



Promoting invasive species prevention behaviors through values-framed outreach messages

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- Recreational water users can **inadvertently transport AIS** via boats and equipment
- Ongoing campaigns encourage boaters and anglers to **take preventative measures**
 - Recommended steps: Clean, Drain, Dry
 - Awareness of AIS has been increasing, yet the risk of spread remains high (Cole et al., 2019)
- **Conservation psychology can provide insights on ways to increase participation**



Checking a boat for potential AIS



Zebra mussels transported among aquatic plants



- **Values guide behavior on a deep level**, and are relevant for environmental contexts (Stern, Deitz, & Kalof, 1993):

Biospheric values

(i.e., preserving nature)
positively predict
environmental beliefs



Altruistic values

(i.e., helping others)
positively predict
environmental beliefs



Egoistic values

(i.e., influencing others)
negatively predict
environmental beliefs



- Through past work, we found that **biospheric and egoistic values predicted behaviors** related to AIS (Golebie et al., 2021)

- **Message framing** makes complex topics more understandable (Chong & Druckman, 2007)
- AIS outreach materials use framing to capture the attention of audiences and **encourage AIS prevention**
- Some researchers argue that the role of scientists is to be objective as possible and use only neutral scientific frames
 - **Values-framing is a novel area of study** that may support long term behavior change (Nisbet & Mooney, 2007)



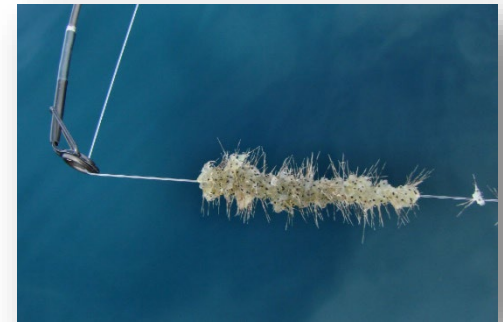
*"Criminal" frame;
The Nature Conservancy*



*"Science" frame;
(Shaw et al., 2021)*

Is values-framing an effective strategy for AIS outreach?

1. Compare participant evaluations of values-framed messages and their post-message beliefs about AIS and remove-drain dry
2. Identify the effect of values-alignment on relationships among values, elaboration, and beliefs about AIS and remove-drain-dry





Steps for preventing aquatic invaders from spreading:

REMOVE

Remove plants, animals and mud from all equipment.

Many invaders spread by attaching to boats, trailers, and other equipment.

Plant fragments can create new populations and transport smaller invaders like zebra mussels.

Be aware!

It is illegal to travel on Illinois roadways with aquatic plants attached to your vehicle or trailer.



ZEBRA MUSSELS

DRAIN

Drain all water from your boat and gear.

Pull drain plugs and remove water from all equipment prior to leaving a water access.

Water should be drained from all water-containing equipment, such as portable bait containers, ballast tanks, motors, bilge tanks, livewells, and baitwells.

Be aware!

It is illegal to transport water-related equipment on Illinois roadways without first draining water.



DRY

Dry everything thoroughly with a towel.

Wiping down your boat, trailer, and other equipment not only leaves you with clean gear, but also removes all the invaders you can't see, such as zebra mussel larvae and fish diseases like VHS. If possible, let your gear remain dry for at least 5 days.

Be aware!

High pressure water removes and hot water kills aquatic invaders. If possible, spray your gear down with high pressure and/or hot water.



HYDRILLA



DON'T DUMP BAIT

Remember

Dispose of all unwanted bait and hitchhikers in the trash, and never release organisms caught from one waterbody into another.



SILVER CARP

These tips don't just apply to boaters and anglers! Other activities can easily spread invaders, such as:

JETSKIING WINDSURFING SAILING KAYAKING WATERFOWL HUNTING BODYBOARDING
PADDLEBOARDING CANOEING SHORE AND FLY FISHING SCUBA DIVING SURFING

Report new sightings!

If you suspect a new infestation of an invasive plant or animal, save a specimen and report it by visiting <http://www.usgs.gov/stopANS> or calling the Illinois Department of Natural Resources at 217-782-6302.



