POLAR TOURISM
Guides Association
guiding guiding

Guano Happens 2023

Guano Happens is a regular column of the PTGA's Brash Talk newsletter that seeks to enlighten and educate guides on field safety, risk management, situational awareness, and decision-making topics. We learned in our 2019 member survey that Guano Happens is the most popular and well-read section of the newsletter; that guides greatly value sharing and learning via narratives from the field. This document represents a compilation of all Guano Happens reviews, and more reviews will be added with each new addition of Brash Talk.

We want you to learn from the experience of others. PTGA believes that incident and near-miss reporting is a very important area of development in the industry. There is incontrovertible value to learning about and discussing events related to risk-management in a no-blame environment, with the explicit goal of preventing future mishaps industry-wide.

Reading through the collection below is time well spent. As you read, is important to be mindful of several things:

1. Understanding the language of review, and how to replicate it in the field/work environment
2. Understanding the sequence of decisions and actions that occurred (or didn't occur)
3. Understanding the concept of casual factors; that every big incident is often pre-cursed by smaller events or decisions that are more consequential than they appear
4. Understanding that incidents and near-misses provide clues to knowledge, skills, and judgement deficits that can be overcome with additional training or experience

You are invited to contribute to the Guano Happens forum. Use our **Anonymous Incident and Near-Miss Report Form** to share your story. Our mission is simply to educate and encourage guides to make sound risk management and safety decisions in the field. When reporting, please do not use names of people, company/organization names, or use any other identifying labels. Learning from these near misses and being able to discuss them without fear of judgement or punishment is critical. Please share whatever you are comfortable with. No matter how old or new your story is, we would love to hear from you.

Driver overboard with engine still running.

The individual who shared this has given full permission knowing that sharing the incident is far more useful than burying it. We have provided the narrative then our summation of the causal factors that precipitated the incident.

This guide had retrieved some kayaks and the end of an excursion and takes up the story:

> *I had retrieved 2 kayaks from the water and positioned them across the pontoons. I waited for the call to go alongside, retrieve the hook and prepare for the lifting aboard.*
>
> *On receiving the call, I engaged the drive and swung the zodiac around to starboard to come alongside (I'd removed my kill-cord to prepare the zodiac and kayaks for crane ops). As I started this manouvre, the bow of the Zodiac lifted up on some sea ice which caused the kayaks to slide backward toward the stern of the zodiac. I was temporarily unbalanced as the kayaks struck me and pushed me to the stern of the zodiac. I reached for the tiller for some assistance to retain my balance. When I grabbed the tiller I rotated the drive slightly and then lost whatever balance I had and fell backwards into the water.*
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> *The accelerator sleeve did not self-return and so remained stuck in full throttle instead of returning to neutral/idle. Thus, the zodiac careened off at speed shedding its cargo of kayaks and looped around a circuit and I was in its path. I was aware of what was happening and was able to avoid being runover by ducking my head and moving my body away from the course of the zodiac.*
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> *I was in the water for probably less than 2 minutes as I swam toward another zodiac which was standing by. I had some difficulty in retrieving the rescue throw line as the hood of my float jacket kept falling over my face. I had zipped up my float coat, but this is not sufficient unless the waist clip is fastened tightly also. When being retrieved from the water the rescuer may pull on the jacket and unless the waist band clip is fastened the jacket could be pulled over the head of the person being hauled from the water. Eventually I was hauled aboard and taken back to the gangway to find comfort in a warm shower. I was back on duty within an hour.*

Causal Factors

- **Not being aware of the ice under the zodiac bow when taking off** – any professional guide should have constant situational awareness. In this case the unknown ice under the zodiac was the issue that ignited the sequence of events.
- **Kill-cord was not being worn when the driver went into the water** – kill-cords are a critical safety item regardless of your perception of your own skills/experience. This was the biggest causal factor in this incident and turned it from a simple embarrassing plop into the water into a critical near miss.
- **Throttle control was sticking/malfunctioning** – guides/drivers should be fully aware of any deficiencies with equipment they are expected to use, their role in reporting deficiencies, requesting repair or undertaking it themselves if they are competent.
- **Float coat was not worn as per manufacturer recommendations** – waist belts are critical to the functioning of any flotation device to assist the victim to stay in it and/or to be used as a means of hoisting.

Positive note: **The rescue was quick and efficient** – all guides should have practical experience of rescuing a MOB with the challenges and solutions a zodiac offers.

Driver overboard under gangway with inflatable life jacket.

This incident is a few years old and shared by a senior guide but had an interesting sequence of events and lessons.

I was returning from driving a landing on the Antarctic Peninsula. Winds were over 30 knots and there was a big swell but I felt comfortable enough with the conditions that I tied my Zodiac up at the gangway without waiting for help and hooked it up to the crane. The ship then swung at anchor and the swell became much bigger; a particularly big set had the crane cable coiling in the bottom of the boat before it fell again into the troughs, jolting hard each time the cable came taut. The motion was too violent for me to stand and eventually I was thrown overboard between the aft of the Zodiac and the ship.

I hung onto the Zodiac's pontoon, trying to hold myself high enough out of the water to stop my lifejacket from getting soaked through as I knew I wouldn't be able to maneuver with it inflated.

Eventually I realized I couldn't climb out over the pontoon and I wasn't willing to risk climbing over the transom in the heavy swell, so I let go and swam for the gangway. My lifejacket inflated, and on arrival at the gangway I sat on a crossbrace underneath to make a plan for getting out of the water without being crushed between the gangway and Zodiac, which was still rising and falling on the swell and slamming against the gangway. Unfortunately, the swell then washed me in under the gangway, and I was pinned face up by my lifejacket on the underside of the floor grate around 50cm below the surface of the water. When the wave passed I was left floating beneath the grating, and I took the opportunity to climb out and up the side and onto the gangway. The chief officer was informed by the crane operator and he arrived as I was climbing out of the water. Other staff had looked out during the minute I was in the water but had seen only the boat tied up and not noticed me. I was dressed in offshore sailing waterproofs and Muck boots. I was wet but the clothing acted like a wetsuit so I was warm enough that I simply towelled down and put on dry clothes afterwards.

Causal Factors

- **Operating at a rough gangway without a spotter** – This guide made the decision to tie up to and operate at the gangway without a spotter or assistance. In any rough conditions 'transition zones' are largely, and predictably, where accidents are going to occur (getting in/out of zodiacs, going from one state of doing something to another). A set of eyes or a spotter could have halted the incident process in the early stages. For many companies these days this is a mandatory requirement and standard operating procedure.
- **Loss of the ships lee** – It isn't always possible, and often difficult to hold, but the loss of a lee (shelter) at the gangway was a major contributing factor to the events that transpired. Without a spotter if the guide had communicated with the Bridge and disclosed that they were attaching to the crane in riskier conditions it could have mitigated the issue.
- **Choice of flotation device** – The use of an inflatable lifejacket was very nearly the final straw that might have turned this brief incident into a tragedy. The guide involved now says they only ever use a PFD when driving because of this event and the general difficulty they have seen during a number of practice drills with MOB and zodiac drivers trying to self-rescue (or not) with inflatable lifejackets vs PFDs. Inflatable lifejackets are very effective at keeping someone afloat but are very difficult to manouvre in or climb over a pontoon or ledge in or, in this case, duck below the water if needed to avoid being hit or to escape (zodiac or gangway).

