

User Interviews

SkiSafe User Outreach Team



General

General Question Preferences

- **wristband vs. pressure sensor** → *pressure sensor* because beginners fall off so often, and extra parts become hard to keep track of
- **audio vs. vibration** → *mixed results*, see slides. some like audio better, but most agree that it would be hard to cut over the sound of the water
- **dashboard** → *both* audio and visual. If had to pick one, *visual* since boat very loud.
- **propeller/fin** → *not really necessary*.
- **modular vs. integral** → we picked integral, and results were *mixed* anyways
- **coaching** → in general, coaching cannot happen during the run (talk before/after). summer camps often use a boom on side of boat. adaptive athletes have very specialized setups for coaching/learning.

Common Challenges

Challenge	Category (frequency)
Signals are delayed	Rec (1), Camp (2)
Spotters not always perfect / no spotters	Camp (2), Comp (2)
Skiers don't pay attention to boat	Adap (1), Camp (1), Comp (1)

Favorite Features

Feature	Category (frequency)
Skier down alert (pressure sensors)	Rec (1), Camp (1), Comp (1)
Speed regulation (fast/slow)	Rec (1), Camp (2), Adap (1), Comp (2)
Driver to skier communication (haptic feedback)	Rec (1), Camp (3), Adap (1)
Personalized communication (not just fast/slow)	Camp (2), Comp (1), Adap (1)

Biggest Concerns

Concern	Category (frequency)
Durability	Rec (1), Camp (3), Comp (1)
Cost	Rec (1)
Waterproofing	Camp (1), Comp (1), Comp (1)
False alarms	Adap (1), Comp (1)

Interview Summaries

Recreational Skiing

Jake Reynolds → Dad who drives for kids

- **Experience:** family skis 2-3x a year, sometimes less
- **Challenges:** speed signals are delayed
- **Most Valuable Feature(s):** pressure sensors, fast/slow, haptic
- **Vibration vs. Audio:** vibration
- **Premium Cost:** \$150
- **Concerns:** durability and cost

Jake liked the product and would buy it if it was reliable and not that expensive. He is a fan of **keeping it simple** since his kids ski recreationally. He thinks audio is unnecessary as long as the vibration can mean different things.

Summer Camp Staff

Drew Bitterman → Camp Watitoh

- **Experience:** learned as a kid, not very often, runs camp where kids can ski
- **Challenges:** no challenges, but yelling does not work for communication
- **Most Valuable Feature(s):** communication with driver (not necessarily just faster/slower), but all useful
- **Vibration vs. Audio:** audio would be cool if it worked, but hard to hear
- **Premium Cost:** \$150-200
- **Concerns:** durability and waterproofing

Drew likes our product and is **very willing to help us during the course of this project**. He is not sure if he has a need for it from a camp point of view. He says it could be a nice thing for extra safety measures and he knows some friends that could use it.

Matt → Camp Watitoh

- **Experience:** has skied for entire life, came to the US to instruct at camp! (from South Africa)
- **Challenges:** “Personally there have been many times where I try to signal someone and nothing happens, or I’ve fallen and the driver is on a mission and doesn’t notice I have fallen until he’s halfway down the river.”
- **Most Valuable Feature(s):** skier-to-driver communication
- **Vibration vs. Audio:** vibration
- **Premium Cost:** \$500-1000
- **Concerns:** none

Matt loves our concept and says he would definitely use it. He thinks it would be “**fantastic for coaching**” and is willing to provide more feedback when we have specific design questions. He thinks every feature we currently have is valuable.

Mark Toporoff → Camp Danbee

- **Experience:** has skied whole life, now popular with kids at camp
- **Challenges:** spotters are sometimes not 100% attentive due to things like fatigue
- **Most Valuable Feature(s):** pressure sensors (favorite by far), faster/slower
- **Vibration vs. Audio:** audio only makes sense if it was in the helmet
- **Premium Cost:** \$100-500 if have to rebuy, \$1000 if one-time investment
- **Concerns:** durability, distractions for driver (suggested product for spotter)

Mark was **very passionate about the pressure sensor alerts** because he often sees skiers get left behind for a long time before the spotter notices. He said it is **very common, even with a spotter**, and is very dangerous when there are other boats on the water. He would buy this product depending on cost, but worries for camps with smaller budgets.

Evan → Water Monkey Camp

- **Experience:** 30 years of skiing, runs camp for kids, coached in college
- **Challenges:** cues go unnoticed for a long time or kids not looking
- **Most Valuable Feature(s):** faster/slower, haptic feedback
- **Vibration vs. Audio:** vibration is preferred (thinks audio would be annoying since he assumed would need to have a headset)
- **Premium Cost:** \$250 for him, but many don't see the benefit in good ropes
- **Concerns:** shape of handle and rope lengths

Evan thinks that this would be **awesome for beginners**. He is the user that came up with the **haptic feedback** idea. He loves the idea of making the vibrations personalizable.

Darin → Camp Bournedale

- **Experience:** lifeguard for 40 yrs, teach skiing for 37 yrs
- **Challenges:** communication from skier → spotter → driver must be spotless.
Spotters not always as experienced as driver
- **Most Valuable Feature(s):** driver to skier communication
- **Vibration vs. Audio:** verbal if possible would be best
- **Premium Cost:** \$100, hard without knowing how it performs
- **Concerns:** durability, since it gets slammed on the water frequently

Darin's main priority was driver to skier communication. In general, he thinks it is useful for camps because safety is the #1 priority and it could also be used for teaching. However he has a **preference for audio communication** over buttons and vibration.