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PROTECT THE ENVIRONMENT

Aquatic invaders can dramatically change the ecosystem and harm native fish species.

By completing remove-drain-dry, you can protect the quality of habitats and natural environments and build a sense of community among anglers and water users.

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YOUR WATERWAYS ARE BEING IMPACTED

Aquatic invaders can block access to waterbodies and prevent you from enjoying your favorite activities.

By completing remove-drain-dry, you can **influence other recreationists** to get involved and **ensure you'll be able to enjoy the resource** for years to come.

Remember

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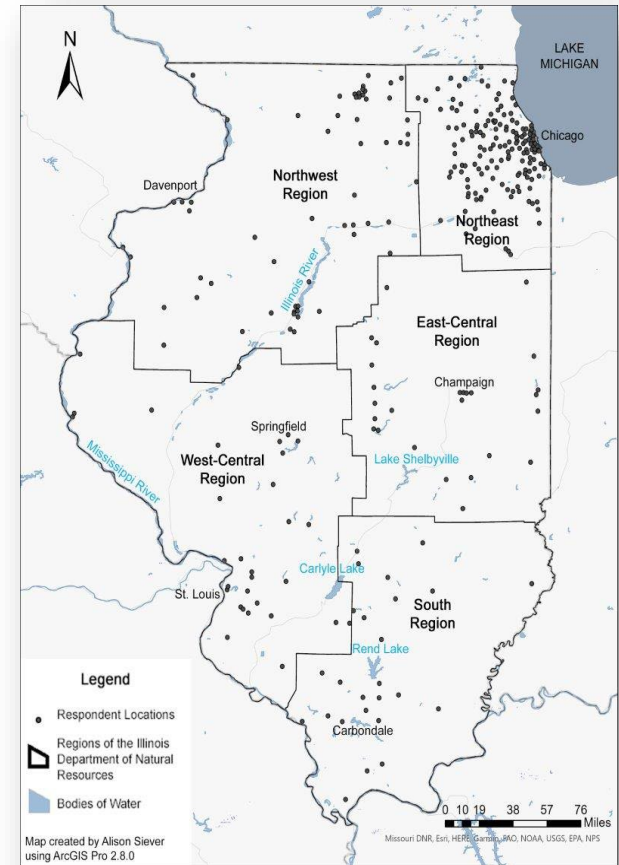
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- **Message experiment** embedded within online survey (507 participants)
 - Qualtrics panel of Illinois residents who had fished or boated since 2018
- Each participant was **randomly assigned one of three experimental messages** to evaluate
- They were then asked questions to measure their **elaboration, risk perceptions, efficacy, and values**



