The Influence of Norms and Consequences on Voluntary Catch & Release Angling Behavior

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Abstract

As catch and release angling (C&R) behavior increases, more knowledge is needed to understand the influence of norms and perceived consequences. Based on a survey of salmon anglers (n = 656) in Lakselv River, Norway, we showed that norms and awareness of consequences influence anglers' behavioral intention of voluntarily releasing fish. Awareness of consequences had stronger impact on C&R behaviour than the perceived social norm. The results from the structural modeling supported our initial conceptual model, and suggest that voluntary C&R is a process where the individual angler considers the biophysical (ecology, setting, species, status of stocks) and social setting in addition to other factors. Future research should look further into the cognitive part of obligation to do C&R, the more affective or emotional components of sanctions of doing or not doing C&R and the influence of knowledge, in different angler subpopulations and between types of fisheries.

Keywords: collective action, market segmentation, norms, path modelling, salmon fishing

Introduction

There is general agreement that catch and release angling (C&R) behavior is increasing (Arlinghaus et al., 2007). For instance, C&R in marine recreational fishing in the United States grew from 34 % in 1981 to 59 % in 1999 (Bartholomew & Bonsach, 2005). Historically, C&R has been more common in North America than in Europe, but there are also significant differences between types of fisheries (Aas,Thailing, & Ditton, 2002; Arlinghaus et al., 2007). C&R for Atlantic salmon (*Salmo salar* L.) originated in the U.S. and Canada, and became part of formal regulations in the mid-1980s (Aas, 2007). From the mid-1990s on Scotland, England, and Wales had a significant increase in C&R (Aas, 2007). In Norway, salmon anglers' C&R behavior is changing fast, especially after 2008, indicating a growing and emerging norm for r C&R. From 2009 to 2011 C&R of salmon in Norwegian rivers grew from 7 % to 12 % of the total registered catch (Statistics Norway, 2012). A 2012 poll of the Norwegian public showed for the first time that more people were in favor of C&R than opposed to it (TNS Gallup, 2012). However, the registered C&R rate in Norwegian rivers varies from 0 to more than 50 %. To better understand these dynamics, knowledge about norms and consequences provide important supplementary insights to attitude and motivation studies.

Much anecdotal literature and information from the angling literature, angling NGOs and management agencies about C&R are value-based and include a normative message – you should release your catch. The best example is probably Lee Wulff's much cited slogan: *A gamefish is too valuable to be caught only once.* Despite this, Arlinghaus et al. (2007) and Heberlein (2012) argue that the role of norms in understanding C&R so far has been neglected, although norms are important both for fisheries management as well as to understand general social processes in human-environment relations. This study sought to increase our understanding of the growth in C&R angling by studying the influence of

perceived social norms and awareness of consequences of C&R on anglers' behavioral intention to voluntarily release fish.

Norms

In the social sciences of natural resources management the concept of norms is defined and used differently depending on the issue of concern. Two main approaches exist (see Vaske & Whittaker (2004) for a review). The first is *norms as a standard.* The structural characteristics model has frequently been used to assess acceptable social and resource conditions of recreation settings such as crowding and vegetation loss (Manning, 2011, pp. 137-165).

The second, which is the approach we follow here, is *norms as motivating individual behavior.* Several approaches to norms emphasize a sense of obligation by the individual and possible sanctions such as punishment for breaking norms and reward for following them (Grasmick, Bursik, & Kinsey, 1993; Heywood, 2002). Heywood (2011) defines social norms as "Informal rules shared by groups or societies that guide behavior and have positive and/or negative consequences that help to make the behavior more or less self-correcting" (p. 442). A personal norm is the individual's own expectations of what to do in a particular situation, and being learned from shared expectations (Schwartz, 1977). The personal norm is influenced by the social norm and can ultimately become completely internalized by the individual such that the specific personal norm equals the social norm (Heberlein, 1975). Social norms can be enforced through informal sanctions by others who hold the norm, internalized by the individual in form of a personal norm, and then enforced by that person on oneself and on others (Heywood, 2011). A sanction increases the probability for compliance to the norm, and is the emotional and coercive component of a social norm that is expressed by others and felt by one's self (Heywood, 2011). Behavior can be more or less self-

correcting if the individual knows about the social norm and are aware of the consequences of breaking or following the norm.

