

Specialization Characterization of Texas Inshore Fishing Guides: Associated Perceptions and Attitudes of Recreational Fisheries Management

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ABSTRACT

Maintenance of a productive and sustainable recreational saltwater fishery is contingent on providing a variety of satisfying experiences for anglers. As recreational fishing demand and pressure increases, identification and assessment of the perceptions and attitudes of various angler user groups toward recreational fisheries management provides a proactive method for assessing the quality of experiences available. Awareness of current issues, trends and concerns affords agencies valuable insight to address angler concerns before these issues culminate in economic, ecologic or social impacts. A spatio-temporal perspective of recreational fisheries through the eyes of recreational inshore fishing guides provides an invaluable historical perspective for monitoring perceptions and attitudes toward management and regulations.

Eighteen experienced recreational fishing guides were identified and participated in semi-structured in-depth interviews. Participants were selected based on their home fishing waters to ensure representation of Texas' entire 367 mile Texas coast from Louisiana to Mexico including all major and minor bays. The recreational specialization framework was employed to categorize the different types, or styles of participation, of inshore fishing guides. Although, as guides, the participants could all be considered highly specialized, subworlds emerged based on styles of participation that could be placed on a experience continuum of those focused on product to those focused on process. Interviews revealed that perceptions of current issues and attitudes toward management strategies and regulations differed according to specialization level of the guide. Understanding differences among emergent specialization subworlds provides recreational fisheries managers an effective tool for ensuring satisfactory experiences are available for Texas anglers.

KEY WORDS: Recreation specialization, recreational fisheries management, inshore fishing guides

Caracterización Especialización de la Guía de Pescas en Cuerpos de Agua Costeros del Estado de Tejas: Percepciones y Actitudes Relacionadas a la Administración de Pesca Recreacional.

PALABRAS CLAVE: Recreación de especialización, ordenación de la pesca recreativa, guías de pesca de bajura

Spécialisations Caractérisations des Guides sur la Pêche Côtière au Texas: Perceptions et Attitudes Associées aux Gestions des Pêcheries Récréative.

MOTS-CLÉS: Spécialisation des loisirs, gestion de la pêche récréative, guides de pêche côtière

INTRODUCTION

A major obligation of coastal fisheries management is the maintenance of a sustainable recreational fishery that preserves the integrity of aquatic ecosystems and also meets the recreational needs of anglers. Managers are tasked with not only being stewards of these coastal resources, but also responsible for providing recreational fishing opportunities that enhance the well-being of its constituency. In order to meet these challenges, managers must ensure the provision of a range of quality fishing opportunities for anglers (Fisher 1997).

To achieve this dual mandate, resource agencies must understand the angler population and the range of angling experiences they desire. However, fisheries management that is based on an aggregation of anglers most likely ignores the interests of a broad spectrum of anglers (Salz and Loomis 2005). Past research has indicated that recreationists are diverse in their quest for quality experiences and that the average angler does not exist (Bryan

1977, Fedler and Ditton 1986, Shafer 1969). To address this challenge, Bryan (1977) introduced the concept of recreation specialization as a method of segmenting diverse angler groups into homogenous groups. The impetus for his development of the specialization construct was to provide natural resource practitioners a framework for understanding diversity among outdoor recreationists enabling the identification and provision of varied opportunities.

Availability of quality fishing experiences is essential for continued economic contribution to the state of Texas and the personal enrichment of its citizens through sustainable recreational fishing activities. Recreational anglers have been identified as important stakeholders to fishery resource managers as economic contributors to local, regional and national economic sectors (Finn and Loomis 2001). Saltwater fishing in Texas accounts for nearly \$1.8 billion annually in total economic output, with over 1.1 million anglers purchasing fishing license annually

(Southwick 2007). The inability to provide quality angling experiences may lead to a decrease in participation, fishing related expenditures and the loss of support for fishery management programs (Finn and Loomis 2001). Therefore, as with many coastal states, maintenance of a satisfactory recreational saltwater fishing experience is vital for Texas.