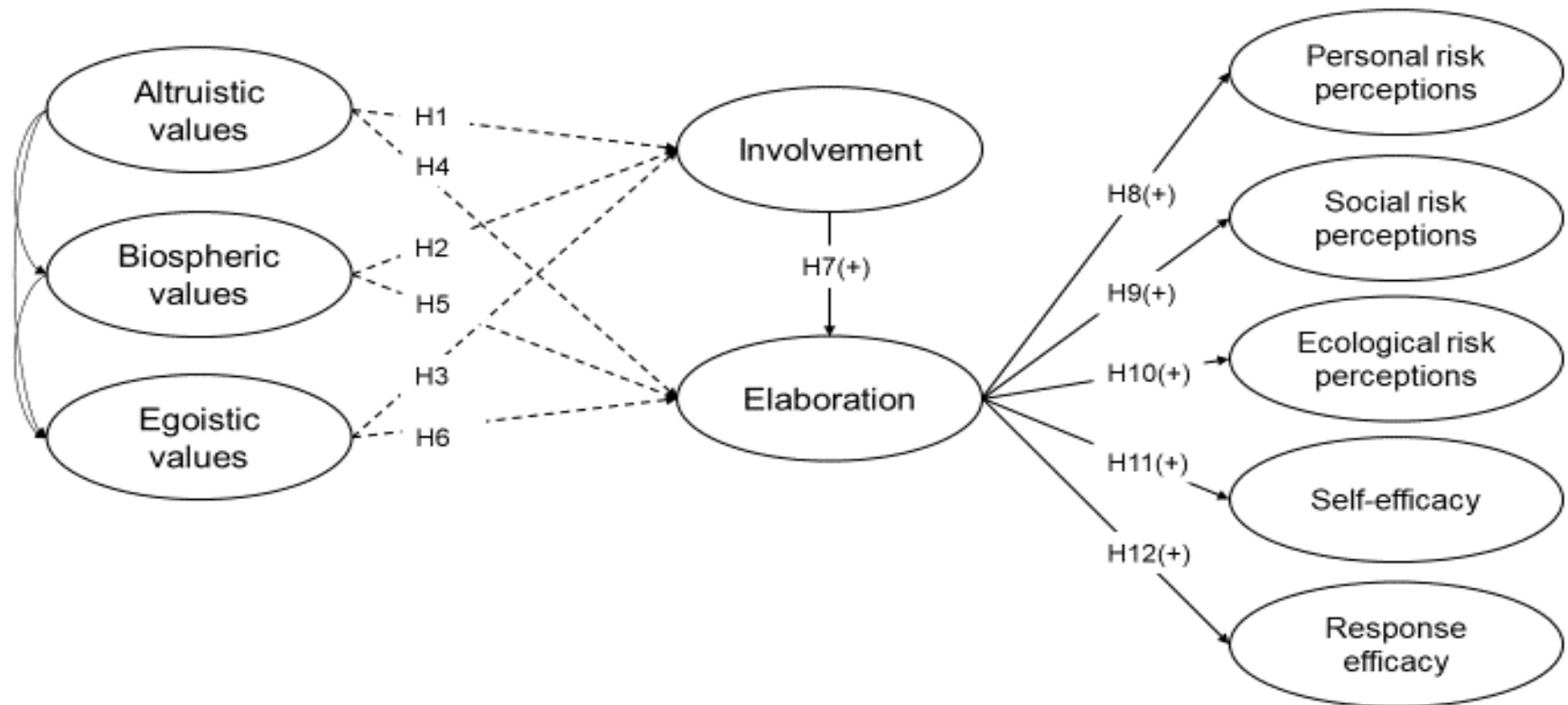
(Golebie et al., 2021, technical report for IL-DNR)



- All three messages were perceived to be effective
- No significant differences among the three messages

	<u>Pooled sample</u>	<u>ANOVA results</u>	
	M (SD)	F	P
<u>Message evaluations</u>			
Elaboration	3.73 (0.73)	.511	.600
Perceived effectiveness	4.12 (0.67)	.220	.803
Reactance	2.63 (0.87)	.019	.981
<u>Post-message beliefs</u>			
Risk perceptions			
Personal	3.32 (0.94)	.443	.642
Social	3.32 (0.94)	.519	.595
Environmental	3.56 (0.79)	1.179	.308
Self-efficacy	4.12 (0.75)	1.195	.304
Response efficacy	4.35 (0.66)	1.000	.369

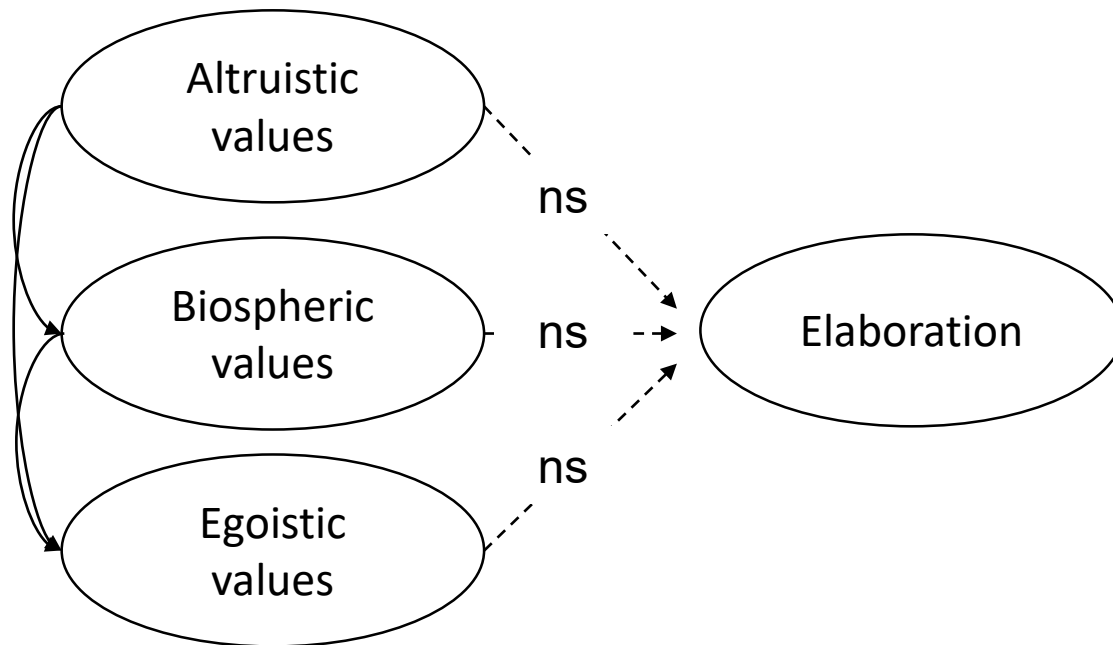
- **Structural equation modeling** used to assess relationships among values, elaboration, and beliefs



