

The Power of Visual Storytelling: Life navigating lobster fishing in Drum Head and Seal
Harbour, Nova Scotia

by

Lily Huffman

Dr. Grant Murray, Adviser

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Executive Summary

In many scientific fields, there is a heavy focus on academic communication. This form of communication primarily serves to connect scientists to each other to communicate about research that has been conducted. However, it is important for scientists to communicate effectively with other groups, such as policymakers, the media, and the general public. With the rise of social media and accessible technology, the use of video to communicate science has risen in power and popularity. My Master's Project involved the creation of a documentary film about lobster fishing in Seal Harbour and Drum Head, Nova Scotia, Canada, as well as a written companion piece that explores the reasons for creating a video for science communication in general and provides some reflections on my own experience.

The introduction to the written piece briefly explains the reasoning behind this project, why I chose a documentary film as the primary output, and gives context for why I chose the communities of Drum Head and Seal Harbour for the documentary, including my family ties to the area. The paper then outlines how and why video has risen to become an important avenue for science communication. This section discusses the increase in use of visual media generally, as well as some of the disadvantages that come from the availability of numerous media outlets, such as media fragmentation and the echo chamber that social media can create. Additionally, the section examines some of the considerations required when choosing a platform for hosting a science-based video such as funding and technical expertise.

The next section examines the factors that increase video engagement on YouTube specifically, including the benefits of creator-generated content over professionally-generated content, and creator engagement with the audience to foster a community. These recommendations are aimed at people interested in curating a channel and creating consistent content on the platform. This section also explains the difference between using the platform as a social media site, as opposed to a space to host a video for an external audience.

The paper then discusses the importance of storytelling for science communication, both generally, and more specifically for video. It examines some of the best practices associated with storytelling in video, such as knowing which details are unnecessary, including a story arc, and showing character development. Next, the paper describes some challenges I encountered when trying to adhere to those practices in my documentary, such as judging which details are most important to include for different audiences, how to tell a good story while remaining true to the spirit of my interviews, and how much to insert myself into the narrative as the storyteller. Finally, the paper confers some of the more technical elements of creating a documentary including selecting appropriate gear, mitigating wind noise and ensuring proper lighting for interviews, and preparing for post-production editing by summarizing interviews.

Ultimately, creating a video to communicate science can be a powerful tool. The level of desired production quality determines the required equipment and technical skill. Regardless of whether a video is produced for social media or a theater, it requires careful consideration and planning.

For more information, contact huffman.lilyc@gmail.com

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Introduction

In today's world of social media and the 24-hour news cycle, people are inundated with information. Because of this, the development of effective communication strategies in all industries has become increasingly important. Science is no exception. Changes in the media and communications, as well as public attitudes towards the trustworthiness of science have changed the way scientists connect with the public.

Science communication strives to communicate information among groups like scientists, the media, government, and the public. But science communication is about more than just conveying scientific achievements. According to Burns, O'Connor, & Stocklmayer (2003), the goals of science communication include fostering awareness, interest, and understanding for scientific topics. It can happen in formal educational settings, but also informally through the media, on online forums, or in magazines and books.

One area of communication that has been on the rise in recent years is video. New technologies and media outlets have expanded the use of video communication. It has opened up space not just for new topics, but to a variety of people who can now participate in content creation. No longer is it limited to professional cinematographers and filmmakers. Because of this, and because of the power that a video can have, I decided to explore it first-hand.

For my Master's Project, I created a documentary film that examines lobster fishing in two communities—Drum Head and Seal Harbour—in Nova Scotia, Canada. The documentary explores several major themes, including how fishing in these communities is shaped by both formal and informal rules and regulations, what it is like to be a woman on a fishing crew, the fishermen's relationship to conservation, and how and why conflicts arise in the fishery.

