Appendix 1:
Parameter estimates used in the model, with brief explanations, estimates, and citations.

Parameter Name	Attribute of System	Estimate	Units	Citation and/or Description
Algae	Percentage of seafloor covered by algae when algae are in season (during 1/3 of year).	0.06	Dimensionless	Torre-Cosio et al. 2003; Basurto 2008 cited in Bueno and Basurto 2009: 143
Fecundity Rate	This variable represents the number of individuals (baby mollusks) produced by a female mollusk over her lifetime.	20	Dimensionless	Bueno & Basurto 2009; 144
Average organism per person per day	Number of organisms caught per fisher per day.	0.54	Thousand mollusks/person/day	Bueno & Basurto 2009; 144
Average Seri Boats	Average number of Seri boats at start of model run, changed at year 5 for scenario testing.	15	boats/year	Basurto personal counts in two multi-year periods: 1998-2001 and 2009-2012
Average number of organisms caught per boat per day	Average number of organisms caught per boat per day.	2.16	Thousand mollusks/boat/day	Bueno & Basurto 2009
Carrying Capacity *At*	Carrying Capacity for A. tuburculosa; is 1/3 of the 24,500 carrying capacity for CDH from the Bueno and Basurto model.	8,167	Thousand mollusks	Bueno and Basurto 2009; 144
Carrying capacity *Pr*	Carrying Capacity for A. tuburculosa; is 2/3 of the 24,500 carrying capacity for CDH from the Bueno and Basurto model.	16,333	Thousand mollusks	Bueno and Basurto 2009; 144
default fisher delay	Delay in fishers' response to changes to relative abundance.	1/12 (=1 month)	year	Interviews to key informants and Basurto personal observations in two multi-year periods: 1998-2001 and 2009-2012.

eelgrass	Percentage of seafloor covered by eelgrass when eelgrass is in season (during 2/3 of the year).	0.22	Dimensionless	Torre-Cosio 2002; Basurto 2008 cited in Bueno and Basurto 2009
Female percent	Percent of population that is female.	0.5	Dimensionless	Estimate based on fisheries counts published in Basurto (2008)
Mean FL	Mean fishing luck; drives pink noise probability distribution function for fishing luck.	1	Dimensionless	Informal interviews with expert fisher key informants by Basurto in 2000, 2001, and 2009
Standard Deviation FL	Standard Deviation for fishing luck; drives pink noise probability distribution function for fishing luck.	0.5	Dimensionless	Informal interviews with expert fisher key informants by Basurto in 2000, 2001, and 2009
Correlation Time FL	Correlation time of pink noise probability distribution function for fishing luck.	0.25 (3 months)	Year	
Initial proportion *Pr*	Percentage of CDH population composed of *Pr*.	2/3	Dimensionless	Informal interviews with expert fisher key informants by Basurto since 1998
Initial immature *At* population	Initial immature *At* population (initial ratio of immature to mature is 1:9).	789	Thousand mollusks	Informal interviews with expert fisher key informants by Basurto since 1998
Initial immature *Pr* population	Initial immature *Pr* population.	1,579	Thousand mollusks	Informal interviews with expert fisher key informants by Basurto since 1998
Initial mature *At* population	Initial mature *At* population.	7,105	Thousand mollusks	Informal interviews with expert fisher key informants by Basurto since 1998
Initial mature *Pr* population	Initial mature *Pr* population.	14,209	Thousand mollusks	Informal interviews with expert fisher key informants by Basurto since 1998
Initial *At* harvested	Starting point for the tonnage harvest of *At*; needed for delay to function.	23	Tons/year	

