

Supplement Material

Table S1. Details of environmental $p\text{CO}_2$ -temperature and $p\text{CO}_2$ - O_2 data sets from the northern and central California Current Ecosystem. We calculated $p\text{CO}_2$ values for two published and two unpublished carbonate chemistry data sets that consisted of total alkalinity (TA) and dissolved inorganic carbon (DIC) measurements. All TA and DIC measurements from those surveys were obtained following Feely et al. (2008, 2010) and had precisions of $\sim 1.5 \mu\text{mol kg}^{-1}$ and $\sim 2.0 \mu\text{mol kg}^{-1}$, respectively. We calculated $p\text{CO}_2$ using the R library ‘seacarb’ (Lavigne and Gattuso, 2010) with dissociation constants from Lueker *et al.* (2000). Additional information on sampling methods are provided in the cited references.

Sample type	Name and/or approximate location	Sample depth (m)	Dates ($p\text{CO}_2$ -temp)	Dates ($p\text{CO}_2$ - O_2)	Habitat	Sampling method	Reference
Mooring time series	Chá bã, La Push, Washington (N 47.97, W 124.95)	0.3	Jul-2010 to Oct-2010	Jul-2010 to Oct-2010	Surface shelf waters (mooring at 60 m isobath, 5 km from coast)	Direct (Licor 820 series sensor)	Mathis et al. (2011)
Mooring time series	CCE2, Point Conception, California (N 34.32, W 120.81)	0.3	Jan-2010 to Feb-2011	Jan-2010 to Feb-2011	Surface shelf waters (mooring at 60 m isobath, 5 km from coast)	Direct (Licor 820 series sensor)	Sabine et al. (2011)
Mooring time series	Cape Elizabeth, Washington (N 47.68, W 122.25)	0.3	Jun-2006 to Oct-2010	Jun-2006 to Oct-2010	Surface shelf waters (mooring at 60 m isobath, 5 km from coast)	Direct (Licor 820 sensor)	Mathis et al. (2013)
Mooring time series	NH10, Newport, Oregon (N 44.63, W 124.30)	1	Aug-2007 to May-2008	Aug-2007 to May-2008	Surface shelf waters (mooring at 60 m isobath, 20 km from coast)	Direct (Sunburst SAMI- CO_2 sensor)	Evans et al. (2011)
Hatchery seawater	Whiskey Creek Hatchery, Netarts Bay, Oregon	1 to 3 (tidal)	Feb-2010, Jul-		Tidal bay, no significant	Direct (Licor 840 sensor)	Barton et al. (2012), Hales et al. (unpub. data)

intake time series	(N 45.40, W 123.95)		2010		freshwater input		
Shipboard discrete	Puget Sound, and Strait of Juan de Fuca, Washington	0–50	Feb-2008, Aug-2008	Feb-2008, Aug-2008	Fjord estuary	Calculated (from DIC and TA)	Feely et al. (2010)
Shipboard discrete	Puget Sound, Washington	0–50	Sep-2009, Oct-2011, Oct-2011	Sep-2009, Oct-2011, Oct-2011	Fjord estuary	Calculated (from DIC and TA)	Reum et al. (2014)
Shipboard discrete	Southern British Columbia to California	0–50	Aug-2007	Aug-2007	Open coast waters	Calculated (from DIC and TA)	Feely et al. (2011)
Shipboard discrete	Southern British Columbia to California	0–50	Aug-2011, Aug-2012	Aug-2011, Aug-2012	Open coast waters	Calculated (from DIC and TA)	R.A. Feely, S.R. Alin, and others (<i>unpublished data</i>)
Shipboard underway	Southern British Columbia through central California, including Puget Sound and Strait of Juan de Fuca (34–51°N, 0–200 km offshore)	2–5	2007–2012		Open coast and fjord estuary surface waters	Direct (Licor 6262 or 7000 sensor)	Bakker et al. (2013), Pfeil et al. (2013), Feely and Sabine (2008a), Feely and Cosca (2012)

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