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Passing It On: The Role of Retained Anglers in Sustaining Fishing Participation

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Why is sustaining angler participation important?

- Conservation and management funding
- Economic impact recreational angling
- Social and cultural value (family, mentorship, tradition, skills, etc.)
- Mental and physical benefits (nature, quiet, relaxation, etc.)
- Political support for conservation



Conceptual framework

Explore differences between Utah anglers at different stages of participation

- **Characteristics**
 - Age, education, sex, race, ethnicity, income, fishing history, mentorship, etc.
- **Leisure constraints**
 - 32 scale items
- **Negotiation strategies**
 - 28 scale items
- **Impacts of crowding**
 - 4 scale items



Approach

- Utah license database
 - Classified anglers based on license purchasing behavior
 - Lapsed, Recruited, Re-activated, and Retained anglers
- Distributed an online survey to 63,078 Utah anglers

Table 1. Summary of Angler License Database, survey distributions, and response rates.

Angler Classification	Percent of Division of Wildlife				Response Rate (%)
	Resource's Database	Surveys Distributed	Undeliverable Surveys	Completed Surveys	
Lapsed	47.6	38,888	1117	637	▶ 2.1
Recruited	9.6	6055	281	231	3.8
Re-activated	7.8	4916	255	238	4.8
Retained	35	22,187	883	4315	▶ 19.6



Analysis

- **Characteristics**
 - Standard statistical tests to evaluate differences
- **Constraints and Negotiations**
 - Principal Component Analysis to group individual items into related components
 - ANOVA
- **Crowding**
 - ANOVA

Results: Characteristics

Characteristic	Angler Classification				Sig. Diff.
	Lapsed (<i>n</i> ≥ 286)	Recruited (<i>n</i> ≥ 180)	Re-Activated (<i>n</i> ≥ 157)	Retained (<i>n</i> ≥ 2977)	
Age ¹					<0.001 ^{††}
Mean	54.0 ^{a,b}	47.0 ^{a,c}	49.0 ^b	51.7 ^c	
Std. dev.	16.6	16.9	15.8	15.5	
Sex (%)					<0.001 [†]
Male	76.3	73.2	80.9	88.2	
Female	23.7	26.8	19.1	11.8	



PCA for Constraint and Negotiation Items

- **Constraints**

1. Time
2. Fishing Quality
3. General Structural (lack money, transportation, etc.)
4. Interest
5. Health
6. Conflict

- **Negotiations**

1. Planning
2. Financial
3. Social
4. Improve Skill
5. Mentorship and Enjoyment

Results: Constraints

Table 5. ANOVAs for constraints, negotiation strategies, and other variables by angler classification.

Component	Lapsed	Recruited	Re-activated	Retained	F-value	Sig.
Constraints¹						
Time	2.96 ^a	2.83	2.97 ^b	2.75 ^{a,b}	9.6	<0.001
Fishing Quality	2.58	2.64	2.63	2.59	0.4	0.759
Structural	2.29 ^a	2.27	2.20	2.13 ^a	11.2	<0.001
Interest	2.55 ^a	2.42 ^b	2.29 ^a	2.04 ^{a,b}	80.4	<0.001
Health	2.05 ^a	1.93	1.93	1.95 ^a	3.4	0.017
Conflict	1.93	1.85	1.86	1.91	0.8	0.471

Results: Negotiations

Table 5. ANOVAs for constraints, negotiation strategies, and other variables by angler classification.

Component	Lapsed	Recruited	Re-activated	Retained	F-value	Sig.
Negotiations¹						
Planning	2.92 ^{a,b}	3.14 ^a	3.30 ^b	3.51 ^{a,b}	107.5	<0.001
Financial	2.22 ^a	2.28 ^b	2.30 ^c	2.56 ^{a,b,c}	24.0	<0.001
Social	2.68 ^{a,b}	2.92 ^a	2.68 ^c	2.93 ^{b,c}	20.5	<0.001
Skill Improvement	3.00 ^{a,b}	3.31 ^a	3.32 ^b	3.56 ^{a,b}	68.8	<0.001
Mentorship/Enjoyment	3.32	3.47 ^a	3.31	3.27 ^a	4.8	0.003

Negotiation: Individual scale items for **'planning'**

1. Plan ahead to fish
2. Set time aside to fish
3. Encourage family or friends to fish with me
4. Fit fishing around other commitments
5. Organize family obligations around fishing
6. Search for high quality fishing spots



Results: Childhood experience and mentorship

Table 5. ANOVAs for constraints, negotiation strategies, and other variables by angler classification.

Component	Lapsed	Recruited	Re-activated	Retained	F-value	Sig.
Childhood Frequency²	3.11 ^a	2.86 ^b	3.37 ^b	3.49 ^{a,b}	33.6	<0.001
Take Children Fishing⁴	0.74 ^{a,b,c}	0.89 ^a	0.90 ^b	0.95 ^c	85.8	<0.001

2

0 = Did not grow up fishing, 1 = Only fished a few times, 2 = Fished every few years, 3 = Fished once per year, 4 = Fished multiple times per year.