Trapped at Brown Bluff with moving ice.

This guide shared a story that is perhaps more common than is probably reported.

I was ELing and we had a spot at Brown Bluff. Weather was great with little breeze but forecast to rise a little through the morning. The 'ashore' landing was a breeze and a group went off hiking around to the glacier while others dispersed to the colony/beach areas to enjoy penguins. We are a smaller operation so we had plenty of time. I had walked to the penguin colony to help out and hang out. After an hour or so the breeze set up from the east but not enough to be a problem, it was just colder. Some pax decided to go back to the ship so a driver was doing shuttles. The driver reported an increase in ice at about the same time as the hike group (via the bridge radio intermediary as reception from around the corner is not good) leader called to say they could see a large amount of big ice moving our way. I immediately called the landing to a halt and communicated this to staff who, without alarming people, started moving them back to the beach and into pfd's. Drivers managed to get all the beach walking and colony people off the beach and back to the vessel. By the time the hikers returned all zodiacs were off the beach, one was stuck in the ice (the driver walked to an open side and was picked up by another driver) but 18 people were stuck on shore.

We had our shore bags with water and shelters (amongst other things) and the breeze was cold and and without movement people were chilling quickly. We put groups of 6 into the group shelters and settled in to wait.

After 4 hours the ice field had moved west enough that we could get a zodiac to shore (drivers had managed to rescue the stuck one). We packed up our beach camp and got everyone back to the vessel without further incident. While some people were uncomfortable (from sitting in the emergency shelter) and a little anxious no one was in any danger. If we'd had to stay longer/overnight we had some rations and other survival gear in the shore bags. In the end it made for a good story and we continued our trip with no follow up issues. I checked in with all pax at re-cap and talked through what happened, how we managed it and checked if anyone had any lingering concerns or issues. There were none.

Causal Factors

It is difficult to isolate one causal factor out of this event. The closest seems a familiarity trap where this site might have been visited a number of times before without incident and perhaps the EL's guard was dropped. Back up plans all seemed to go well and shore bags were there and shelter was available. We all know Brown Bluff can be a very cold place with the wind blowing so this contingency planning was critical.

Fast moving pack and floe ice is a known phenomenon along this coast and through Antarctic Sound. In this day and age with the information we have available and healthy numbers of close calls it seems almost inconceivable that someone would get caught out. But – it continues to happen. Something to consider is a briefing for bridge officers or placing a staff member on the Bridge as a high look-out. This would mitigate this ever happening almost completely. But – if a group of hikers are a long way out and even if the bridge/spotter person sees the ice coming it can be traveling easily at 1-4 kts (I've measured drift through the channel between Andersson Is and the end of the Peninsula there at 5 kts) it is still possible to catch a small group out. This is where quality shore kit and knowledge of how to use it can stop a 4-5hour shore stranding turning from an interesting inconvenience into a possible epic or tragedy.

Communication issues in deteriorating weather.

This Communications incident was shared and is worth considering. It points to the need to be situationally aware of when to switch to the formal VHF call and response protocols that get dropped for most easy operations.

We had an instance where, while it remained relatively calm onshore, a katabatic sprung up in the outer bay where the ship was anchored, and rapidly increased in force to a point that Captain called back everyone on shore while he dealt with the ship dragging anchor.

The katabatic was blowing 55kts when Zodiac-A delivered their group to the ship. While still at the gangway, Zodiac-A requested that one of the passengers remain in the Zodiac as ballast as the zodiac was probably needed back onshore. At the gangway, Zodiac-A radioed ashore to Staff-1 to confirm that they were needed to return to shore to collect more passengers. Communications were difficult at the ship end with the wind but Zodiac A received the transmission from Staff-1, 'No, you are not needed.' Zodiac-A responded "Copy that", slipped the radio back into its holster and moved away from the relative protection of the gangway, readying to get the Zodiac on the hook.

Unbeknownst to Zodiac-A, seconds after those communications, Staff-2, who was also ashore, called on the radio, "We do need you back on shore," but with the wind, the transmission was not heard and Zodiac A went up on the hook.

The katabatic became stronger – it was blowing 65 knots by the time the 4th of 5 Zodiacs got back to the ship to offload passengers at the gangway. The 5thZodiac was by this stage also on its way to the ship with passengers. The ship received a call from shore to say that one more Zodiac was needed to return to shore to collect final passengers and staff. The 4th Zodiac (with an extra staff member for ballast), was now free, so returned to shore in worsening conditions, collected a full load and inched back to the ship in 65-70 knot winds in hazardous wave conditions. They had strong, capable staff aboard and managed well at the gangway then got the Zodiac back onto the hook.

It all ended well but being out in those conditions was was hazardous. Had radio communications been effective, Zodiac operations would have been completed by Zodiac-A 45 minutes sooner, in safer conditions for both Zodiacs and for the ship which was struggling to hold position until all Zodiacs returned.

We debriefed the event afterward. Staff-1 acknowledged that they'd made a mistake in saying Zodiac-A was not needed; however, they assumed Zodiac-A had heard the instructions from Staff-2 to come back to shore." Staff-2 said, "Sorry, but at the same time as I radioed I was dealing with a situation near shore and was busy with that." We also acknowledged that a central point of comms control and logistics would have been a good idea.

Causal Factors

1. **Lack of situational awareness – communications.** We all (mostly) know what 'formal' radio protocol is. The reason it is in any number of SOPs is that VHF communications in marginal conditions are marginal and there are procedures for checks and balances so that important messages get through and are understood. Guides should always be conscious of this when environmental or geographical conditions are such that they need to shift to formal comms procedures even if day-to-day operations drop the formality.
2. **Lack of central control in marginal conditions.** This team identified in review that as conditions got more marginal having someone (shore or ship) in the role of central communications person is a good idea. There is a solid reason why all critical incident teams (fire, ambulance, police etc) have command control protocol when dealing with rapidly changing and complex situations. This became one of them!
3. **Familiarity trap.** There could be an argument that this tight knit team familiar with working with each other may have suffered some Familiarity trap as most of their operations work smoothly doing what they always did – they were very familiar with standard, and even non-standard operations. This particular event seems to have gone beyond even non-standard.

Walrus incident, a cautionary tale.

This is an interesting experience and rather than having any causal factors to review it is a cautionary tale and registered incident so is worthy of sharing and being reminded that walrus are unpredictable, powerful and armed with anti-zodiac swords. This incident also reinforces the value of operating with a partner (if you can) when out in ambiguous conditions.