Two theoretical directions have been applied to study norms and individual behavior: (a) The theory of reasoned action (see Fishbein & Ajzen (2010) and (b) norm focus (Cialdini, Reno, & Kallgren, 1990) and norm activation models (Schwartz, 1977).

Norm activation.

Schwartz' (1977) norm activation model is used to explain under which conditions norms affect behavior, and originally emphasized altruistic helping behavior being caused by the individual's belief of what is morally correct to do. The model has successfully been applied to explain environmental behavior (Vaske & Whittaker, 2004). As Heberlein (1972) argues, helping others and environmental problems are both moral issues that require collective action by individual efforts. Schwartz's (1977) suggested that a person that holds a personal norm (e.g., "I should release/ keep all the fish I can") for a specific behavior would not necessarily conform to it unless it had become activated. Two factors are important for norm activation and individual action: the person must hold an *awareness of the consequences* his/her behavior has on others and he/she must accept some personal responsibility for his/her actions (i.e., *ascription of responsibility*). The consequences variable consists of at least two components, one dealing with the sense of effect of the action, and the other that the action has an effect on others. To exemplify the consequences to the recreational salmon fishery: the angler might believe that the fishery would deteriorate if C&R is not done, thus hurting both fish stocks and anglers. The angler could also believe his/her actions to have consequences for the individual fish. According to Schwartz'(1977) the relationship between the personal C&R norm and C&R behavior would be more pronounced among anglers that are aware of

negative consequences of not doing C&R and feel some responsibility, than by anglers who deny negative consequences and responsibility.

Norm emergence and C&R angling.

While C&R salmon angling is growing in Norway, it is not yet considered a general obligation. It is however likely that in some angler segments the social norm for releasing (or retaining) fish is stronger than in others, and will influence individual behavior. The individual angler's belief about what important others think he/she should do with the fish is a *perceived social norm* (Heberlein, 1975; Schwartz, 1977) or what Fishbein & Ajzen (2010) call a subjective social norm. Heberlein (1975; 2012, pp. 102-105) argues that the perceived social norm and awareness of consequences plays a vital role in emergence of a personal norm. When the personal norm for C&R is weak (held by few anglers) the two factors have a direct influence on behavior at a population level. Some anglers will be releasing fish because of perceived social pressure or because they believe it helps the fishery (individual fish, stocks, other anglers and oneself). At this early point these beliefs have not been internalized into the personal norm.

Heberlein (2012, pp. 103-105) also notes that norms change slowly and gives C&R angling in the U.S. as an example of how norms emerge, starting out with the old common practice of throwing undersized fish back. Awareness of consequences (deterioration of fishery, hurting other anglers) of keeping fish was also important, as well as high status leaders and media and market forces promoting C&R. Structural fixes (regulations) consistent with general attitudes can also grow norms, as in the example of anti-smoking laws (Heberlein, 2012, p. 105). The C&R development in Norwegian fisheries, although with a time lag, is parallel. An important structural fix in Norway was caused by research showing that many rivers needed more spawners than previously believed to reach full production

(Hindar, Hutchings, Diserud, & Fiske, 2011). Because of this, several rivers got stricter regulations including daily/ seasonal personal quotas, and both voluntary and regulation imposed C&R has grown.

Conceptual Model

Our conceptual model (Figure 1) is an adaptation of the model Bratt (1999) used for studying recycling behavior. Bratt (1999), however, used a different terminology for social norms and consequences than the main theories (Fishbein & Ajzen, 2010; Heberlein, 1975; Schwartz, 1977). In contrast to Bratt (1999) we have stayed true to original terminology. We have applied the awareness of consequences element and personal norm from Schwartz's (1977) norm-activation theory. As Heberlein (1975) and Heywood (2011) argue, the personal norm is also influenced by social norms. For that reason we have included a perceived social norm - what the angler thinks other people (e.g. family, fishing buddies, other anglers) find as appropriate behavior regarding releasing or keeping fish. Our study did not include the ascription of responsibility element from Schwartz' (1977) norm activation model. Ideally, we would have liked to use actual C&R behavior as the dependent variable. Instead we used the behavioral intention of voluntarily releasing fish, because it is easy and convenient to measure with a questionnaire.

