

Using Websites

to influence visitor behavior



by **Dr. Liam Smith** | Monash University | **Warrick Angus** Taronga Zoo | **Professor Roy Ballantyne** | University of Queensland | and **Dr. Jan Packer** | University of Queensland | Australia

Zoos and aquariums are well-positioned to educate large numbers of visitors regarding the consequences of human activities for animals and the environment, to facilitate personal reflection on environmental actions and encourage the adoption of pro-wildlife behaviors. Indeed, most modern zoos stress the importance of both conservation and education in their mission statements, although few have been able to effectively demonstrate their impact in this regard.

Research shows that, although visitors often leave zoos, aquariums, marine parks and ecotourism sites with a heightened awareness of environmental issues and positive behavioral intentions, only a small minority follow through with actual behavior changes (Ballantyne *et al.*, 2010; Ballantyne *et al.*, in press; Smith *et al.*, 2008; Adelman *et al.*, 2000; Dierking *et al.*, 2004). Ideally, visitors need to be encouraged to translate their good intentions into real actions. Indeed, several researchers have suggested that post-visit reinforcement may be a way to influence visitor behavior (Ballantyne and Packer, in press; Broad and Smith, 2008; Adelman *et al.*, 2000).

This raises the question: what can be done off-site to reinforce a park's on-site behavioral messages and help visitors translate their good intentions into pro-wildlife behavior? Recent research (Ballantyne and Packer, in press) into zoo/aquarium visitors' attitudes toward conservation education has shown that the majority felt it was very important for these facilities to encourage visitors to reflect on, and take action in relation to conservation and environmental issues. Almost half the visitors felt

it was very important for zoos and aquariums to provide post-visit materials to encourage continued learning about environmental issues after their visit. Visitors reported that a website they could access from home would be the most helpful way of providing such follow-up information.

This study presents preliminary results from a "first attempt" website-based post-visit engagement designed to influence park visitors' behavior after a visit to Taronga Zoo in Sydney, Australia.

The Fish4Life Challenge

Taronga Zoo overlooks Sydney Harbor and receives about 1 million annual zoo visitors. Partly because of the zoos' proximity to water and partly because of the number of marine species in the collection, staff at Taronga Zoo formed a desire to influence zoo visitors to make more sustainable seafood purchasing decisions. To facilitate this, Taronga Zoo trialled a program called **Fish4Life** where visitors signed up during a public seal show to receive four emails after their visit (one per week). To join, visitors were asked

to send their email address during the show to which the emails and associated content could be sent. Clicking on the link took visitors to a website, the content of which can be categorized into six parts. The first was text outlining a key issue surrounding one or several marine species. Embedded in this text was a three minute video, delivered by a keeper, outlining details on the issue and what behaviors individuals can undertake to help address the issue. The three behaviors in focus were printing and using a wallet guide for fish to buy and fish to avoid, purchasing Marine

Stewardship Council (MSC) certified tinned tuna and asking for more information about fish labelled as “flake”. This was followed by actions visitors can take. There were also links to “Four Fishy Facts” and to sustainable seafood recipes. The final element was a short quiz based on the content of the video, text, facts, actions and recipes.

At the end of the four weeks, participants were asked to complete a questionnaire about their experience during the Fish4Life Challenge. The results are reported here.



Type of fish/ seafood	N	Average monthly seafood meals before challenge	Standard deviation	N	Average monthly meals during challenge	Standard deviation	Average change
Orange roughy	231	.07	.42	166	.13	.790	+
Squid/calamari	183	1.42	1.58	182	1.65	2.03	+
Swordfish	160	.17	.71	155	.11	.71	-
Bream	165	.42	.91	166	.71	1.38	+
Shark (flake)	170	.69	1.23	165	.32	.70	-
Barramundi	176	.73	1.14	165	.50	.99	-
Whiting	169	.53	1.34	182	1.00	1.54	+
Eastern gemfish	156	.06	.50	155	.07	.59	+
Prawns	195	1.93	2.64	181	1.89	2.69	-
Flathead	163	.60	1.57	159	.41	1.03	-
Snapper	167	.50	.86	164	.34	.94	-
Trout	159	.38	1.15	157	.33	1.19	-
Leatherjacket	156	.09	.50	158	.09	.35	0
Fresh sardines	156	.12	.85	161	.34	1.17	+
Tinned sardines	163	.50	1.67	162	.77	1.95	+
Fresh tuna	164	.63	1.60	157	.43	1.63	-
Tinned tuna	197	3.68	4.75	188	2.40	3.73	-
Fresh salmon	184	1.91	3.21	176	1.45	2.57	-
Tinned salmon	169	1.31	3.13	167	.91	2.32	-
Oysters	163	.47	.98	156	.38	.85	-
TOTAL		16.25			14.23		

Table 1: Monthly fish and seafood consumption before and during the Fish4Life Challenge.