4

0 = Do not take children fishing, 1 = Take children fishing.

Results: Crowding

Table 7. ANOVAs for individual crowding statements, by angler classification.

Crowding Statement ^{1,2}	Re-				F-value ³
	Lapsed	Recruited	Activated	Retained	
Crowding impacted the quality of my fishing experience	2.31 ^a	2.48 ^b	2.53	2.71 ^{ab}	17.5***
Crowding made me spend less time fishing	2.08	2.17	2.23	2.32	5.8
Crowding caused me to fish earlier or later in the day	1.96 ^a	2.16 ^b	2.24	2.46 ^{ab}	22.7***
Crowding made me change locations where I fished	2.29 ^a	2.38 ^b	2.69	2.81 ^{ab}	26.7***

1

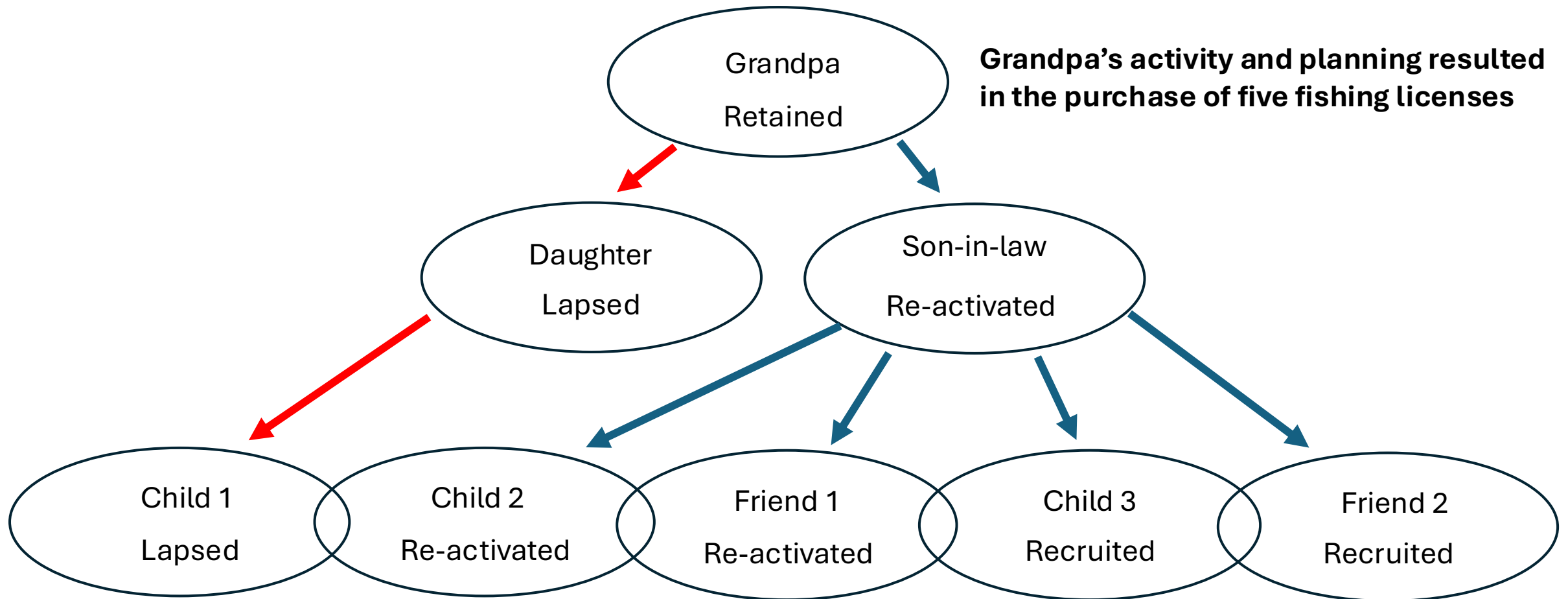
Items were measured from 1 = Not at all true; 2 = Slightly true; 3 = Moderately true; 4 = Very true; 5 = Completely true.

Retained anglers: who are they and what do they do?

- Retained anglers are 88% male
- Fished most frequently as children
 - Nearly all anglers fished as children (very unlikely to fish independently without this)
- Have the highest interest in angling
 - Lapsing is mostly due to a lack of interest
- Use negotiations more frequently than other anglers
 - Planning
- Take their own children fishing more frequently than other anglers

Main takeaway

- Retained anglers drive much of the angling activity of less active anglers





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Exploring angler participation: The role of constraints, negotiation strategies, and crowding responses ☆

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A photograph of a man and a young boy fishing by a river. The man, wearing a light blue hoodie and brown pants, is holding a fishing rod that is bent, indicating a catch. The boy, wearing a red shirt and patterned shorts, is standing next to him, also holding the rod. They are on a grassy bank with trees in the background. A fishing bag and a bucket are on the ground nearby.

Moving forward

Mentorship

- Who is mentoring?
- Who are they mentoring?
- What resources are they utilizing?
- What kinds of experiences are they seeking?



Questions?



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