I was EL and driver during a Zodiac cruise in eastern Svalbard. There were swimming walrus with calves thinly spread across the whole area of the excursion so I was regularly warning staff to maintain a safe distance from them. Winds were approximately 15-20 knots and the water was murky with sediment.

As I was returning to the ship I was at full throttle with the intention of getting up on plane when three adult walrus surfaced simultaneously on my port side, almost touching the Zodiac. They were swimming in the same direction as me and at the same speed. All three rolled onto their sides to face the boat and raked their tusks through the port tubes before fleeing. The whole event took about 3-4 seconds. The whole port side of the zodiac collapsed instantly and the passengers on that side threw themselves forward onto the floor. My 'buddy boat' came alongside immediately and took all ten passengers before redistributing to other boats who were arriving.
I was able to drive back to the ship unassisted with a pronounced list, the floor awash and the helm hard over to counter the drag of the empty tubes! When the boat was lifted onto the ship, five individual tears of up to 50cm in length were found across two chambers

Ice floe landing incident.

This incident happened in the NW Passage while landing on an ice floe.

> *I'd been out zodiac cruising near Banks Island at the western end of the NW Passage. I'd radioed my partner and said I'd found a great floe and wanted to get my zodiac out for a walk on the floe. My partner wasn't keen but said they would stand by and back me up with a zodiac in the water.*
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> *I ran my zodiac up onto the floe and was nicely perched. I grabbed a paddle from the zodiac as a probe and jumped out onto the ice for a look around. I poked around a bit and everything seemed solid. I went back and explained what we were going to have a short walk on an ice floe in the NW Passage and also said if anyone was not happy with the idea they could stay in the zodiac. All my guests were keen. I began unloading and told them to have a look around, not go near the edge and not too far away. I'd nearly finished getting people out when there was a cry and a gentleman was knees deep in a slush pool of soft ice having broken through the surface. He was flailing around and panicking which was making matters worse. His rubber boots were full of freezing cold water and he clearly believed he was going to go right through and into the sea. I grabbed my spare paddle and rushed over. He had walked into a mushy melt-pool area I hadn't seen on my quick look around. I offered the paddle but he was just out of reach so I used the paddle as a walking stick and waded into the pond to steady him and escort him out. He was quite shaken and had cold feet. I rallied my group back into the zodiac and offered him my spare socks in my pack and explained we could get back to the ship in less than 10 mins. He had settled by this stage and said he would be okay but wanted to go straight to the ship. We emptied the water from his boots and drove back to the ship. His story was the biggest news in the bar that night.*

This guide did a lot of things right and we thank them for sharing. This isn't a major incident and as always there are still some things we can all learn.

Causal factors for the incident in the slushy pond

- **Insufficient scouting** – if operating an ice walk a guide should scout an area as thoroughly as they can. Having an ice probe, paddle or ice axe is useful to really poke at suspect surfaces without having to step in them.
- **Lack of clear boundaries for the guests** – if a guide is going to let people wander freely there should be very clear boundaries. Items from a zodiac or your guide pack can make useful boundary markers if needed.

Further issues for consideration

- Carrying a throw bag or rope at all times – it is unknown if the guide had a rope on them at all times but the PTGA recommends having a personal rope or throw bag with the guide at all times during an ice walk or any extended journey on sea ice.
- We don't know exactly from this report but if someone was through the NW Passage it was likely to be later season with warmer temperatures. This might indicate that even once a guide decides to run an ice walk they should be on high alert because any ice floes are likely to be degrading with a high likelihood of surface melt pools.

Ice landings are a lot of fun and often a highlight for many guests. They also have a lot of potential for things to go badly wrong and with significant consequence. In the tourism industry there aren't any established guidelines or practises (there are some resources and SOPs for Govt Science operations and heavy vehicle operations on ice) so this makes it difficult for people to learn and for a lot of polar tourism industry guides hand-me-down training is as good as it gets. If you ever run into a guide who has extensive experience working on sea ice it is a golden opportunity to grill her/him and learn as much as you can.

Near-miss incident highlighting why sharing & learning is important.

This story was shared and didn't happen to the guide but they got to observe a near-miss unfold which highlighted the reasons why knowledge and reporting of 'near-miss events' across the industry should be systematic and a mandatory part of a company's operating system coupled with an anonymised way to share. This incident highlights all the standard reasons for skill development, ensuring minimum competencies are in place before a guide takes charge or at very least are identified and strategies put in place to account for them. It also reaffirms for all of us just how quickly things can turn from an unsettling/amusing incident to a tragedy because of the polar environment.

> *It was the end of the day and the excursion was wrapping up. The vessel was anchored but some ice had been moving through the area. Experienced drivers had been pushing ice away from the bow of the vessel and keeping things clear but these people were no longer available. There was a large low ice berg bearing down on the vessel. The only person available was inexperienced polar driver who was doing some practise driving and had some other non-expedition staff in the zodiac.*
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> *They attempted to 'drive on' and move the berg as they had seen others doing. The piece of ice was massive and in strong tide current. They didn't stand a chance. With about 10 feet to go before the berg hit the vessel the driver drove the zodiac between the berg and the ship to try and stop any impact. The berg continued its journey and began to crush the (taco) the zodiac which then popped up and began to tip. The three people in the zodiac were able to scramble onto the ice berg (it was fairly low profile with flat sections luckily). There was no other zodiac handy for a rescue if anyone had fallen in the water. The Bridge managed to pull the vessel back to allow the berg to carry on its way unhindered and the zodiac sat flat again. The driver had managed to hang on to a rope to the zodiac and once clear of the vessel they managed to jump back into the zodiac, get it started then pick up the other two people and continue wrap up operations.*

Zodiac operations near-miss & GroupThink warning & lessons.

The story below was shared with us, describing how a near-miss unfolded during a zodiac operation. This incident reminds us that the polar environment is fickle and what you see is not always what you get. While we all want to provide our guests with a memorable experience, it's not worth risking anyone's personal safety.

It also reaffirms the need for well-trained, experienced and competent leaders who allow a psychologically safe space where team members can question decisions that are being made.