<Figure 1 about here>

Study Area: The Lakselva River Fishery

The Lakselva River of Northern Norway is salmon bearing for 45 km. It drains into the Porsanger fjord near the town of Lakselv (population 2,500). The Finnmark Property (semi-public landowner) and 102 private small-scale landowners own the fishing rights and supply Atlantic salmon (angling. The resource is managed collectively by all landowners through the river owner organization that sets and enforces fishing regulations (seasonal and

daily bag limits, tackle restrictions, restricted numbers of licenses on the five main zones), monitors the stock, and actively works to enhance and protect stocks and their habitat (see Stensland (2011) for an overview of fishing rights and salmon management in Norway). For the period 2007-2012 annual rod catches varied from 1,100 to 1,900 salmon, averaging 5.4-6.8 kg. The river is known for its big salmon; season runs June 1 - August 31.

Since 2008, Lakselva ROO has emphasized personal quotas and encouraged voluntarily release of fish to meet their spawning targets. C&R has been promoted in information brochures, the website (www.lakselva.no) and a photo contest. The current (2013) fishing regulations allow an angler to keep a total of three salmon over 80 cm for the season. For salmon under 80 cm there is no seasonal limit, but a daily bag limit of two fish. Lakselva River has among the highest release rates in Norway. The rate has increased from 9% in 2007 to 40% in 2011 and 2012 (Egil Liberg, Lakselva River Owner Organization, personal communication, September 11, 2012).

Methods

Questionnaire Design and Data Collection

The questionnaire design followed Dillman's (2009) and Vaske's (2008) recommendations for layout and question construction. The questionnaire was translated to English, German and Finnish. Pretesting of the questionnaire was done by two representatives from Lakselva ROO, eight students and eight researchers from Norway, Finland, and Germany.

Anglers buying licenses from Lakselva ROO are registered in an electronic database. Over the period 2009-2011 there were 2,676 unique persons registered. Of these, 1,010 gave their e-mail address were sent the web survey. The e-mail introductory letter was signed by the researchers and Lakselva ROO, and contained information about the study and an URL-

link to the web-based questionnaire. Three e-mail reminders were sent out with 5 to 6 days between as recommended by Vaske (2008, pp. 193-208) and Dillman (2009, pp 234-260). To boost response rate we promised survey participants inclusion in a draw for two seasonal permits to Lakselva River. Data collection lasted from February to March 2012.

The survey yielded a total of 656 responses. Of the initial 1,010 e-mails sent, 40 were returned undelivered, giving a valid sample of 970 and a response rate of 68%. The distribution of anglers in the three groups Norwegians, Finns and other foreign countries were similar for the total sample (2,676), the sample used (1,010) and the responses (656). Local anglers were underrepresented in the sample used due to missing e-mail addresses for this segment.

Variables

Based on the conceptual model (Figure 1), and adapted variable measures from Bratt's (1999) study on recycling behavior, we included the following latent variables, constructed by factor analysis of measured variables.

- C&R intentional behavior: the behavioral intentions of releasing one or several fish that could have been kept (i.e., voluntary released) the next season they were to fish in Lakselva River. Measured as three variables for (a) large salmon (>80 cm), (b) small salmon (< 80 cm), and (c) sea trout (*Salmo trutta* L.) and sea-run Arctic char (*Salvelinus alpinus* L.), on a 7-point scale about the likelihood of releasing fish where 1= very unlikely, 7=very likely.
- Perceived social norm: The influence of significant others, that is (a) family members, (b) fishing buddies, and (c) other anglers in the Lakselva River, on the decision to keep or voluntary release a fish in Lakselva River. In line with Bratt (1999) we constructed 3 new

index variables[1], one for each group *(a – c),* by multiplying the following measured variables:

- *Others strength of opinion about voluntary release*; measured on a 7 point scale with 1 = no opinions, 7= very strong opinions. There was also a "don't know" option. For the analysis the variable was recoded with no opinions and don't know given the value 0, whereas the others was reduced with one, and coded as 1-6.
- *What significant others prefer you to do with the fish you catch;* measured on a 5-point scale with verbal labels and an additional alternative of "don't know". Recoded for the analysis with - 1 = keep all I am allowed to, 0 = don't know, 1 = keep most, and release some, 2 = keep half, and release half, 3 = release most, but keep some, 4 = Release all the fish I get.
- *Importance you assign to what others think you should do with the fish*; measured on a 7-point scale with 1 = not at all important, 7 = very important.