I chose this location and topic for several reasons. The first reason is that it is a place with which I am somewhat familiar. My maternal grandmother was born in Seal Harbour, and I still have family in the area. I knew that I wanted to interact with the community and knew that having family ties to the area would make obtaining interviews easier. The second reason I chose this community was because of the lobster fishing. On one hand, choosing lobster fishing was a matter of convenience. The lobster season for this community occurs between April 20th and June 20th and I was relatively certain that I could be in the community during that time. Moreover, from conversations with my mother, grandmother and my grandmother's siblings, I knew some of the turbulent history with lobster fishing in this area. Lobster fishing has gone through periods of booms and busts. During my great grandfather's time—a lobster fisherman himself—the fishery was unproductive, though fishermen captured what they could. The most recent boom only started around 15 years ago. I was intrigued by the history of the fishery, and how that history has shaped the its operation at the community level.

Going into this project, I also knew that I wanted to produce a video, and to learn more about what goes into using video for the purpose of science communication. I wanted to create a product that would be suitable for a general audience, and one that I could give back to the community when it was done. As it stands, much of what is written about scientific research is published in academic journals, made inaccessible to people outside of academia by language and expense. I wanted to create an accessible product that would allow the community to see and understand what they had been a part of as interviewees. While I could have created a paper written in a more accessible style, and published on a blog or website, but I wanted to explore the elements unique to video that might give it more power than a paper. I hoped that a video would allow the participants to tell their own story in a way that written text might not. It was this aspect of storytelling and voice that I wanted to explore.

This project is the first time that I have created a documentary-style video of this magnitude. As such, it has been a learning experience. From interviewing, to storyboarding, to

post-production, to sharing the final product, there have been several obstacles that I have had to navigate. As much as the literature can lend insight into best practices, I have experienced first-hand how reading about creating a video, both generally and for science, is significantly different than trying to produce one yourself. The goal of this accompanying paper is to discuss what I learned about the benefits and drawbacks of using video for science communication to address a general audience and to compare these insights against findings and insights from selected pieces of literature.

This paper begins with a brief overview of the use of video for science communication. It then describes some best practices associated with creating a science video for YouTube, as well as the importance of good storytelling for science communication. Finally, the paper examines some of the more technical issues associated with creating a documentary. Throughout the paper, I compare my experience of creating a documentary to the literature, and how the creation of a film facilitated unique insights into the communities I was working with.

The Rise of Science Video

Up until the 1970s in the United States, news and other information was conveyed to the public through a handful of outlets, including magazines, newspapers, and television broadcasts (Iyengar and Massey, 2018). By the 1990s the influence of the internet grew quickly, including the rise of social media (Iyengar and Massey, 2018). Although social media platforms rise and fall, Facebook, Twitter, YouTube, and Instagram remain some of the largest.

With the rise of new media outlets, there has also been an increase in the use of photos and videos. For example, according to Jon Simpson in an article written for Forbes in 2017, Americans are exposed to between 4,000 and 10,000 ads daily. Additionally, according to a report by Mary Meeker in 2014, people upload “1.8 billion images to Facebook, Instagram, Flickr, Snapchat and WhatsApp every day” (Edwards, 2014, para.2). According to YouTube’s official blog, as of 2017, a billion hours of video are watched on the platform every day. Although we tune many of these ads and images out (Simpson, 2017), the use of visuals has become a massive and important form of communication.

According to Bubela et al. (2009: p.514), “Technology has also transformed the nature of the media system, creating an abundance of cable television, Internet and digital resources for the public to inform themselves about science and its social implications”. The rise of these publicly accessible resources allows those who seek scientific information greater access to knowledge. However, although there are certainly benefits to greater public access to scientific information, the system is far from perfect. The way the system is set up allows for media fragmentation, allowing individuals to avoid science media and any other type of information they would rather not see (Bubela et al., 2009). Although this was possible before the rise of the internet, the problem is compounded by social media. It can act as an echo chamber, reinforcing only the beliefs a person wishes to ascribe to. While this is a persistent challenge, there are things that can be done to enhance science engagement, especially through video.

