

The attitude of fishermen towards stock enhancement and influencing factors: A case study in Guilan Province of Iran

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Abstract: Decline in aquatic resource stocks, occurs for various reasons. Although regulations and measures have proven useful, they have failed to inhibit effectively the stock reduction trends. Iranian Fisheries Organization has carried out a great deal of investments and efforts concerning the enhancement of the Caspian Sea resource stocks through the restrictive regulations, and reproduction and release of various species such as bony fish and sturgeon. Nevertheless, reports of low catch of fish by fishermen and illegal fishing of even released fry have made serious concerns. Consequently, the existing approaches and practices have been questioned. However, resource management is facing a lack of proper understanding of society's behaviors and attitudes towards the resource conservation and management. It is hard to study behavioral changes, but measuring of attitudes toward the natural resources conservation or enhancement, as well as the factors influencing the interest and commitment towards it, seems to be a prerequisite of any plan or program in that regard. The present study measures the fishermen's attitude by means of Fishbein-Ajzen's model as important and vital theory of behavior-attitude explanation. Variables such as evaluation of outcome, expectation of outcome or belief, satisfaction of and contribution in stock enhancement, as well as influenced factors including: personal characteristics, experience, amount of catch, and awareness were examined. In this descriptive analytical research, 180 samples out of the whole 5645 fishermen

of the bony fish, in seven coastal towns of the Guilan province, were interviewed through a questionnaire. The study showed a significant positive attitude toward stock enhancement with 95% confidence. They included fishermen who were literate, more informed, with higher catches, and also who were content with their occupation. However, there was no significant relation between the fishermen's attitude and other factors such as age, experience, and opinions about the restrictive measures.

Keywords: Attitude, fishermen, stock enhancement, Guilan, Iran

Introduction

When fish stocks declined for various reasons, including overfishing, illegal fishing, pollution and aquatic spawning ground degradation, governments and resource users faced with serious challenges. Regulations and measures have, though proved useful, failed to inhibit effectively the stock reducing trend. Iranian Fisheries Organization (IFO) has carried out a great deal of investment and efforts to rebuild the stock of the Caspian Sea resources, through reproduction and release programmes on various species, such as bony fish and sturgeon, in addition to instrumental, spatial and technical restrictions. Every year, about 200 million bony fish fries are released to the Iranian part of the Caspian Sea to meet 12000 fishermen subsistence all over costal regions including three provinces: Guilan, Mazandaran and Golestan. Most of the 5645 fishermen are organized in cooperatives and are catching fish in Guilan (Iranian Fisheries Company, 2003). Nevertheless, reports of low catches by fishermen and illegal fishing of even released fry, mostly in Guilan, have made serious concerns, and consequently the current approach and practices have been questioned. There is a growing recognition of incorporating local communities and beneficiary groups into natural resource conservation and enhancement activities as an alternative to the more traditional exclusionary "fence, fines and restriction" approach (Hulme & Murphree, 2001; Alpert, 1996 ; Wells *et*

al., 1992; Kiss, 1990). Moreover, without local involvement, there is little chance and very high costs for the resource management plans to succeed (Pimbert & Pretty, 1995). "Implementing such initiatives has become so common place in the last decade that they are now considered mainstream conservation practice" (Inamdar *et al.*, 1999). These include methodological approaches that emphasize on management objectives and participatory decision processes focused on community-based management and co-management that have the potential to address community development as an integral part of fishery resource management. In this regime human dimensions of the fishery dominate on the customary primary focus on fish stock assessment and population dynamics (Berkes *et al.*, 2001). Pinkerton (1989_{a,b}) and Jentoft (1989) have listed the potential benefits of co-management, as the sharing of power and responsibility between the state and resource user groups, to include community-based development, conflict management, and the decentralization of resource management (Pinkerton, 1989_{a,b} ; Jentoft, 1989). Although, sever critics are flawed because economic aspirations of resource users are incompatible with sustainable resource utilization (Oates, 1999). All evidences point to long-term economic and environmental success only when people's ideas and knowledge are valued and power is given to them to make decisions (Pimbert & Pretty, 1995).