Initial *Pr* harvested	Starting point for the tonnage harvest of *Pr*; needed for delay to function.	14	Tons/year	
Mean *At*	Drives pink noise distribution function for mature *At* lifetime; when model in deterministic mode this becomes the adult lifespan.	9	Year	Discussed in text. See Mean *Pr*
Standard Deviation *At*	Drives pink noise distribution function for mature *At* lifetime.	2	Year	
Correlation Time *At*	Drives pink noise distribution function for mature *At* lifetime.	1	Year	
Mean *Pr*	Drives pink noise distribution function for mature *Pr* lifetime; when model in deterministic mode this becomes the adult lifespan.	12	year	Vicente et al. 1980; Siletic and Peharda 2003; Cudney-Bueno and 2008; discussed in text
Standard Deviation *Pr*	Drives pink noise distribution function for mature *Pr* lifetime.	3	Year	
Correlation Time *Pr*	Drives pink noise distribution function for mature *Pr* lifetime.	1	Year	
Number of immature *At* per kg	Used to convert immature *At* harvest numbers, measured in thousand mollusks/year, into metric tons/year.	60	Thousand mollusks/ton. (=Mollusks/kg)	Basurto 2006; 193, informal interviews with expert fisher key informants by Basurto, and catch counts conducted by Basurto in 2009
Number of immature *Pr* per kg	Used to convert immature *Pr* harvest numbers, measured in thousand mollusks/year, into metric tons/year.	40	Thousand mollusks/ton. (=Mollusks/kg)	Basurto 2006; 193, informal interviews with expert fisher key informants by Basurto, and catch counts conducted by Basurto in 2009

Number of mature *At* per kg	Used to convert mature *At* harvest numbers, measured in thousand mollusks/year, into metric tons/year.	30	Thousand mollusks/ton. (=Mollusks/kg)	Basurto 2006; 193, informal interviews with expert fisher key informants by Basurto, and catch counts conducted by Basurto in 2009
Number of mature *Pr* per kg	Used to convert mature *Pr* harvest numbers, measured in thousand mollusks/year, into metric tons/year.	20	Thousand mollusks/ton. (=Mollusks/kg)	Basurto 2006; 193, informal interviews with expert fisher key informants by Basurto, and catch counts conducted by Basurto in 2009
Number of people/boat	Crew of one boat, usually contains only one diver plus three other crewmembers.	4	people/boat	Bueno & Basurto 2009
Rule 1 days fished	Percentage of year fished.	0.5	Year	Bueno & Basurto 2009
Rule 4 *At* immature harvest	Lack of any enforced limitation on the harvesting of immature *At*.	1	Dimensionless (percentage)	Bueno & Basurto 2009
Rule 4 *Pr* immature harvest	No allowed take of immature *Pr* when active.	0 when rule 4 active; 1 otherwise	Dimensionless (percentage)	Catch counts and underwater harvesting observations in the field by Basurto in two multi-year time periods: 1998-2001 and 2009-2012.
OFT function in terms of *Pr*	Type III functional response curve for distributing fishing effort for *Pr* and *At* based on perceived proportion of *Pr* in the underwater CDH. Effort for *At* is 1 minus the output of this function.	[(0,0)-(1,1)],(0,0.05),(0.05,0.05),(0.3,0.05),(0.4,0.05),(0.5,0.12),(0.53,0.3),(0.57,0.58),(0.6,0.7),(0.66,0.8),(0.75,0.85),(1,0.85)	Dimensionless (percentage)	

Survival rate function	A smoothed Beverton-Holt equation function of the survival rate of newly born CDH based on the total CDH population / carrying capacity.	[(0,0)-(1.5,0.6)],(0,0.5),(0.1,0.49),(0.2,0.48),(0.4,0.46),(0.6,0.42),(0.8,0.34),(0.9,0.25),(0.95,0.15),(1,0),(1.5,0),(2,0)	Dimensionless	Bueno and Basurto 2009, modified
time to mature At	length of time for At to reach reproductive age.	1	year	Bueno and Basurto 2009; Basurto 2008; discussed in text
time to mature Pr	length of time for Pr to reach reproductive age.	2	year	Cudney-Bueno and Rockwell 2008 (2.5-4 years); discussed in text
Noise Seed	Noise seeds for the 10 repetitions in each experiment scenario; ensures randomness.	1,11,21,31,41,51,61,71,81,91	Dimensionless	
Time Step	Time step of model.	0.02 (=1 week)	Year	