Drowned (or Deposited) Victim Detection Otter Project

Figure 1 The Eurasian Otter (Lutra Lutra)

"To each there comes in their lifetime a special moment when they are figuratively tapped on the shoulder, offered the chance to do a very special thing, unique to them, and fitted to their talents. What a tragedy if that moment finds them unprepared or unqualified for that which could have been their finest hour."

Winston Churchill

Mike Spencer | Churchill Fellow 2025

the CHURCHILL fellowship

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About The Author

I am a serving Police Sergeant and have been involved in missing person search and rescue operations for over 26 years. I have just completed a four-year secondment as an instructor at the Police National Search Centre, and I am a Fellow of the Institute of Search and Technical Rescue.

To date I have planned and managed 581 high risk missing person search operations, within the UK and internationally, including hostile search areas such mountains, jungles, tropical rain forests, deserts, snow environments, aquatic environments and volcanic cones. A significant proportion of missing person searches include water within the search area, and sadly, the recovery of the deceased from them.

During my police service I have had 19 years' experience of working and training police dogs in numerous search disciplines, and as such am fully conversant with K9 land search capabilities and limitations.

I am DEFRA Team Type C water search and rescue trained and have a good comprehension of, and operational experience in water-based search. I am passionate about missing person search and rescue, which forms the main rationale for my research.

> *"The care with which our dead are treated is a mark of how civilised a society we are."*
>
> Charles Haddon-Cave QC representative of the **Marchioness Action Group.**

Figure 2 Mike Spencer

Acknowledgements

There have been so many people that have helped me along this journey, and it has been a journey! From its inception back in February 2024 to now, having now completed my overseas learning and writing this report.

First and foremost, The Churchill Fellowship. This project would not have been made possible in the time frame it has without the existence and generosity of The Churchill Fellowship and their whole team. Thank you.

A special thank you must be extended to the following honorary persons:

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- Jason Palmer. New Forest Wildlife Park.
- Niki – my wife, best friend, wildlife geek partner and long-suffering widow to all my crazy ideas and passions!

Figure 3 – Logos of all the organisations that have assisted my Fellowship journey

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Executive Summary

a. Aims

The reasons I applied for my Churchill Fellowship was to travel to the United States and Canada to:

a) Investigate and assess if an otter had been successfully trained to locate missing people underwater.

b) Evaluate if it is a successful programme and if so, create a plan to bring the skillset back to the UK.

c) View, learn and practice new training methods for the otters, see how they mirror or differentiate from that of the training of dogs, and how these training methods can be brought back to the UK.

d) Develop ethical welfare strategies, processes and animal husbandry requirements, from studying existing practices, that ensure the full protection of the otter when not deployed and when deployed training or operationally here in the UK.

e) Establish the validity and process of the ethical sourcing of deceased human scent only training articles and assess the viability of their use here in the UK, both for my planned project and wider existing police Victim Detection Dog (VDD) training.

b. Key Findings

The otters that have been trained in the USA are a North American River Otter (*Lontra canadensis*) and an Asian Short Clawed Otter (*Aonyx cinereus*). Neither of these species can be deployed at this time in the UK due to their wild animal classification. However, the Eurasian Otter (*Lutra lutra)* is our native species and would be deployable in conjunction with Natural England, NatureScot, Natural Resources Wale and Northern Ireland Environment Agency. Research indicates that theoretically this would be no different from using both labradors and springer spaniels as detection dogs.

The otters can understand both behavioural and cue commands and can be trained to at least a basic standard.

The otters can be trained to locate and indicate on a specific scent.

Forensic considerations and avoidance of cross contamination during both training and operational deployments would need to be stricter in the UK than the USA.

Whilst not ‘wild’, the otter I worked with is not a domesticated animal so you have to accept that unlike dogs they will not perform search tasks for handler gratification, he does it for food and seems quite nonchalant about handler praise, whereas dogs will do a lot for praise, as well as their reward.

Mike Hadsell of Peace River Search and Rescue has had now five (5) successful operational deployments, the most recent being deployed by Charlotte County Sheriff’s department to locate the remains of a girl who had been taken by an alligator. Dogs had indicated a rough area, but divers could not locate the female as it was believed her remains had sunken into the silt bed and were not visible.

The otter was deployed on a harness but not hooked to a line. Four minutes later it returned to the surface and indicated by squeaking. A fine diving line was attached to the harness on a spool and the otter returned to the source of the scent, a diver followed the line down and 30 seconds later a buoy breached the surface marking the find.

Operational deployment in the UK would require stricter minimum Standard Operating Procedures for deployment.

The programme in the USA so far is run and funded entirely voluntarily, with no official law enforcement or Government assistance which has drastically restricted the speed of progression. Even with one otter, this is a full-time project.

DNAK9 have developed ethically sourced training aids - the basis of which is scent impregnation into patented Getxent tubes. Source material originates from anatomical gifts via the State Medical Examiner, with audit trails and storage requirements. I observed the impregnation process to confirm that there is zero tissue within the training aids.

c. Recommendations

Taken together, these initial ‘pre research’ recommendations outline a structured and ethically grounded pathway for developing an otter-based underwater victim detection capability in the UK.

They progress from immediate proof-of-concept trials with Eurasian otters, through the creation of robust welfare protections, operational standards and nationally aligned training frameworks, to the establishment of a centrally funded long-term programme supported by key national bodies.

Alongside this, the recommendations emphasise the need for rigorous scientific validation of training materials, ongoing engagement with the wider search community, and exploration of innovative techniques such as colour-perception research and laser-guided search direction.

These proposals form the basis of an 2, 5 and 10-year development plan, aligned with the phased approach illustrated in the referenced project flow chart below (Figure 4), ensuring that each stage is evidence-led, ethically governed, and operationally defensible as the programme evolves.

- Conduct proof of concept trials with Eurasian otters here in the UK. (Phase 2 below).
- Develop ethical welfare strategies, standard operating procedures and animal husbandry requirements, that ensure the full protection of the otter when not deployed and when deployed training or operationally here in the UK. (Phase 3 & 4)
- Establish a centrally funded Otter Search Programme here in the UK. (Phase 3 & 4)
- Present findings to the wider search community through the PNSC, NPCC channels and the Institute of Search and Technical Rescue.
- Create new bespoke training plans for otters, aligned to, where possible, current VDD and Drowned Victim Detection Dog (DVDD) National Canine

Training Accreditation Scheme (NCTAS) standards, with added underwater capability.

- Establish the validity and process of the ethical sourcing of deceased human scent only training articles and assess the viability of their use here in the UK, both for my planned project and existing police VDD training.

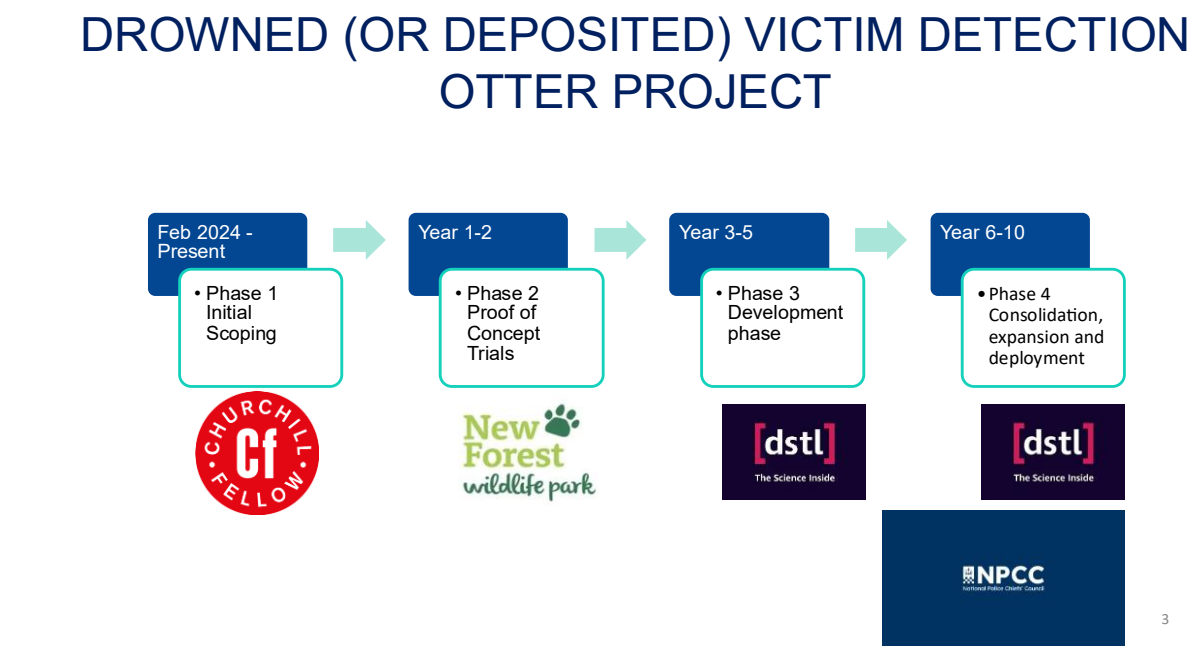

Figure 4 Project Otter phase flow chart

Introduction

On average there are 626 water related fatalities in the UK each year – the latest available figures from 2024 were 597 dropping from 659 in 2023. (National Water Safety Forum, 2009 -2024)

The average time to locate and recover a missing body in inland water is 15.74 days (Body in Water Study, Lorna Dennison-Wilkins, 2024) which is obviously incredibly distressing for the families of the missing. Aside from the human factors, this level of search operation is also very resource intensive and as such very expensive to the UK taxpayers.