Texas has, on average, approximately 1000 licensed recreational saltwater fishing guides (TPWD, unpublished data) that "...for compensation, accompanies, assists, or transports any person engaged in fishing in the waters of the state" (TPWD 2010). Guides can provide a unique historical perspective of fisheries and ecosystem trends given their extensive on-water experience that is driven by consumers' angling needs; over 25% of recreational anglers report hiring a guide in a given year (Tseng *et al.* 2006). Since guides serve the larger angler community, understanding guide sub-worlds may also provide a surrogate typology for recreational inshore anglers.

This study seeks to characterize and segment recreational inshore fishing guides from a social world perspective of specialization. Since Bryan's initial qualitative inquiry characterizing trout anglers, to the authors' knowledge, no research has sought to identify or characterize types of inshore fishing guides or sought to understand the status of recreational inshore fisheries exclusively from the perspective of guides. This research uses a qualitative approach to understand how recreational inshore fishing guides segment themselves. Specifically, the following research questions will be addressed:

- i) What criteria do inshore fishing guides use to segment their own social world?
- ii) How do perceptions and attitudes toward management of current recreational fishing issues of concern differ among these segmented subworlds?

The ability to segment guides based on a social world perspective of specialization and characterize their associated perceptions and attitudes of current recreational fishing issues may provide managers with a useful tool for managing fisheries and avert social, ecological and economic impacts.

Segmentation

Previous research has revealed that recreationists are diverse in their quest for quality experiences and that the average angler does not exist (Bryan 1977, Fedler and Ditton 1986, Shafer 1969). Fisheries policy built around the preferences of the "average angler" ultimately leads to satisfaction of no one (Fisher 1997) because quality experiences are subjective (Graefe and Fedler 1986), multi-dimensional (Driver and Knoff 1976, Hendee 1974), and the product of individuals' socio-demographic (Fedler and Ditton 1986) and psychological characteristics (Driver and Cooksey 1977). In order to maintain a large and active angler constituency, fisheries management must provide

satisfying fishing opportunities and experiences (Schramm 2003) that cater to multiple subgroups embedded within the broader angling community (Bryan 1979). Segmentation facilitates the identification of distinct groups with like preferences (Fedler and Ditton 1986, Loomis and Holland, 1997) which provides the potential for targeted management (Kyle *et al.* 2007) via policy development, marketing or education.

Recreation Specialization

The genesis of the specialization construct is linked to Bryan's (1977) streamside observations of trout fishers where he concluded that anglers progress through a predictable syndrome of experiences. Using an inductive approach, Bryan (1977) developed a typology of trout anglers based on differences in equipment, skill and activity setting preferences. His typology consisted of:

- i) Occasional anglers - new to the sport and fish infrequently,
- ii) Generalists - established in the sport and use a variety of techniques,
- iii) Technique specialists - use specific techniques, and
- iv) Technique-setting specialists - highly committed with preference for specific water and methods (Bryan, 1979).

He noted that these angler groups were distinguishable with respect to equipment preference, fish and resource orientation, management philosophy, angling history, social composition and vacation patterns. Bryan pointed out that these styles of participation are structured along a developmental continuum and form a typology that would be useful for practitioners for understanding angler behavior (Bryan 1979, Scott and Shafer 2001).

The concept of recreation specialization was developed from sociological perspective of leisure social worlds (Bryan 1979, Shibutani 1955, Devall 1973). Ditton (1992) re-conceptualized the specialization construct from a social world's perspective and applied the previous work of Shibutani, (1961), Strauss (1978), and Unruh (1979) on social worlds to specialization. Social worlds are "an internally recognizable constellation of actors, organizations, events and practices which have coalesced into a perceived sphere of interest" (Unruh 1979). Ditton (1992) suggested that the construct could be viewed as process by which social worlds segment into subworlds and envisioned an arrangement of these subworlds along a continuum. He developed eight propositions and suggested that as specialization increases:

- i) A person becomes more specialized over time,
- ii) The value of side bets increases,
- iii) Centrality increases,
- iv) Acceptance and support of the rules, norms, and procedures increases,
- v) Importance attached to equipment and skill

- increases,
- vi) Resource dependency increases,
 - vii) Level of mediated interaction increases, and
 - viii) Activity specific elements overtake non-activity specific elements.