Golebie, E. J., & van Riper, C. J. (2022). Enhancing Aquatic Invasive Species Outreach Through Values-framed Messages. *Environmental Communication*, 1-20.

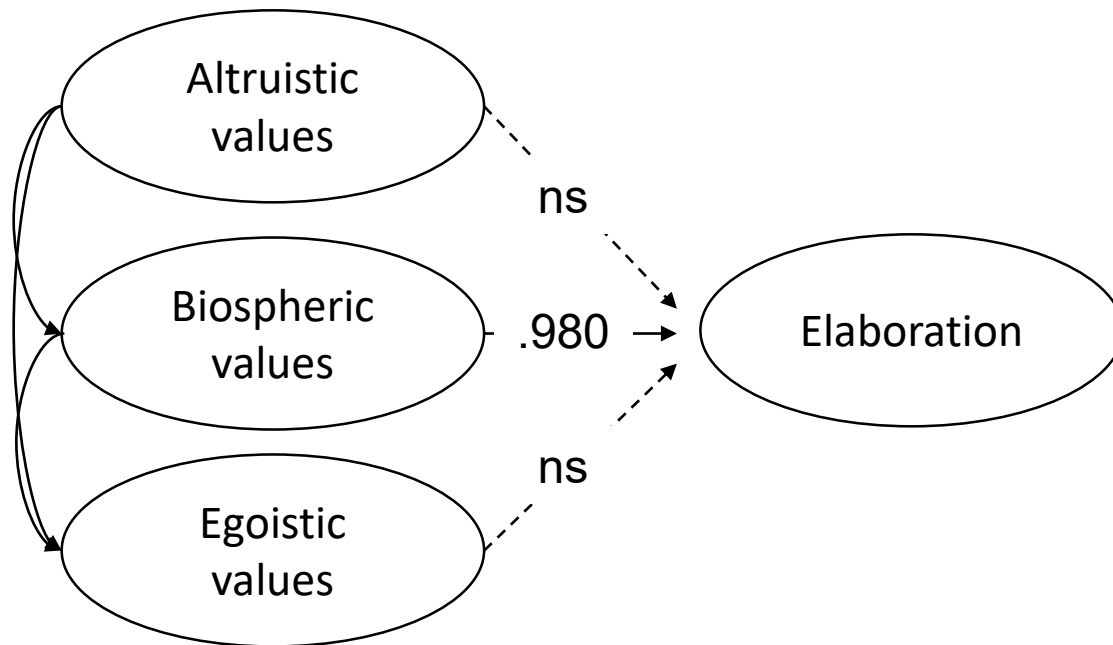


- No relationships between values and elaboration (depth of thinking about the message)





- Significant relationship between biospheric values and elaboration (depth of thinking about the message)