Assets available to searching organisations include Uncrewed Aerial Systems (UAS/drones), Sonar, and Drowned Victim Detection Dogs (DVDD), but all of these assets have real limitations. Scent is hydrophilic - this means that scent molecules attach themselves to water molecules. Therefore, scent moves and rises with the water, with the currents, tides and according to water temperature – this water movement is called hydrology.

The limitations of our best assets, dogs, means that the dogs can correctly indicate the presence of a body underwater but due to the way scent moves according to the hydrology, it could exit the water and only become detectable some distance from the body. A good example of this is the murder of Kim Wall, in Denmark, where the dogs correctly indicated on the presence of a body but due to the hydrology, Kim's body was located 1280 metres away from where the dogs indicated, after 111 days of searching. (Jensen, 2020)

Sadly, dogs cannot smell underwater…. but otters can! (Pobis, 2019) (Charlie and the Curious Otters, 2017) (Shea, 2023)

Otters have been trained to assist humans for hundreds of years all over the world, primarily to locate fish and chase them into nets. This method has been practised since the 6th century in various parts of the world, including Central Europe, Northern Africa, the British Isles, Scandinavia, South Asia, Southeast Asia, China and South America and is still practiced in southern Bangladesh.

Otters are trainable and empirical evidence documents that they can smell under water. (Alleyne, 2010)(Charlie and the Curious Otters, 2017) The otters exhale underwater; the scent molecules attach to these air bubbles. The otter then inhales their own exhaled air bubbles, detect the scent and work to locate the direct source of the scent. (Shea, 2023)

The use of dogs in law enforcement and search and rescue is commonplace all over the world, in many disciplines and the development of dogs being trained and used to locate the presence of bodies underwater is progressing exponentially. Despite the well proven capability of dogs, they still cannot work the scent to source like they can on land-based searches. In the USA there is a Search and Rescue Organisation that has pioneered the use of animals that are not normally associated for their scenting ability and successfully trained them to locate living and deceased missing people on land and water. This includes horses and more recently Asian Short-clawed otters. This organisation is Peace River Search and Rescue, in Florida.

All my research so far indicated that there is no one, anywhere else in the world, that trains otters for the search of bodies under water, or for anything for that matter, other than fish.

I met with the underwater search and recovery leads from Sarasota Police Department, Sarasota Sheriff's Department, Ontario Provincial Police and Ontario Police Department Police to share and learn best practice and professionally discuss my findings to support my UK project.

This opportunity has been transformational, for me, both personally and professionally, the wider UK search community and vitally, for reuniting the families of the missing with their loved one sooner so as to assist with the grieving process.

a. Florida Keys. Florida, USA

Monroe County Sheriff's Office (MCSO), US Coast Guard (USCG,) Key Largo Fire Dept. (KLFD).

In the Florida Keys I met with Lieutenant Donny Barrios, Station Commander, District 1, Monroe County Sheriff's Office, ME Petty Officer Alex Yuchecka, United States Coast Guard Station Islamorada and Captain Sergio Garcia Jr., Key Largo Fire Department Station 24.

The Sheriff's Office provides law enforcement service to all the Florida Keys, which include approximately 125 miles of islands branching off the southern tip of Florida. The main and only highway, U.S. 1 runs from Florida City to Key West, and in that span, there are 42 bridges connecting the islands.

Missing persons in the Florida Keys are dealt with by MCSO, with the Sheriffs taking primacy on all missing person investigations and search, working within the jurisdiction of Key West Police Department, Key Colony Police Department, Florida Highway Patrol, Florida State Troopers with assistance from KLFD, the USCG and Florida Fish and Wildlife Commission (FFWC) and US Customs and Border Protection (USCBP)

MSCO have no air support and are reliant on USCG, and water search is bolstered by FFWC and USCBP for surface water search.

The KLFD used to provide the underwater search capability for Monroe County Sheriff's but since 2017/18 the MCSO have had their own. The KLFD however are still responsible for rescue and recovery from the USS Spiegel Grove. A sunken warship used as an artificial reef off the coast of Key Largo. Ten people have died there in recent years requiring search, rescue or recovery.

Sub surface water search is the jurisdiction of MCSO but is hampered by the risk of alligator attacks. Search teams are deployed under sniper overwatch. As all the above evidence, there is a clear capability gap regarding the underwater search for missing people. They use cadaver dogs but have not heard of the otter program. They think the project will work and are keen to follow as it would bridge the gap they currently have.

Figure 5 - Key Largo Fire Department Station 24

Figure 6 - Key Largo Fire Department Station 24

b. Englewood, Charlotte County, Florida, USA

Peace River Search and Rescue

Peace River K9 Search and Rescue (PRSAR) is a Southwest Florida based non-profit corporation made possible by public donations and the dedication of many volunteers in order to provide a professional highly trained search and rescue team for the rapid, effective and safe return of lost or missing persons. PRSAR never charges for their services, however they are ready to respond 24 hours a day - everyday, with a High level of Professionalism and Performance “So that Others may Live”.

Their founder and president is Michael (Mike) Hadsell. I first contacted Mike in March 2024 when I initially started researching my otter project, as I discovered he has also had the same idea and was approximately one year ahead of me in research. As there are considerably less restrictions in the USA compared to the UK, in relation to both otter ownership and possession of human material for training purposes, the progress gap felt wider.

Mike has been involved in search and rescue for over 40 years when he was one of the first people in the USA to start using dogs to locate human cadavers in crime and missing person cases. As such, the FBI used Mike's services in the early 1980's to search for Jimmy Hoffa's body. He further went on to assist the FBI with some other high-profile cases such as the search for D. B. Cooper and the Green River Killer case.

He has also worked for the Sioux and Shoshone Nations for archaeological purposes.

In 2010 following the successful track of a missing person suffering from Alzheimer's, Mike was asked by Charlotte County Sheriffs to set up a Search and Rescue team and Peace River K9 Search and Rescue was born.

He has subsequently deployed across the USA assisting with SAR missions such as the Jupiter Lost Boys in 2015 as well as to Haiti after the earthquake in 2021.

Mike has been requested to assist with jobs in South Africa as well, as like the UK, their victim recovery assets do not train on human remains.

Mike has also pioneered the use of horses to locate people, both alive and deceased, by scent.

PRSAR work in partnership with the Division of Forestry and Charlotte County Sheriff's Department Emergency Operations Centre and provide a wide range of search and rescue assets, including dogs, horses, drones and watercraft.

During my time with Mike, as well as the time I spent training the otter, I also joined him of both dog and horse training days.

His cue word to all his animals to start searching for cadavers is "Hoffa". This is because of a job Mike was involved with in the 1980s. James Riddle Hoffa (born February 14, 1913 – disappeared July 30, 1975, declared dead July 30, 1982), was an American labour union leader who served as the president of the International Brotherhood of Teamsters (IBT) from 1957 to 1971. He was alleged to have ties to organized crime and disappeared under mysterious circumstances in 1975.

Mike has two cadaver dogs, Nova and Dutch and an Asian Short-clawed otter (dog) called Splash. He is quite friendly and happy to be handled, albeit on his terms.

Splash was sourced by a donation from Phoenix Zoo. He requires a specialist vet, or one that is used to or prepared to work with otters. He has all the vaccinations a domesticated dog would require including rabies, parvovirus and distemper, but requires sedation for a full exam as he gets x rayed and a sonogram to check his kidneys and other organs are working properly and bloods taken.

Mike has to wear rigger gloves as PPE to take him to the vets as he gets nippy. This yearly check-up costs approximately $300.

The crucial thing with otters is to keep them cool when they are unable to regulate their body temperature themselves, such as when sedated or traveling, this is corroborated by my UK research as well, as Jason Palmer, New Forest Wildlife Park, has said the same to me.

Mike has a Class III wildlife licence from the Florida Fish and Wildlife Conservation Commission.

Florida Fish and Wildlife Conservation Commission define Class III wildlife as;

Any non-domesticated animal that is not classified as Class I, Class II, Conditional, or Prohibited is designated as Class III wildlife. There is no formal list of Class III species due to the large volume of species which are categorized as Class III. Class III wildlife includes both species native to Florida and species not native to Florida. Common Class III animals include exotic birds (parrots, parakeets, finches), small mammals (foxes, skunks, raccoons, lemurs), many reptile species (snakes, lizards, turtles, tortoises), and all amphibian species (frogs, salamanders, etc.).