Lack of understanding of interests and believes of the resource user results in ineffective resource management. Focusing on the need to better understanding, numerous studies have employed to measure attitude towards conservation and natural resource management and to identify influencing factors (Holmes, 2003). So, careful assessment of attitude could serve to guide effective beneficiary groups or local community resource management initiatives. Infield and Namara (2001) went

as far as to suggest that attitudes could be useful surrogates for behavior in situations where assessing behavior changes are difficult. During the past 25 years, many social psychologists identified attitudes as prejudice of human behavior (Kahle & Berman, 1979). In addition, most researchers in social psychology found that attitudes have outcomes in human actions. In this point, attitudes are powerful motor to force and direct behavior (Wiggins *et al.*, 1994). Therefore, attitude assessment of fishermen would to guide to prediction of their behavior in any kind of resource management that intends to involve them. Moreover, attitudes investigation, to some extent, can illustrate their behavior to stock enhancement efforts of the IFO.

Conceptual framework

There is an equal meaning for "attitude" and "view" in a few cultures, including Persian, but these words and perception have different conception in social psychology. Some distinguish it by the weakness and severe personal experience of a phenomenon. Researchers have defined attitude by different terms such as: "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (Allport, 1966), or "a learned association between a concept and an evaluation, like any construct based on associative learning, attitude strength varies". Rafipour (1993) based his study on Witte's definition of attitude as: "a system of evaluator reaction derived from believes and framework that develop evaluation" (Witte, 1989). Definition of Eagly and Chaiken (1993) refers to a tendency to evaluate an object with some degree of favor or disfavor. According to Dwivedi (1995), attitudes are evaluative statements relating to objects, people or events that reflect one's feelings about something. He, as other researchers, distinguishes between attitudes and values (Reich & Adcok, 1976). "But it is as difficult to produce a clear definition of value as it is an attitude",

“although some theorists have argued that they are really the same thing” (Hayes, 1994). The definitions denote the same meaning for the concept of attitude, but the function of attitude and the relationship of attitude and behavior are the main issues of this study. Ajzen and Fishbein theory (1975) predict behavior. Ajzen (1987) developed the theory, called “planned theory”, to lift the major shortcomings of the previous one. Fazio’s attitude (1986) accessibility model as an alternative theory received a fair amount of attention among psychologists, but Ajzen and Fishbein’s theory remained popular with some market researchers (Roskos & Fazio 1992). The theory is somewhat restrictive in that it addresses attitudes toward volitional behavior. “In essence, the theory posits that intention is a function of attitude toward the behavior and subjective norms”. Attitude toward the behavior is a function of beliefs that the behavior leads to a salient outcome, the subjective norms, and the person’s motivation to comply with these references expectation. Numerous applications of the theory have demonstrated its predictive validity (Brief, 1998). Moreover, attitude (a) directly affects by a person’s own outcome and selfinterest; (b) is related to deeply hold philosophical, political, and/or religious values; and (c) is of concern to the person’s close friends, family, and/or social in-groups. Rafipour (1993) and Hayes (1994) argued that saving, repeated experience, and corporation are factors influencing attitude, while recent Canadian research provides a genetic contribution (Olsen *et al.*, 2001). In this study fishermen’s attitude as specific (not general) attitude toward stock enhancement was measured by variables such as evaluation of outcome (stock enhancement) and expectation of outcome or belief. Influencing factors including personal characteristics, experience, amount of catch, awareness, contribution in and satisfaction of stock enhancement, and subjective norm were examined.

Research Method

The research essence including core questions and proposition has specified the descriptive-analytical methodology (Best, 1983). Therefore, statistical population included all 5645 fishermen organized in 70 cooperatives engaged in Guilan's Caspian coastal fishing. Table 1 shows the sample (180) obtained by Cochran formula and proportionate-stratified random sampling in seven cities of Guilan province.

