

Appendix 1 – Supplementary Information

Table A1.1 Summary statistics of respondents of fisher surveys.

Location/village	Mean age (\pm SD)	Percentage processing their catch	No. men surveyed	No. women surveyed	Village population
Bua					
Galoa (Bua)	39 (11)	85	6	7	240
Yadua	38 (9)	30	6	4	180
Yaqaga	34 (9)	58	7	5	152
Cakaudrove					
Nanuca	43 (11)	9	7	4	120
Tacilevu	41 (9)	0	3	10	427
Vunisavisavi	40 (13)	47	8	7	35
Kadavu					
Galoa (Kadavu)	40 (11)	0	6	3	140
Matanuku	45 (13)	73	5	6	67
Muani	50 (10)	27	1	10	275
Narikoso	35 (12)	0	7	4	108
Vabea	34 (10)	0	7	3	76
Lau (South)					
Dakuiloa	34 (10)	14	11	3	67
Tubou	40 (11)	43	3	4	627
Waciwaci	42 (11)	11	8	1	120
Waiqori	31 (11)	13	8	0	85
Waitabu	30 (10)	56	7	2	145
Ra					
Drauniivi	42 (17)	0	7	1	680
Malake	33 (7)	0	10	3	1153
Togovere	42 (11)	0	5	6	300
Taveuni					
Dreketi	34 (6)	33	3	0	260
Lavena	38 (8)	36	4	7	535
Naselesele	44 (12)	100	2	7	300
Qeleni	45 (12)	100	2	8	338
Vuna	32 (3)	100	2	0	402
Vanua Balavu					
Avea	33 (14)	0	11	0	120
Cikobia	32 (7)	0	9	0	62
Daliconi	32 (9)	13	8	0	108
Mavana	57	100	1	0	215
Narocivo	31 (9)	22	6	3	96
Overall	38 (12)	29	170	108	

Text A1.2 – Model specification and diagnostics

Prior to the Bayesian analyses, covariates were checked for collinearity by calculating correlation coefficients and variance inflation factors. Models with a binomial response variable were fit using a binomial error distribution, with \sim Cauchy (0, 2.5) priors for the covariates and a \sim Cauchy (0,10) intercept (Gelman et al. 2008). Models with a continuous response variable were fit using a gaussian error distribution and flat, non-informative $N(0, 100)$ prior distributions for fixed parameters (intercept and covariates).

Model convergence was assessed visually using trace plots (Brooks and Gelman 1998) for three simultaneously running Markov chains of 10 000 iterations (including a discarded 5 000-iteration burn-in) with a thinning rate of 5 to generate 1000 samples from the posterior distribution of each model parameter estimated. To make inferences about (1) the effect of individual and community-scale variables on adoption and diffusion (knowledge sharing), and (2) the relationship between training and the processing methods used, we used highest posterior density medians (for logistic models) and means (for all others) and their associated 95% Bayesian uncertainty intervals. Means and medians were estimated from stable posterior distributions generated by Markov-chain Monte Carlo sampling from a model run for each parameter.

Supplemental references

Brooks, S. P., and A. Gelman. 1998. General methods for monitoring convergence of iterative simulations. *Journal of Computational and Graphical Statistics* 7(4):434–455.

Gelman, A., A. Jakulin, M. G. Pittau, and Y. S. Su. 2008. A weakly informative default prior distribution for logistic and other regression models. *The Annals of Applied Statistics* 2(4): 1360–1383.

Table A1.3. Summary results of Bayesian hierarchical regressions that tested whether trained and untrained fishers differed in the processing methods employed for six harvested sea cucumber species groups: *Actinopyga* spp. (ACT), *Bohadschia* spp. (BOH), lollyfish and pinkfish (L & P), *Stichopus* spp. (STI), teatfish (TEAT; *Holothuria fuscogilva* and *H. whitmaei*), and *Thelenota* spp (THE). Values are highest posterior density medians (for water temperature, cut location) and means (for first and second cook duration, salt curing duration) and 95% uncertainty intervals (in parentheses).

Species	Water temperature	Cut location	First cook duration	Second cook duration	Salt curing duration
ACT	–	–	–1.55 (–10.38, 6.97)	–4.82 (–18.37, 9.06)	0.49 (–0.20, 1.22)
BOH	–	–	–10.45 * (–17.55, –2.8)	–8.89 (–21.17, 3.20)	0.57 (0.01, 1.17)
L & P	–	–	–10.36 * (–18.12, –2.54)	–8.98 (–21.67, 4.40)	0.41 (–0.17, 0.98)
STI	–	–	–12.38 (–26.67, 2.15)	–14.12 (–1.77, 10.73)	–0.20 (–0.88, 0.49)
TEAT	–	–1.06 (–3.40, 0.77)	–4.12 (–13.25, 5.32)	–9.69 (–27.26, 6.64)	–0.31 (–0.52, 1.15)
THE	–	0.24 (–1.67, 1.99)	–6.46 (–18.23, 6.25)	–14.27 (–35.54, 6.19)	0.07 (–0.80, 1.04)
All	–0.03 (–1.36, 1.17)	–	–	–	–

* Indicates evidence for differences between trained and untrained fishers, as 95% uncertainty intervals do not intersect zero.