Communicating Science on YouTube

One of the first considerations when making a video with the goal of science communication is to consider the dissemination platform. There are abundant options available for science-based video, from more traditional venues like theatrically-released films and made-for-television documentaries or science programming, to streaming services like Netflix, Amazon, and Hulu, as well as social media like YouTube. The availability of all of these

different outlets means there is a place for all types of science films. However, there are issues with having so many options and no one outlet is perfect. Key questions when considering the outlet include available funding for the project, as well as the level of technical expertise.

Although each method of video dissemination has its own benefits and drawbacks, at the beginning of the project I decided that YouTube would give the widest range of people access to my film without trying to share large files. A YouTube video can also be made public and searchable, so that any interested party can view it without directly having to contact me. Anyone with an email address can make an account on YouTube and begin posting videos, making it highly accessible. There can also be as much time, effort, and funding put into marketing as is desired. Creating popular videos is challenging, but social media is an open field for anyone to put a foot forward and try.

When creating content for YouTube, there are some factors that contribute to a video's success, especially one with a science focus. For example, in a 2016 study by Welbourne and Grant, user generated content was shown to be more successful than professionally generated content. The authors explain that videos generated by non-professional channels are more popular because of how people place their trust in content creators. People can form more of a genuine and meaningful relationship with the people behind user generated content.¹ Having a professional team with more funding and technical experience, in other words, will not necessarily lead to video popularity (Welbourne and Grant, 2016, see also Morcillo et al 2016).

Two key best practices highlighted by Morcillo et al. (2016) are the inclusion of elements in a video that foster an emotional connection and build community, and the importance of communicating directly with the audience. This can be done either by directly addressing the audience in the video itself, or by interacting with the audience in the comment section of the video. They further emphasize that storytelling ability is essential, and that the effectiveness of storytelling and a good script are more powerful factors that influence a video's success than the subject matter, perceived subject importance, or production quality (Morcillo et al., 2016). These videos have a traditional story arc that creates suspense, adding to the entertainment value as much, if not more than the educational value. Good storytelling brings viewers together, adding to the sense of community that a single video or YouTube channel can foster, increasing engagement and popularity (Morcillo et al., 2016).

More and more, the element of good storytelling is becoming a central component to effective science communication, not just in video, but generally. People encounter and engage in storytelling every day. In fact, it is a pastime that stems from the beginning of human communication (Kerr, 2018). According to Ella Saltmarshe (2018, para.4), stories and storytelling is so important because they, "shape how we understand the world, our place in it, and our ability to change it".

An essential element tied up in storytelling, and why it is likely so important in creating successful videos on platforms like YouTube, is how it encourages community cohesion, and inspires empathy (Saltmarshe, 2018). According to Kerr (2018, para.2), "we're far more likely to

¹ It is important to note that these best practices assume engagement with YouTube as a social media platform, and not just a place to host a video. I am not a Creator who has a channel and uploads content regularly to gain a following and increase viewership and subscribership. Some of the best practices described here would apply to people interested in generating regular content and being picked up by the YouTube algorithm. Rather, I approached my video more as a cinematic documentary. If I were to try to fit it into a YouTube category, it would be more similar to the style of Peter McKinnon, a filmmaker, photographer, and YouTuber.

understand another person's position when emotions and narratives are involved". This tie to emotion and empathy is also why getting every specific scientific detail absolutely correct is less important than telling a good story. That is not to say that the facts are unimportant, but "instead conveying faithfully the *process* and the excitement of doing science" is what is most important (King, 2016, para.3).