Respondents were asked about their average monthly consumption of 20 different seafood species before and during the Fish4Life Challenge. Average consumption responses are shown here, as well as whether average responses changed positively or negatively and whether the fish was identified as one that is sustainable (shaded green) or not sustainable (shaded red) during the challenge. Note that tinned tuna and salmon have been shaded yellow because it isn't known (from this question) whether respondents purchased MSC certified products.

Sample

Over 2000 people/groups signed up to the four week Fish4Life Challenge during a four week recruitment period. Attrition was experienced throughout the challenge and 247 participants fully or partially completed the questionnaire. Of those who responded to demographic questions (n=199), most were Australian residents (99%) and female (74%).

About half (48%) of those who completed the Fish4Life Challenge and the questionnaire did so by themselves. Those who completed the Challenge and the questionnaire in groups did so, most commonly, with one other family adult members (65%) and either one (37%) or two (44%) children. Most respondents were in the age bracket 35-44.

Because of the Fish4Life Challenge...	N	Mean	Standard Deviation
I now try to choose more sustainable fresh fish	205	4.41	.640
I have changed the way I buy fresh fish	203	4.16	.757
I have changed the way I buy tinned tuna	176	4.13	.875
I have changed the way I buy frozen fish	121	4.13	.816
I look for Marine Stewardship Council (MSC) certified frozen fish	120	4.09	.860
I look for Marine Stewardship Council (MSC) certified tinned tuna	173	4.06	.969
I now use the Taronga Wallet Guide to choose my fresh fish	195	3.69	1.000
I now use the Greenpeace Guide to choosing tinned tuna	171	3.61	1.070
I only eat Marine Stewardship Council (MSC) certified frozen fish	115	3.60	1.033
I only eat Marine Stewardship Council (MSC) certified tinned tuna	169	3.56	1.112
I now use the Australian Marine Conservation Society (AMCS) Guide to choose my fresh fish	193	3.42	1.034
I now eat less tinned tuna	177	3.52	1.144
I have stopped eating tinned tuna	173	2.36	1.057

Table 2: Level of agreement with statements about the impact of the Fish4Life Challenge.

Using 1-5 Likert agreement scales (where 1 = strongly disagree and 5 = strongly agree), respondents were asked to respond to a series of statements about the impact of the Fish4Life Challenge. These results are summarized in Table 2 where they are ordered from greatest perceived impact to least perceived impact.

Because of the Fish4Life Challenge...	N	Mean	Standard Deviation
It was easy to find the recommended fish	196	3.76	.911
It was easy to interest other family members	191	3.72	.871
It was easy to follow the recommendations	200	3.99	.760
It was easy to afford the recommendations	196	3.80	.822
It was easy to keep up my enthusiasm	202	3.87	.900
It was easy to access material on line	193	4.15	.714
I found the Fish4Life recipes easy to cook	133	4.17	.669
I found the Fish4Life recipe ingredients easy to find	133	4.07	.741
I found the Fish4Life recipes tasty	131	4.21	.709

Table 3: Level of agreement with statements about the experience of doing the Fish4Life Challenge.

Respondents were asked about their experience of doing the Challenge. The results in Table 3 show generalized support for Fish4Life Challenge content. Note also strong agreement with the statement that the online material was easy to access. This is consistent with the findings of Ballantyne and Packer (in press) who suggest that visitors supported websites as a tool for post-visit communication.

Results

The average reported time spent each week learning about sustainable seafood was 13 minutes, although this was skewed by three respondents who indicated that they spent two hours learning about sustainable seafood. The median was 10 minutes.

Finally, two more measures evaluating the Fish4Life Challenge were included. The first was whether respondents would talk to friends about sustainable seafood. Of the 199 responses, 138 (69%) indicated that they would, 54 (27%) said maybe and 7 (4%) said that they would not talk to their friends about sustainable seafood. The second measure was whether respondents would be happy to stay on an email list which would update them on future campaigns. Of the 198 who responded, 163 (82%) stated that they would like to receive future emails.

Conclusions

Preliminary data supports the notion that websites can be effective tools for engaging visitors post-visit. Clearly there was interest in sustainable seafood consumerism at the time of the seal show and the Fish4Life Challenge recruitment methods capitalized on this interest by providing a simple way for visitors to sign up to learn more. The results from the Fish4Life Challenge itself are also encouraging with average reductions in reported consumption of many of the fish deemed unsustainable and increases in consumption of some of the seafood choices deemed sustainable. There was general agreement with most of the statements suggesting changes in purchase behavior and most of the evaluation of website content itself was positive.

Future Research

TCSA is a leading zoo in attempting to use websites to influence visitor behavior, but there are still many lessons to learn on how websites can be used to influence behavior. The results of this study provide an important baseline understanding on visitor preferences for content. The authors intend to pursue funding to rigorously research how websites can be used as tools for post-visit influence.

Author Contact: Dr. Liam Smith |
liam.smith@monash.edu

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