The Captive Wildlife Office regulates mammals, birds, reptiles, and amphibians. All other classes of animals (fish, insects, arachnids, invertebrates, etc.) are not regulated by the Captive Wildlife Office and possession, sale, or exhibition of such animals is not authorized under any Captive Wildlife permit.

My observations during the time I spent with Mike and Splash is that Splash is still a wild animal, unlike dogs, he will not perform search tasks for handler gratification, he does it for food and seems quite nonchalant about handler praise, whereas dogs will do a lot for praise, as well as their reward.

Indication was trialled on a brick, much like dogs, but in isolation so I did not see the search phase. Mike did not use gloves when placing out the training aid (a gauze ended test tube containing human bones).

I observed him indicating on bone material to the cue word “Hoffa”.

Figure 7 – Splash

Mike and Splash have had five (5) successful operational deployments, the most recent, was being deployed by Charlotte County Sheriff's department to locate the remains of a girl who had been taken by an alligator. Dogs had indicated a rough area, but divers could not locate the female as it was believed her remains had sunken into the silt bed and were not visible.

Splash was deployed on a harness but not hooked to a line. Four mins later he returned to the surface and indicated by squeaking. A fine diving line was attached to the harness on a spool and the otter returned to the source of the scent, a diver followed the line down and 30 seconds later a buoy breached the surface marking the find.

They are currently working on a lot of cold cases country wide. Recent deployments include Wisconsin, for a missing man (Father Anthony Kluckman 21.07.22) and Indiana (Jared McColloch 05.11.23)

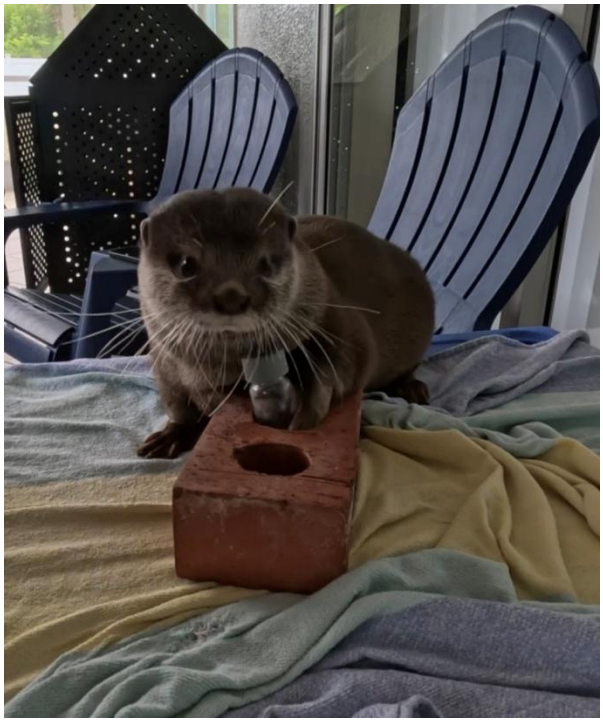

Figure 8 - Splash indicating on scent article

Figure 9 - Splash indicating on scent article

Training

When I first started communicating with Mike, he was working with an otter called Squeakers. I asked him where Squeakers was. Mike told me that Squeakers was a different species of otter to Splash, she is an American River Otter and was operationally successful. So much so that he sold her to a European Police force for an ongoing investigation. He could not tell me who as they demanded confidentiality and he signed an NDA. This is a very interesting development as it means there is a European police force already using otters, albeit not Eurasian Otters, to my knowledge. Similar to my own experience, that police force sent over an officer for a one-week training/introduction to working otters.

One issue that was experienced with Squeakers and her training, was the enrichment activity her then owner (the zoo) was doing with her. They were releasing minnows into her pool to chase and eat. This led to Squeakers venturing off on live searches and self-rewarding. This then needed de-training, and plexiglass was used in her pool to separate minnows from search area and so Squeakers was rewarded every time she ignored the minnows and focussed on the search task.

Mikes's training mantra is "odour always pays" meaning if the dog/otter/horse indicate on a target odour, even when not cued then they get rewarded.

Mike provided me with an initial 24-week training plan for Splash covering a number of base skills;

Splash's Training Process

Splash's training process involved a combination of obedience, socialization, and specialized training to utilize his unique ability to smell underwater for search and rescue operations.

Initial Training (Weeks 1-8)

1. *Socialization: Acclimating Splash to various environments, people, and sounds.*
2. *Basic Obedience: Teaching fundamental commands (e.g., sit, stay, come).*
3. *Bonding: Building a strong relationship with his handler.*

Scent Training (Weeks 9-16)

1. *Introduction to water: Gradual exposure to water, encouraging Splash to swim and dive.*
2. *Scent introduction: Teaching Splash to associate specific scents with rewards.*
3. *Underwater scent detection: Training Splash to detect scents while submerged.*

Search and Rescue Training (Weeks 17-24)

1. *Simulated searches: Hiding scented objects underwater for Splash to find.*
2. *Diver interaction: Training Splash to work alongside divers, indicating finds.*
3. *Realistic scenarios: Practicing searches in varied environments (e.g., rivers, lakes).*

Advanced Training (After 24 weeks)

1. *Complex scent detection: Introducing multiple scents, distractors, and variables.*
2. *Night operations: Training Splash for nighttime searches.*
3. *Certification: Preparing Splash and his handler for certification evaluations.*

Ongoing Training

1. *Regular exercises: Maintaining Splash's skills and physical conditioning.*
2. *Scenario training: Continuous exposure to new, challenging situations.*
3. *Team training: Coordinating with divers and other rescue team members.*

General training hints from Mike included that the best time to train Splash was in the morning and that to start training on land first, until the skill is solid before moving to

water. Human decomposition is different in water so there is a need to have multiple different training samples. The range Mike uses include Getxent* tubes, cotton buds dipped in human placenta, human finger bones and human ankle bones.

Figure 10 - Hadsell's Cage training aid

Figure 11 - Cotton wool bud/placenta

Figure 12 - Getxent tube

***Getxent Tubes Technology**

- A unique patented technology of Polymer Odor Capture and Release.

Key features

- Effective for imprinting and training detection dogs in real-world conditions
- Blank Getxent tubes absorb all odour molecules from a target odour
- Releases captured molecules accurately and continuously
- Blank Getxent tubes are odour-neutral
- Train dogs to detect a wide range of target odours
- Patented technology

Description

- Blank Getxent tubes ready to be impregnated with your target odour

- Tube dimensions: 8x35 mm / 0.3x1.4 in.
- Tube weight: 0.93 g / 0.002 lbs.

Shelf life: 36 months

AVAILABLE GETXENT HUMAN SCENTS			
Odor	**Description**	**Decomposition stage**	**Quantity**
Cadaver (Soft tissue complex)	Full skin and subcutaneous layers, including fat, blood and lymphatic vessels, nerves, muscle, and fascia layers to bone. Essentially a full section of the anterior limb.	Putrefaction through advanced decay.	283g / 10oz
Human blood	Human liquid blood	Fresh, ages and dries throughout the impregnation process	10ml
Dry bone	Ribs and Costal Cartilage	Dry remains	283g / 10oz
Aquatic decomposition	Soft tissue complex, 24hrs postmortem samples originating from different cadaveric donors. Decomposed in water.	From autolysis/fresh through advanced decay	283g / 10oz
Burned remains	Soft tissue complex, 24hrs postmortem samples originating from different cadaveric donors. Replication of a 4th degree burn by application of a flame to the anterior surface (dermal to superior muscle layers) - No fire accelerant.	From autolysis/fresh through advanced decay	283g / 10oz
Burial decomposition	Soft tissue complex, 24hrs postmortem samples originating from different cadaveric donors. 2 weeks decomposition buried at a depth of 30cm in a standardized topsoil mixture with periodic addition of deionised water.	From autolysis/fresh through advanced decay	283g / 10oz
Adipocere	Skin through superficial muscle in an advanced stage of decomposition. The postmortem interval (PMI) is 2 years. So, this tissue source has formed adipocere over that time in the skin and subcutaneous fat layers	Advanced stage of decomposition	113g / 4oz

Figure 13 - Source: www.getxent.com

Getxent tubes contain genuine human deceased odour, they are not a pseudo scent, which is an inert scent manufactured to replicate human scent. Pseudo scents often containing methanol as a carrier which is not suitable at all, as the animals will learn to detect the methanol as opposed to the scent. Getxent tubes appear to be a gamechanger, but I would suggest the use blank tubes as control sample, the same way we currently use Hydrogen Peroxide (HP) blanks during dog training. Getxent suggest this is not necessary, however I would recommend blank controls.

Mike has limited his obedience training with Splash to, come, sit up, and roll over in order to pick him up.

Mike believes he has seen bubbles being exhaled and inhaled when Splash is working to source but has no footage of this recorded.

Training is limited to 3 daily 15-30 minutes sessions on a plan, which include a scent problem and obedience. He uses a mixture of cotton buds dipped in human placenta and other training aids alluded to above.