Adaptive Skiing

Ryan DesRoches - Webster WaterSki

- **Experience:** over 30 yrs. Runs local water ski club and started program for people with any disability (physical/mental). Experience with all levels
- **Challenges:**
 - Less experienced skiers don't pay attention to the boat
 - Blind skiers have little to no means of communication → currently tap on rope
 - Some adaptive skiers have communication problems to begin with
 - Have tried to use headset, but they are hit or miss
- **Most Valuable Feature(s):** faster/slower, especially for adaptive.
- **Vibration vs. Audio:** as much as audio would be nice, probably vibration since everything is so loud

Ryan DesRoches - continued

- **Premium Cost:** \$200-300 would be best for multiple markets. But you could go really high for niche markets (\$1000+)
- **Concerns:** false alarms w/ pressure sensors

Ryan is an AWESOME resource for us and is **very willing to help** in the future. He mentioned that tracking pressure sensor analytics would be helpful for training (prob out of scope for us). He thinks having a dashboard for driver to skier communication is insanely useful. To him, **adaptive has most need for this**, then training/recreation, then competitive last (no real need). He has connections to people of all experiences. Also will take us skiing in the Spring :)

Canada Adaptive Waterski Contacts

Krista, David, (Todd + Rae-Lee for part)

- **Experience:** varied, but overall very involved in Canada national team and adaptive skiers
- **Challenges:**
 - Visually impaired + deaf → in trouble once on the water. thought about vibrating collars to communicate, but haven't actually experimented with anything yet
 - Hard for them to get to the dock → getting themselves and equipment to dock (need a ride), transporting bulky seat, getting to dock, etc....
- **Most Valuable Feature(s):** Rae-Lee: vibration, Dave: course programming (...)
- **Vibration vs. Audio:** they already have headsets for audio communication
- **Premium Cost:** Probably around \$100-250 to appeal to wide range of skiers
- **Concerns:** ????

Canada Adaptive Waterski Contacts

continued

David from this group had a bit of a prior idea of what he wanted our product to look like, so hard to gather that much information. See doc for info on product David wants.

Overall, they said there aren't that many blind+deaf skiers so to cater ONLY to that group would not be advantageous. But they see some value in personalized communication via buttons or vibration

We hope to meet with Rae-Lee and Todd separately as they seemed to have a better idea of our product vision and scope of our project.

All 4 are very passionate about skiing and are willing to help out in the future.

Check out cable skiing for potential testing sites as they do [indoor skiing](#)

Competitive Skiing

Leon → USA Water Ski

- **Experience:** national involvement, started the US waterski safety committee (wtf)
- **Challenges:** depends on the state, some don't have spotters or mirrors. Sometimes don't know if people are waving "OK" or "Help"
- **Most Valuable Feature(s):** skier to driver communication
- **Vibration vs. Audio:** vibration
- **Premium Cost:** Depends... no real answer from him.
- **Concerns:** waterproofing, false alarms

Leon thinks this product would be awesome but has seen many people try to achieve it unsuccessfully (**problems mostly with waterproofing**). He sent a list of the US national waterski hand signals that are widely used (attached in next slide). He wants to stay involved!



1. **Speed-Up:** The "thumbs-up" gesture is used to indicate the skier would like the speed increased.



2. **Slow Down:** The "thumbs-down" gesture is used to indicate the skier would like the speed decreased.



3. **Turn:** When either the skier or the driver wants the boat turned, a circle motion with the arm over the head with one finger in the air is used. It is usually followed by pointing in the direction of the turn.



4. **Back to Dock:** A pat on the head indicating that the skier would like to return to the starting dock.



5. **Cut Motor/Stop:** A slashing motion with the hand across the neck indicates the boat is to stop immediately. This signal can be used by the skier, driver or observer.



6. **OK:** If the newly set speed or boat path is good, then the skier uses the OK signal — an "O" made with the index finger and thumb. This signal can also be used between skier and observer to indicate that signals given by one of them has been received by the other.



7. **"I'm OK" After a Fall:** This is the most important signal which indicates that a skier is OK after falling. It consists of both hands clasped over the head. As a coach, insist upon seeing it everytime.

Bob Archambeau → USA Water Ski

- **Experience:** 53 year competitor, USA National Water Sports Association, coaches adaptive skiers
- **Challenges:** “even with able bodied skiers, people don’t listen very well”
- **Most Valuable Feature(s):** skier down alert (pressure sensors)
- **Vibration vs. Audio:** either, but vibration probably better
- **Premium Cost:** not a concern since all other gear is also expensive
- **Concerns:** durability, buoyancy, waterproofing

Bob is highly experienced and heavily involved in USA Water Sports. He has many connections, including the main manufacturer of waterski tow ropes. He wants to connect us to those resources and is very interested in following our progression of this product. He loves our concept and wants to see it become a real product. We could see him joining us for the final presentation in December.

Cassy → Oxbow Water Ski

- **Experience:** has waterskied for whole life, recreational in the summer, on a competitive show ski team
- **Challenges:** when there are many skiers out on the water (show ski) it's hard to keep track of everyone's speed preferences
- **Most Valuable Feature(s):** speed regulation
- **Vibration vs. Audio:** concerned with audio being unclear
- **Premium Cost:** \$200 would be on the low end, willing to pay more
- **Concerns:** none

Cassy → Oxbow Water Ski

Cassy has experience skiing recreationally and competitively. She thinks that although it should probably be targeted towards beginners, **people of many disciplines would benefit from this product**. She thinks **all of the features are important**, and doesn't think there are any that she would get rid of.

Cool quote: "I was talking to my family about how there haven't been any major improvements in water skiing. In terms of gear, everything's really been the same for a long time so it would be nice to see some innovation come to the sport."