Table 1: Statistical population and sample in coastal fishing region (Guilan province)

City name	Cooperative (No)	Member (No)	Proportion of member to population (%)	Sample (No)
Bandar Anzali	24	1987	35.2	63
Roudsar	17	1273	22.55	40
Astane Ashrafieh	34	1225	21.74	39
Langroud	6	448	7.93	14
Lahidjan	4	405	7.17	13
Talesh	4	233	4.12	8
Astara	2	73	1.29	3
Total	70	5645	100	180

Face validity of the semi-structured questionnaire was determined by a number of scientific boards and fisheries' experts. The most popular method of "Likert scale" by closed questions as well as open-ended questions were applied to measure and find out the responses. Given the variable scales, suitable descriptive or inference statistics including relative and central tendency, Chi-square and ordinal correlation coefficient were used.

Results

Characteristics of 180 respondents indicate that: (1) about 50% of 176 responding fishermen are less than 42 years old and 8.5% are at least 60 with mean, minimum and maximum as 45, 26 and 76 years old respectively, meanwhile, 84% are literate and educated from 3 to 12 school levels; (2) main job of 92% is offshore sciener and that of the rest is agriculture, while 19% stated farming as their second job, 82% had no second job; (3) mean number of family members is five persons with the highest frequency of 4 to 7 persons. All in all, the surveyed fishermen are adult men with medium household dimension and high percentage of literacy (compared to the rural society), though the education level was medium. A wide range of fishing experience is observed, of 176 respondents, includes 4 to 63 years of experience with mean of 23, while 21% of them have practiced for more than 30 years, which indicates that about 50% of respondents choose this career after the Islamic Revolution in 1979. On that time, some people living by the Caspian Sea shore line began illegal fishing, due to ease of fishery ban enforcements. Latter on, people joined the community of legal fishermen.

About 44% of participant complained about "unsupportive fishing", and 26.7% of "low income". The amount of catch in 2001 for 82% of fishermen evaluated as "little and very little", and only two persons evaluated that as "high and very high" IFO report shows a 20% decrease in annual catch compared to the year 2000, in the area (Iranian Fisheries Company, 2003). There has been an increasing trend in the Caspian Sea stock enhancement, through reproduction and release of bony fish and sturgeon's fry during the last three decades. Moreover, IFO applied a number of limitations in terms of gears, fishing methods, and time limitation as restrictive measures. The awareness, attitude and subjective norms of respondents toward the mentioned practices and measures were examined by different questions. About, 97% of the respondents sample groups were informed of the "fry release" activities carried out by the IFO, while only 55% of them had observed the practice. Less than

60% of the respondents argued that the “fry release was not accurately conducted” and 51.7% of them considered release location as “inappropriate site for the practice”. This consideration is, however, associated with those who are, somehow, aware of the activity, not conclusively limited to the individual observer. On the contrary, 37.2% claimed that the “release practice being accurately conducted”, and 46.7% approved the “release site as being appropriate”. Extent of the fishermen's general and technical knowledge about the resource stock enhancement activities reveals a number of more precise aspects that are described in the following. Almost all of the respondents have pointed to one of the reliable options for the question about the “most appropriate time of fry release”, about 45% answered “when the river is not polluted”, as the most common option. Over 74 % of the respondents have attributed the advantage of fry release into the river mouth to a couple of factors, including “a lower risk of fry catch” and “a more rapid fry migration to the sea”. Responding to a question about the identification of four key factors to succeed in release practices (Table 2), two factors were considered as the most important ones, including “a precise adoption of the release site” (by the 38.2 %) and “a release of the grown-up fish fry” (by the 22 %).