15-30 mins in the morning and again lunch and 15-30 mins in evening if possible is optimal. As Splash sleeps 8hrs a day on top of his overnight sleep, it makes for a full-time job.

Training with Splash

The differences between training an otter and a dog became quite clear during the week as mentioned above, the otter will work for a food reward and not a play reward, or handler reaction. That means if the otter is not hungry it will not work. This has to be considered going forward as it will play a major factor in initial and continuation training during proof-of-concept trials.

I spent a long time with Splash trying to get as much GoPro footage as possible and I believe I have captured him exhaling and inhaling bubbles as he worked scent to source, so the concept works. The following photos are stills taken from GoPro footage that I recorded. In Fig. 14, 15 and 16 below you can see the air bubbles being exhaled. Fig. 17 shows the bubbles being inhaled.

Figure 14, Figure 15 & Figure 16 – Splash exhaling air bubbles, prior to subsequent inhalation (Figure 17 below)

Figure 17 - Still from a GoPro video that shows Splash inhaling exhaled bubbles while investigating a void

RECORD OF 20 DIFFERENT TRAINING EXERCISES WITH SPLASH									
Search #	**Location**	**Water Temp (°C)**	**Weather Temp (°C)**	**Visibility**	**Water Type**	**Scent Target**	**Training Aid Used**	**Indication**	**Notes/Observations**
1	ID brick	N/A	34	N/A	N/A	Human bone	Vial – human finger bones	Positive	Released from handler's arms. Watched setting up of exercise Nudge followed by look at handler
2	ID brick	N/A	34	N/A	N/A	Human bone	Vial – human finger bones	Positive	Released from handler's arms. Nudge followed by look at handler
3	ID brick	N/A	34	N/A	N/A	Human bone	Vial – human finger bones	Positive	Released from cage, blind. Nudge followed by look at handler
4	ID brick	N/A	34	N/A	N/A	Human bone	Vial – human finger bones	Positive	Walking loose and deployed with command. Nudge followed by look at handler
5	Outside of training pool – rim of pool	N/A	34	N/A	N/A	Human Decomposition	Getxent Tube	Positive	Walking loose and deployed with command. Nudge followed by look at handler
6	Outside of training pool –	N/A	34	N/A	N/A	Human Decomposition	Getxent Tube	Positive	Walking loose and deployed with command. Nudge

	under bottom edge								followed by look at handler
7	In water in training pool in pink toy	30	34	Clear	Tap	Human Decomposition	Getxent Tube	Positive	Released from cage, blind. Nudge followed by look at handler
8	In water in training pool in pink toy, relocated	30	34	Clear	Tap	Human Decomposition	Getxent Tube	Positive	Released from cage, blind. Nudge followed by look at handler
9	Swimming Pool	26	33	20m	Chlorinated	Fish	N/A	N/A	Released from handler's arms. Watched setting up of exercise. Fish located and eaten
10	Swimming Pool	26	33	20m	Chlorinated	Fish	N/A	N/A	Released from cage, blind. Fish located and eaten
11	Swimming Pool	26	33	20m	Chlorinated	Fish	N/A	N/A	Released from cage, blind. Fish located and eaten
12	Swimming Pool	26	33	20m	Chlorinated	Human Decomposition	Getxent Tube	Negative	Walking loose and deployed with command
13	Swimming Pool	26	33	20m	Chlorinated	Human Decomposition	Getxent Tube	Negative	Walking loose and deployed with command. Entered pool and clearly searched and located training aid – but no indication

14	Swimming Pool	26	33	20m	Chlorinated	Human Decomposition	Getxent Tube	Negative	Swimming loose and deployed with command, searched and located training aid – but no indication
15	Swimming Pool	26	33	20m	Chlorinated	Human Decomposition	Getxent Tube	Negative	Swimming loose and deployed with command, searched and located training aid – but no indication
16	Land	N/A	35	N/A	N/A	Human bone	Cage – human ankle bones	Positive	Walking loose and deployed with command. Nudge followed by look at handler
17	Land	N/A	35	N/A	N/A	Human bone	Cage – human ankle bones	Positive	Swimming loose and deployed with command. Nudge followed by look at handler
18	Lake	28	35	1m	Freshwater	Human bone	Cage – human ankle bones	Positive	Deployed from boat on water by command. Entered water and clearly searched and located training aid. Nudge followed by look at handler
19	Lake	28	35	1m	Freshwater	Human bone	Cage – human ankle bones	Positive	Swimming loose and deployed with command. Clearly searched and

									located training aid. Nudge followed by look at handler
20	Lake	28	35	1m	Freshwater	Human bone	Cage – human ankle bones	Positive	Deployed from boat on water by command. Entered water and clearly searched and located training aid. Nudge followed by look at handler

Figure 18 – Record of 20 different training exercises with Splash

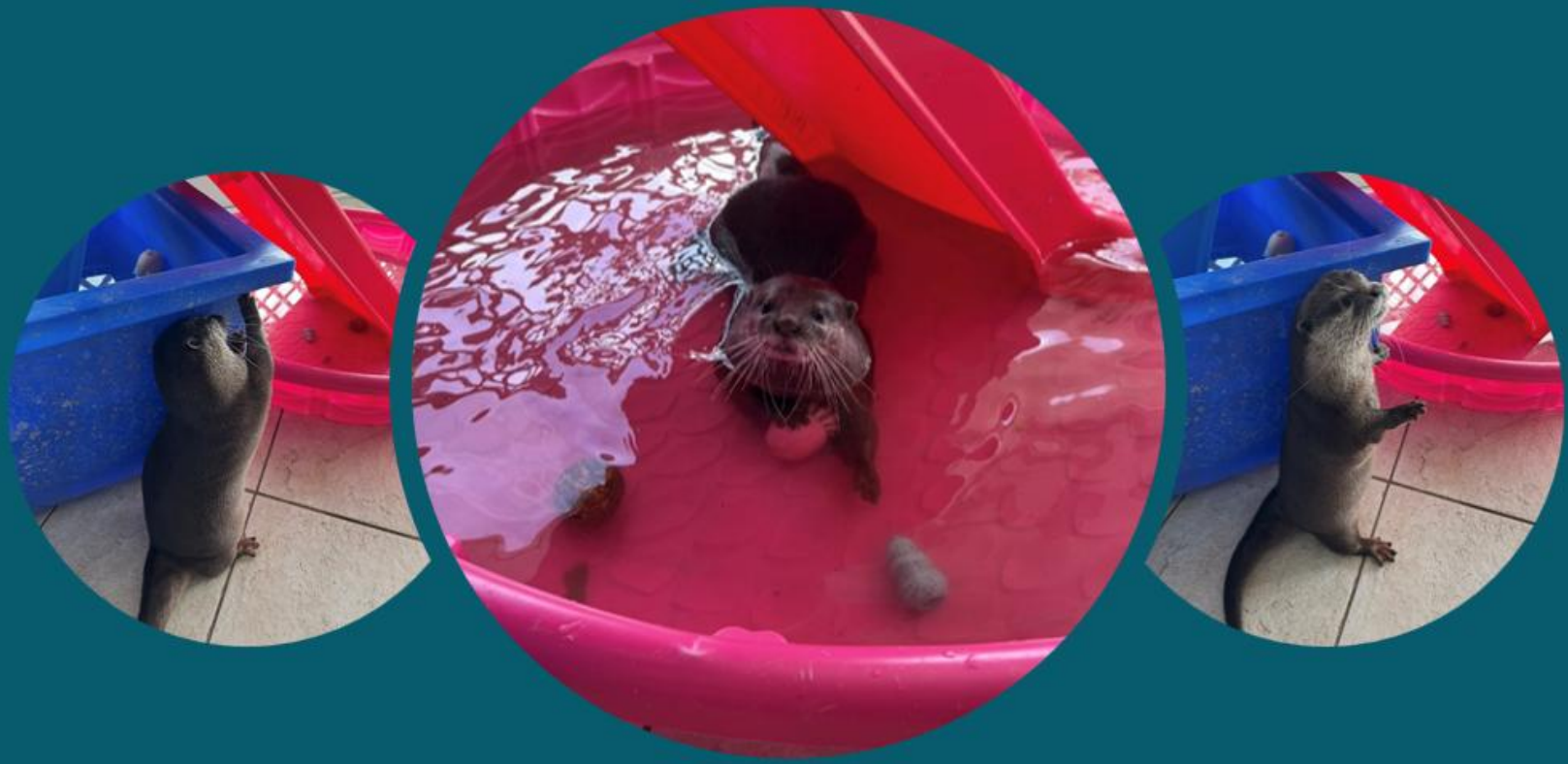

Figure 19 – Splash locating and indicating on training material

However, I was concerned that Splash's success may have been down to visual acuity as opposed to smell, or a mixture of both. Research indicates that otters had almost equal visual acuity in water and air under conditions of bright light, but their underwater vision was poorer than their vision in air under conditions of dim light. (Ronald Schusterman and Barry Barrett in 1973). The bubble technique to locate scent to source does seem to be used. My plan going forward was to go to a body of water which has very poor visibility and run some trials there to confirm Splash was successful in the pool due to scent and not purely sight. The low/no visibility tests were carried out in a 3-acre freshwater lake owned by April Milner, a PRSAR volunteer, near Palm City, Florida.

