

Table S1. Summary of the individual data points from experimentally based studies on the impacts of aquatic acidification (AA) on oxygen consumption of fishes. Abbreviations: SMR, standard/resting metabolic rate; MMR, maximum metabolic rate; AS, aerobic scope. Symbols: X, no effect; ↓, decrease; ↑, increase.

Fish species	Life stage	~ $p\text{CO}_2$	Habitat	SMR	MMR	AS	Reference
<i>Anguilla anguilla</i>	adult	7894.7	marine	X	↓	↓	(Methling et al., 2013)
<i>Gadus morhua</i>	adult	9200.0	marine	X	↓	↓	(Tirsgaard et al., 2015)
<i>Scophthalmus maximus</i>	juvenile	15000.0	marine	X			(Stiller et al., 2015)
<i>Scophthalmus maximus</i>	juvenile	15000.0	marine	X			(Stiller et al., 2015)
<i>Scophthalmus maximus</i>	juvenile	15000.0	marine	X			(Stiller et al., 2015)
<i>Scophthalmus maximus</i>	juvenile	15000.0	marine	X			(Stiller et al., 2015)
<i>Scophthalmus maximus</i>	juvenile	25000.0	marine	X			(Stiller et al., 2015)
<i>Scophthalmus maximus</i>	juvenile	25000.0	marine	X			(Stiller et al., 2015)
<i>Scophthalmus maximus</i>	juvenile	25000.0	marine	↓			(Stiller et al., 2015)
<i>Scophthalmus maximus</i>	juvenile	25000.0	marine	↓			(Stiller et al., 2015)
<i>Anguilla anguilla</i>	adult	fluctuating	marine	X	↓	X	(Methling et al., 2013)
<i>Syphodus ocellatus</i>	embryos	1000.0	marine	↑			(Cattano et al., 2016)
<i>Anguilla anguilla</i>	adult	5263.2	freshwater	X			(Cruz-Neto and Steffensen, 1997)
<i>Anguilla anguilla</i>	adult	10526.3	freshwater	X			(McKenzie et al., 2002)
<i>Acipenser transmontanus</i>	juvenile	7894.7	freshwater	↓			(Baker and Brauner, 2012)
<i>Anguilla anguilla</i>	adult	7894.7	freshwater	X			(McKenzie et al., 2002)
<i>Acipenser transmontanus</i>	juvenile	5921.1	freshwater	↓			(Baker and Brauner, 2012)
<i>Anguilla anguilla</i>	adult	5921.1	freshwater	X	X	X	(McKenzie et al., 2003)
<i>Anguilla anguilla</i>	adult	5263.2	freshwater	X			(McKenzie et al., 2002)
<i>Acipenser transmontanus</i>	juvenile	3947.4	freshwater	↑			(Baker and Brauner, 2012)
<i>Anguilla anguilla</i>	adult	3947.4	freshwater	X	X	X	(McKenzie et al., 2003)
<i>Anguilla anguilla</i>	adult	2631.6	freshwater	X			(McKenzie et al., 2002)
<i>Acipenser transmontanus</i>	juvenile	1973.7	freshwater	X			(Baker and Brauner, 2012)
<i>Anguilla anguilla</i>	adult	1973.7	freshwater	X	X	X	(McKenzie et al., 2003)

<i>Salvelinus fontinalis</i>	adult	260.0	freshwater	↓	(Basu, 1959)
<i>Catostomus commersoni</i>	adult	260.0	freshwater	↓	(Basu, 1959)
<i>Ameiurus nebulosus</i>	adult	260.0	freshwater	↓	(Basu, 1959)
<i>Cyprinus carpio</i>	adult	260.0	freshwater	↓	(Basu, 1959)
<i>Carassius auratus</i>	adult	260.0	freshwater	↓	(Basu, 1959)
<i>Hemiscyllium ocellatum</i>	adult	600.0	marine	X	(Heinrich et al., 2014)
<i>Trematomus bernacchii</i>	juvenile	650.0	marine	X	(Davis et al., 2016)
<i>Trematomus bernacchii</i>	juvenile	650.0	marine	X	(Davis et al., 2016)
<i>Trematomus bernacchii</i>	juvenile	650.0	marine	X	(Davis et al., 2016)
<i>Chromis viridis</i>	adult	750.0	marine	X X X	(Nadler et al., 2016)
<i>Sebastes caurinus</i>	juvenile	750.0	marine	X X X	(Hamilton et al., 2017)
<i>Sebastes mystinus</i>	juvenile	750.0	marine	X X X	(Hamilton et al., 2017)
<i>Notothenia rossii</i>	adult	850.0	marine	X	(Strobel et al., 2012)
<i>Pomacentrus moluccensis</i>	juvenile	860.0	marine	X X	(Couturier et al., 2013)
<i>Pomacentrus ambioensis</i>	juvenile	860.0	marine	X ↑	(Couturier et al., 2013)
<i>Pomacentrus moluccensis</i>	juvenile	860.0	marine	X	(Couturier et al., 2013)
<i>Pomacentrus ambioensis</i>	juvenile	860.0	marine	↑	(Couturier et al., 2013)
<i>Pomacentrus ambioensis</i>	juvenile	860.0	marine	↑	(Couturier et al., 2013)
<i>pseudochromis fuscus</i>	adult	860.0	marine	X X X	(Couturier et al., 2013)
<i>Hemiscyllium ocellatum</i>	adult	880.0	marine	X	(Heinrich et al., 2014)
<i>Acanthochromis polyacanthus</i>	adult	946.0	marine	↓ ↑ ↑	(Rummer et al., 2013)
<i>Scyliorhinus canicula</i>	adult	990.0	marine	X X X	(Green and Jutfelt, 2014)
<i>ambligliphiodon melanopus</i>	juvenile	1000.0	marine	X	(Miller et al., 2012)
<i>Chromis viridis</i>	adult	1000.0	marine	X X X	(Nadler et al., 2016)
<i>ostorhininchus doederleini</i>	adult	1000.0	marine	X X X	(Munday et al., 2009)
<i>ostorhininchus cyanosoma</i>	adult	1000.0	marine	↑ X ↓	(Munday et al., 2009)
<i>Sciaenops ocellatus</i>	juvenile	1000.0	marine	X X X	(Esbaugh et al., 2016)
<i>Hippoglossus hippoglossus</i>	juvenile	1000.0	marine	X X ↑	(Gräns et al., 2014)
<i>Trematomus bernacchii</i>	adult	1000.0	marine	X	(Enzor et al., 2013)