Table 2: Identification of four key factors to succeed in a release practice by respondents

Responses of fishermen	No	percent
Overall resource stock and catch	72	43.1
Mostly resource stock and catch of the release area	54	32.3
Only on resource stock and catch of the release	26	15.6
There is no broad effect	15	9
Total	167	100

From 167 responses to the question on the “domain of release impact on the resource stock and fishing capacity” (Table 3), 43.1% admitted its impact to appear on the “overall resource stock and fishing”, 32.3% on the “mostly resource stock and fishing of the release area”, and 15.6% on the “only resource stock and fishing of the same release”.

Table 3: The domain of release impact on the resource stock and fishing capacity

Responses	No	percent	Accumulative percent
Releasing more fry	30	18.2	18.2
release of the grown-up fish fry	39	22	41.8
precise adoption of the release site	63	38.2	80
Releasing fry whilst high river flow	33	20	100
Total	165	100	--

Moreover, around 10% of the respondents believe that “there is an inexhaustible aquatic resource stock which might be fished as much as you wish”, and only a 15.6% of them are willing “to fish beyond any bind and bounds”, if restrictions are removed, mentioning that overwhelming life expenses would force them to do so. IFO tends to catch the migrating spawner bony fish at mouth of certain rivers, in March and April. It is assumed by 133 of the respondents as a proper activity, while 10 of them have thought that “the aim is fishing for the consumption of IFO personnel, and 30 people do not know why such an activity is carried out. Fishing immature or undersize fish seems to be a serious problem in the Caspian Sea

resource management. IFO experts suggest that it is caused by the lack of standard mesh size in gears used by most of the fishermen. However, only 29% of fishermen admitted that their nettings caught undersize fish, which, as they pointed, was due to the “unsuitable nettings” and/or the “fish intensity within nettings resulting in the undersize fish being trapped”. The study showed that about 30% of the respondents considered the application of “mesh size of 32mm” and the “banned fishing periods announced by the IFO” as appropriate measures.

In the present study evaluation of outcome and expectation of outcome of a phenomenon, like “fry fish release”, measured by mean of some indexes which are the influencing factors toward the attitude. Some 22% of the respondents have suggested that “the fishermen should be asked to participate in releasing fry fish”. One hundred and forty eight of respondents (82.2%) stated that “they would welcome any request for their assistance in enhancing the resource if IFO asked, 76 people were prepared to cooperate in “conservation of river”, 35 people in “reproduction and production of fish”, 29 people in “fishing of spawners”, and 21 people in “transport and release of fry fish”(Table 4).

Table 4: The fishermen's preference for participation in stock enhancement

Means	No of respondents
Fishing of spawners	29
Reproduction and production of fish	35
Transport and release of fry fish	21
Conservation of river	76

Regardless of the reaction of their fishing cooperative or union to participate in each of the above four activities, 44, 40, 33 and 65 peoples were positive to do so. About 87% of the respondents think that "the fishermen's participation would improve the stock enhancement". About 28% of fishermen were willing to cooperate free of charge, while 64.4 % claim wages to do so. On the contrary, 4 % of them are even content to provide their financial support for the practice. According to a number of studies, most of the rural people (77%) are content to invest and sacrifice for revitalizing the environment (Husseini, 1999) and 84.3% are willing to make investments in the environment (Zeinivand, 1999). The fishermen's attitude was produced through a combination of some attitude index variables. The attitude mean of 168 respondents was estimated as 2.15 out of 3.5 (Fig.1).