> *This episode occurred during a zodiac operation from a small ship. We were at Spert Island in the Antarctic Peninsula and there was a planned zodiac cruising operation for two rounds of six groups. There is usually a good swell there, as was the case on this day, and proximity to the rocky shoreline requires vigilance, but the conditions were suitable for cruising. The plan was for the six boats to generally stick together and always be visible to at least one other craft, however there was no designated leader; we were going out to explore.*
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> *This was my first time to the site and I was relying on the others to show me around. First, we entered the tight passages that the area is renowned for, losing visibility and comms to the ship as we transited from the south to the north side of the island group. After exiting the passages, the lead zodiac turned into a narrow cove containing three large icebergs, exposed to the swell. The interior of the cove is characterized by a very steep amphitheater-like wall that plunge directly into the sea. Seals could be seen on the far end and drew the attention of the lead zodiac. One after another each of the zodiacs entered the cove. I was fifth in line and hesitated. I recognized the potential hazard from the three icebergs; if one was to roll, we'd quickly be met with waves pushing us toward the rock walls. I signaled to the driver behind me, indicating that I was uneasy. A shoulder shrug was the response. I reluctantly continued, thinking perhaps we just need to quickly pass the bergs and then it would open up. After several minutes within the cove, the lead zodiac turned to the icebergs and steered right into the middle of the three. It turns out that the only way out of the cove was either doubling-back or passing between the icebergs. Again, the string of zodiacs followed. I turned a corner to see what was transpiring. Not only did I not like the icy passage, but to my surprise, two of the boats had stopped to admire the bergs, floating between them. The boats were six meters away and each of the icebergs was ten meters tall or more. I powered up and turned out of there and continued to a significant distance away. Two other zodiacs did the same. One remained floating in the middle and offered pictures to guests. After a few minutes, all the boats were safely away from the icebergs.*
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> *Flash-forward to the second round of cruising, about an hour and a half later. Again, all six zodiacs were in line and as we approached the same cove for the second time, we were met with lots of brash ice. Turning the corner, we could see that the entire amphitheater now contained ice and it was basically unnavigable. The three huge icebergs had all rolled since we had left them just over an hour ago, and one had broken up.*

Causal Factors & Probable Heuristics

- Risk shift
- Familiarity
- Expert Halo heuristic
- Social Facilitation heuristic

The critical balance point between near miss and tragedy was simply lucky timing. The real risk posed by the three large icebergs was significant. One or even several zodiacs were exposed to that risk at any given time. The swell and tight geography of the cove, combined with steep rock walls would have further complicated a Man Overboard (MOB) situation. Furthermore, there were no direct comms to the ship and it was a significant distance away.

This is a very complex but common scenario for group based excursions into terrain/areas that can change character at an unknowable time but when they do it happens in an instant. The nature of this particular scenario was very much like a group of skiers in avalanche terrain so we will review it using some common tools and concepts from that industry.

The biggest factor involved here is what's called **Risk Shift**. It is a known and studied social aspect of risk taking which states that a group will make riskier decisions than the individuals that comprise that group. You can see in this narrative the contributer felt uncomfortable with a lot of the excursion but went along because the group was all doing it and there was no organized channel of communication to break this flow of action. The accountability for the risk had 'shifted' to the group in the absence of leadership, hence the term Risk Shift. Put this in your guide tool box, understand it, be able to identify it so you can say something about it, and know it is natural to want to follow the group and to feel pressure to perform like your peers. However, if poor choices are being made, then you must fall back on your own level of comfort. That may mean prioritizing the safety of your guests and taking action that is personally acceptable to you.

It is clear there was some familiarity trap involved and I [author of this analysis] have seen exactly the same scenario played out in the same place**. Familiarity** was the sole driver of the rationale as to why we were doing this. Clearly this won't sit well with a coroner when a berg does collapse, one day when someone is in there.

There is no indication in the narrative but we might assume at some stage that a lead driver or someone had decided this was an acceptable idea given the circumstances. Be aware of the **Expert Halo heuristic** where someone with expertise (perceived, real or false) may make a decision and others will simply follow without active participation or ability to participate because of environmental conditions or the perception that this person 'knows' what is going on. It is similar to Risk Shift but to an individual instead of a group. One way to avoid this is to build into your expedition team culture an agreement to discuss with your fellow guides or zodiac drivers to come up with a shared and accepted understanding of what the purpose of the excursion is. Had the drivers got together on the water and had a quick chat some of these concerns that the driver was internalizing may have come out then with acknowledgment of 'transition'. In this case, moving from open water to a confined space with increased risk exposure. This transition might have been a good place to pause, regroup, and check quickly to see that the shared plan is still agreed and has anything changed.

Regardless of how these particular situation turned out, the hope would be that there was an effective review of the excursion after the fact, examining concepts and decisions (not personalities) so that the expedition team might learn from what happened and be better as a team next time. Safety or risk management depends upon the **ability** to be safe (training/education), the **opportunity** to be safe (technology), and most importantly the **desire** to be safe (motivation). A key part of our job as professional guides is to make sure we have the knowledge, tools and support to be the best we can.

Thankfully, the incident described above was just a near-miss, and we can all learn something from it.

Crevasse incident at Danco Island.

This iteration of Guano Happens is a story that might be more common than we realize.

I was with a large group on a walk to the top of Danco Island (editors note – this guide had a formal qualification as a mountain leader and had been in charge of this hike multiple times before). *Conditions were fine and clear and quite warm. There were other staff on the hike but they were spread out on the ascent. Some of the guests had seen bum-slide trails on the lower slopes and were asking about sliding down the slope. I said we would get to the top first and see how conditions were when we got back down.*

Guests had been coming and going from the summit with other staff stationed at various positions and some descending helping those less able. All people had received a warning about staying in the summit area when they first arrived. A number of guests were still sitting around on the summit and taking pictures etc and had been there for some time. I wandered a short distance to look down the descent to see how things were going.

There was shouting from the summit and I rushed back and people were yelling that someone had fallen in a crevasse. It turns out while I was away and facing away, a gentleman had seen the sliding trails far below and thought the slope looked good from the summit down to them so started off down. The man bum-slid about 60metres from the summit (never fast or out of control people confirmed) and fell into a crevasse. The person was unhurt and standing on a soft snow ledge with their head sticking out of the crevasse. They couldn't get enough purchase on the uphill side wall to get out themselves (the downhill side would have been easier but I would have to have left the group on the summit to find a route to safety. I couldn't tell if this was a snow bridge or the base but decided it was safe for me to help. I kicked out a solid foot placement and used a sling I was carrying as a hand line (I had a throw-bag as well.) I helped the guest out and onto the slope. I did a quick informal survey and found they had a sore bum from hitting a harder block of snow and that was all. We walked back to the summit.

I gathered the people remaining and talked through what had happened and warned them again about only going where allowed and that any small incident could impact the trip for the whole vessel. Some people thought the whole thing was hilarious, some were freaked out. Word got around the ship but the EL managed it by revisiting the incident and providing information about what happened and how it related to everyone on board – this was really positive and gave people a lot to think about.

We reviewed it as an expedition team and learnt what we could from it. I outlined what I thought had gone wrong and that was: I hadn't done a specific 'do-not-move' disclosure to the remaining people on the summit before leaving them alone, I could have used my throw bag (as I have done before) to mark a limit of movement allowed in the area and I thought if I had kept another staff member on top I would have had more freedom to move around and see how others were doing. On top of this I just didn't think it would ever happen! Lesson learned – never assume!

Causal Factors and Incident Review

PTGA note: there is a bergschrund type crevasse ringing the summit of Danco Island on all aspects except the northern hike approach. We don't have clear, useable data on its depth apart from the fact that the Danco summit snow dome is not particularly thick. Any planned excursions into this terrain need a suitably qualified guide (and equipment) capable of judging crevasse hazard and performing an extraction if required.

Without much more detail it seems the guide had a good summation of the causal factors that led to the incident. It's worth mentioning that the guide's preparedness in terms of possessing slings and a throw bag were key to a quick and uneventful solve for extracting the client.

