

Voyage of the Odyssey - Ocean Encounters

VOYAGE OF THE ODYSSEY : EDUCATOR'S GUIDE

HOW TO USE THE 'OCEAN ENCOUNTERS' DVD PROGRAM -

Equipment required

Delivering the interactive content on a DVD allows the educator to use a remote control to access desired content (video, images and sounds) in a simple, convenient way while it is displayed on an LCD projector or television. It involves using one system of playback, eliminating the potential for any difficulties that may be encountered with additional computer technology.

This disc is in NTSC format. It is built for multi-zoned playback. It is best to playback this DVD on a NTSC/PAL open zone DVD player.

With the DVD player will come a remote control device. There are many different layouts to remotes, so this is to serve as a general guide only.

To navigate through the buttons onscreen, use the ARROW keys.

To select a button onscreen, click on the centre SELECT button. To get back to the main menu or previous menu, click on the MENU button.

To get back to the main menu, click the MENU button on your remote. However it is best to follow the buttons on screen to navigate around the sight. In a slide show or video, to return to the menu, press the MAIN MENU button on your remote.

NOTE- To navigate through the SLIDE SHOW, click on the "SKIP FORWARD / SKIP REWIND" keys on your remote. Also possibly the "PLAY" key will work as well.

Some slides contain sound. On some players you will have to wait for the sound to finish before you can proceed to the next slide. When the sound finishes, you must actively proceed to the next slide.

More detailed instructions with images will be coming in the next version of this program.

CONTENT GUIDE

I. 'Ocean Encounters' - Video reports

This section contains video footage captured on the Odyssey during the Voyage. Presented in an educational format, these videos deliver both detailed facts and broad conservation messages.

Marine Encounters

This section contains two videos - 'The purpose of the Voyage', a 3-minute piece narrated by Dr. Roger Payne and 'Whale Encounters'. A 3-minute video accompanied by music, this piece uses beautiful imagery of the whales we have encountered, to inspire students, promoting curiosity and wonderment.

Science from the Field

This section contains video that combines reports with scientific observations made in the field. It includes visiting scientists who have worked aboard Odyssey and Ocean Alliance scientists describing the work they do. Although are technical reports, that are made accessible to students.

Ocean History

This section contains pieces that give students an insight into areas with a rich oceanic and nautical history. At various times, we will focus on historical events and relate their passage of time to the modern age as we come across them.

BOWCAM / ROV

View the sea from beneath the bow of the Odyssey via the BOWCAM - an underwater camera mounted in the bow of the ship. The Odysseys (Remotely Operated Vehicle) is a new addition to the tools scientists have aboard the vessel. View unique underwater perspectives from this device.

One Ocean

This section contains video pieces that focus heavily on the effects of specific human impacts on the marine environment. The consequences of our actions for marine creatures are highlighted.

Research reports

This section contains video reports, summarising the scientific research, media, education and conservation work of the Odyssey and her crew, while in a particular country.

II. 'Voice from the Sea' - Audio logs

This section is under construction and will be activated in Version 2 of the DVD. Currently the educator is able to navigate through the entire menu but can only select and listen to the audio reports contained in the SPERM WHALE section. When completed, this section will contain various audio reports from the field including Dr. Roger Payne's 'Voice from the Sea', 'Science from the Field', interviews with visiting scientists and 'One Ocean' which focuses on what we can all do to make a difference. These are all educational reports relating to the daily occurrences on board the Odyssey.

Roger Payne

Dr. Roger Payne has been studying whales and working for their conservation for over 30 years. In his audio pieces, A Voice from the Sea, Payne discusses the fate of the world's oceans, connecting it to daily experiences aboard Odyssey.

Sperm Whales

This section explores the ocean realm of the sperm whale. Learn about its diving physiology, social behavior and its method of using sound to navigate, communicate and hunt.

One Ocean

In this section, Odyssey scientists and educators write about the effects of human impacts, including pollution and toxicology on the marine environment.

WEBLINK - COMING SOON

This section is under construction and will be activated in Version 2 of the DVD. When the educator/presenter is playing back this DVD on a computer and is connected to the internet, they will be able to pull up content in an internet browser from the 'Voyage of the Odyssey' website

III. Sound of the Sea

In order to track whales, the R.V. Odyssey tows a special underwater microphone behind the boat to listen for the sounds that whales make. Here are some of the sounds the Odyssey crew hear beneath the sea.

Listen to the sounds of these whales;

- * Sperm whales
- * Humpback whales
- * Right whales
- * Pilot whales

IV. Slideshow

The slide show is the foundation of the Ocean Encounters program. The themes explored through these images include science, conservation, education and media. These themes are supported throughout the DVD program by audio logs and wherever possible, video reports.

The slide show contains 4 separate sections.

1. What is the Voyage of the Odyssey?
2. Why Sperm whales?
3. Whales of the world
4. One Ocean

The educator/presenter may choose to use all of these sections in the sequence listed above, the sequence may be changed or any section may be left out. Below is a list of all of the slides as they appear in sequence in each section with a short commentary that may be used when the image is displayed. All of the images include a short description that is displayed on screen when the slide is open. This may be used as a prompt for the educator, while also assisting the audience by highlighting specific issues.