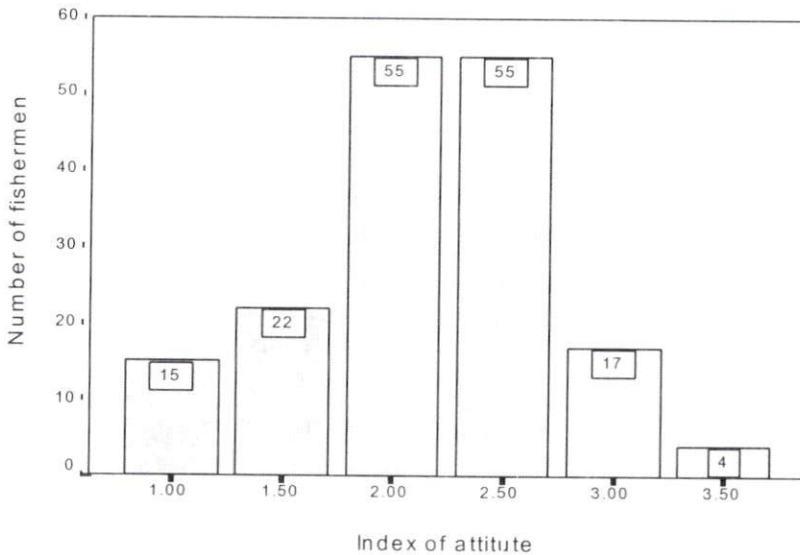


Figure 1: Attitude of fishermen towards stock enhancement

The literate fishermen were highly informed, and those who had a higher fishing rate, had a significantly more positive attitude toward the stock enhancement. Other

studies (not tested yet) indicate that the attitude toward the resource and natural park conservation is higher among the people with: higher level of education (Fiallo & Jacobson, 1995; Akama *et al.*, 1995; Infield, 1988), awareness increase (Fiallo & Jacobson, 1995), as well as with increase in benefits from resources (Mehta & Heinen, 2001; Mehta & Kellert, 1998; Fiallo & Jacobson, 1995). According to this study, the fishermen who were satisfied with their occupation had a significantly more positive attitude toward the stock enhancement. The fishermen's attitude, however, had no significant relationship with the other factors such as age, experience, and their ideas about the spatial and technical restrictions. Shafiei (2000) showed that there was a significant relation between the experience in the carpet-weaving practice and the people's attitude toward handicraft, but according to another study (Department of Extension of Khorasan Agriculture Organization, 1997), younger experts and those with a lower working experience had a greater attitude toward the sustainable agriculture.

Conclusions and Recommendations

Considering the positive and significant impacts of each of the three factors literacy, awareness of the stock enhancing activities, and a higher catch rate on the fishermen's attitude toward the stock enhancement, and given fishermen's belief and content of participating in the stock enhancing activities, as well as the same tendency in the union or cooperative regardless of their dominant beliefs and problems (such as a great number of the off-shore scener sites, illegal fishing, lack of support for their occupation, incorrect practice and location of release of fry fish), it could be concluded that measures and efforts such as literacy movement, promotion of awareness about the stock enhancing activities and its implications are necessary to achieve a more positive attitude in fishermen, and consequent planning for their active participation in the stock enhancement programmes.

Therefore, the following suggestions are presented:

- 1- The study shows a significant positive relation between awareness of fish

conservation and stock enhancement. So, promotion of the awareness and information through media, appropriate to the education level, accessibility, and in proper times, should be developed;

- 2- Fishermen participating in the present study as well as the Iranian fisheries experts and scientists believed that overfishing and illegal fishing are two of the most serious problems. Therefore, off-shore sciener sites should be reduced by allocating subsidies for a certain number of sites, within a specific period of time and in a cycling manner to leave other sites with alternative plans. Thereby fishing could be increased in the remaining off-shore sites. In addition, a number of measures should be taken to reduce the illegal fishing as an abnormal social behavior, in hope of imposing a possible, influence and low-cost normative pressure.
- 3- A step-by-step planning should be undertaken, particularly in the regions where a more positive attitude toward the stock enhancement exists, to involve fishermen in the stock enhancing management. Primary steps might be started from the more objective and tangible stages, e.g. fish fry release.
- 4- All, fishermen participating in the present study, emphasized on release of more grown-up fish instead of small fries, as well as careful selection of release sites.