Figure 20 - The lake at Tailwind Trails, Palm City

Figure 21 - Demonstrating poor visibility

The research limitations here were that due to the low visibility (1m max) I could not film or even see fully submerged training aids unless directly next to them, by doing that I would “cue” the otter into the location, which was not an acceptable assessment.

In order to assess if the otter was able to follow scent underwater, I set up an exercise that had a training aid submerged in shallow water, on the lake edge and deployed the otter blind from a boat and from free swimming. The training aid was Mike’s cage with human ankle bones within.

If this search was successful, it would demonstrate Splash’s underwater scenting ability.

Searches #18 #19 and #20 were successful. Splash was deployed both from a boat and from free swimming, approximately 20m away from the training aid and when given the cue command swam to and indicated on the training aid by way of nudging it and looking at handler expecting a reward.

Conclusions

1. Splash understands the cue word “Hoffa” and commenced a physical task upon hearing it.

2. Splash has a basic level of obedience, including a recall, sit and roll over.
3. There is nothing to suggest extending control behaviours isn't achievable.
4. Splash does indicate upon location of the target odour - on dry land. It varied between a nudge and a look at the handler. This is common in early stages of detection dog training as well.
5. Underwater, whilst a change of behaviour was noted, signifying the location of the target odour, no indication was witnessed.
6. Searches demonstrated that Splash can locate the target odour on land and in water. Including low visibility water.
7. The "bubble" skillset appears to be there and sound and partially captured on camera.
8. Splash can be tasked from land, water and from a water borne vessel.

Deployment Strategy

Whilst there are restrictions here in the UK surrounding a potential project, such as non-native animal species legislation and restrictions surrounding the Human Tissues Act, conversely there are a lot of complications surrounding the deployment of the otter in the USA that we in the UK would not have to worry about.

In the inland waterways of Florida there are Bull sharks, crocodiles and alligators all of which pose a very real threat to the welfare of an otter. There are Hammerhead and Tiger sharks in the Gulf of America (Gulf of Mexico) and Bald eagles would take the otter but not if people are present.

Barring White Tailed Eagles in Scotland and now the South coast of England, and potentially Golden Eagles in Scotland, there would not be any of these threats.

Alligators are the main issue, a visual search for bubbles and sign is carried out before deployment, and sometimes if located the alligators must be removed before any search takes place. This is known as Gator wrangling and Florida Fish and Wildlife

Commission assist with this. This was reinforced by Monroe and Sarasota Sheriff Departments but stating that they deploy with sniper overwatch when divers are in the water.

There is an understandable reluctance to deploy on harness and line due to concerns about entanglement issues and subsequent risk of drowning, but no mitigation has been found to resolve this yet. I raised my proposal that my SOP here in the UK would be all deployments, training and operational, would be with drone oversight GPS tracking of the animal. This would help ensure the welfare of the otter but would also provide training records and search assurance of areas covered.

Splash however is sometimes deployed in a harness for a search, but no line – his indication tends to now be return to surface and squeak or gentle bite or a tap on the mask of a diver if there is one in the water. This was a self-taught practice that Splash adopted but Mike went with it and embraced it.

However, this was not witnessed during my training dives with Splash. They also use a Boogie board; Splash brings back bones and places on the board and gets a reward. (Fig. 22)

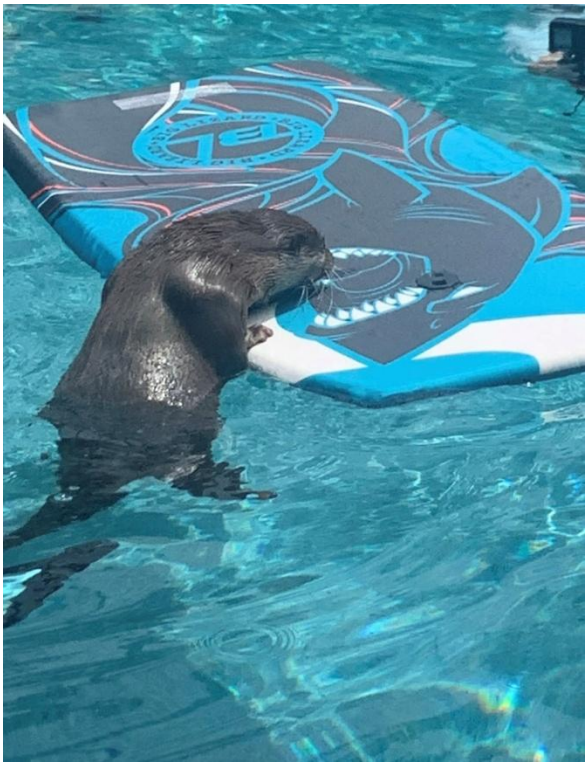

Figure 22 - Splash retrieving an item onto the boogie board

The deployment has developed into a process where if there is an indication while on a free search, Splash is then placed on a line and returns to source, and a diver follows that line down to the source of the scent.

They are working on training line communication whereby Splash is deployed on a harness and line, and Mike will gently pull the line 3 times - 3 pulls = return to boat.

Deployment strategy on a successful operation as alluded to previously, - deployed by Charlotte County Sheriff's department to locate the remains of a girl who had been taken by an alligator. Dogs had indicated a rough area, but divers couldn't locate the female as it was believed her remains had sunken into the silt bed and were not visible.

Splash was deployed on a harness but not hooked to a line, deployed and four minutes later he returned to the surface and indicated by squeaking. A fine diving line was attached to the harness on a spool, and Splash returned to the source of the scent, a diver followed the line down and 30 seconds later a buoy breached the surface marking the find.

Equine Search Pattern Training

I observed an equine search training session and discussed search patterns for horses in the context of tracking or searching for something, possibly people. My host and horse trainer, April Milner explains the use of line search and "wedge" formation. A wedge formation is where the lead horse detects an odour and turns, while the other horses maintain the line. This method allows for efficient tracking and can be reverted to, if unproductive. In a line, the first horse detects a scent and breaks from the line and follows the scent, the remaining horses carrying on in the line.

I watched three searches with an experienced horse and the introduction of scent to a brand-new novice horse. (Fig. 23)

The three searches were conducted in an open side, roofed barn and it appeared the horse successfully followed the scent to source as the rider was unaware of the scent location.

The novice horse was introduced to the scent, with the cue word “Hoffa” and rewarded when it touched the scent article with its nose. This was repeated twice more and then walked away from the exercise. It was then brought back and stopped approximately two metres away from the scent article. When given the command “Hoffa”, the horse moved forward and nudged the training aid and was rewarded. Obviously, the horse could just be performing the nudge exercise on an object, and the scent has nothing to do with the action, but it showed promise and is similar to a method of training utilised in detection dog training. The next stage would be to use a similar scent but in a different container.

Figure 23 - Mike training scent recognition

Sarasota, Florida, USA

Sarasota County Sheriff’s Office, Sarasota Police Department, North Port Police Department

I was invited to attend a joint agency underwater search training day with Sarasota County Sheriff’s Office, Sarasota Police Department and the North Port Police

Department, being held at a large lake at Nathan Benderson Park, Sarasota. There was also another guest for the day, an agent from the Defense POW/MIA Accounting Agency.

The Defense POW/MIA Accounting Agency is a similar organisation to the Commonwealth War Graves Commission here in the UK and the agent was a specialist in marine archaeology, used to look for long-term missing US military personnel from marine environments.

The day consisted of multiple dive exercises using a collaboration of all three dive teams. They utilised divers, boats, Sonar and ROV to search for and locate items underwater. I was able to discuss my otter project, and the existing Florida resource at length and garner opinions from representatives from all four different agencies.

Figure 24 - With Sarasota County Sheriff's Department

Figure 25 - With Sarasota Police Department

They were overwhelmingly supportive and in favour of the principle and excited that I was able to connect them with Peace River Search and Rescue for future deployment opportunities. They echoed a concern around alligators though and stated that like Monroe County, when they deploy divers into suspicious waters, they do so with sniper overwatch.

c. Hattiesburg, Mississippi, USA

DNAK9

Due to the restrictions placed on the United Kingdom by the Human Tissues Act, Victim Detection Dogs (VDDs) are, at this time, predominately trained on pig remains. It is readily available in comparison to human tissue and has similar characteristics when decomposing.

Published research shows that although human and pig decomposition odours are different from one another, operational successes suggest this is a suitable hide material. However, this is far from ideal though as the research also says that although there are compounds common to both animal and human remains, the Volatile Organic Compounds (VOC) signatures of each of the animal remains differed from those of humans. Of particular interest was the difference between pigs and humans, because in some countries Human Remains Dogs (HRDs) are trained on pig remains rather than human remains. Pig VOC signatures were not found to be a subset of human; in addition to sharing only seven of thirty human-specific compounds, an additional nine unique VOCs were recorded from pig samples which were not present in human samples. (Mary E. Cablk, 2012).