This created one index variable for each of the three groups. Increasing absolute values denoted a stronger influence from these significant others on keep (negative) or release (positive) behavior. Values ranged from - 42 to 168. An example: If fishing buddies have very strong opinions (6), prefer the angler to release all fish s (4), and the angler assigns what the fishing buddies prefer to be very important (7), the score would be 168 (i.e. 6 x 4 x 7).

- The personal norm was measured by responses to the two statements:
  - I should release all the fish I catch in the Lakselva River.
  - I should keep all the legal fish I catch in the Lakselva River.

Answers were given on a scale where 1 = should never and 7 = should always. The latter item was reverse coded.

- Awareness of consequences of releasing or keeping fish included consequences both on a fishery level and on the individual fish level. The two measured variables for the fishery level were responses to these items:
  - Consequences for the fishery of others keeping every fish allowed.
  - Consequences for the fishery of self-retaining every fish allowed.

Answers ranged from 1 = No consequences to 7 = The fishery would deteriorate so much that the river had to close.

Consequences at the individual fish level were measured by responses on a 7-point scale where 1 = strongly disagree and 7 = strongly agree, to the following statements:

- Most fish that are caught and released in the Lakselva River would survive and spawn if handled correctly and hooked in the mouth.

I know how to correctly handle and minimize damages to a fish that are going to be released.

Analytical Approach

We employed partial least-squares path modelling (PLS-PM) to test the study model. PLS-PM is preferable to covariance-based structural-equation modelling (COV-SEM) when multicollinearity is severe (Cassel, Hackl, & Westlund, 2000; Kristensen & Eskilden, 2010) and improper and non-convergence solutions occur in COV-SEM (Bagozzi & Yi, 1994).

Two competing PLS-PM models were initially tested and examined based on our conceptual model. As seen in our final model (Figure 2), perceived social norm and awareness of consequences are expected to exert both indirect (via personal norm) and direct effect on C&R behavioural intention. The competing model differed from the final model by setting perceived social norm and awareness of consequences to have only indirect effects (via personal norm) on C&R behavioural intention.

As far as the performances of the two competing models were concerned, the goodness-of-fit (*absolute* GoF) value for the study model was .618, being slightly larger, and thus better, than the alternative model (.610). GoF accounts for the model performance for both the measurement and the structural model with a focus on overall prediction performance of the model (Chin, 2010). The GoF index is bounded between 0 and 1. The study model included three first-order and one second-order latent variables. A second-order latent variable can be defined as a construct involving more than one dimension (Wetzels, Odekerken-Schröder, & van Oppen, 2009, p. 178). The second-order latent variable was represented by awareness of consequences expressed by two sub-dimensions: awareness of consequences on fishery, and individual fish.

Results

Basic Sample Characteristics

Norwegians (39%) and Finns (38%) made up the bulk of the responses. Only 9% were local anglers, living in nearby communities. The average angler was a 46 year old (*SD* = 12.0, *range* = 15-90, *median* = 46) male (97%) which had attended University/ College (66%). The average number of seasons fished for salmon, sea trout or sea-run char in any river was 18 (*SD* = 12.0, *R* = 1-41, *M* = 13), and for Lakselva River 4,6 (*SD* = 6.5, *R* = 1-41, *M* = 2). Number of fishing days in 2011 was 19 (*SD* = 20, *R* = 0-150, *M* = 13), and for Lakselva River 6.6 days (*SD* = 6.4, *R*= 3-43, *M* = 3). On average anglers fished 9.5 hours (*SD* = 2.8, *R* = 2-13, *M* = 10) per day in Lakselva River, whereas 53% caught fish (*M* = 2.2 fish, *SD* = 4.4, *R* = 0-38, *M* = 1) and 32% released fish that season (*M* = 1.1 fish, *SD* = 2.7, *R* = 0-29, *M* = 0). Fly fishing was the preferred technique by 93%. Most (86%) anglers usually fished the Lakselva River with family or friends. The angler thought fishing buddies would prefer more release of his\her catch compared to family members and other anglers, indicating group differences in C&R social norm.