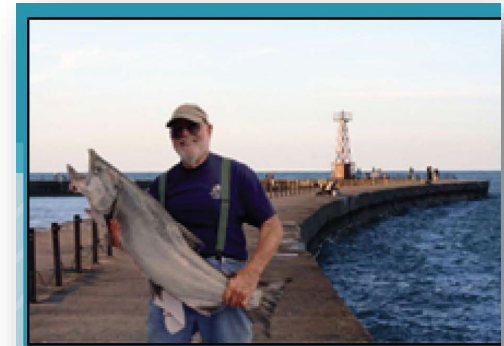
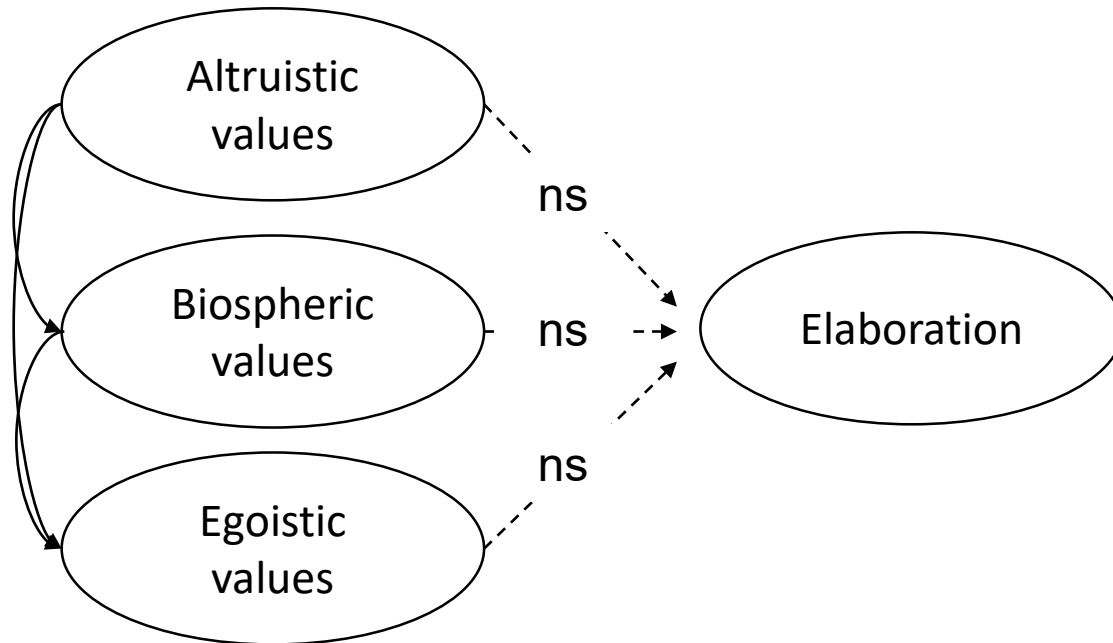
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By completing remove-drain-dry, you can **protect the quality of habitats** and natural environments and **build a sense of community** among anglers and water users.