Some of the images contain sounds that will be marked by the AUDIO>> icon, click to the next slide (this is the same image) with the remote control to listen to the audio. Proceed to the following slide to stop audio.

Some of the slides include a 30-second video piece. This will be noted in the slide description by the VIDEO>> icon. This does not appear on the screen. To activate the video, proceed to the next slide.

Section 1. What is the Voyage of the Odyssey?

This section introduces Dr. Roger Payne and the Ocean Alliance. It highlights the purpose of the Voyage of the Odyssey and its sperm whale research, while discussing the scientific programs and the accompanying education and media components of the voyage.

* Dr. Roger Payne

President and founder of Ocean Alliance, Dr. Roger Payne is a world acclaimed cetacean conservationist and research scientist. He has been studying whales for more than forty years and has studied every species of Great whale in the wild.

* Humpback whale mother and calf

Dr. Payne has contributed to his field in many areas and is perhaps most famous for discovering in 1967 that the

sounds produced by humpback whales are long, complex, repeated patterns or “songs”.

* Research Vessel Odyssey

Dr. Payne’s most recent work takes him and his team of researchers around the equatorial waters of the globe on board the sailing vessel Odyssey. The RV. Odyssey is one of the most sophisticated whale research platforms in the world with special equipment designed for toxicology, genetic, bioacoustics and behavioural studies.

* Research Vessel Odyssey Image 2

The ‘Voyage of the Odyssey’ is a five-year global study designed to gather the first ever base-line data set on the levels of man made toxicants or pollutants in the world’s oceans, by taking tissue samples from sperm whales. By disseminating the findings broadly and clearly, we aim to alert public opinion and policy makers to the crucial importance of the oceans for future generations.

* Iain Kerr, Expedition Leader.

Iain Kerr is the Voyage Expedition Leader. Captain Kerr has travelled the world and is an experienced seaman and whale researcher. He is the driving force behind the Odyssey program.

* Breaching sperm whale

Moby Dick was a sperm whale. This animal has an enormous nose and a tiny underslung jaw, which is outlined in white. Sperm whales feed up to two miles below the surface of the ocean, preying on squid, which sometimes includes giant squid. We have no idea how sperm whales catch squid, as no human has ever witnessed it. We do know that they eat giant squid as they have been found in the stomachs of sperm whales killed by whalers.

* Map of the voyage so far

The Voyage has been going for two years now and began in San Diego, California. The Odyssey crew sailed to The Galapagos Islands, Ecuador spending four months researching sperm whales. They then sailed 8,000 miles across the Pacific Ocean for a total of seven months and 8,000 miles, researching the waters of French Polynesia, Kiribati and Papua New Guinea. The Odyssey is now researching sperm whales in Australian waters.

* The crew

Throughout the daylight hours, the Odyssey crew continuously scans the horizon for blows, working in alternate two-hour shifts.

* How we sample sperm whales

Odyssey scientists take blubber samples from sperm whales by firing a small dart from a crossbow. The sample extracted is smaller than the size of a pencil eraser. This is a globally recognized benign research technique that has no measurable effect on the whale and is the equivalent of a mosquito bite to a human.

* View of Odyssey from the whale boom

The biopsy dart person sits on a chair at the end of a 30-foot boom. This boom sits at right angles to the starboard (right) bow and allows the scientist to get close to the whales in order to take tissue samples. When with whales, the entire crew is on the bow collecting scientific data.

* Sperm whale tissue sample

Once the sample is removed from the dart, it is processed in the science laboratory on board Odyssey. The sample is cut into tiny pieces and placed in solution before being frozen and shipped to the USA where it is analysed for levels of man made toxicants or pollutants.

* Education at schools

The Odyssey education coordinator and crew visit schools whenever they are in port, giving a voice to the value

of scientific research and empowering students to become actively involved in the protection of whales and their ocean habitat.

* Education aboard the R.V. Odyssey

School children are invited to tour the R.V. Odyssey where they can view images, video and hear the sounds of the whales the researchers have found in their waters. The crew are able to utilize whales as a species that captures the attention of children, in order to change their attitudes about the natural world, while discussing how their everyday actions can have an impact on the oceans.

* Filming whales

One of the main objectives of the voyage is to capture it on film so the experiences can be shared with the world, taking students along, make discoveries with the Odyssey crew 'virtually' at the same time.

* Voyage of the Odyssey website

The R.V. Odyssey currently has the ability and expertise to create and publish professional multimedia content directly onboard and is continuously connected to the world through our website. This site brings video, sound, images and interviews to students keeping them compelled enough to want to continue following a live global expedition.

Section 2. Why sperm whales?

This section discusses why the Voyage of the Odyssey has chosen to use sperm whales as an indicator species to the levels of man made toxicants that humans have introduced into the sea. It also discusses how we find and track the animals.

* An underwater sperm whale head shot

Sperm whales are the most bizarre looking animals, there is nothing in the world that looks like a sperm whale other than another sperm whale. In large males, up to one third of the entire body length is made up of the huge nose, the world's largest biological sound generator.