Measurement Model

Since the measurement model included only reflective manifest/observed variables, we first assess the measurement model on the basis of item loadings' size, average variances extracted (*AVE*), composite reliabilities, and discriminant validity (Liang, Saraf, Hu, & Xue, 2007). As shown in Table 1, the standardised loadings (apart from one) were larger than .7 (Brown, 2006). *AVE* values were almost equal to or exceeded the recommended level of .5 (Fornell & Larcker, 1981). Reliability values (*D.G. Rho*) were above the suggested minimum value of .7. This supported that variables had necessary reliability and convergent validity. All *AVE* values were larger than the squared correlations among the latent variables in the model, and thus demonstrated discriminant validity (Hair, Black, Babin, Anderson, & Tatham, 2006). As the measurement model exhibited evidence of reliability and validity, an assessment of the structural part of the model could follow (Henseler, Ringle & Sinkovics, 2009).

<TABLE 1 AROUND HERE>

Structural Model

The results indicated that all of the relationships hypothesised in the model were statistically significant at .01 (Figure 2). More specifically, both perceived social norm and awareness of consequences are positively related to personal norm. They together explain nearly 40% of the variation in the personal norm. Awareness of consequences (β=.512) exerts strongest effect on personal norm. Perceived social norm, awareness of consequences and personal norm are also positively associated with C&R behavioural intention. They explain in tandem almost one third of the variation in C&R behavioural intention. The personal norm (β=.395) has the strongest effect on C&R behavioural intention.

When we examined the indirect effects, it appears that awareness of consequences on fishery level has a much stronger effect on both personal norm and C&R behavioural intention than awareness of consequences on individual fish level does. Moreover, awareness

of consequences in general exerts a stronger indirect effect on C&R behavioural intention than perceived social norms do. Finally, it can also be asserted that, among the items expressing perceived social norms, fishing friends have the strongest indirect effect on personal norm and thereby C&R behavioural intention.

<FIGURE 2 AROUND HERE>

Discussion

Main Findings and Contribution to Existing Knowledge

We showed that norms and awareness of consequences influence anglers' intention of voluntarily releasing fish, and the results from the structural model supported our initial conceptual model as hypothesized. However, awareness of consequences had stronger impact on the personal norm and C&R behavioural intention than the perceived social norm. Assumed consequences on the fishery level was a more important reason for anglers releasing fish and not as much concern for individual fish.

Arlinghaus et al.'s (2007) conceptual model of voluntarily C&R identified two main types of factors affecting behavior; personal and situational factors. Our results elaborate on this model, especially by addressing the personal factors of norms and beliefs. The strong influence of consequences underlines the importance of the status (or what the angler think is the status) of the fishery. Although a categorization is useful, a concept such as "awareness of consequences" might have a situational as well as a personal dimension (i.e., that consequences vary between settings), but also including a personal element that might modify situational differences. Nevertheless, the practice of C&R would vary in space and time, not only for a single fishery, but also for the individual angler depending on the context. Our models (Figure 1 & 2) provide a more detailed understanding of Arlinghaus et al's (2007) overall framework.

The perceived social norm had a significant effect on C&R behavioural intention and the personal norm, although not as strong as consequences. Of the three groups of significant others, fishing buddies had the largest effect on C&R behavioural intention followed by family members and other anglers. Social relations have a profound effect on normative behavior (Heberlein 2012). Sanctions will consequently be weaker if you break the norms of what unknown or more distant anglers and persons expect you to do. Our results echo Svensson's (2012) study of salmon anglers in the Reisa River of Norway where norm violations of angler etiquette and subsequent sanctioning were more common in situations where non local anglers were involved. Our findings do however show the great power of the C&R norm (cf. Heberlein, 2012, pp. 104-105) as our sample were mainly influenced by their C&R prone fishing buddies, thereby going partly against the norm of their more keep oriented family members. Heberlein (2012, p. 109) and Arlinghaus et al. (2007) suggest that community leaders and role models as important for shaping attitudes and influencing normative behavior. The normative C&R message given by "role model anglers" such as those appearing in magazines, catch reports, in TV programs, and films/video is probably having a significant influence on other anglers (Arlinghaus et al. 2007).