References

- Ajzen, I. , 1987.** Attitudes, traits and actions: Dispositional prediction of behavior in personality and social psychology. **Cited In:** Kantowitz, B.H., Lee, J.D., Becker, C.A., Bittner, A.C., Kantowitz, S.C., Hanowski, R.J., Kinghorn, R.A., McCauley, M.E., Sharkey, T.J., McCallum, M.C., and Barlow ,S.T.1997. Development of human factors guidelines for advanced traveler information systems and commercial vehicle operations; exploring driver acceptance of in-vehicle systems information FHWA-RD. pp.96-143

- Ajzen, I. and Fishbein, M. , 1975. Cited In:**Stones, Michael. Attitudes and aging. Chapter 6 **Excerpt from:** N. Chappell, E. Gee, L. Mc Donald, M. *In:* flash.lakeheadu. ca/~mstones/attitudes.html -53
- Akama, J.S. ; Lant, C.L. and Burnett, G.W. , 1995.** Conflicting attitude toward state wildlife conservation programmes in Kenya. *Society and Natural Resources*, **8**: 133-144. **Cited In:** Holmes, C. , 2003. The influence of protected area outreach on conservation attitudes and resource use pattern: a case study from Western Tansania. *Oryx*, **37** (3) July 2003.
- Allport, G.W. , 1954.** *The Nature of Prejudice*, Wokingham:Addison-Wesley. **Cited In:** Hayes, N. , 1994. *Foundations of psychology, An Introduction Text*. Routledge. pp.39-40.
- Alpert, P. , 1996.** Integrated conservation and development projects: examples from Africa. *Bioscience*, **46**:45-855. **Cited In:** Holmes, C. , 2003. The influence of protected area outreach on conservation attitudes and resource use pattern: A case study from Western Tansania. *Oryx*, **37** (3) July 2003.
- Berkes, F. ; Mahon, R. ; McConny, P. ; Pollanc, R. and Pomerory, R. , 2001.** *Managing Small-Scale Fisheries, Alternatives, Directions and Methodes*. IDRC. Canada. pp.4-22.
- Best, W. J. , 1983.** *Research in education*. Translated to Persian by: PashaSharifi, Hassan, and Narges Taleghani, 1987. Roushed Publication.Tehran. pp.125-146.
- Brief, A.P. , 1998.** *Attitudes in and around organisations*. Sage. pp.61-69.
- Department of Extension of Khorasan Agriculture Organization, 1997.** *Views and educational needs assessment of extension staff for sustainable agriculture in Khorasan Agriculture Organization*. Khorasan Agriculture Organization publication. 35P.
- Dwivedi, R.S. , 1995.** *Human Relations and organizational Behavior, A Global Perspective*, Fourth edition. Macmilan India Limited.pp.87-89.
- Eagly, SH. and Chaiken, A.H. , 1993 Cited In:** Stones, Michael.Attitudes and

aging Chapter 6 **Excerpt from:** N. Chappell, E. Gee, L. Mc Donald, M. In: flash.lakeheadu.ca/~mstones/**attitudes.html** – 53