As part of my research into my Churchill Fellowship, I located DNAK9, a company run by Alex Pescador, based in Hattiesburg, Mississippi. DNAK9 have developed training aids that could revolutionise UK dog training. They have produced an ethical range of genuine deceased human “scent only” training articles which will be Human Tissues Act compliant. A feat no one, to my knowledge, in the UK has achieved.

I met with Alex and caried out laboratory and field studies.

DNAK9 provides the scent impregnation for the Getxent tubes, which they do at the Anthropology Department laboratory at the University of Southern Mississippi.

Alex Pescador explained the challenges of sourcing and using human remains for training aids, including ethical considerations and regulatory constraints. She explained that all the human tissue she uses is ethically sourced via approved University Procurement from non-transplant tissue bank or via the anatomical gift route, through the Coroners’ office and Medical Examiners. Both of which are ethical and legal.

Figure 26 - Scent impregnation of Getxent Tubes

Figure 27 - Operational deployment of Getxent Tubes

Alex explained, and demonstrated, the procedures for preparing and impregnating training aids, including the use of gloves and face masks to prevent contamination, with human remains and the importance of maintaining odour integrity. The tubes are used for training dogs to detect human remains in various decomposition stages including fresh, aquatic, and burned remains, but has been extended to otters and horses by Mike Hadsell.

The scent tubes have a maximum shelf life of six months, depending on frequency of use and correct storage and maintenance. The use of airtight containers and Mylar bags is essential in maximising the overall shelf life of the tubes.

We discussed the importance of using blanks to train dogs to ignore equipment odours, which is commonplace in dog training.

Alex Pescador showed me DNAK9's Manual for Procurement of Human Tissue, written in consultation with Medical Examiners from the coroner's office and I am satisfied that the Getxent tubes are impregnated with human scent that is both ethically and legally sourced.

Alex also works a VRD and I watched a training day with them.

In doing so I observed a novel training technique that I have not seen before. Quite often when dog training, a clever dog will pick up on ground disturbance and environmental changes to assist them with scent detection. Operationally that is fine, and even encouraged, but in a training environment it's beneficial to have the most sterile area as possible to train in.

Alex achieved this by introducing the scent (Getxent tube) into an area by attaching it to an arrow and shooting it from a bow into a large open space. This created a large search area that was a) sterile and free from any environmental disturbance footprints, residual human scent etc, b) a much larger an area that could be achieved by throwing alone and lastly c) essentially a blind search as apart from the general direction the handler had no idea where the training aid was located.

Figure 28 - "Blind" training with bow and arrow

d. Washington DC, USA

The United States Department of Justice, The White House

During my stay in Florida, Present Trump federalised law enforcement in Washington D.C and as such my planned meetings with the Federal Bureau of Investigation did not go ahead as they were understandably busy. Thanks to a connection made at a previous meeting in Florida, I was put in touch with someone from the Office of the Vice President who assisted with spontaneous meetings.

During my visit to Washington, D.C., I had the opportunity to engage with senior attorneys from the United States Department of Justice and to visit the White House at the invitation of the Office of the Vice President. The visit provided valuable insight into the structure, coordination, and practical realities of law enforcement and homeland security in the United States.

My meetings at the Department of Justice focused on discussions around the U.S. law enforcement model, which operates across multiple, distinct jurisdictions; local, county, state, and federal. Each level has clearly defined legal authorities and responsibilities, supported by its own governance, funding mechanisms, and operational priorities. This layered structure enables law enforcement to be highly responsive to local community needs while also retaining the capacity to address serious and complex crime through state and federal agencies with specialist capabilities.

A key advantage of this model is its flexibility and resilience. Local and county agencies often possess strong community knowledge and relationships, which can enhance trust and intelligence gathering, while federal agencies are able to provide strategic oversight, advanced resources, and national or international reach when required. The system also encourages innovation, as different jurisdictions are able to pilot new approaches and share best practice.

The discussions also highlighted challenges inherent in this structure. Jurisdictional boundaries can, at times, complicate coordination, particularly during incidents that cross geographic or legal thresholds. Differences in legislation, policy priorities, and resourcing between states and agencies can create inconsistencies in enforcement and operational standards. Effective information sharing and inter-agency cooperation

therefore require sustained effort, formal agreements, and strong professional relationships to mitigate fragmentation.

During my visit to the White House, I met with members of staff from the Executive Office of the Vice President of the United States and agents of the United States Secret Service. I was given insight into aspects of their protective and security mission. I observed operational deployments of explosive search and detection dogs that employed techniques and deployment concepts I had not previously encountered.

Figure 29 - With Hunter Pollack. US DoJ

Figure 30 - Inside the White House

Elements of these approaches have since been shared with the UK Homeland Security Group, contributing to the ongoing development of our own capabilities here in the UK. Due to operational security considerations, further details cannot be provided in this report, but it serves as a great example of Churchill Fellowship travels bringing back good practices outside of the Fellow's intended area of research.

The visit was highly informative and reinforced the value of close collaboration between the United States and the United Kingdom on matters of law enforcement

and national security. I am sincerely grateful to colleagues across the U.S. Government, including the Department of Justice, the Office of the Vice President, and the United States Secret Service, for their professionalism, openness, and generosity in facilitating this visit and sharing their expertise.

e. Gravenhurst, Canada

Ontario Provincial Police

I met Sgt. Mike Coo and his team of the Ontario Provincial Police (OPP) Underwater Search and Recovery Unit (USRU) at their base in Gravenhurst, Ontario. I wanted to gain an understanding of their remit, operational capabilities, and the huge geographic area they serve, but also to professionally discuss my otter project and obtain their views. The visit provided valuable insight into the scale and complexity of underwater search operations conducted in Ontario and the specialist skills required to support law enforcement and public safety in this environment.

The OPP Underwater Search Unit provides specialist support across the province of Ontario, covering an extensive and diverse area that includes large freshwater lakes, rivers, reservoirs, and remote waterways. This includes responsibility for major bodies of water such as sections of the Great Lakes, the Trent–Severn Waterway, and numerous inland lakes and river systems. The unit operates in both urban and highly remote locations, often requiring deployments over significant distances and in challenging environmental conditions.

The primary role of the unit is to support criminal investigations through underwater search and recovery. This includes locating and recovering evidence, vehicles, weapons, and other items of investigative relevance, as well as the recovery of persons in support of coronial and missing person investigations.

Figure 31 - With the OPP USRU

The unit also provides assistance during major incidents, natural disasters, and complex multi-agency operations where specialist underwater capability is required. They were intrigued by my otter project and were very open to the benefits and practicalities, given their similarity to UK law and deployment methods.

In addition to evidential recovery, the unit plays a critical role in public safety operations. This includes responding to submerged vehicle incidents, water-related fatalities, and supporting search operations following boating or ice-related incidents. The team is trained to operate in low-visibility, cold-water, and contaminated environments, which are common conditions in Ontario's waterways, particularly during the winter.

The visit highlighted the high level of training, discipline, and professionalism required of unit members. Personnel are qualified in advanced diving techniques, sonar operations, and underwater search methodologies, and they work closely with investigators, forensic specialists, and other emergency services to ensure that underwater operations are conducted safely, methodically, and in a manner that preserves evidential integrity.

Overall, the visit to the OPP Underwater Search Unit in Gravenhurst demonstrated the importance of maintaining a dedicated, centrally coordinated underwater capability to support policing across a large and geographically varied jurisdiction. I am grateful to Sgt. Coo and his team for their time, openness, and willingness to share their experience and operational insights and feedback on Project Otter during the visit.

f. Ottawa, Canada

Ottawa Police Department, Royal Canadian Mounted Polce HQ

During a visit to the Ottawa Police Service (OPS) Marine, Dive and Trails Unit, I met with Staff Sergeant Walt Lushman and his team, responsible for delivering specialist underwater search and recovery capabilities within the National Capital Region. The visit provided insight into the team's operational remit, the environment in which they operate, and the services they provide in support of policing, public safety, and investigative activity, very similar to the OPP USRU.

The OPS MDT Unit has responsibility for waterways within the City of Ottawa and surrounding areas, operating primarily across the Ottawa River system, Rideau River, Rideau Canal, and associated tributaries, locks, and urban waterways. These environments present a wide range of operational challenges, including fast-flowing rivers, significant seasonal variation, commercial and recreational vessel traffic, and heavily urbanised waterfront areas.

The team provides specialist underwater search and recovery support to criminal investigations, including the location and recovery of evidential items such as weapons, vehicles, and other submerged material relevant to serious and complex crimes. They also support missing person investigations and fatality searches in coordination with investigative units and coronial authorities, ensuring that underwater operations are conducted in a structured and evidentially sound manner.