The fact that the guide left the summit without very clearly and specifically instructing the clients regarding expectations (in this case, to NOT go somewhere) was one of the key contributing factors. Effective communication is probably more important than using markers to physically create a boundary, but the two together would have been considered sound practise.

It's worth considering that the Familiarity trap was in play here as the guide had been here many times before and disclosed that they just never thought someone would take-off like that. It is worth stating time and time again – people can do the weirdest things and constant vigilance or mass control systems are critical skills in this kind of tourism. It's possible the guide was overtasked and perhaps they didn't have sufficient staff supporting their role, but I don't feel we have enough information to make that judgment in full.

It is very positive that the EL got out in front of the issue and dealt with it before it became something it wasn't, and the team discussion and accurate reflection is a very positive forum to deal with it and move on.

A client tries to go behind the guides back to get permission for an activity.

A few years back I was leading a yacht-based trip on the Antarctic Peninsula. One of my guests had heard about the 'penguin slide' at Neko Harbor and he asked specifically if we could make a stop there. I obliged and worked it into our schedule, with the usual caveats related to weather and local conditions.

The day we arrived at Neko was very cold. The snow consistency was firm to frozen and some clients walked with poles to help with stability. After visiting the penguins, we went up to the overlook and sliding area. Upon inspection, I found the slides to be icy and frozen on top. I immediately deemed it unsafe. The slide would be too fast and the conditions wouldn't allow for any speed control on the short but steep descent. It would be very easy to succumb to a mechanical injury.

I had to tell the guests that sliding would not be possible that day. Most were fine with that, recognizing the circumstance. The one guest who requested this destination, however, became argumentative. His friends had visited this site before and talked up the slide and he didn't want to return home without having experienced it for himself too. I felt It was more about the bragging rights for him than the experience. After many minutes of offering perspective and repeating my decision (all rooted in observable facts and conservative risk management), he succumbed and we walked back to the beach.

Once back on the boat, the guest complained to the boat captain and essentially asked him for permission to go back and slide – a classic "if mom says no then go ask dad" scenario. After a knowing glance my way, the captain simply stated that if the EL had made a decision due to safety then it was the right decision to make.

I see this situation as a near-miss. I still feel that I made the correct decision for the group that day. Even a simple break or strain would have resulted in not being able to participate in most activities for the remaining week of the trip, with implications for the group as a whole

Analysis

Willingness to alter or cancel a planned activity is a hallmark of superior risk management. In this case, the guide arrived to the sliding site to find icy conditions not conducive to a safe sliding experience on what we know is a steep hill in a distinctly remote region of the world. While these types of calls are always subjective, it appears that the guide made a sound, conservative decision based on the conditions and location. More importantly, the guide demonstrated a willingness to change the plan after identifying and assessing any potential risks associated with the current local conditions.

Commitment is a common trap related to risk management. Taken in this case from the client's perspective, he knew when he arrived that he intended on sliding. His need to complete his objective blinded him from being able to assess the current conditions objectively, and to appreciate the guide's decision.

The client may also lack the perspective of the guide; being in a novel and complex environment translates to being unable to recognize that the conditions were unfit that day. There is great value in traveling with a guide who is more experienced and can make these types of difficult decisions – it's up to us as guides to take that responsibility seriously.

We appreciate that everyone has their own tolerance for risk. With that in mind, another hallmark of exceptional risk management is calibrating everyone's expectations at the trip's onset as part of your initial trip orientation. In this case, for instance, the guide would hopefully have called out that Antarctica is remote, that it is dangerous

in myriad ways, that definitive medical care can be days away, and that everyone's safety and enjoyment is contingent on sound and conservative decision-making. When all guests understand the particular challenges native to Antarctic travel, it is easier to have the tough decisions make sense to clients once in the field. It is always better to broach this topic proactively early on, rather than reactively in the field when real-time emotions and desires are involved.

Lastly, the guide mentioned his colleague, the captain of the yacht. What we witness here is a trusting and respectful relationship that contributed to effectively managing the problematic client. It appears that the captain did not request any additional information or engage the guest in discussion. Instead, there was a simple acknowledgement of the EL's expertise which ended the situation then and there.

Being willing to trust and support one another is among the most valued qualities of a colleague. Even if the captain himself questioned the guide's decision internally (unlikely), it was not brought up in front of the guest. The act of support instilled additional confidence not only for the decision at hand, but for the guide's overall expertise and authority. The ensuing strength of the EL-captain relationship, as well as the authority of the EL, will last well beyond this particular circumstance, contributing to easier leadership throughout the remaining portions of the trip.

Kayak Squeeze:
New guides fall prey to the Consistency Heuristic – but it doesn't work.

This incident poses some very important questions for our growing industry and in particular, recruiting and training responsibilities. Contemporary models of safety responsibility, accident investigation, and accountability put the responsibility of access to current knowledge, minimally competent skills, and vocational support squarely on employers or managing institutions. The theory holds that individuals don't 'want' to break rules or create incidents and that in most cases incidents and accidents trace back to ineffective support and systems at the company level. Food for thought as we approach the expected busiest Antarctic season on record.

This is an incident shared by a kayak guide. It was during their first season in Antarctica. They were working as 2nd guide to a Lead Guide who was also in their first season.

> *We were drifting in the Erebus and Terror Gulf after an attempt to reach Snow Hill had been frustrated by ice. We were offering zodiac cruising and sea kayaking as the only excursion options. There was plenty of open water but also an area with some ice floes and a more distant tabular iceberg.*
>
> *As we started paddling one of the kayaks was consistently falling behind, as sometimes happens. I asked the lead guide to stand by a couple of times and wait for us. Eventually, we reached an area of older pack, more than kayaker head height above the water making it difficult for me to see where the lead guide and faster paddlers in the group were. Up until now, we had been paddling around the outside of the area of ice but not between the floes. Conditions at this point were calm with no wind or noticeable tidal current affecting the ice floes.*
>
> *I paddled around a section of floe only to see the group heading into a channel between floes. I was nervous about this but didn't respond. The urge to stay in contact and follow the group was stronger than common sense at that point. With clear hindsight, I should have taken the slower, last kayak and just stayed outside of the floes.*
>
> *I immediately noticed one of the floes starting to move against the other and the channel (with the last kayak in it) started to close – and fast!*
>
> *I knew right away they would not clear the gap. The ice was rugged beneath the water and on the side of the floe and I backed myself to climb it. I called on the radio "MOB, MOB I need help!" as I scrambled out of my kayak into the water and took two or three swimming strokes and climbed up onto the ice and started running towards the guests who were now starting to be crushed. I saw the kayak flip and the guests stuck. Luckily I was able to reach down and grab the first guest under their arms with my legs spread across the floes. The second guest was pretty wedged but with adrenaline (mine) and wriggling (theirs) I managed to haul them to safety.*
>
> *Once things were stable and I'd caught my breath I called on our working channel and the safety zodiac came and picked us up from the floe.*
>
> *I was quite shaken by the incident and asked for a review by the ship's Safety Officer and the EL. Nothing came of it. We were very lucky with the outcome.*

Review

There are a number of good lessons here and much is tied to deficiencies outlined in the introduction. Let's break it down.

