

# Segmentation of salmon anglers and analysis of their motivation to fish in the Lakselva River, Finnmark, Norway

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Together with mountaineering, salmon angling is one of the oldest and most traditional form of tourism in Norway with a history back to the nineteenth century (Berntsen 1990). Today it is still important in a Norwegian tourism context, and is viewed as the most important angling product for the international market along with the saltwater angling. Several Norwegian and international studies have been investigating different types of anglers. However, this study is the first that identifies different segments of salmon anglers based on their general consumptive orientation. This is also the first study that measures the latent motives of salmon anglers in a specific context. The objective of this study is to investigate motivation for salmon angling among the anglers in the Lakselva River, and further identify segments of salmon anglers in an adequate manner. It is also an objective to investigate whether Anderson et al. (2007) consumptive orientation scale can be used as a segmentation tool among Salmon anglers in a Scandinavian context.

Data were obtained through 13 personal interviews and a web questionnaire sent anglers in the River Lakselv of Northern Norway. Totally 656 anglers responded the survey and this yielded a response rate of 68 %. By conducting an explorative factor analysis four new variables were extracted from the original twelve items adopted from Anderson et al. (2007): keep catch, catch big fish, catch many fish and catch some fish. The new variables were used to conduct a cluster analysis to identify segments in the Lakselva River. Five segments were identified: *The Releaser*, *The Consumptive Angler*, *The Harvester*, *No Catch* and *The Trophy Angler*. The identified segments differ in their motivation, socio-demographic background, angling experience and attitudes.

Cluster 1 "*The Releaser*" prefers to catch and release the big fish. The extremely positive attitude towards release fish distinguishes *The Releaser* from the other segments. However they are also one of two segments with neutral values around catching some fish and many fish. *The Releaser* and *The Trophy Angler* are the segments with the highest percentage of tourists and representatives from Finland, while they have the lowest proportion of fishermen from Norway and Northern Norway. *The Releaser* has together with *The Trophy Angler* the lowest average age. *The Releaser* and *The Consumptive Anglers* three main motives for angling in the Lakselva are to experience a challenging fight with the fish, catch big fish and enjoy nature. However *The Releaser* is the segment that is strongest motivated to experience a challenging battle with the fish and catch big fish. They are also the segment with the lowest preference for getting fish in the freezer and use different types of tackle. *The Releaser*

has the strongest place identity to Lakselv.

Cluster 2 "*The Consumptive Angler*" wants to catch big fish, but has ambivalent values in regard to the other three factors. *The Consumptive Angler* and *The Harvester* differ as the segments with the strongest preferences to store fish for later consumption. *The Consumptive Angler* and *The Releaser* are the segments with the strongest preferences to catch as many fish as possible.

Cluster 3: "*The Harvester*" has the strongest preference for retaining caught fish. *The Harvester* does however not need to catch a lot of fish to be satisfied. *The Harvester* differs as a group with a high proportion of northerners, and Norwegians, while they have few Finnish anglers. This segment has a high average age and the long fishing experience. *The Harvester* and *The Trophy Anglers'* main motives are to experience nature and experience a challenging battle with big fish. *The Harvester* and *The Consumptive Anglers* differ from the others by being the only segments showing a positive trend regarding retaining the fish for a fresh meal with family and friends. *The Harvester*, *No Catch* and *The Consumptive Angler* have a higher proportion of anglers who prefers to use other equipment than fly-fishing gear compared to *The Releaser* and *The Trophy Angler*.

Cluster 4: "*No catch*" has the lowest consumptive orientation of all the groups, and is the only segment with have no preference for big fish. This group states that the fishing trip is successful even if no fish are caught, and the catching aspect of the trip has very little impact on their experience. *No catch* has the lowest involvement among the segments. *What motivates No Catch* is the opportunity to experience nature, spend time with good friends or family and enjoy a challenging fight with the fish. *No Catch* has the lowest values in all variables associated with place identity and dependence.

Cluster 5: "*The Trophy Angler*" has the strongest preference among all segments to catch big fish. *The Trophy Anglers* does not need to catch or keep the fish to have a successful experience. *The Trophy Angler* has a low proportion of Norwegians and a few fishermen from northern Norway. They also have the lowest income and education. *The Trophy Angler* has together with *The Releaser* the strongest involvement in the activity. *The Trophy Angler* differs from the other segments by having strong motivation for the experience of nature, the wish to outwit the fish and master the angling-related challenges that the river offers. Further the *Trophy Angler* has the strongest place dependence among the segments.

To conserve the resources and operate sustainable, rivers should implement an improved management and urge to moderation among the anglers. Fishermen who are willing

Table 1. Motivations to fish the Lakselva River by angler segments. ANOVA and posthoc analyses.

Cluster	<i>The Releaser</i>	<i>The Consumptive angler</i>	<i>The Harvester</i>	<i>No catch</i>	<i>The Trophy angler</i>	Total	F-value	Thamhane posthoc
<i>Generelle motiver</i> <sup>a</sup>								
To experience nature	5,84	5,57	5,57	5,98	6,06	5,81	4,19**	5>2
To be with family/friends	5,11	5,18	5,31	5,67	5,55	5,36	2,34	ns
To enjoy solitude	4,77	4,36	4,23	4,79	4,83	4,61	3,05*	ns
<i>Fangstrelaterte motiver</i> <sup>a</sup>								
To catch a fresh fish for a meal with family/friends	2,60	4,20	4,73	3,80	3,08	3,64	24,42***	3>4>5,1;2>5,1
To catch as many fish as possible	3,34	2,99	2,15	2,08	2,26	2,61	20,33***	1,2>5,3,4
To generate a supply of fish in the freezer for non-angling times	1,11	1,77	1,57	1,24	1,25	1,40	10,85***	2>5,4,1;3>1
<i>Fiskeutfordringsmotiver</i> <sup>a</sup>								
To experience a challenging fight with the fish	6,15	5,89	5,37	5,31	5,86	5,75	9,27***	1>3,4;2,5>4
Catch a big fish	5,88	5,52	5,15	4,25	5,79	5,35	24,11***	1,5>3>4;2>4
To outwit difficult-to-catch fish using a sophisticated technique	5,34	4,99	4,67	4,43	5,41	5,00	8,55***	5,1>3,4
To master angling-related challenges	4,76	4,26	4,27	4,50	5,16	4,60	7,26***	5>4,3,2
<i>Lakselvas egenskaper</i> <sup>a</sup>								
The character of the river (width, depth, current) suits my fishing	5,56	5,27	5,23	4,97	5,71	5,36	5,21***	5,1>4
To fish on large area buying one single permit	5,04	4,98	5,36	5,09	5,31	5,14	1,13	ns
To use different kind of fishing equipment	1,67	2,42	2,94	2,27	2,08	2,24	8,22***	3>5,1;4,2>1

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ ,  $tp < .09$ .

<sup>a</sup> Items measured on a 7-point scale where 1= Not at all important and 7= Very important.

Cluster by cluster compared using Thamhane's posthoc multiple comparison method. The > symbol denotes significance difference between clusters at a 5% level.

to provide this through a catch and release fishing based, should therefore be very appropriated and favor. Since salmon angling on good salmon beats is very easy sold, Lakselv owners' association and other providers should sell this to those who contribute most to local sustainability if tourism development is a part of future plan for the area. Based on preferences, attitudes and motives The Releaser and The

Trophy Angler are seen as the more desirable market segments in the future, as development of angling tourism will include implementing personal catch quotas and harvest restrictions.