Limitations and Future Research

Our study is a case study, with a non-representative sample of anglers from the Lakselva River, a fishery branding itself with large salmon, attracting many visiting anglers and encouraging C&R. Our results suggest that local (other) anglers hold a different C&R social norm than the sample. Similar studies of *local* anglers in Lakselva, at other settings or among other segments of salmon anglers might yield different results as pointed out by Sutton (2003), and should be investigated further. Norms, especially social norms, should be subject to further studies. While we documented that social norms do play a significant role, we are

unsure if social desirability bias (King & Bruner, 2000) might underestimate their influence. Confirming that you are influenced by your social surroundings might not be something anglers too willingly will admit, and it might be easier to justify your behavior with the old trusted fishery management arguments. Social norms might be useful to study also by applying qualitative methods, which might better control any biases.

Sanctions are a crucial part of normative behavior, and will influence C&R decisions. In line with Heywood's (2002) work on behavioral norms in outdoor recreation, we suggest that future research on C&R normative behavior should look at the cognitive part of obligation to do C&R, and the more affective or emotional components of sanctions of doing or not doing C&R, in different angler subpopulations and between rivers/fisheries. If social norms play a significant role, it is of interest to learn more about what the non-fishing public and important stakeholders mean and think about C&R and how it eventually is changing (Arlinghaus et al. 2007).

In terms of consequences, are anglers concerned about the deterioration of the fishery because it has consequences for other anglers, themselves or for fish stocks? Our results can't tell. The distinction between consequences to the environment (stocks) and to other humans is not necessarily clear (Heberlein, 2012, p. 110), as effects on fish stocks hurt the environment directly and humans indirectly in a social- ecological system like the salmon fishery. The influence of consequences could be understood better by looking in depth at how anglers adjust their C&R behavior with changes in the stock/resource situation (year to year), or how a segment of anglers who fish different rivers with different stock status and number of anglers eventually adjust their behavior from one river to another. It would also shed more light on the interaction between consequences and C&R to design choice studies where respondents are subject to different types of information and persuasion.

Management Implications

Our findings support that voluntary C&R is dynamic, and that the individual angler considers situational factors (ecology, setting, status of stocks), hereunder also the social environment (esp. significant others) as well as personal factors. Our findings show that raising angler awareness and knowledge about the status of the stocks (especially the contribution of C&R to the spawning stocks), as well as on how to handle fish and the survival of released fish (see for instance FAO EIFAC (2008)), would lead to an emergence of a norm or activate the C&R norm and influence behavior. The rather strong support of C&R among our sample of Lakselva anglers might be due to relatively strict harvest limitations, and further encouraging anglers to release fish voluntarily due to resource concern, through both information campaigns and awards for releasing fish.. This could be important for management authorities, river owners and tourism operators trying to promote voluntary C&R. A question that remains is: what is the best way of achieving this? Heberlein (1974; 2012, pp. 4-9) strongly argues that the often used ”cognitive fix” strategy - educating the public by giving information and thereby the “right attitudes” - does not necessarily solve environmental problems like overharvest. Attitude is not enough. Instead he suggests a combination of three fixes: cognitive (e.g. normative information), structural (e.g. bag limits, awards for releasing fish) and technological (e.g. habitat improvement). Managers trying to affect C&R behavior should therefore probably combine persuasion with structural fixes (“rules”) building on knowledge about angler and public attitudes towards C&R.

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Table 1. Results from the measurement model (standardised loadings, reliability and average variance extracted

Constructs/indicators	Loadings	D.G. Rho	AVE
Perceived social norm		.84	.58
Family	.720		
Fishing buddies	.965		
Other anglers	.523		
Personal norm		.81	.67
Favor C&R	.892		
Against C&R[a]	.744		
Behavioural intention		.93	.80
Will release large salmon next season	.895		
Will release small salmon next season	.898		
Will release sea trout /sea run Arctic char next season	.897		
Awareness of consequences_fishery level		.91	.83
Consequences of others keeping every fish	.874		
Consequences of self keeping every fish	.944		
Awareness of consequences_individual fish level		.85	.71
Released fish will survive and spawn	.954		
Know how to handle fish to be released	.709		
Awareness of consequences (second-order)		.81	.49
Consequences_fishery (first-order)			
Consequences_individual fish (first-order)			

[a] Item was reverse coded for analysis.