This study seeks to advance Ditton's (1992) work via the characterization and segmentation of recreational inshore fishing guides from a social world perspective of specialization. This qualitative study will produce an emic typology of specialization sub-worlds and use this typology to understand how sub-worlds perceive current recreational fishing issues and their attitudes toward management strategies.

METHODS

Background

The study site for this qualitative inquiry is comprised of the inshore waters of the state of Texas. The coastal waters of Texas are regulated by Texas Parks and Wildlife Department and up to nine nautical miles offshore (NOAA 2004). The state boasts over 367 miles of coastline which houses approximately 1.5 million acres of open water bays and estuaries. Pursuit of two species of inshore game fish, red drum (*Scianops ocellatus*) and spotted seatrout (*Cynoscion nebulosus*) account for over 60% (1.05 billion) of the recreational fishing dollars spent and comprise the two primary inshore targets for Texas' 1.1 million licensed anglers (Southwick 2006). Texas has approximately 1,000 saltwater fishing guides that provide for hire service for one-quarter of saltwater participants each year. The sample included 18 full-time recreational inshore fishing guides. Purposive sampling framework was employed and guides were selected based on the author's knowledge of the guide social world, geographic location, reputation of the guide among anglers and other guides and social world involvement. Additionally, a snowball method of confirmation was used to corroborate the author's selection via comparison of recommendations by informants interviewed.

Data Collection & Analysis

Data was collected over a six month period from May 2010 to October 2010. Eighteen face-to-face semi-structured interviews were conducted and conversations were digitally recorded and subsequently transcribed. The transcriptions were analyzed using ATLAS.ti qualitative data analysis software (version 6.1.17). Thematic analysis was used drawing on grounded theory processes to develop a subworld model of specialization (Charmaz 2006). The analytic process began with open coding of each informant transcript followed by familial designation to identify like concepts. Each familial group then underwent focused coding and subsequent memo writing which ultimately lead to manuscript development.

RESULTS

Style of Participation Sub-world Segmentation

Analysis revealed that guides segment themselves along a variety of sub-worlds. In particular, sub-worlds are segmented around a range of technologies (watercraft, tackle, technique), objects (fish species), spatial dimensions (geographically, water depth, habitat type) and ideologies (belief of authenticity, values, ethics). Intersections of these sub-worlds promulgate the creation of new sub-worlds but this overlap is also a source of conflict over resource use. Four sub-worlds in particular were overwhelmingly used by guides to characterize themselves: tackle and technique, water depth, fish species and fishing method (Figure 1). These four sub-worlds can collectively define a guide's style of participation (SP). Four SP sub-worlds emerged from the analysis and can be ordered along a continuum from least specialized to most specialized sub-worlds: Limit Guide, All-Purpose Guide, Lure Guide and Sight-casting Guide.

Individual sub-worlds that comprise each SP sub-world were placed in ascending order from most important to least important with regard to determining SP (Figure 1). Limit guides were characterized by their desire to catch a limit of any major inshore gamefish (trout, redfish, black drum, flounder). This sub-world tends to use the most effective and easiest methods to produce a limit catch (i.e. live bait, spinning tackle with strike indicators while anchored from a boat). All-purpose Guides were the most flexible in tackle, technique and fishing method and were likely to go with bait/tackle/fishing method combination that would provide the most fish catching productivity. This sub-world tends to use bait and artificial lures, fish from boat or wade, target trout and redfish and the keep a majority of their bag limit. Lure Guides are much more specialized and usually focus on catching large seatrout. This sub-world uses lures almost exclusively and prefers wading in shallower depths but will drift fish if necessary. Lure Guides often only keep a portion of their bag limit and routinely encourage the practice of catch and release. The most specialized SP sub-world is the Sight-casting Guide that actively stalks redfish in ultra shallow water where redfish are visible often with their tail breaking the surface of the water as they feed. This group practices catch and release and will only keep a fish or two occasionally, if at all.