From my own work on this project, I have come to realize how challenging it can be to take this advice. When listening through my interviews and organizing the parts about regulations in the fishery, I realized that not all of the responses aligned with each other. From research into the regulations set forth by the Canadian Department of Fisheries and Oceans (DFO) for each of the 12 Lobster Fishing Areas (LFAs) in Nova Scotia, and specific regulation related to LFA 31B where Drum Head and Seal Harbour are located, I knew which of my interviewees had described the rules correctly, and which had not. I ended up spending quite a bit of time trying to piece together interviews to ensure all of the correct information was given, to avoid presenting conflicting information, or making anyone seem ignorant. This desire to get the details exactly right probably stemmed from taking a research approach, and not a filmmaker approach to the project. In a research project, all of the facts and details are important, and it is important to get them right. But in a film, I question if the audience would care about or remember small differences in the details. That is perhaps a major lesson that I have learned in this process: close enough can sometimes be good enough, especially if it isn't the main point.

However, I believe that there needs to be serious consideration of which details can be fudged. This deliberation comes from considering the multiple audiences for the project. For example, in my documentary it was very important to distinguish the communities of Seal Harbour and Drum Head, even though the difference is unimportant to the story, and likely to most of the audience. They are two adjacent communities that back in their heyday, probably had several hundred residents. There was a fierce rivalry between the communities, and each village had their own wharves and schools (Sheila Randall, Personal Communication, March 22, 2019). Now, combined, they have a resident population that hovers around 40 people (Sheila Randall, Personal Communication, March 22, 2019). Today, the fishermen all use the remaining Drum Head wharf to fish out of, but the rivalry remains, especially with the older generations. This distinction makes no difference for the average viewer, and no difference to the story. However, I would perhaps lose respect from the people of the communities in which I worked if I did not distinguish between the two. One of my interviewees would protest and do it loudly if I said he was from Drum Head. If I ever want to work with these people again, it is important for me to make the distinction and to name both communities. As a result, it is a detail that I cannot omit, even though it is seemingly trivial.

Although stories come in all formats and mediums, there are some elements that are commonly agreed upon for successful documentaries. In the words of filmmaker Michael Moore in an article written IndieWire in 2014 (para.1), "Don't make a documentary — make a MOVIE ...[the audience] don't want to be lectured, they don't want to see our invisible wagging finger popping out of the screen. They want to be entertained". To this point, sources tend to agree that an engaging documentary is compelling and enchanting, largely by virtue not of the cinematography, but by the inclusion of dynamic characters and the story arc (Kerr, 2018; Matlin, 2010). It is the characters and what they do and how they change that pulls the viewer in and keeps them engaged.

Another element of this project that I struggled with in the storyboarding process was trying to balance the creation of a good story and compelling narrative against not sensationalizing what my interviewees told me. I would hate to betray the trust that this community has placed in me to represent them well. But, it is a fact of the medium that

documentary filmmaking is also about narrative, storytelling, and entertainment. I have done my best not to take what was said out of context, while recognizing that the order in which questions were answered might not be what is most appropriate for the documentary. It made me both anxious and excited to share the film with the community. I can only hope that they feel the final product truthfully represents what they told me.

Part of this struggle might, too, have stemmed from my approach to the project. Especially in the initial stages of this project, during the time I was conducting interviews and collecting footage, I approached the project from a more academic, research-focused mindset. This dictated the questions I asked and how I asked them. Some of this comes from an unfamiliarity with the process involved with social science research and other work that relies on interviews. I approached this project with a set of questions surrounding the dynamics of gender and decision making in the fishing community where I was working. However, although those questions were interesting to me, and are still feature in the film, I found that they were not the only, or even 'right' questions to be asking the fishermen about. Gender turned out to be less important than I thought it would be in the context of this community fishery, and there wasn't much in the way of informal decision-making, or at least little that was made visible to me. The questions that I had, although interesting, did not allow for the most complete or compelling story to be told.