The issue of two inexperienced Antarctic sea kayak guides without mentorship raises some immediate questions. A sea kayak operation with two inexperienced [polar] guides can run safely in good conditions. But these guides got themselves into conditions that should only be considered by guides with plenty of experience in and around Antarctic ice, or even the site-specific nuances of the Erebus/Terror Gulf. The guides started the excursion within their capabilities but the moment they entered the ice floe area the risk profile and resultant management needs changed. The moment this happened they were well outside their capability and far more vulnerable to errors in judgment. At this stage, they were hampered by the fact they didn't even know what they didn't know. This is a normal first stage of any development journey but not a safe state to be managing sea kayakers in floe ice. Not even knowing what you don't know has never been a successful path out of liability.

It's important for a modern professional guide to be aware of the real risks in their role/s and the tendency for polar conditions to change very suddenly in state or climate. It is incumbent on guides, but more importantly, on the company to make sure their staff have adequate information, training, and mentorship in order to not walk into situations outside of their management capability.

Tied closely with the lack of experience in polar operations seems to be the lack of relationship and communication protocol between the guides. The 2nd guide references being nervous about the changing circumstances but didn't have any protocol established with the lead guide to discuss what they were doing and raise any concerns about the new environment they were heading into.

Risk Shift (when a group collectively agrees on a course of action that is more extreme than they would have made if asked individually) is a common decision-making trap that can easily result in poor and potentially unsafe practices. All guides should have a clear and receptive pathway for communicating concerns or alternative ideas to a leader. We all know some guiding relationships can work with simply a raised eyebrow, or a head nod in a certain direction between experienced guides – this wasn't one of them. It was a new relationship with seemingly no prior discussion about how they would deal with changing conditions. Any new co-guiding relationship will benefit from some frank discussion prior to the excursion, determining any protocols to allow front-to-back comms, and a way for either of them to bring up an issue without it being a mayday call.

**Heuristics are decision-making methods/tools we use to solve problems that we don't have clear answers to. They can be mental shortcuts that allow quick and easy approximation and use of strategies from like situations to ease the cognitive burden of decision making in novel situations (rules-of-thumb, trial and error etc). We have examined their common use in novel polar guiding situations in other editions of Brash Talk.*

We can see some other common safety management heuristic traps buried in the narrative:

The **Consistency heuristic** trap suggests we can be easily caught out by continuing to operate in a certain manner even in the face of new and ambiguous circumstances. Polar tourism incident reports are rife with "we'd been doing okay up until now, we thought we'd just do the same thing" reasons for why things have gone awry. This incident started off in easy-to-manage conditions within the skills of the guides, but by moving into the floes without a change of management style to suit the new situation they were easily exposed.

We can't speak for the decisions and mindset of the lead guide and we aren't privy to why they decided to do what they did without a discussion and change of strategy. A possible reason may lie in the manifestation of a novel experience – a divergent and exciting route through the floe ice.

The polar environment provides easy access to the **Scarcity heuristic** trap and the belief that exposing clients to an uncommon or novel experience is somehow more valuable than a 'typical' experience and therefore worth the risk. The presence of 'easy'

conditions (calm seas, blue sky sea kayaking with little tidal current) in close proximity to a novel and more risky environment (taking beginners into the floe ice region) has been a root cause in myriad polar tourism incidents. Guides need to understand and identify these situations. One only has to realize how far off an easy, safe, marked trail at Portal Pt or Neko Harbour one has to step to immediately be in very dangerous terrain suitable only for well-equipped small groups and qualified mountain guides.

Stay within your scope of experience and stick to the agreed-upon plan unless you have a frank discussion with other members of your team to ensure everyone agrees that a new and novel situation can be managed in an acceptable manner.

The second guide references concern for the new route and the lack of radio communications but then appears to fall prey to the unconscious bias of **Expert Halo** trap and the tendency to ascribe knowledge or skills to someone because they have skills in another area or 'position'. In this case, the 'lead' guide changed the plan simply because they were in the front and the 2nd guide just went along with it. Be conscious, and wary, of this heuristic because 'both' guides are accountable for the decisions made if a disaster occurs even though the lead guide made the call to turn into the ice. The flood of new guides and new companies with little experience is sure to come with a solid supply of Expert Haloes.

The incident narrative closes with the guide requesting a review of the incident by the EL or Safety Officer of the vessel. No review was offered. Of all the lessons to distill out of this incident, this appears to be the most tangible and telling oversight. Guano happens, but only by embracing a culture of shared learning and continual improvement can an individual, expedition team, company, or the wider industry hope to get better and avoid these errors reoccurring. To not share all that was experienced and learned with the guides and expedition team was a lost opportunity.

This was a significant incident and we hope the review has been useful in highlighting some of the very real issues we are all dealing with as we 'shake the cobwebs off' after two years of limited operations. It also is a mirror for the industry as a whole reflecting the pressure on new guides who don't have the support and mentorship their roles require. A huge thanks to the contributor, this was an incredibly valuable lesson outline for many guides.

It is not the role of this forum to tell guides 'how to do things'. To that end, we don't have rules and regulations for sea kayak guides because paddling amongst floe ice is an incredible experience and can be done safely with experienced situational knowledge and accurate risk mitigations in place. The broader issues of guide competency for the task, communication structures for the field or review/reflection tools, and a clear understanding by the industry as a whole that it is a company's responsibility to ensure their staff has information, skills, experience, and support systems in place to develop deficiencies and review incidents that is critical as we speed towards Antarctica 22/23.

Three Zodiacs stuck in the ice: Watch out for ‘Risk Shift’ & the cascading lemons!

This issue’s Guano is an old incident that we heard about many years ago, and we tracked down one of those involved. While it is an incident, it is also a ripping yarn and a window back to a time some might say were the ‘good old days’, or the bad old days, depending on your perspective.

Guide: “Captain, three zodiacs stuck in ice. We need the ship to assist”

Captain: “Really?!”

Indeed, a long time ago in a continent far away, three boats were stuck in heavy ice and requested support from the mothership. How did we get there? Let me first paint a picture of that season: we had everything: a great Captain, strong expedition guides, decent expedition leader, and a small but strong and very manoeuvrable ship. We were used to operating in and ice pretty much all the time, walking on it, and pushing through it and driving around in it. And yet, we just didn't see this hiccup coming.

We hope that by sharing this experience, many will see the lessons learned including but not limited to stupidity, poor judgment, and ego. We were quite a young team, we considered ourselves experienced and I do remember that we were in a rush (as usual). Another factor was that at that time of the season we had never cancelled operations and took pride in that.

Simply put, Plan A was unachievable and Plan B was ‘almost’ impossible, so we decided to shoot for Plan B. Basically we had to take the ship to an area that no one else goes, drop the boats in exposed conditions, and access Plan A through the back door.