Figures

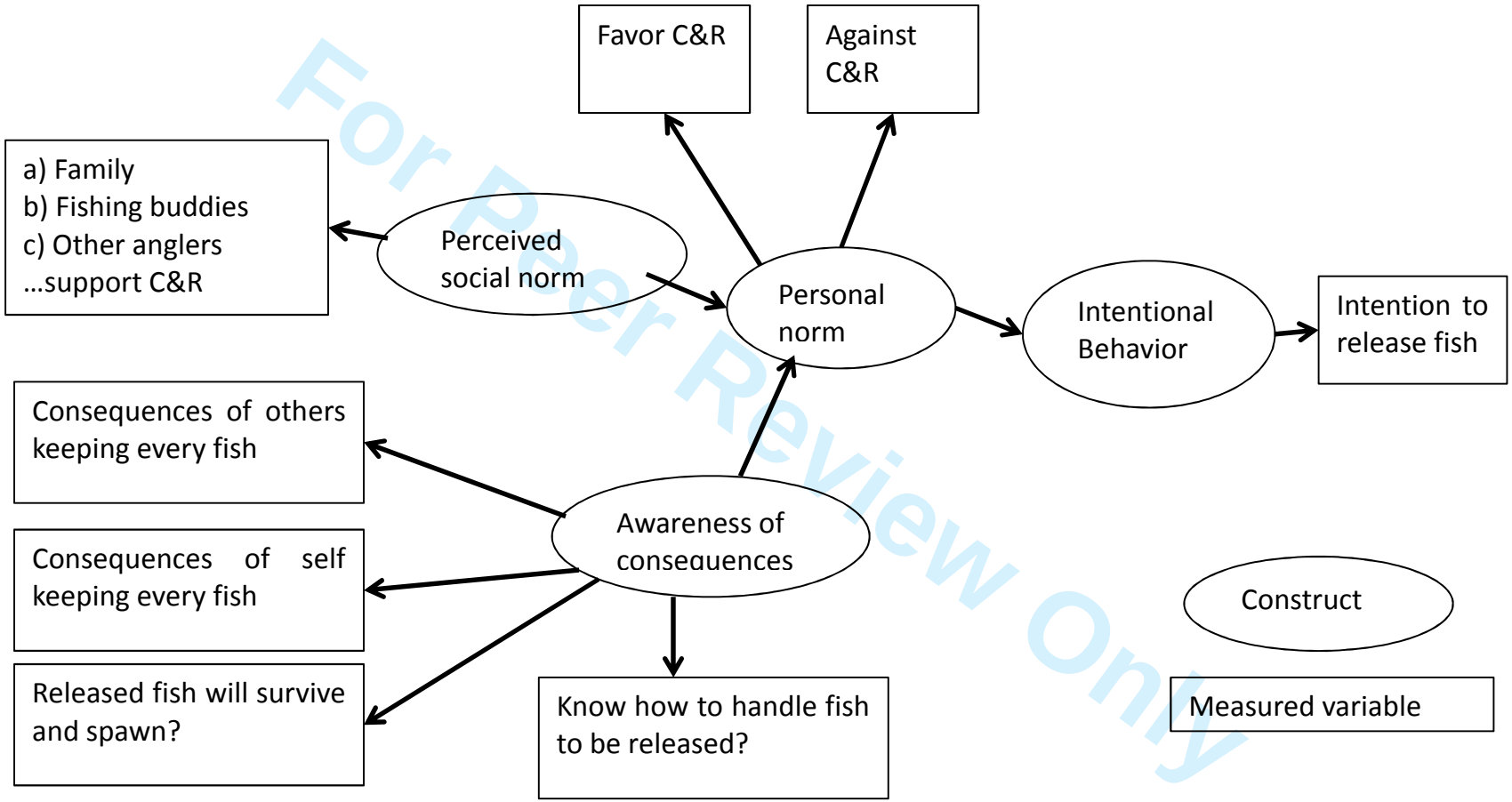

Figure 1. Conceptual model of the influence of norms and awareness of consequences on intentional catch and release angling behavior. Figure adapted from Bratt (1999).

