

THE RELATIONSHIPS BETWEEN ANGLERS' RISK PERCEPTION, SENSATION-SEEKING, AND FISHING SITE CHOICE ALONG THE NORTHEAST AND YILAN COAST SCENIC AREA, TAIWAN

Cheng-Ping Wang
Department of Tourism
Shih Hsin University
Taipei, Taiwan 11604

Abstract.—The northeastern coast is one of the best fishing areas in Taiwan, but the terrain, weather, and tides can create a dangerous and even deadly environment. This study examines the relationships between anglers' risk perceptions, sensation seeking, and fishing site choices. Results from a survey conducted at Long-Don in 2005 were analyzed for four dimensions of Sensation Seeking: "Thrill and Adventure Seeking," "Experience Seeking," "Disinhibition," and "Boredom Susceptibility." Anglers at three locations perceived risks that varied with the study spots. Resource managers can help provide safe angling opportunities by developing activities for anglers to substitute for sensation seeking during bad weather. Education programs may also help anglers prevent accidents through accurate risk perception while fishing.

1.0 INTRODUCTION

Numerous reefs and capes along the seashore make the northeastern coast of Taiwan one of the best coastal fishing areas in the country. The number of visitors to the Northeast and Yilan Coast National Scenic Area increased from 0.98 million in 1998 to 3.39 million in 2007 (Tourism Bureau 2008). Recreational fishing along this coast takes place year-round, but conditions can be harsh. The landscape is rocky, the weather can be very bad, and huge tides change so often and so quickly that numerous anglers have lost their lives there. Some anglers even go fishing during typhoon season. After numerous anglers suffered accidents

on the northeastern coast, resource managers along the coast employed several strategies to reduce the accident rate, such as enhancing safety facilities, setting up warning signs, distributing leaflets, and forcing anglers to leave during bad weather. According to the author's on-site observation, some anglers are intent on choosing dangerous sites and need to pay attention to the waves. Sometimes anglers have to go back and forth frequently from the shore to avoid getting wet or getting pulled in by the waves. Other anglers sit and relax at calm spots and enjoy the beautiful coast. The purpose of this study is to investigate the relationships among anglers' sensation-seeking, perceived risks, and fishing site/spot choices.

2.0 LITERATURE REVIEW

2.1 Fishing Site Choice

Hunt (2005) reviewed studies modeling the choice of recreational fishing sites and the recreational fishing literature and found that cost, fishing quality, environmental quality, facility development, encounter levels, and regulations may all influence an angler's selection of a fishing site. In general, anglers prefer fishing sites with lower costs, higher fishing quality (i.e., certain fish species, size, and number), higher environmental quality (i.e., beautiful scenery and clean water), convenient facilities, and fewer encounters with other anglers. Only a few studies have shown that regulations are an important aspect of anglers' site choices (Aas 2000, Ok et al. 2005). However, these factors do not explain why some anglers select high-risk fishing sites/spots and others seek relatively safe sites/spots. Adventure recreation research has indicated that sensation-seeking and risk perception influence the selection of adventure recreation activities and sites (Rowland et al. 1986). Therefore, this study hypothesis is that anglers' sensation-seeking and risk perception influence fishing site/spot choice.

2.2 Sensation-Seeking

Sensation-seeking is “a trait defined by the need for varied, novel and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experience” (Zuckerman 1979). Numerous studies have examined sensation-seeking and several related recreational activities, including rock-climbing (Robinson 1985), high-risk sports (Rowland et al. 1986), and downhill skiing (Bouter et al. 1988).

Sensation-seeking can be measured on the Sensation Seeking Scale (SSS), which was originally developed by Zuckerman (1979) and now has six forms (I–VI). Form V of the SSS is the one most often used by researchers. It contains four dimensions: Thrill and Adventure Seeking (TAS), Experience Seeking (ES), Disinhibition (Dis), and Boredom Susceptibility (BS).

