapoda[5,6,7,8,9, 28] (–) Decapoda[3] (ns) Decapoda[3, 39]		

[1]Lonsdale and Levinton 1985, [2]Lonsdale and Levinton 1986, [3]Baldzani et al. 2018, [4]Lardies and Wehrtmann 1997, [5]Lardies and Wehrtmann 2001, [6]Lardies and Castilla 2001, [7]Lardies et al. 2010, [8]Gorney et al. 1992, [9]Brante et al. 2004, [10]Conover 1992, [11]Sosebee 1991, [12]Middaugh and Hemmer 1992, [13]Leggett and Carscadden 1978, [14]Cowell and Resico 1975, [15]Conover and Present 1990, [16]Slesinger et al. 2021, [17]Kokita 2003, [18]Kokita 2004, [19]Richardson et al. 1997, [20]Fleming and Gross 1990, [21]Beacham and Murray 1993, [22]Waite et al. 2024, [23]Johnston and Leggett 2002, [24]Clarke and Gore 1992, [25]Lester et al. 2007, [26]Alvarez-Garcia et al. 2024, [27]Zarco-Perello et al. 2022, [28]Bezerra Ribeiro et al. 2023, [29]Domínguez-Petit et al. 2022, [30]Defeo and Cardoso 2002 , [31]Ryan and Miller 2019, [32]Verdelhos et al. 2011, [33]Mahony et al. 2020, [34]Livore et al. 2019, [35]Bauer and Rivera Vega 1992, [36]Ishikawa and Kitano 2020, [37]Stocks et al. 2015, [38]de Putron and Smith 2011, [39]Stanski et al. 2018, [40]Martone and Micheli 2012, [41]Patiño et al. 2021, [42]Vila-Gispert et al. 2002, [43]Bauer 1992, [44]Foster and Vincent 2004, [45]Barnes and Barnes 1968, [46]Kasimatis and Ringos 2016, [47]Heldstab 2021, [48]Thresher 1988, [49]Boyer et al. 2010, [50]Marshall et al. 2018, [51]Thatje and Hall 2016, [52]Thorson 1950, [53]Gutierrez-Isaza et al. 2022, [54]Oyarzún et al. 2018, [55]Uribe et al 2012