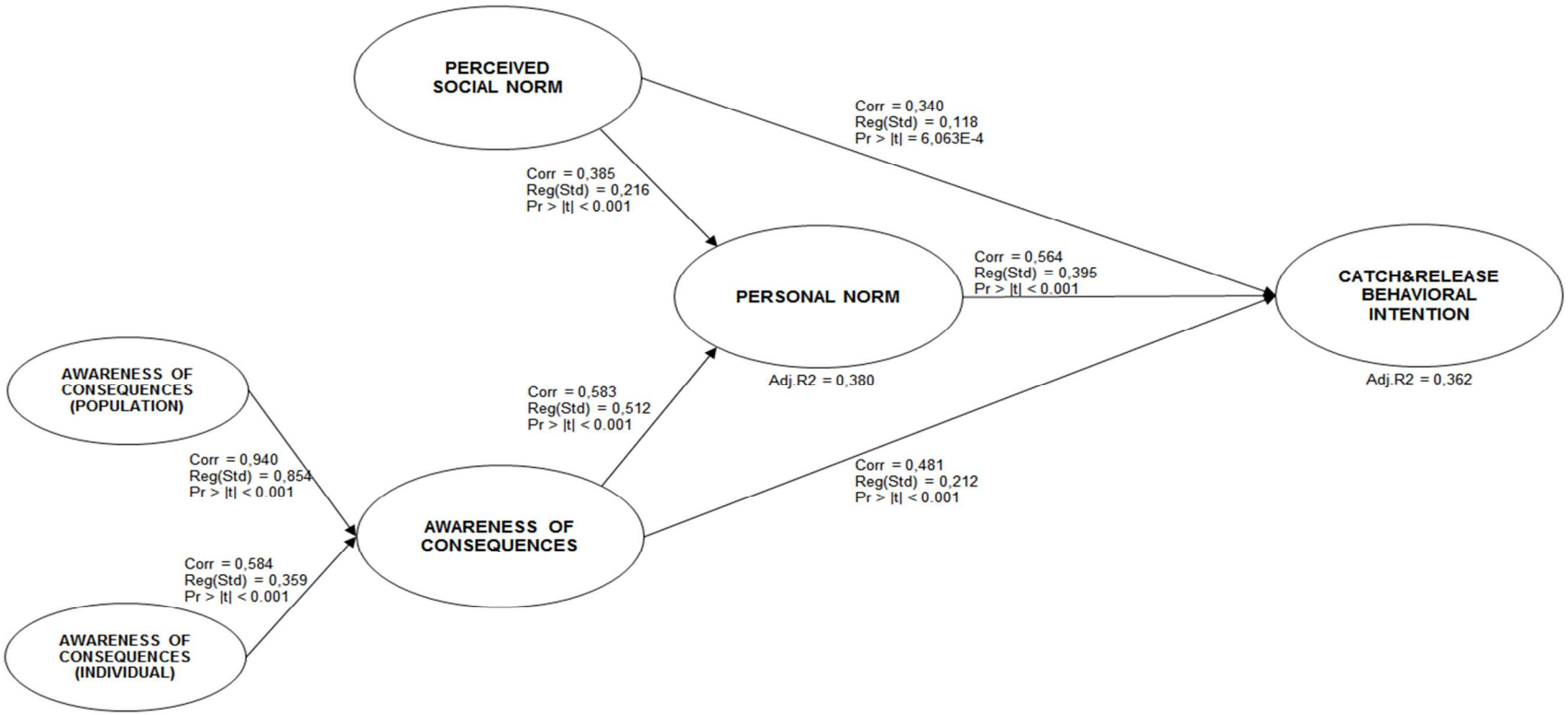

Figure 2. Results from the structural model; the influence of norms and awareness of consequences on intentional catch and release angling behavior.

Endnote

[1] On request from reviewers we also tried two alternatives to confirm the appropriateness of our social norm index approach: (a) a log transformation of the social norms index, and (b) adding the two variables "*Importance you assign to what others think you should do with the fish"* and "*Others strength of opinion about voluntary release"* before multiplying with the variable *"What significant others prefer you to do with the fish you catch".* Both alternative estimations confirmed our index approach. There were only minor changes up and down in parameter values for the structural model.