- Fazio, R.H. , 1986.** How do attitudes guide behavior? **Cited In:** Kantowitz, B.H., Lee, J.D., Becker, C.A., Bittner, A.C., Kantowitz S.C., Hanowski, R.J., Kinghorn, R.A., McCauley, M.E., Sharkey, T.J., McCallum, M.C., and Barlow, S.T. ,1997. Development of human factor guidelines for advanced traveler information systems and commercial vehicle operations; exploring driver acceptance of in-vehicle systems information FHWARD-96-143
- Fiallo, E.A. and Jacobson, S.K. , 1995.** Local communities and protected area: attitude of rural residents towards conservation and Machalilla National Park, Ecuador. *Environmental conservation*, **22**:241-249 **Cited In:** Holmes, C. , 2003. The influence of protected area outreach on conservation attitudes and resource use pattern: a case study from Western Tanzania. *Oryx*, **37** (3) July 2003.
- Hayes, N. , 1994.** Foundations of psychology. An Introduction Text. Routledgepp. 603-637
- Holmes, C. , 2003.** The influence of protected area outreach on conservation attitudes and resource use pattern: a case study from Western Tansamia. *Oryx*, **37**(3), July 2003.
- Husseini, G. , 1999.** Environment conservation and rural development attitudes. Bs C. Dissertation. University of Tarbiat Modares. Tehran. 61P.
- Inamdar, A. ; de Jode, H. ; Lindsay, K. and Cobb, S. , 1999.** Capitalizing on nature. Protected area management. *Science*, **283**:1856-1857. **Cited In:** Holmes, C. , 2003. The influence of protected area outreach on conservation attitudes and resource use pattern: a case study from Western Tansania. *Oryx*, **37**(3), July 2003.
- Infield, M. , 1988.** Attitudes of a rural community towards conservation and a local conservation area in Natal, South Africa. *Biological Conservation*, **45**:21-46.

- Cited In:** Holmes, C. , 2003. The influence of protected area outreach on conservation attitudes and resource use pattern: a case study from Western Tanzania. *Oryx*, 37(3), July 2003.
- Infield, M. and Namara, A. , 2001.** Community attitudes and behavior towards conservation: an assessment of a community conservation programme around Lake Mbure National Park, Uganda. *Oryx*, 35:48-60. **Cited In:** Holmes, C. , 2003. The influence of protected area outreach on conservation attitudes and resource use pattern: a case study from Western Tanzania. *Oryx*, 37(3) July 2003.
- Iranian Fisheries Company , 2003.** Statistical annual of Iranian Fisheries. Department of design and development. 5P.
- Jentoft, S. , 1989.** Fisheries co-management: delegating government responsibility to fishermen's organizations. *Marine Policy*, 13(2), 137-154. **Cited In:** Berkes F., Mahon, R., McConny, P., Pollanc, R., and Pomeroy, R. , 2001. *Managing Small-Scale Fisheries, Alternatives, Directions and Methodes*. IDRC. Canada. pp.4-22
- Kahle, L.R. and Berman, J.J. , 1979** Attitudes cause behavior: A cross-lagged panel analysis. *Journal of personality and social psychology*, 37:315-321. [8] **In:** Wiggins, J.A. ; Beverly, B. ; Wiggins, James Vanderzanden, 1994 *Social Psychology*. Fifth edition. Mc Graw-Hill / Inc. 239 P.
- Kiss, A. , 1990.** *Living with Wildlife: Wildlife Resource Management with Local Participation in Africa*. The World Bank, Washington, DC, USA. **Cited In:** Holmes, C. , 2003. The influence of protected area outreach on conservation attitudes and resource use pattern: a case study from Western Tanzania. *Oryx*, 37(3), July 2003.
- Mehta, J.A. and Heinen, J.T. , 2001** Does community-based conservation shape favorable attitudes among locals? An empirical study from Nepal. *Environmental Conservation*, 28:165-177. **Cited In:** Holmes, C. , 2003. The

influence of protected area outreach on conservation attitudes and resource use pattern: a case study from Western Tanzania. *Oryx*, 37(3), July 2003.