Figure 32 - The crest of the OPS MDTU

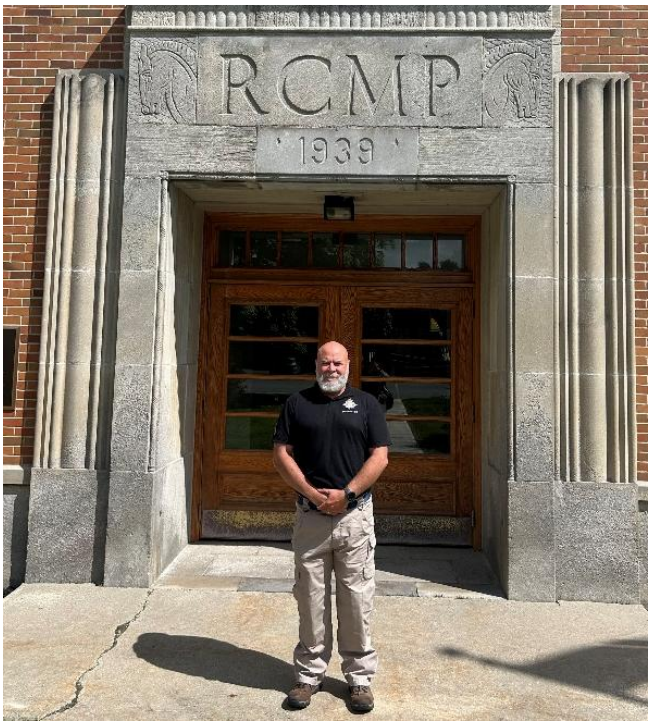

Figure 33 - At the RCMP Musical Ride HQ

In addition to investigative support, the Underwater Search Team plays a key role in public safety and emergency response. This includes responding to submerged or sunken vehicles, drownings, boating incidents, and incidents involving individuals entering the water in both urban and rural settings. The team frequently works in challenging conditions, including low visibility, cold water, strong currents, and confined spaces, particularly during winter months and periods of high-water flow. They were particularly open and excited about the prospect of Project Otter, and I have remained in contact with them.

The visit highlighted the importance of close coordination between the Underwater Search Team and other emergency services, including fire, ambulance, and federal partners, given Ottawa's position as a national capital and the presence of multiple jurisdictions operating within shared waterways. Team members are trained in specialist diving, underwater search techniques, and sonar operations, and operate within strict safety and governance frameworks to mitigate risk while delivering effective outcomes.

Overall, the visit demonstrated the value of a dedicated, locally focused underwater search capability embedded within a municipal police service, able to respond rapidly

to incidents while maintaining strong links to investigators and partner agencies. I am grateful to the officers of the Ottawa Police Service Underwater Search Team for engaging so much with my otter Project and providing feedback that could be useful to them initiating a project in Canada.

Sadly, my arranged visit with the RCMP Dive team was cancelled due to operational reasons and could not be rearranged in the time frame available to me.

The team had been deployed to Bathurst, a town in neighbouring province of New Brunswick. I was invited to attend the deployment but in a perfect final demonstration of the sheer vastness of Canada, Bathurst was a 24 hour round drive from Ottawa, and I was flying out the next day.

Thankfully I was extended an invitation to visit the RCMP Musical Ride Headquarters in Ottawa, which I accepted and enjoyed for many reasons, but mainly for finishing my amazing Churchill Fellowship travels as a tourist and even then, managing to continue the theme of my trip with finding a memorial to a RCMP horse named “OTTER”!

Figure 34 - Memorial plaque at the RCMP Musical Ride HQ

The UK Context

My international research journey with the Churchill Fellowship has provided a rare opportunity to observe first-hand, the emerging capability of otters as underwater scent-detection animals, alongside the operational realities, constraints, and innovations shaping this field abroad.

Across the United States and Canada, I witnessed diverse approaches to underwater search, ranging from volunteer-led programmes operating under limited governance, to highly specialised police dive units navigating complex legislative, environmental, and resourcing challenges. These experiences revealed both the remarkable potential of trained otters and the clear limitations that currently restrict their wider adoption overseas.

Throughout my travels, one theme remained consistent, while the conceptual capability is now proven, the systems surrounding its ethical use, welfare protections, operational governance, and scientific validation remain fragmented.

The successes I observed at Peace River Search and Rescue, demonstrate what is possible when innovative thinking meets practical necessity. Yet they also highlight gaps in standardisation, oversight, and resourcing that would need to be resolved before such a capability could be responsibly integrated into UK policing.

The UK is uniquely positioned to take this concept further. We benefit from strong national governance frameworks, world-leading standards in canine scent detection, a well-established network of specialist police search professionals, and a native otter species that would remove many of the regulatory barriers expected with a non-native species.

Furthermore, our policing landscape allows for consistent national standards, ethical safeguards, and scientifically robust evaluation, conditions that are essential if otters are to be deployed in a manner that is both operationally defensible and aligned with the UK's appropriately high expectations around animal welfare and evidential integrity.

Reflecting on the contrasts between UK and international practice, it is clear that any exploration of otter-based underwater victim detection in this country must be deliberate, ethical, evidence-led, and centrally coordinated. The recommendations that follow are therefore designed to translate the lessons learned abroad into a structured, responsible

UK pathway, one that prioritises welfare, embraces scientific rigour, and integrates seamlessly with existing national search and detection standards.

Recommendations

Drawing on the breadth of my international research, operational observations, and specialist consultations undertaken throughout my Churchill Fellowship journey, a clear pathway has emerged for how the UK can responsibly and effectively explore the operational potential of otters in underwater victim detection.

The following recommendations are grounded in the evidence gathered across the multiple agencies I visited, and the environments and species I have researched and represent the practical next steps required to translate this learning into a structured, ethical and scientifically defensible UK capability.

They focus on ensuring animal welfare, establishing robust governance, integrating emerging technologies, and where possible, aligning any future programme with existing national standards and policing frameworks.

1. Conduct proof of concept trials with Eurasian otters, and other species, here in the UK with the cooperation of Jason Palmer, Head of Curator Collections at the New Forest Wildlife Park (NFWP) in Hampshire. Jason is the World Association of Zoos and Aquariums (WAZA) and the European Association of Zoos and Aquariums (EAZA) species monitor for Asian Short Clawed Otters. This will be done with the assistance of the keepers at the NFWP, reporting training progress and observations via QR code returns collated on Microsoft Forms.

2. Develop ethical welfare strategies, standard operating procedures and animal husbandry requirements, that ensure the full protection of the otter when not deployed and when deployed training or operationally here in the UK. The welfare of the animals will take primacy over operational goals.

3. Work collaboratively with drone providers to create and establish a system for live time drone overwatch of any otter deployment, including GPS tracking of the animal. This would help ensure the welfare of the otter but would also

provide training records and search assurance of areas covered. This would be minimum standard.

4. Establish a centrally funded Otter Search Training Programme here in the UK. This can likely only be achieved with the assistance of the Dstl, Natural England, NatureScot, Natural Resources Wale and Northern Ireland Environment Agency as the Eurasian Otter is our native species and would be the only deployable species.

5. Present findings to the wider search community through the Police National Search Centre, National Police Chiefs' Council channels and the Institute of Search and Technical Rescue in order to raise awareness and increase operational exposure.

6. Create new bespoke training plans for otters, aligned to, where possible, current NCTAS standards, with added underwater capability. NCTAS has been agreed to be best practice within canine scent detection in the UK and any scent detection programme for otters should aspire to meet this established standard.

7. Conduct research into otter's perception of colour underwater and pioneer the use of laser pointers to direct otter underwater search activity. (Fig. 35 below)

8. Embrace the use of Getxent scent impregnated tubes now that the validity and process of the ethical sourcing of deceased human scent only training articles has been assessed as viable to be used here in the UK, both for my planned project and introduce to existing police VDD training.

a. Next Steps

In order to make change happen here in the UK, collaboration of the police search, police dog and police dive communities, along with the cooperation of DSTL and Natural England, NatureScot, Northern Ireland Environment Agency and Natural Resources Wales will be essential.

Due to my recent position at the Police National Search Centre, I have access to all, and I can make that change. I have direct contact with all the 650 Police Search Advisers (PolSA) in the UK. Every high-risk missing person, or body recovery from water in the UK, will be under the supervision of a PolSA.

I sit on several national boards and have access to the Police Search Governance Board, The Police Dog Working Group and the National Canine Detection Steering Group and the National Dive Group. This places me in a unique position to both disseminate my learning to a wide audience, encompassing of all the key stakeholders involved in the search and recovery of submerged victims within the UK and bring the concept of my Drowned (or deposited) Victim Detection Otter Project into fruition.

b. Steps already taken

- Proof of concept trials at the New Forest Wildlife Park are already underway.
- I have delivered at the Institute of Search and Technical Rescue Annual Conference in October.
- I am booked to present to the Police Search Governance Board in February 2026.
- I have been invited to present at a multi-agency underwater search training event in Ottawa, Canada in February 2026
- I am presenting at the Police National Search Centre Annual Conference in May 2026.
- I am presenting at a conference hosted by Devon and Cornwall Police in May 2026.