Perceptions of Seatrout Decline

Although the degree and type of decline may differ between bay systems and regions, there was a widespread perception from all SP sub world informants that the seatrout population has decreased in both size and number over the last several years. Anglers attribute the trout decline to increased fishing effectiveness, increased number of anglers, advances in information technology and equipment technology, use of live croaker as bait, freshwa-

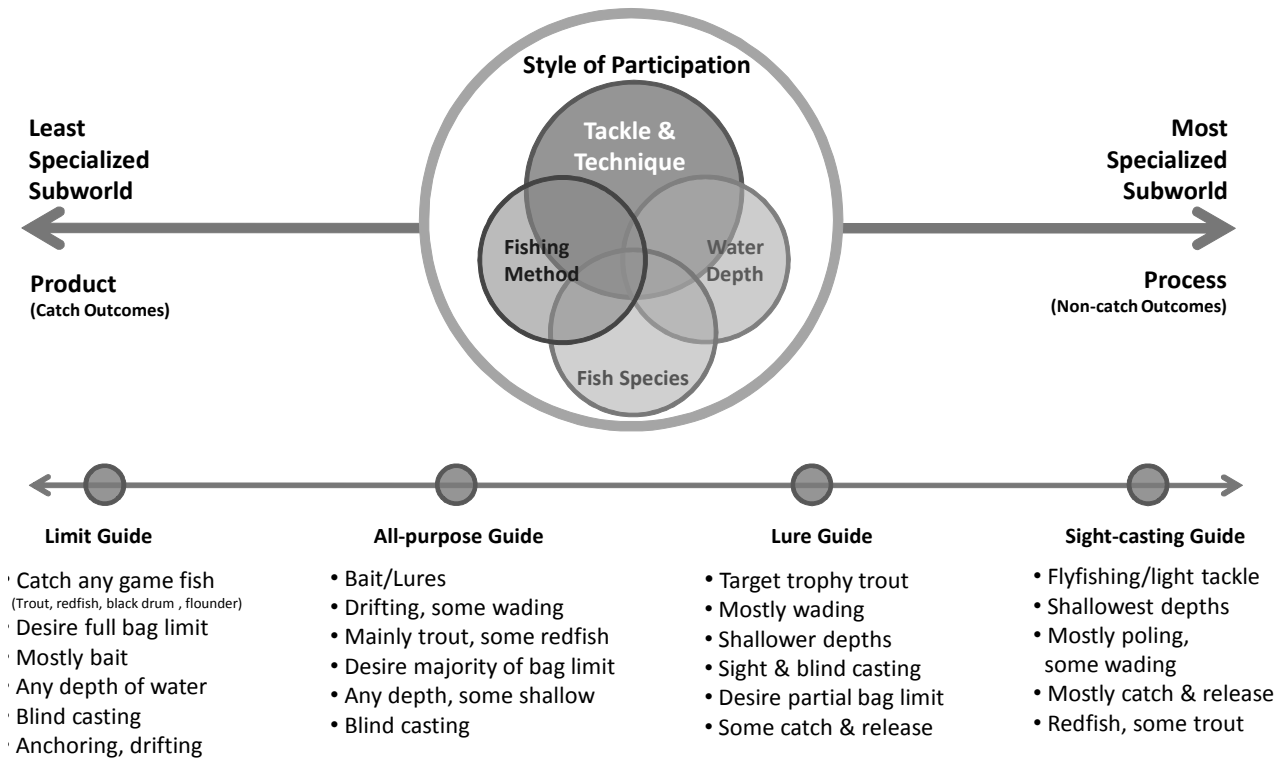


Figure 1. Specialization Segmentation of Texas Inshore Recreational Fishing Guides