The ‘go’ was decided about ten minutes before dropping boats while still moving towards the destination, wind and sea conditions were moderate, and ice conditions were doable – probably 5/10 coverage. We began dropping and loading boats as we approached the final target. At some point, from the gangway, we noticed that the current was shifting, and the wind was gusting randomly affected by the tight geography. We thought it was nothing serious, so decided to continue.

The last two zodiacs left the ship with zero and five guests respectively. They were running light and they were deeper in the bay as the ship was still moving. The last, and lighter, zodiac quickly lost momentum and was soon trapped by the ice. The five person zodiac tried to assist and got stuck also. The rest of us nearby joined forces and tried to push our way out while towing the empty boat but the tide current was now running fast and filling the bay we were in with heavy brash. Meanwhile, another zodiac tried getting to us and also got stuck about fifty metres away. The rest of the zodiac fleet was fine. The EL was on one of the trapped zodiacs and was in radio contact with the other boats and confirmed all was well.

The other zodiacs continued their excursion under a newly designated leader.

We were now completely immobilised in 10/10 ice with zero chance of being able to extricate ourselves. All drivers/guides in the trapped zodiacs had a lot of experience and were able to keep good morale amongst the guests and staff. There were only two options for us at this stage: wait for the tide to change and open leads, or call the vessel for help. We could see the ship in the distance, they were clear of ice and had just managed to secure an anchoring position. We could also see that some of the other zodiacs were ending their cruises. We had no guarantee that the weather would hold until the tide changed and we knew we had a really cooperative Captain and strong ship - we made the call: “Captain, three zodiacs stuck. We need the ship to assist”. Captains incredulous reply “Really?! I just managed to get the anchor to hold”. We laughed.

The ship lifted anchor and pushed slowly toward our position, spinning right in front of us with pinpoint accuracy, sucking the ice away and creating enough open water so the three trapped boats could sneak off the stern. We were close enough to speak to the giggling crew that were on the back deck watching the spectacle. The tide was still running hard and pushing ice in quicker than we could move to get near the crane hook so we ended up throwing tow lines and tethering from the stern of the ship and Capt towed the boats out to open water and everything was resolved. No one was injured, we lost process, learnt some good lessons and of course there was a hell of a recap that day.

In our review we identified that we should have called it off or changed plans/reassessed when we realized that the conditions were changing so fast. A key factor in the whole session were the two very light boats at the end.

Review

Firstly, we will acknowledge this was a different time, much has changed and we are grateful for having this shared. It is an entertaining tale from days gone by but let's get some value out of it by reviewing it through the lens of today's expectations, ideas and concepts.

Risk Shift

Once again, we see the potential and probable presence of Risk Shift. This is a very common phenomenon in the polar and expedition cruise industry because people are working in sizeable teams, or smaller groups and thus without conscious acknowledgment and awareness risk shift can easily take over decision making.

A common social aspect of risk taking is that a group will make riskier decisions than the individuals that comprise that group. One explanation for risk shift is that risk taking is a socially valued behaviour (*"we hadn't cancelled an excursion all season and were proud of it"*). Taking risks indicates courage and forcefulness and is generally more highly valued than conservatism. Most people tend to respect and admire others who are willing to take risks. Working in an expedition 'team' reinforces social desirability and can therefore influence individuals to move towards the more desirable – risky behaviour.

Familiarity

Early in the narrative we see statements like "we were used to working in it all the time" and "we had not cancelled ops once during the season and we were proud of it."

Familiarity and mis-lined attribution is a common psychological factor break-down in thousands of reviewed incidents. 'It can't happen to us' shouldn't even be in the back of your mind when working in remote, ambiguous and powerful environments like the polar regions. The paradigm of 'this could/ will happen to me – I need to see it coming and have answers' serves a contemporary guide much better.

The familiarity heuristic relies on our past actions to guide our behaviour in familiar settings. Rather than go through the trouble of figuring out what is appropriate every time, we simply behave as we have before. Most of the time, the familiarity heuristic is reliable. But when the hazard changes but the setting remains familiar, this rule of thumb can become a trap. Make it one of your filters for any tricky decision.

Consistency

Often directly related to Familiarity as a Causal Factor is the Consistency Heuristic. Once we have made an initial decision about something, subsequent decisions are much easier if we simply maintain consistency with that first decision. This strategy, known as the consistency heuristic, saves us time because we don't need to sift through all the relevant information with each new development. Instead, we just stick to our original assumptions about the situation. Much of the time, the consistency heuristic is reliable, but it becomes a trap when our desire to be consistent overrules critical new information about an impending hazard (speed of the current, ice inundation and the last lightweight boats).
As the guide mentions in review they 'knew' the last

couple of boats were likely going to be an issue, they just didn't act or do anything about something they already knew was likely going to be a problem.

To illustrate further and more graphically, I'm reminded of a discussion I once had with the commander of a Navy aircraft carrier in the Gulf war. We were discussing decision making in tricky, fast changing environments and he recounted how they lost a number of good pilots (and expensive planes) to the back of the ship. The pilots would be coming in to land on the carrier which was pitching in big seas and bad light. All situational hazard indicators suggested they abort their plan and 'go around' to try again, but they were stuck in a consistency heuristic and flew into the back of the ship

Casual Factors

Every near miss or incident is made up of a number of smaller indicators. One of the key goals of any safety or risk management training is to develop the ability to spot these key indicators before they get to a critical jackpot number and result in an incident. Like a revolving slot-machine we need to spot the one or two 'lemons' before they hit the jackpot of three (or four). As our contributor mentions in review, the factors that played into this scene were:

1. The tide race shifting a lot of ice quickly.
2. Confinement within a deep in a geographic feature, prone to ice buildup.
3. Lightly weighted zodiacs dropped in this heavy ice area.
4. A group culture used to working quickly and successfully taking risks.

Jackpot! All lemons.

This is an old event but it has been worthwhile to put it under the microscope and see how it looks today. What is encouraging is today's overall increased awareness of physical and psychological causal factors, as well as heuristics and other common traps. It is important for contemporary expedition teams and leaders to continue developing their decision making skills, notably creating an environment where team members have awareness and knowledge of these processes and can speak up and be part of the decision making process. The ability to speak up is vital for guest safety.

Enterprise Island avalanche-induced Zodiac capsize!

An avalanche into the water is a hazard that has always existed in any snow-slope-near-shore environment. Somewhat like a tree falling in the forest – you have to be there. This is likely to become a more frequent phenomenon as precipitation patterns continue to change. Add it to your list of hazards to discuss with your teams and be aware of when cruising near-shore.

This was a significant event but with an excellent outcome thanks to other good operating procedures and broader standard training safety practices.

A week earlier, another vessel had visited the same area for standard Zodiac-cruising operations. An experienced guide in that operation had observed a fracture line in a nearby snow slope and heavy snow loading on the snow slopes around the *Gouvernøren* shipwreck and advised the on-board expedition team against near-shore exposure due to the potential for significant releases from the slopes above even though they were not particularly high. This information was not shared with the broader guiding community and the people involved in this incident were not aware of it.