2.3 Risk Perception

Previous recreation studies have suggested various strategies to manage the potential risks at recreation sites (Sönmez and Graefe 1998, Cooley 2000, Tangen-Foster and Dawson 1999, Bentley and Page 2001, Bentley et al. 2001). However, few studies have discussed how recreation participants perceive risk in recreation settings (Brannan and Condello 1992, Priest 1992, Priest and Carpenter 1993, Schuette 1993, Jones and Ellis 1996, Rogers 1997). The Adventure Model (Ewert and Hollenhorst 1989) proposes that participants with lower involvement perceive risk based on the information from the media and other participants but not from their experiences. Therefore, they report lower risk perception. On the other hand, people with higher involvement have more opportunities to experience the risks, so they perceive higher risk.

Ewert and Hollenhorst (1989) defined adventure/risk recreation as “a variety of self-initiated activities utilizing an interaction with the natural environment, that contain elements of real or apparent danger, in which the outcome, while uncertain, can be influenced by the participant and circumstance.” According to this definition, adventure recreation activities occur in the

natural environment when and where there are dangers and uncertainty, and the outcome can be influenced by participants’ competence and the risks in the natural settings (Priest 1992). Therefore, an individual’s perceived risk may influence his/her activity and site choice.

3.0 METHODS

Long-Don First Branch at the Northeast and Yilan Coast National Scenic Area in Taiwan was selected as a study site in order to try to understand the potential influences of sensation-seeking traits and perceived risk on fishing site/spot choices. This location has various risky fishing spots, and three specific spots were selected based on their geographic characteristics: Spot A, Spot B, and Spot C (Fig. 1). Anglers at Spot A fish on a cliff more than 100 feet above the water and encounter strong wind gusts and loud sea waves. Anglers at Spot B are closer to sea level on a rocky outcropping; they must pay close attention to the surf and be ready to run back away from the water periodically and on short notice to avoid getting wet and being pulled into the ocean by large waves. Unlike the previous two spots, the seashore along Spot C is much calmer, and anglers can sit and enjoy the scenery during their fishing.

Questionnaires were collected through on-site interviews from March to June 2005 using convenience sampling of anglers present on sampling days. Sampling was cancelled on a couple of days because of very bad weather, the small number of anglers present, and concerns about the interviewer’s safety. All anglers at the study sites on sampling days were asked to fill out the questionnaire; some individuals declined to be interviewed. Respondents were asked to report their perceived risks for Spots A, B, and C and to answer questions about sensation-seeking based on the SSS Form V (Zuckerman 1977).

4.0 RESULTS

4.1 Descriptive Characteristics of the Sample

Of the 174 questionnaires collected, 168 were valid (complete) and 6 were discarded because of missing