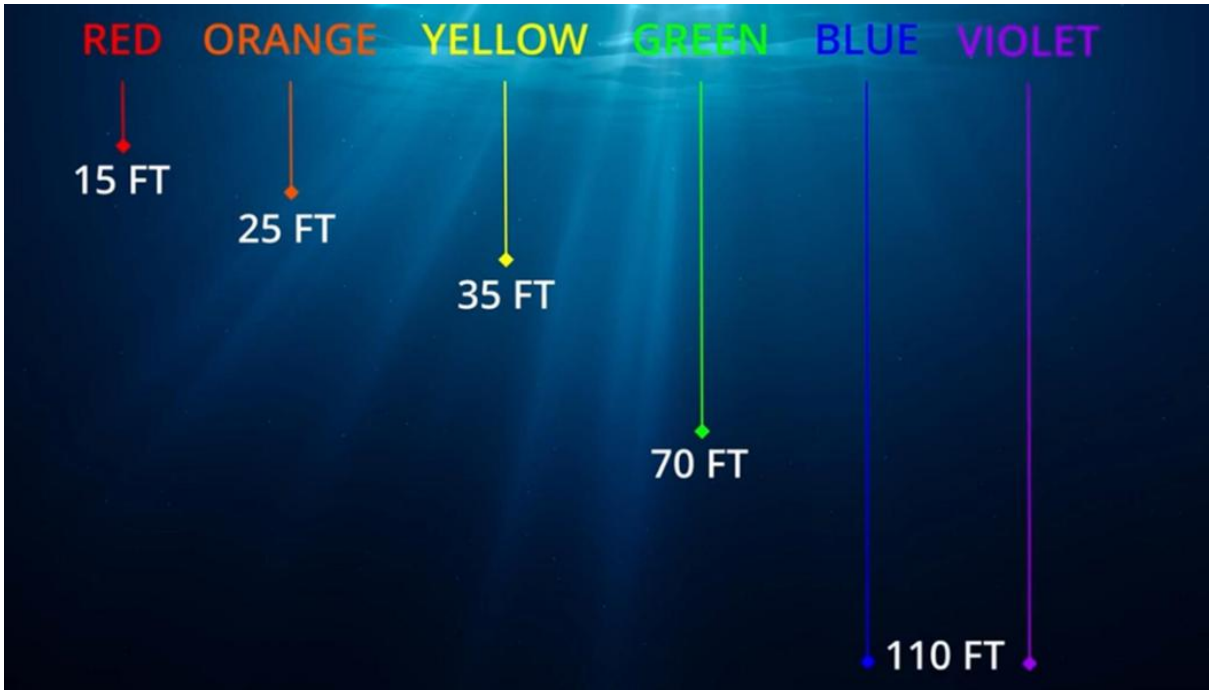

Figure 35 - Otter perception of colour underwater

Figure 36 – Chestnut, my proof of concept Eurasian Otter at the New Forest Wildlife Park

Glossary

- APP - Approved Professional Practice
- COP - College of Policing
- COSHH - Control of Substances Hazardous to Health
- CSI - Crime Scene Investigator
- CSM - Crime Scene Manager
- DD Detection Dog
- DNA - Deoxyribonucleic acid
- DSTL - Defence Science and Technology Laboratory
- DVDD - Drowned Victim Detection Dog
- FBI - Federal Bureau of Investigation
- FEDD - Forensic Evidence Detection Dog
- GPS - Global Positioning Satellite
- HTA - Human Tissues Act
- K9 - Canine
- LE - Law Enforcement
- NCTAS - National Canine Training and Accreditation Scheme
- NPCC - National Police Chiefs Council
- OPP - Ontario Provincial Police
- PDWG - Police Dog Working Group
- PNSC - Police National Search Centre
- PolSA - Police Search Adviser
- PPE - Personal Protective Equipment

- ROV - Remotely Operated Vehicle
- SAR - Search and Rescue
- SIO - Senior Investigating Officer
- SME - Subject Matter Expert
- SONAR - Sound Navigation and Ranging
- STRA - Strategic Threat and Risk Assessment
- UAS - Uncrewed Aerial Systems
- VDD - Victim Detection Dog
- VOC - Volatile Organic Compound

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Annexes

Human Tissues Act 2004

The definition of relevant material in the Act is:

Section 53: Relevant material:

In this Act, "relevant material" means material, other than gametes, which consists of or includes human cells.

In this Act, references to relevant material from a human body do not include embryos outside the human body, or hair and nail from the body of a living person.

The Act's use of the words "…or includes human cells" in its explanation of the term suggests that Parliament meant it to be comprehensive. Hansard records a Ministerial statement that the term applied irrespective of the number of cells in the material.

Examples of relevant material

The fundamental concept of relevant material is that if a sample is known to contain even a single cell that has come from a human body, then the sample should be classified as relevant material.

1. Specifically identified relevant material

This includes material such as bodies, organs and tissues, consisting largely or entirely of cells, and clearly identifiable.

2. Processed material

Where a processed material is generally agreed – as a result of the process – to leave it always either cellular or acellular, then the presumption should be that all examples should be regarded as such. The HTA would rely on an assurance that the process in question had been carried out. Under this category, plastinated tissue and plastinated body parts (where the cellular structure is retained by the plastination process) are considered relevant material; while plasma or serum, for example, will not be regarded as such. Plasma and serum, widely produced from blood taken for diagnostic investigations, are however examples of where 'normal expectations may well need to be applied. There is more information on this in the list at the bottom of the page.

3. Bodily waste products (including excretions and secretions)

The HTA considers bodily waste should normally be regarded as relevant material. The Act's wording is clear and reflects the possibility that even a single cell can be subject to an activity such as research. There will be cases where a person believes that material, intended for a scheduled purpose, is actually acellular. In such cases, the HTA can be approached for advice.

4. Cell deposits and tissue sections on microscope slides

In general, cell deposits or tissue sections on microscope slides are considered to constitute relevant material. This is because such deposits or sections are likely to contain whole cells or are intended to be representative of whole cells.

List of materials

The list is not intended as exhaustive or exclusive but is intended to provide guidance to stakeholders in respect of a number of materials that might be considered relevant material. The HTA will review the list periodically and update it as required.

Where a material is not included within the following list, stakeholders should use the information on our website to make their own assessment about whether it is relevant material, seeking advice from us where necessary.

Materials classified in the following list as relevant material are done so subject to the following general caveat that they are relevant material except where:

- They have divided or been created outside the human body.
- They have been treated, processed or lysed through a process intended to render them acellular. This would include the freezing or thawing of cells only where that process is intended to render the material acellular.

Although cell damage can be minimised by controlling the rate of temperature change and/or by adding one or more 'cryoprotective 'agents, freezing/thawing can cause cell damage such that no whole cells remain. Centrifugation can be used to remove residual platelets from plasma, rendering it acellular, but the effectiveness is dependent on the protocol used. In either case, sufficient validation data (either in-

house or published research) should be provided if the techniques are to be relied on to render samples acellular.

Material considered to be 'relevant material'

Body

- Nail (from deceased person)
- Bile
- Blood
- Nasal and bronchial lavage
- Bone marrow
- Non-blood, derived stem cells (i.e. derived from the body)
- Bones/skeletons
- Non-foetal products of conception (i.e. the amniotic fluid, umbilical cord, placenta and membranes)
- Brain
- Breast milk
- Organs
- Pericardial fluid
- Buffy coat layer (interface layer between plasma and blood cells when blood is separated
- Platelets
- CSF (cerebrospinal fluid)
- Pleural fluid
- Cystic fluid
- Primary cell cultures (whole explant/biopsy present)
- Pus

- Saliva
- Skin
- Faeces
- Material relating to early pregnancy loss or termination
- Sputum (or phlegm)
- Fluid from cystic lesions
- Stomach contents
- Hair (from deceased person)
- Teeth
- Tumour tissue samples
- Joint aspirates
- Umbilical cord blood stem cells
- Urine
- Mucus

Material not considered to be 'relevant material'

Body

- Antibodies
- Nail (from living person)
- Breath condensates and exhaled gases
- Plasma (Please note: Depending on how plasma is prepared and processed, it may contain small numbers of platelets and other blood cells. If any of these cells are present, then the plasma must be regarded as relevant material)
- Cell lines
- Cells that have divided in culture
- DNA

- Eggs (ova)
- RNA
- Embryonic stem cells (cells derived from an embryo)
- Embryos (created outside the body)
- Sebum
- Extracted material from cells e.g. nucleic acids, cytoplasmic fractions, cell lysates, organelles, proteins, carbohydrates and lipids.
- Serum
- Sperm cells (spermatozoa)
- Gametes
- Sweat
- Hair (from living person)

Source; legislation.gov.uk

Figure 37 Winston Churchill Statue, UK Embassy, Washington D.C.

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