- Mehta, J.A. and Kellert, S.R. , 1998.** Local attitudes towards community-based conservation policy and programmes in Nepal: a case study in the Makalu Barun conservation area. *Environmental Conservation*, **25**:320-333. **Cited In:** Holmes, C. , 2003. The influence of protected area outreach on conservation attitudes and resource use pattern: a case study from Western Tanzania. *Oryx*, 37(3), July 2003.
- Oates, J.F. , 1999.** Myth and reality in the rain forest: How conservation strategies are failing in West Africa. University of California Press, Berkeley, USA. **Cited In:** Holmes, C. , 2003. The influence of protected area outreach on conservation attitudes and resource use pattern: a case study from Western Tanzania. *Oryx*, 37(3) July 2003.
- Olsen, V.; Harris, PG. and Jang, J. , 2001.****Cited In:** Stones, Michael. Attitudes and aging Chapter 6 **Excerpt from:** N. Chappell, E. Gee, L. Mc Donald, M. **In:** flash. lakeheadu.ca/~mstones/attitudes.html -53
- Parry, D. and Cambell, B. , 1992.** Attitude of rural communities to animal wildlife and its utilisation in Chobe Enclave and Mababe Depression, Botswana. *Environmental Conservation*, **19**:245-252. **Cited In:** Holmes, C. , 2003. The influence of protected area outreach on conservation attitudes and resource use pattern: a case study from Western Tanzania. *Oryx*, 37(3), July 2003.
- Pimbert, M. and Pretty, M. , 1995.** Parks, People, and Professionals: Putting participation into protected area management, New York: United Nations Resource Institute for Social Development and The World Wildlife Fund for Nature. pp.12-31.
- Pinkerton, E. , 1989a.** Cooperative management of local fisheries: new directions for improved management and community development. University of British Columbia Press, Vancouver, BC, Canada. 39P.

- Pinkerton, E. , 1989b.** Introduction: attaining better fisheries management through co-management-prospects, problems, and propositions. Pp.3-33.**Cited In:** Berkes F. ; Mahon, R. ; McConny, P. ; Pollanc, R. and Pomerory, R. , 2001. Managing small-scale fisheries, alternatives, directions and methodes. IDRC. Canada. 42P.
- Rafipour, F. , 1993.** Rural attitude measurement toward Jihad-e-Sazandegi. Rural Research Center of Ministry of Jihad-e-Sazandegi. pp.5-11.
- Reich, B. and Adcok, C. , 1976.** Values, attitudes and behavior change. London. Methuen. *In:* Hayes, N. , 1994. Foundations of psychology, An Introduction Text. Routledge. 604P.
- Roskos-Ewoldson, M. and Fazio, R.H. , 1992.** On the orienting value of attitudes: Attitude accessibility as a determinant of an object's attraction. Journal of Personality and Social Psychology, **63**:198-211. **Cited In:** Kantowitz, B.H. ; Lee, J.D. ; Becker, C.A. ; Bittner, A.C. ; Kantowitz, S.C. ; Hanowski, R.J. ; Kinghorn, R.A. ; McCauley, M.E. ; Sharkey, T.J. ; McCallum, M.C. and Barlow, S.T. , 1997. Development of human factors guidelines for advanced traveler information systems and commercial vehicle operations; exploring driver acceptance of in-vehicle systems information FHWA-RD-96-143
- Shafiei, H. , 2001.** Affective factors influencing rural youth attitude toward handicrafts. Dissertation for BsC. 46P.
- Wells, M. ; Brandon, K. and Hannah, L. , 1992.** People and parks: linking protected area management with local communities, Washington, DC, USA. **Cited In:** Holmes, C. , 2003. The influence of protected area outreach on conservation attitudes and resource use pattern: a case study from Western Tansania. Oryx, 37(3), July 2003.
- Wiggins, J.A. ; Wiggins, B.B. and Vander Zanden, J. , 1994.** Social psychology. Fifth edition. Mc Graw –Hill / Inc. 633P.
- Witte, H. Erich. , 1989.** Sozialpsychologie: Ein Lehrbuch. Muenchen:Psychologie

Verlag. **Cited In:** Rafipour, F. 1993. Rural Attitude Measurment toward Jihad-e-Sazandegi. Rural Research Center of Ministry of Jihad-e-Sazandegi. Tehran. 6P.

Zeinivand, M. J. , 1999. Rural environment and views to rural development, case study: Counties in Dareshahre of Eilam. Dissertation for BsC. University of Tarbiat Modares. 72P.