<i>Trematomus bernacchii</i>	adult	1000.0	marine	X	(Enzor et al., 2013)		
<i>Trematomus hansonii</i>	adult	1000.0	marine	X	(Enzor et al., 2013)		
<i>Trematomus hansonii</i>	adult	1000.0	marine	X	(Enzor et al., 2013)		
<i>Pagothenia borchgrevinki</i>	adult	1000.0	marine	X	(Enzor et al., 2013)		
<i>Pagothenia borchgrevinki</i>	adult	1000.0	marine	X	(Enzor et al., 2013)		
<i>Trematomus bernacchii</i>	adult	1000.0	marine	↑	(Enzor et al., 2013)		
<i>Trematomus newesi</i>	adult	1000.0	marine	↑	(Enzor et al., 2013)		
<i>Trematomus bernacchii</i>	juvenile	1050.0	marine	X	(Davis et al., 2016)		
<i>Trematomus bernacchii</i>	juvenile	1050.0	marine	X	(Davis et al., 2016)		
<i>Trematomus bernacchii</i>	juvenile	1050.0	marine	X	(Davis et al., 2016)		
<i>Leucoraja erinacea</i>	juvenile	1100.0	marine	X	X	X	(Di Santo, 2016)
<i>Leucoraja erinacea</i>	juvenile	1100.0	marine	X	↑	↑	(Di Santo, 2016)
<i>Leucoraja erinacea</i>	embryos	1100.0	marine	X	X	X	(Di Santo, 2015)
<i>Leucoraja erinacea</i>	embryos	1100.0	marine	↑	↑	X	(Di Santo, 2015)
<i>Gadus morhua</i>	adult	1200.0	marine	X			(Kreiss et al., 2015)
<i>Chiloscyllium punctatum</i>	embryos	1400.0	marine	↓			(Rosa et al., 2014)
<i>Chiloscyllium punctatum</i>	juvenile	1400.0	marine	X			(Rosa et al., 2014)
<i>Chiloscyllium punctatum</i>	embryos	1400.0	marine	X			(Rosa et al., 2014)
<i>Chiloscyllium punctatum</i>	embryos	1400.0	marine	X			(Rosa et al., 2014)
<i>Pomacentrus amboensis</i>	juvenile	1400.0	marine		X		(Couturier et al., 2013)
<i>Hippocampus guttulatus</i>	adult	1400.0	marine	X			(Faleiro et al., 2015)
<i>Oncorhynchus gorbuscha</i>	larvae	1600.0	marine	X	↓		(Ou et al., 2015)
<i>solea senegalensis</i>	larvae	1600.0	marine	X			(Pimentel et al., 2015)
<i>solea senegalensis</i>	larvae	1600.0	marine	↓			(Pimentel et al., 2015)
<i>Coryphaena hippurus</i>	larvae	1600.0	marine	↓			(Pimentel et al., 2014)
<i>Girella laevifrons</i>	juvenile	1600.0	marine	X			(Benítez et al., 2017)
<i>Sebastes caurinus</i>	juvenile	1900.0	marine	X	X	X	(Hamilton et al., 2017)
<i>Sebastes mystinus</i>	juvenile	1900.0	marine	X	X	X	(Hamilton et al., 2017)
<i>Oncorhynchus gorbuscha</i>	embryos	2000.0	freshwater	X	X		(Ou et al., 2015)

<i>Gadus morhua</i>	adult	2200.0	marine	X	(Kreiss et al., 2015)
<i>Pomacentrus amboensis</i>	juvenile	2400.0	marine	X	(Couturier et al., 2013)
<i>Sebastes mystinus</i>	juvenile	2800.0	marine	X X	(Hamilton et al., 2017)
<i>Sebastes caurinus</i>	juvenile	2800.0	marine	X X ↓	(Hamilton et al., 2017)
<i>Sciaenops ocellatus</i>	juvenile	5000.0	marine	X	(Ern and Esbaugh, 2016)
<i>Gadus morhua</i>	juvenile	5800.0	marine	X X X	(Melzner et al., 2009)
<i>Zoarces viviparus</i>	adult	10000.0	marine	X	(Deigweiher et al., 2008)
<i>Oncorhynchus gorbuscha</i>	larvae	fluctuating	marine	X X	(Ou et al., 2015)
<i>Sander lucioperca</i>	adult	9500.0	freshwater	X	(Steinberg et al., 2017)
<i>Sander lucioperca</i>	adult	19000.0	freshwater	↓	(Steinberg et al., 2017)
<i>Gadus morhua</i>	embryos	1100.0	marine	↑	(Dahlke et al., 2017)

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