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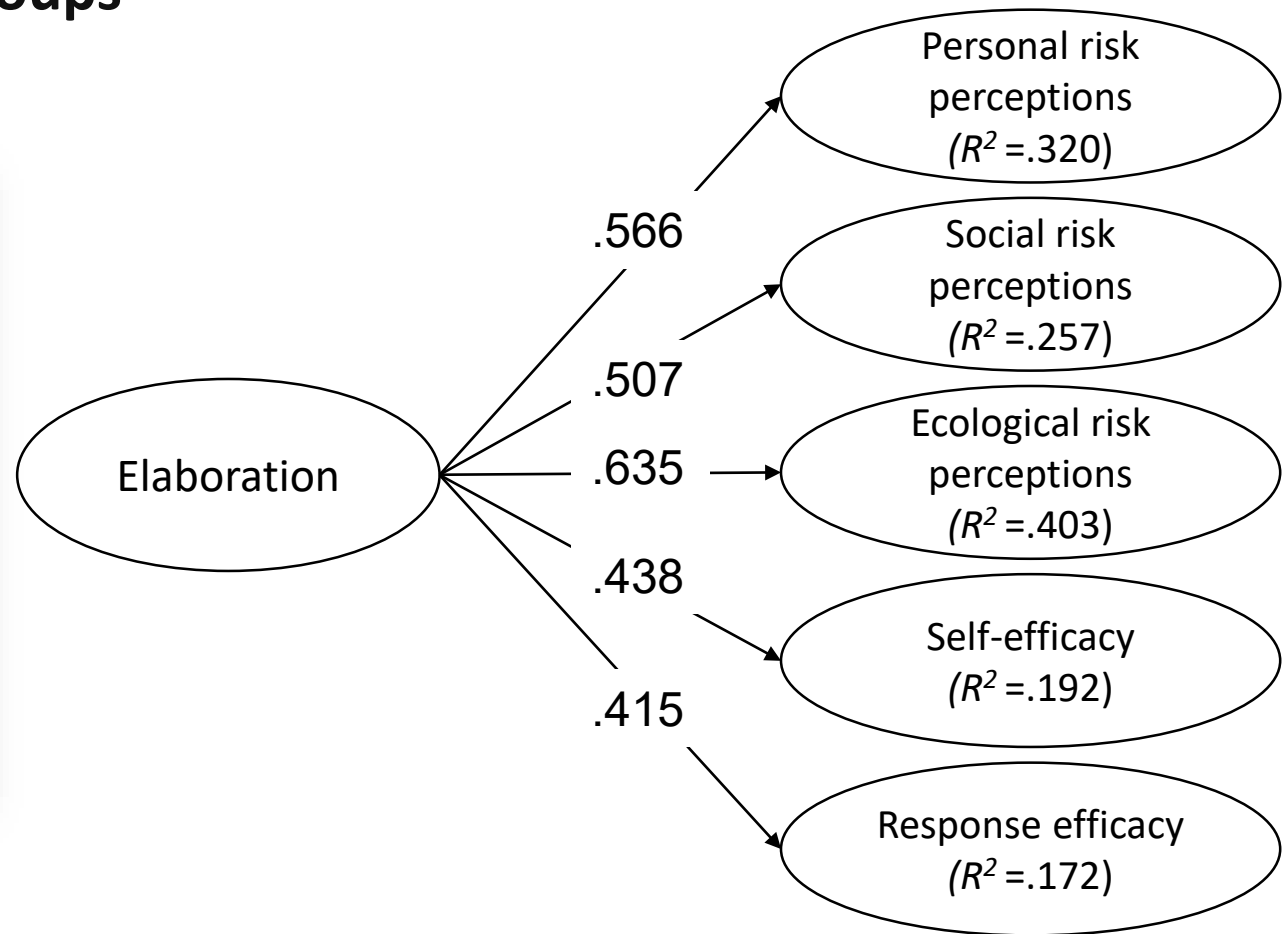


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- Relationships between elaboration and beliefs were strong for all treatment groups