Had I approached this project through a more artistic lens, or even with the knowledge that questions change in social science research, I might have changed my questions more significantly. What became more interesting, at least to me, was how formal and informal rules shape the lives of these fishermen. This was especially interesting because of the variable and unpredictable nature of this fishery. Up until about 15 years ago, you couldn't make a living off of lobster fishing. Although it is possible now, the issue of uncertainty about the longevity of the fishery came up time and again. There was uncertainty around how long the lobsters would be lucrative, and in this particular community, there were also questions surrounding how the fishery specifically and the community generally would be impacted by a port that had been proposed for shipping natural gas. The port would be built right in the middle of the fishing grounds, and the fishermen may or may not be compensated. This angle would have allowed for more conflict in the narrative, and the exploration of a "villain", an aspect of compelling narrative touted by both Moore (2014) and Kerr (2018). I asked a few questions about it, but felt like I could not explore it deeply as it was not the stated goal of my questions. In the future, I would allow for more flexibility to change the questions I ask, if my initial research questions turn out to be inadequate to tell the community's story.

Finally, in regard to the tension I faced between research and storytelling, I struggled with how much to inject myself into the film. On one hand, I believe that there is a power in letting the interviewees speak for themselves, to tell their own story. But, on the other hand, inserting myself through narration has the potential to help tie together the narrative more coherently. I finally decided on adding just a bit of narration, after much debate. There was some information about the background of the communities that I had not asked about, but was important to situating an unfamiliar audience. It also helps to tie together each of the sections in the film. However, I have tried to keep the narration to a minimum, for several reasons. The first is as was stated above: I want to give the power to my interviewees to tell their story in their own words, without injecting myself too prominently. But, I also decided to keep the narration to a minimum because I was lucky enough to get interviewees who answered the questions fully and coherently. There was no reason for me to say something that they already had, and perhaps better than I could.

Injecting myself into the story was not just a consideration in the narration, but also in

exposing my family connection. In the critique process for the video, it was suggested that it might be interesting to include. After some consideration, I decided not to make it a big reveal, or even a small issue in the film. It's not that my family connection is a secret—if anyone asked, I would freely tell them. Frank, one of my interviewees, even makes reference to my great grandfather fishing. I just don't feel that it is important to the story. One of the reasons that I feel this way is due to my loose connection to my interviewees. For example, Frank is my grandmother's dad's brother's son. So yes, we are related, but not particularly closely. So, although I have a personal interest in the topic, and a family connection to the place, I do not think that it has an important bearing on the story I am trying to tell. If anything, my family connection is important to telling the story of the filming process and gaining trust from the people who I interviewed.

Making a Documentary

In addition to these insights about the story itself, during the course of this project I have learned a number of things about the technical components that are necessary. This project was the first time I have created a video of this scale, though not the first time I have ever created a video. As I quickly learned, despite having some familiarity with the process through prior exploration and learning about the artform, I still had much to learn. Due to the style I was striving for, I wanted to produce something that was as professional looking as I could. Through this process, I learned a lot about what technically goes into a documentary.

Gear

When deciding what equipment to use to record the footage, I did not have a large budget. Because of this, I used the equipment that I already had: a Rode VideoMic Go, a Canon T6i DSLR with an assortment of lenses, and a Glidecam XR-Pro stabilizer. One piece of equipment that I did not have that I would invest in in the future is a wind shield for my microphone. There were several occasions on which a wind shield would have been beneficial, like the day I was invited out on one of the fishing boats. This experience also taught me to be more assertive with interviewees when choosing interview locations. I should have been more careful when selecting interview locations, and perhaps just done them indoors. When looking at the footage from my interviews, a couple have wind noise, one much worse than the other. Another interview is backlit which gives a strange glare. These situations could have been avoided had I better controlled the interview locations and realized that no one would have been mad had I suggested an alternate location.

Both wind noise and lighting affect the editing process. Even with good software, wind noise is nearly impossible to get rid of. One of my interviews is close to unusable because of it. The reason it is so hard to get rid of is because wind noise covers the spectrum of frequencies. It is not just confined to a high or low frequency like some sounds are. The noise can only be reduced so much before the clip starts to sound strange and robotic. Poor lighting is slightly easier to combat through color correction in post processing, but it adds a step that would not be needed had good lighting been used to begin with. The clip will also never look as good as it might have should care have been taken to light the interview well. These may sound like picky things, but good sound and lighting really can make or break the quality of an interview.