There had been three or four days of bad weather with precipitation as snowfall and continued cold temperatures leading up to the day of the incident. We do not have information on wind speed and direction.

The guide involved is a PTGA Senior Polar Guide with five years direct guiding experience in the industry. This guide is not a mountaineer, and does not have experience or skills in back country snow safety.

> *We had set up for a Zodiac cruise excursion at Enterprise Island. It was a beautiful, crisp day, without a cloud in the sky and not a breath of wind with patches of frozen surface water around the shore. We started operations ~0830. After picking up six guests I was the first boat at the shipwreck. We had spent a fair bit of time looking at ice before getting to the shipwreck.*
>
> *I'd been to the site before, but many of the other drivers had not. There was a radio broadcast from the EL to not go around behind the shipwreck. We were already underway and it was not easy to hear every detail. I interpreted this message as a courtesy towards the yachts rather than a safety warning. After visiting the Gouvernøren my cruising-partner and I headed over to the tern colony a couple of hundred metres south of the wreck. I stopped my Zodiac nose-to-shore (approximately 15 m away) and turned the engine off. It was 0900.*
>
> *We were observing the terns when we noticed a ~30m wide avalanche (slab avalanche) from the slope above heading straight for us. I started the engine and jammed it in reverse but only really had 2–3 seconds before the avalanche landed in the water and I didn't get far enough away. We were swept away by the avalanche debris and ejected from the Zodiac as it flipped and landed upside down.*
>
> *Everyone was in the water. I learned later, the other guide on my Zodiac and one guest were in the air pocket under the capsized Zodiac but they extracted themselves safely and without issue. All life jackets had inflated and there were no obvious injuries. I radioed the bridge but received no response (the vessel was around the corner and could not hear us). I tried to do a head-count but this was difficult with the limited visibility afforded by my inflated lifejacket. Swimming in water full of avalanche debris is also very difficult.*
>
> *My Zodiac-cruise partner and two other Zodiacs arrived on the scene within a 60sec and they had everyone out of the water within 4.5 minutes and on their way back to the ship (supported by time stamps on video and images). Remarkably, there were no injuries beyond minor bruises.*

We had trained recovery of MOB [Man Overboard] within the last week fortunately and the rescue was fast and smooth. The guests, having previously been briefed on the contents of the bow-box, helped retrieve emergency gear and distributed thermal blankets, hand warmers and spare hats.

In the rush to get back to the ship, no-one had updated bridge (apparently, they heard us and prepared for one MOB, not eight). They rallied quickly on our arrival and the medical staff were on hand. People were warmed and checked and there were no issues.

Review & Learning

Let's start with the basics.

The guide is a senior guide and was one of the few staff that day with previous experience in the location. Given that the guide themself stated "I'm no expert in reading avalanche danger and did not recognize the avalanche hazard at this location" and it was a beautiful day with little to worry about, they were likely making decisions using a range of Familiarity heuristics.

The Familiarity heuristic relies on our past actions to guide our behavior in familiar settings. Rather than go through the trouble of figuring out what is appropriate every time, we simply behave as we have before in that setting. Most of the time, the familiarity heuristic is reliable. But when the hazard changes but the setting remains familiar, this rule of thumb can become a trap.

In addition the post-incident team review identified Expert Halo as a contributing heuristic.

In many group accidents without a formal leader there is often an informal leader who, for various reasons, ends up making critical decisions for the party. Sometimes their leadership is based on knowledge and experience; sometimes it is based on simply being older, a better driver, or more assertive than other group members. Such situations are fertile ground for the Expert Halo heuristic, where an overall positive impression of that informal leader within the party leads other party members to ascribe safety management ability to that person that they may not have.

This event appears to have been a natural-release slab avalanche, most likely the result of the preceding days of bad weather with snow accumulation. Cooler temperatures may have contributed by not allowing any instability within the snowpack to settle. The guide did acknowledge thinking that the immediate surrounding slopes appeared 'too steep for 'avalanches' from what they knew about them. But, this event was complex with the avalanche starting on the moderate slopes out of sight (this is a common phenomenon in many skiing and climbing avalanche incidents).

The natural-release avalanche scenario puts the 'wrong place at the wrong time' argument into play. But, we've learned over the years that the polar tourism industry does have a number of incidents that get filed in this category but likely deserve a little more thought.

The expedition team searched deep in their own on-board review for causal factors and things they might have missed. Besides the Familiarity and Expert Halo heuristics likely in play they also identified:

1. It is worth addressing the fact that this potential hazard had been identified only a week before but not shared with the broader community. This review serves as a **critical warning** for this type of hazard and ALL guides, and ALL companies need to be on notice. We must try harder to find a way and a forum to get field hazard identification and near-miss episodes out to all guides. It could save lives.

2. The guide was in an area with potential hazard but chose to turn their engine off. It isn't possible to say this was a contributing factor with the inability to get out of the way of the avalanche, but it should go without saying this for ALL guides in Zodiacs; when operating near 'potential' hazards you must pre-plan your escape route, leave your engine on and have your Zodiac pointed at the escape route. This should be a routine mantra for a contemporary guide.

3. It is worth noting the guide's narrative about 'trying to do a head count' but being limited by the inflatable life jacket. We have seen major issues with drivers in inflatable life jackets play out in a number of *Guano Happens* incidents and reviews. We must be getting close to a time where we make a call and recommend PFDs

(Personal Flotation Devices) for Zodiac drivers as an industry standard not just a random choice on the day.

To augment the learning some very important things were done very well:

1. Fast and smooth rescue of multiple guests in the water due to recent and regular MOB training.
2. Very quick turnaround from incident to resolution phase (under ten minutes) in the whole process.
3. Dedication to a thorough and teamwide discussion and review of what happened, what went well, and what they need to do better.
4. Sharing of lessons and the incident with the wider community.

We thank the company and guides who agreed to contribute with the aim of development and learning for everyone in the industry.

Additional Development and Training

There is no way to suddenly expect all Zodiac drivers to be skilled at judging avalanche risk, but we all can revisit essential professional responsibilities and expected duty of care:

- Constant vigilance; always, all the time even if you know a place well.
- Being conscious of heuristic traps.
- Having a process for voicing concerns in your team.
- Have an escape plan if you are 'under' anything (industry has yet to mandate helmetseven when under huge rock cliffs that regularly let loose stones and rocks – we are in a minority in this aspect).

Beginner's Guide to Avalanche Awareness for Zodiac Operations

- Are there slopes of sufficient angle to propagate avalanches (between 30–60°)?
- Be aware that avalanches can start out of sight on slopes well above you.
- Discuss recent weather, wind direction and snow accumulations with your team or mountain guide.
- Reduce any exposure under slopes that could propagate an avalanche (don't spend time and don't turn your engine off).
- If you have to be exposed make sure someone is watching.