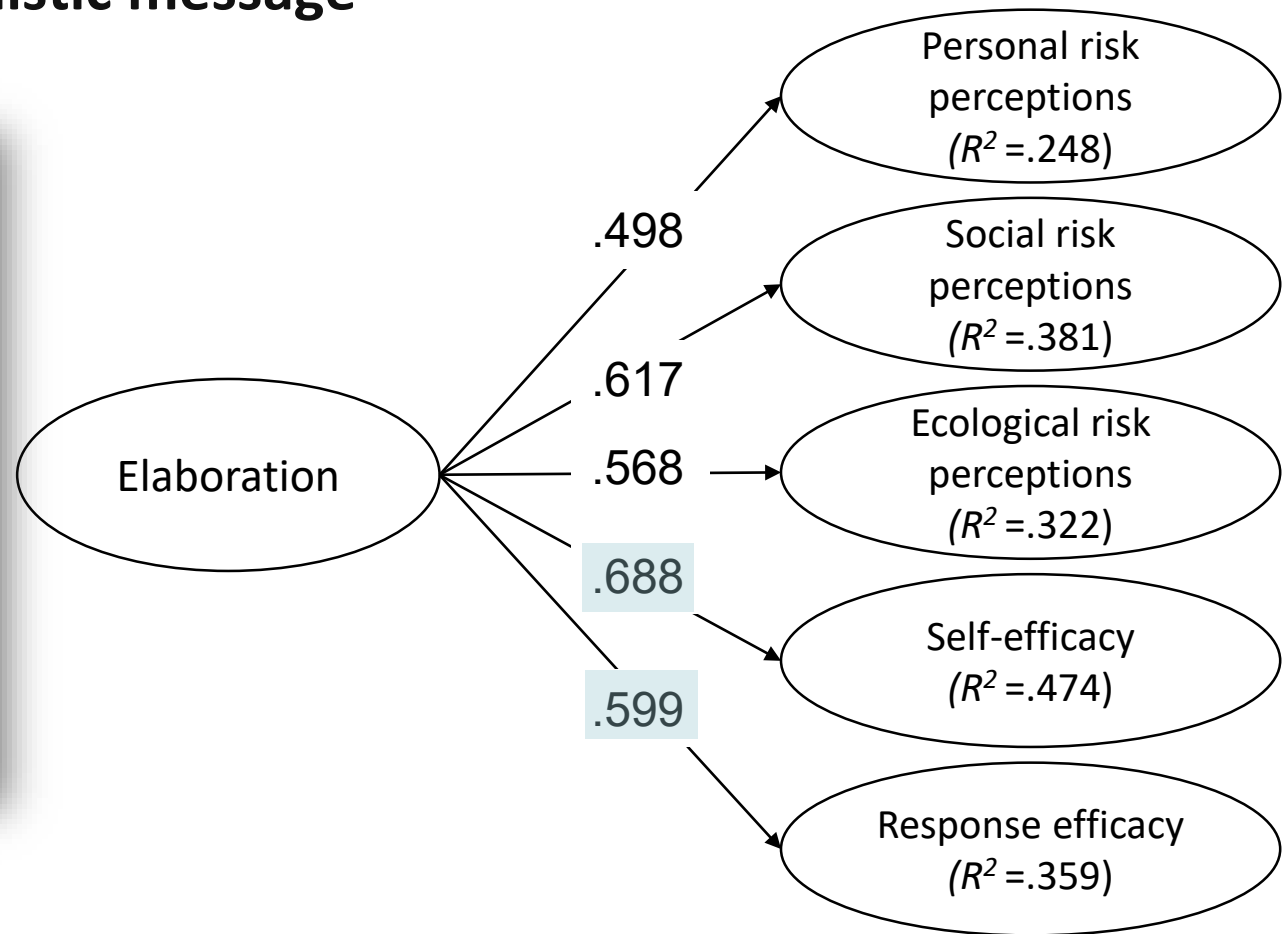
- Elaboration had a stronger influence on efficacy in the biospheric/altruistic message