ter inflows and stochastic weather events. Analysis revealed that Limit, All-purpose and Lure guides were most vocal in their support of lower bag limits and adjusting slot size. Lure only guides were most impacted by the decline of seatrout and supported more restrictive regulations that included spatial and temporal restrictions. Site-casting guides were least vocal and support was driven by encroachment of Limit and All-purpose guides into Sight-caster territory due to low trout numbers and subsequent substitution of seatrout for redfish by less specialized SP sub-worlds.

Perceptions of Boating & Fishing Pressure

Again, the issue of increased boating and fishing pressure varied geographically. SP sub-worlds, however, agreed that this phenomena has lead to a range of ecological, sociological and fish stock impacts including, seagrass damage due to prop scarring, unethical fishing tactics, decrease in fishing/boating etiquette and behavior modification in fish. Informants attribute dissemination of traditional ecological knowledge via internet, advances in mapping and boating technology and targeted marketing of shallow-running watercraft for the increase in boating and fishing pressure. Lure and Sight casting guides were more vocal and supportive of increased boating restrictions, zoning and educational programs whereas Limit and All-purpose guides were apathetic or provided casual support. Lure and Sight-casting guides also point to the influx of

Limit and All-purpose guides into shallow water, to pursue the abundant redfish populations due to the inability to effectively harvest bag limits of seatrout, as a cause for increased pressure and need for increased regulations.

DISCUSSION

The findings illustrated that guides can be placed into four distinct sub-worlds. Distinguishing characteristics focused on elements related to the guides’ choice of tackle and technique, water depth, target fish species and fishing method. These four sub-worlds can be used to characterize a particular style of participation sub-world. Awareness, perception and attitudes toward the management fisheries issues is associated with the perceived impact on a guide’s SP sub-world. The segmentation of recreational inshore fishing guides in Texas follows Ditton’s (1992) social worlds perspective of specialization. As postulated by Ditton (1992), analysis reveals that guide subworlds can be arranged on a continuum from least specialized to most specialized and suggests that as specialization increases sub-worlds place more importance on non-activity specific elements of the experience and become more resource dependent.

Less specialized SP sub-worlds were informed, concerned and vocal toward issues that impact catch related outcomes and more specialized sub-worlds exhibited greater resource dependency and were more affected by actions that impacted SP experience. Less

specialized SP sub-worlds were more concerned with product (catch related outcomes) whereas more specialized SP sub-worlds are more concerned with the process (non-catch related) outcomes.

Management Implications

Segmentation based on sub-world specialization SP provides managers with an ability to quantify the proportion of anglers that participate in different types of angling and estimate the level of impact management of a particular issue may have on different user groups. Additionally, determination of the proportion of anglers belonging to various SP sub-worlds may facilitate assessment of the relative abundance of adequate catch and non-catch related fishing opportunities. Monitoring trends and the associated availability of SP opportunities can assist in proactive management of angler behavior which may reduce or prevent conflict over resource use. As evidenced in this study with perceived decline of spotted seatrout populations, widespread support across multiple SP sub-worlds may be indicative of a serious issue and necessitate further investigation. Recreational inshore fishing guides exist because over 25% of saltwater anglers with similar SP hire guides in a given year. Not only do guides' SP represent the larger Texas angler population but maintaining open communications with the recreational fishing guide community provides fisheries managers direct contact with informants engaged on the frontlines in the fight for sustainable recreational fisheries management.

Limitations

A limitation of this study should be noted. This study does not enable generalizations about specialization SP sub-worlds. However, this research will drive a quantitative study that will test the SP sub-world model on all members of the recreational inshore fishing guides' social world. Additionally, this study has identified issues of concern that will be presented to the study population to ascertain associated perceptions and attitudes.

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