Filming

As discussed, although there should be flexibility built into the questions asked in interviews, and the overall story, some structure in planning is also necessary. I have realized

throughout this project how important it is to have a list of the types of shots you want to gather. A documentary is made up of more than just the interviews you conduct. The b-roll is just as important. When I was in Canada filming, I knew how important b-roll was, but I did not have a plan for what I was going to shoot, or the different elements I would need. I simply tried to capture as much as I could. Had I been more thoughtful, there are things I could have done to create in camera transitions, and to be more intentional with the images I captured. Having a better plan would have saved time both in the filming process, as well as in post-production.

Perhaps the largest challenge I faced throughout this experience is that I was the only person in my crew. I was the location scout, the interviewer, the director, the camera person, the sound person, the audio editor, the color grader, the film editor, and the music mixer. Usually, a documentary film would have a crew with people involved in each aspect. I do not regret doing this project on my own, and having to do each part by myself has greatly increased my knowledge of in both the artistic and technical aspects of documentary film making. However, having at least one other person to work with certainly could have been beneficial. The framing of some of my interviews might have benefitted from having someone else available to make adjustments to make sure the interviewer was out of sight and interviewee fully in frame. However, trying to work together on an artistic project where two people want to have equal say in the vision and final outcome is also challenging. Having a team and working alone both have their benefits and drawbacks, and they should be acknowledged and planned for at the start if possible.

Post-Production

After recording all of my interviews and returning home, I was then faced with the decision of whether or not to transcribe the interviews. Although a full transcription can be helpful, especially in the storyboarding process, it is also very time consuming. Even with only five interviews, it was taking me an extraordinary amount of time to complete. Because of this, I decided after fully transcribing about two and a quarter of the interviews that a summary of each question and response was sufficient to satisfy my needs. During this process, it was also important to include time stamps so that quotes could be pulled out more easily later during the editing process.

A detailed summary of each question and response was necessary for the storyboarding process, during which the flow and narrative of the film is drafted. Knowing what each interviewee had said in relation to each question makes creating the storyboard and piecing together interviews so that they flow logically easier. However, that does not mean that the storyboarding process is simple. In creating my film, I created five different storyboards before I landed on one that I was satisfied with. The challenge of storyboarding was determining how to put together the information I had gathered in a way that would make sense for someone unfamiliar with the topic. That meant that I could not just keep interviews in the order in which they were recorded. Additionally, bits from different interviews had to be spliced together. It was because of this splicing and rearranging that it was extremely helpful to have full summaries of each interview. I found that it was easiest to create a document in which quotes from each interviewee was copied in from the transcript document and color coded. This allowed me to see who was talking when and saying what, as well as how much each interviewee contributed.

Conclusion

Communicating science through video can involve a range of technical video production skills. It all really depends on the end goal of the video, and the outlet though which people will

be able to access it. It can feel like a daunting task, but I believe that it (or other similar creative outputs) is an exercise that more scientists should try at least once. A project such as this one forces the creator to consider an audience with a different level of knowledge about a topic than the one they are used to communicating with. Throughout this process, I had to continuously step back and ask myself if someone unfamiliar with lobster fishing would be able to understand it. In doing so, I had to become more familiar with the topic, and make sure that I understood what my interviewees were telling me. It would have been a different experience had I written an academic paper on the topic (which tend to be impersonal). I believe that the difference comes down to telling someone's story versus allowing them to tell it. It is hard to avoid bias or injection of a personal voice in any work, but while creating this documentary, I felt aware of it in a way I would not have had I written about the topic with the same interviews in a journal-style article. Ultimately, even though I believe there are certain advantages with creating a video to communicate science, there is a time and place for it. A video might be able to inspire empathy, but it isn't likely to capture the detail of a technical report. In sum, any form of communication comes down to the target audience and ensuring that the mode of communication is appropriate for the information that you wish to convey.

Watch the video here: <https://huffmanlilyc.wixsite.com/lily-huffman/stories>

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