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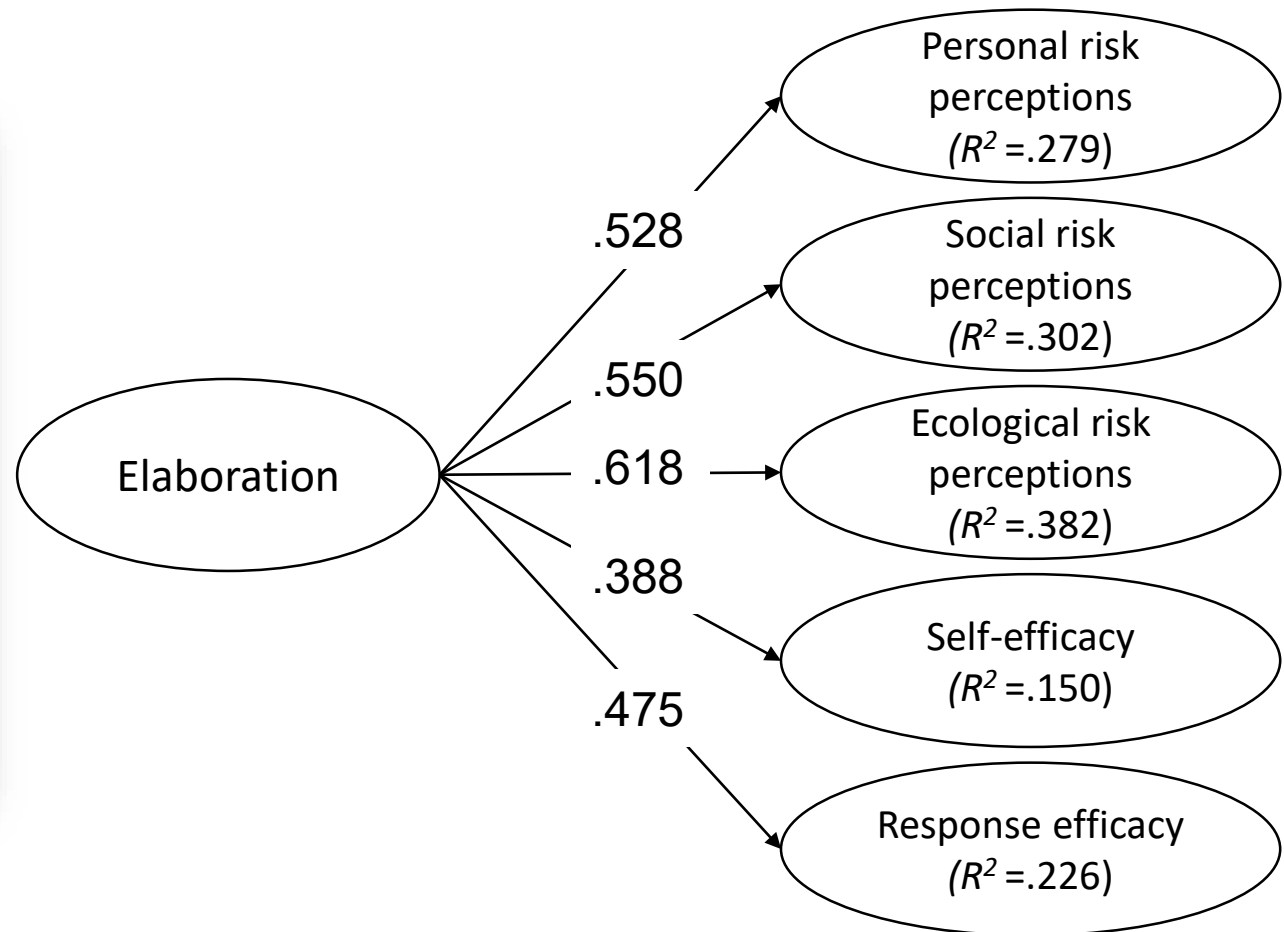
- Response to egoistic message did not significantly differ from control



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- **All tested messages were evaluated favorably**
 - Overall, the Be a Hero campaign is well-received
 - The modifications to add values-framing did not evoke negative responses (e.g., reactance) among participants

- **Biospheric values strongly predicted elaboration for the framed message**
 - Biospheric values are high among recreational water users (Golebie et al., 2021)
 - Biospheric framing may result in a stronger message than egoistic or altruistic framing for environmental issues (Hansla, 2011)





- Tested message was imbued with biospheric and altruistic values
- Future messages should include multiple facets of these values (see Stern et al. 1999):
 - Equal opportunity for all
 - Social justice, correcting injustice, care for others
 - A world at peace, free of war and conflict
 - Protecting the environment, preserving nature
 - Unity with nature, fitting in with nature
 - A world of beauty, beauty of nature and the arts
- Research needed to understand responses to message frames that draw on multiple value types (e.g., biospheric and egoistic)



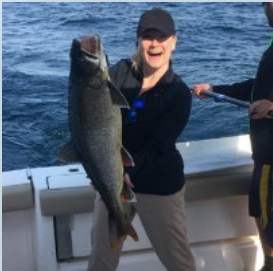
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Research Team



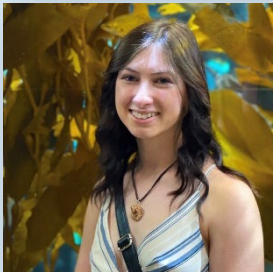
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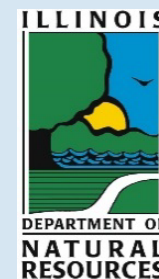


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Funding



United States Department of Agriculture
National Institute of Food and Agriculture



Sea Grant
ILLINOIS-INDIANA



Thanks for your attention

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