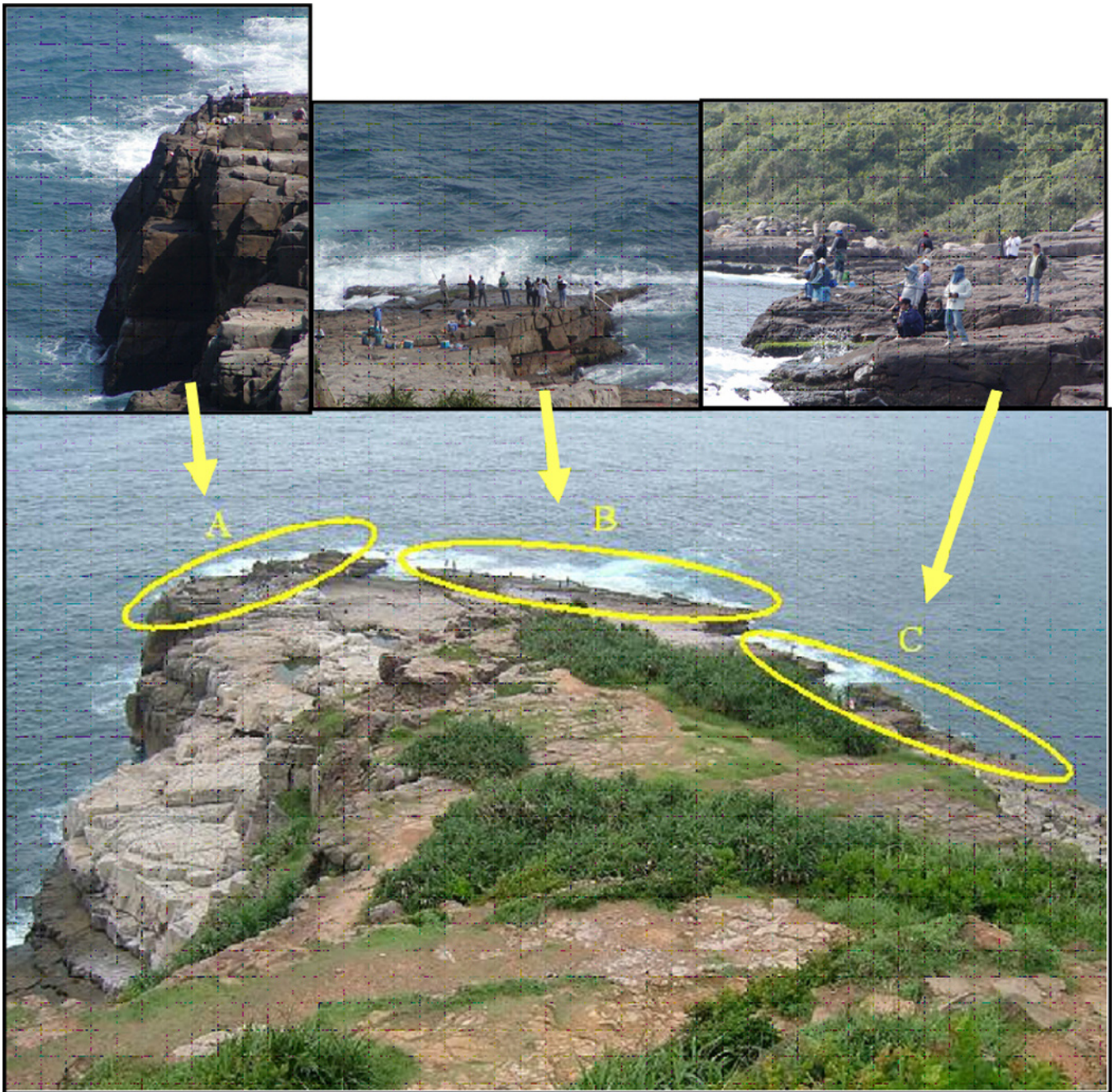


Figure 1.—Photographs of study site at Long-Don First Branch.

values for sensation-seeking or perceived risk variables. Most anglers were male (94.6 percent), middle-aged (67.2 percent were 31-50 years old), and middle-income level by Taiwanese standards (73.4 percent earned 20,000 to 60,000 NT/month). Most respondents worked in industry (34.7 percent) or business/service (31.2 percent), and 25.8 percent of the

respondents were unemployed. More than 79 percent of the respondents were high school graduates or had less education. Of the 168 valid questionnaires, 47 (28.0 percent), 40 (23.8 percent), and 81 (48.2 percent) were collected from Spot A, Spot B, and Spot C, respectively (Table 1).

Table 1.—Demographic characteristics of study participants

Variable	Item	N	%	Variable	Item	N	%
Gender	Male	159	94.6	Level of Education Completed	Elementary	25	14.9
	Female	9	5.4		Junior high	40	23.8
Age	under 19 years	1	0.5		High school	68	40.5
	20-30 years	20	12.0		College	33	19.6
	31-40 years	62	37.2		Graduate	2	1.2
	41-50 years	50	30.0	Income (NT/month)	Under 20,000	22	13.3
	51-60 years	29	17.4		20,001~40,000	62	37.6
	61 years and above	5	3.0		40,001~60,000	59	35.8
Avocation	Agriculture/Fishery/Forestry	4	2.4		60,000 above	22	13.3
	Industry	58	34.7	Current fishing spot	Spot-A	47	28.0
	Business/Service	52	31.2		Spot-B	40	23.8
	Police/faculty/student	10	6.0		Spot-C	81	48.2
	Unemployment	43	25.8				

4.2 Anglers' Sensation-Seeking Traits

Anglers' sensation-seeking scores varied across the three fishing spots (Table 2). Anglers at Spot A (0.54) and Spot B (0.51) had higher scores on TAS than anglers at Spot C (0.42). In addition, anglers at Spot A (0.42) and Spot B (0.42) had higher scores on overall "Sensation Seeking" than anglers at Spot C (0.33). These results indicated that anglers at Spot A and Spot B have higher sensation seeking traits than anglers at Spot C.

Within each group, TAS and Dis scores were generally higher than ES and BS scores. These findings show that the respondents have a stronger tendency to engage in sports or other activities involving some danger, risk, or personal challenge. Furthermore, they have a stronger need to engage in disinhibited behavior in the social sphere.

4.3 Anglers' Perceived Risk

Anglers' perceived risks varied at the different fishing spots and can be compared within the group or between groups. For Spot A, anglers at Spot B reported the highest risk perception (score = 3.58) and anglers at Spot C perceived the lowest risk (3.26). For Spot B, anglers at Spot C reported the highest risk score (3.64), and anglers at Spot B reported the lowest perceived risk score (3.08). For Spot C, anglers at Spot A reported the highest risk score (2.53), and anglers at Spot B reported the lowest perceived risk score (1.98). In terms of the overall risk of Long-Don First Branch, anglers at Spot A (3.23) perceived higher risk than anglers at Spot B (2.90) and Spot C (2.87).

Anglers' perceived risks were further compared within each group. Anglers at Spot A thought that B was the most dangerous spot and that Spot C was the safest.

Table 2.—Sensation seeking scores of anglers at different fishing spots by sensation seeking dimension

Sensation Seeking Dimension	Spot A		Spot B		Spot C	
	Mean	S.d.	Mean	S.d.	Mean	S.d.
TAS	0.54	0.26	0.51	0.26	0.42	0.25
ES	0.35	0.18	0.32	0.18	0.33	0.18
DIS	0.44	0.24	0.47	0.18	0.43	0.21
BS	0.33	0.17	0.36	0.14	0.33	0.15
Overall	0.42	0.15	0.42	0.12	0.38	0.13

Anglers at Spot-B perceived Spot-A as the most dangerous spot and Spot-C as the safest. Anglers at Spot C thought Spot B was the most dangerous and Spot C was the safest (Table 3).

5.0 DISCUSSION AND CONCLUSIONS

Based on the perceived risk reported by anglers, fishing at Spot A and Spot B is more dangerous than at Spot C (Table 3). Anglers at Spot A and Spot B had higher scores on TAS and the overall sensation-seeking scale than anglers at Spot C. These results indicate that anglers with higher sensation-seeking traits seem likely to pursue dangerous fishing spots with features such as rocky cliffs, wind gusts, or loud waves. Anglers with lower sensation-seeking traits avoid potential risks by choosing safe fishing spots.

Since anglers with high sensation-seeking traits tend to choose risky fishing spots, resource managers should consider developing educational programs to help anglers accurately perceive risks while fishing. In addition, alternative off-site adventure recreation activities such as indoor rock climbing may be developed to substitute for recreation fishing during bad weather and satisfy anglers' needs for sensation-seeking.

6.0 CITATIONS

Aas, O., Haider, W., and Hunt, L.M. (2000). **Angler responses to potential harvest regulations in Engerdal, Norway: A conjoint based choice modeling approach.** North American Journal of Fisheries Management, 20, 940-950.

Bentley, T.A., and Page, S.J. (2001). **Scoping the extent of adventure tourism accidents.** Annals of Tourism Research, 28(3), 705-726.

Bentley, T.A., Page, S.J., and Laird, I.S. (2001). **Accidents in the New Zealand adventure tourism industry.** Safety Science, 38, 31-48.

Bouter, L.M., Knipschild, P.G., Feij, J.A., and Volovics, A. (1988). **Sensation seeking and injury risk in downhill skiing.** Personality and Individual Differences, 9(3), 667-673.

Brannan, L., and Condello, C. (1992). **Public perceptions of risk in recreational activities.** Journal of Applied Recreation Research, 12, 144-157.

Cooley, R. (2000). **How big is the risk in wilderness treatment of adolescents?** International Journal of Wilderness, 6(1), 22-27.

Ewert, A., and Hollenhorst, S. (1989). **Testing the adventure model: empirical support for a model of risk recreation participation.** Journal of Leisure Research, 21(2), 124-139.

Hunt, L.M. (2005). **Recreational fishing site choice models: Insights and future opportunities.** Human Dimensions of Wildlife, 10, 153-172.

Jones, R., and Ellis, G. (1996). **Effect of variation in perceived risk on the secretion of β -endorphin.** Leisure Sciences, 18, 277-291.

Table 3.—Anglers' perceived risks for different fishing spots^a

Perceived risk	Anglers at Spot A		Anglers at Spot B		Anglers at Spot C	
	Mean	S.d.	Mean	S.d.	Mean	S.d.
Risk of Spot A	3.35	1.15	3.58	1.08	3.26	1.14
Risk of Spot B	3.38	0.97	3.08	0.94	3.64	1.10
Risk of Spot C	2.53	1.06	1.98	1.03	2.08	0.88
Overall	3.23	0.91	2.90	0.71	2.87	0.89

^a The number shown in the table is the mean value of agreement with the statement "fishing at this spot is very dangerous" where 1 = "strongly disagree" and 5 = "strongly agree."

- Ok, C.O., Ditton, R.B., Gentner, B., and Riechers, R. (2005). **A stated preference choice approach to understanding angler preferences for management options.** *Human Dimensions of Wildlife*, 10, 17-186.
- Priest, S., and Carpenter, G. (1993). **Changes in perceived risk and competence during adventurous leisure experiences.** *Journal of Applied Recreation Research*, 18, 51-71.
- Priest, S. (1992). **Factor exploration and confirmation for the dimensions of an adventure experience.** *Journal of Leisure Research*, 24(2), 127-139.
- Robinson, D.W. (1985). **Stress seeking: Selected behavioral characteristics of elite rock climbers.** *Journal of Sport Psychology*, 7(4), 400-404.
- Rogers, G. (1997). **The dynamics of risk perception: How does perceived risk respond to risk events?** *Risk Analysis*, 17(6), 745-758.
- Rowland, G.L., Franken, R.E., and Harrison, K. (1986). **Sensation seeking and participation in sporting activities.** *Journal of Sport Psychology*, 8(3), 212-220.
- Schuett, M. (1993). **Refining measure of adventure recreation involvement.** *Leisure Sciences*, 15, 205-216.
- Sönmez, S., and Graefe, A. (1998). **Determining future travel behavior from past travel experience and perceptions of risk and safety.** *Journal of Travel Research*, 37, 171-177.
- Tangen-Foster, J., and Dawson, C.P. (1999). **Risk management in wilderness experience programs.** *International Journal of Wilderness*, 5(3), 29-34.
- Tourism Bureau, Ministry of Transportation and Communication, ROC. (2008). **Visitors to principal tourist spots in Taiwan by month, 1998 to 2007.** <http://admin.taiwan.net.tw/indexc.asp>.
- Zuckerman, M. (1977). **Abbreviated manual with scoring keys and norms for Form V of the Sensation-seeking Scale.** Newark: University of Delaware.
- Zuckerman, M. (1979). **Sensation seeking: Beyond the optimal level arousal.** Hillsdale, NJ: Lawrence Erlbaum Associates.