* A tail slap

There are two main reasons that the Voyage is using sperm whales as an indicator species to the health of the world's oceans. The first is that they are one of the most abundant of the great whale species left after suffering years of heavy exploitation by whalers. They are also found in all of the seas and oceans of the world.

* A mother/calf pair

The second reason is that sperm whales are mammals like humans, so we do share several biological and physiological characteristics with them. In that respect, they are a relevant species in which to study the impact of environmental pollution. Sperm whales are exposed to ocean pollution throughout their life and they, like us do have a relatively long life span. They also have a high percentage of fatty tissue in their body, sperm whales have a layer of fat called blubber just under their skin. Now most toxicants that are persistent in the environment are chemicals that accumulate in fat tissue. What this means for the whale is that the longer it lives, the longer it is exposed to pollutants and more toxicants end up accumulating in the whales body: this is a process called bioaccumulation. In addition to bioaccumulation, sperm whales are also subject to biomagnification. Biomagnification refers to the increasing amount of chemicals found in animal species as you move up the food chain. For example, if a shrimp were to contain, lets say 1 unit of chemical and a fish eats 10 of those shrimp, it will have eaten with its prey about 10 units of toxicants. If a bigger fish eats the smaller fish it will end up with an even higher load of toxicants in its body. This process repeats itself up and up the food chain with top predators such as the sperm whale, subject to accumulating very high amounts of toxicants. If we are finding high levels of pollutants in sperm whales, there may be dire consequences for humans as we take food from the same resource.

* Acoustic array

To find and track sperm whales we use a hydrophone array (two underwater microphones housed in a 30 foot, oil-filled tube and towed behind the ship from a 100 meter-long cable). Alone, this acoustic array gives us very good stereo sound from the sea surrounding the boat. Many sounds, like the clicks of sperm whales can be heard through headphones from distances of 5 or even 10 miles away.

* Acoustic array program

The sounds of the whales are displayed as dots on the computer screen at the helm. The helmsperson is able to determine the bearing of the animal and track it until it stops clicking, which means it is no longer feeding and is coming to the surface. Once those on observation see a blow, we are able to sail toward the animal and take a sample.

* Sperm whale underwater

Sperm whales are highly acoustic animals that emit powerful, regular clicks almost continuously while they are underwater. It is believed these animals are echolocating, using sound as a way to 'see' in order to navigate, find prey and communicate. Sound travels five times faster in water than in the air, so it is a very effective means of gathering information about your environment. Their routine vocalizations are slow monotonous clicks, usually 2 per second.

* A social group

A large group of sperm whales when clicking together out of sink, sound like an underwater horse race.

Section 3. Whales of the world

This section introduces the abundance of cetacean (whale) species that live in the oceans of the world and discusses the differences between the two families of whales, toothed whales and baleen whales.

* An aerial view of a sperm whale

Sperm whales are the largest of the toothed whales, in fact they are the largest predator on the planet with large males reaching 60 feet in length and weighing 50 tons. They are the only toothed whales of the 12 species of Great whale species. There are currently 68 known species of toothed whale, which includes all dolphins and porpoises. However new species are still being discovered and it is highly likely there are more to be found.

* Sperm whale blowhole

Toothed whales can be distinguished by the presence of teeth, a single blowhole situated at the top of the head and the fact that they 'echolocate' - they use sound to communicate, hunt and navigate through their underwater environment. Toothed whales are generally social animals with strong family bonds, they tend to travel in groups ranging from one or two animals to several thousand.

* Pilot whale

Pilot whales look like big black dolphins and are distinguished by a large round melon on their forehead. Scientists believe that the oil filled melon in toothed whales is used to produce sound. They are highly acoustic animals and are relatively common in the world's oceans.

* Bowcam- dolphins

The Odyssey often has groups of dolphins riding the bow wave. The Odyssey BOWCAM offers a unique window into the world below the surface.

* Fraser's dolphin

The Odyssey crew continue to make discoveries along the way. The crew photographed this Fraser's dolphin in Papua New Guinea waters, it was a previously undocumented species for this region.

* Orca

The most instantly recognizable of whales, the orca is the only whale to prey on other marine mammals, even the largest of them all, the blue whale is not exempt. Here you can see an orca lunging out of the water to snatch an unsuspecting sea lion.

* Breaching humpback

The humpback whale is one of 11 species of Baleen whales, all are Great (large) whales. All Baleen whales are filter feeders and can be distinguished by the baleen plates that hang from the upper jaw, two blowholes found on the top of the head and the fact that they do not echolocate in order to find prey. Baleen whales are not social like toothed whales and do not live in extended family groups.

* Humpback feeding

Humpbacks feed in a unique way called 'bubble net' feeding. They blow a string or circle of bubbles around a school of fish. The fish will not cross this barrier and are frightened into a tight ball. The whale swims up from beneath the school and engulfs its meal.

* Right whale calf

Right whales are the most endangered of all the Great whale species and were hunted almost to extinction over the last two centuries. Whalers called them right whales, because they were the right whales to kill. They were easy to approach, came close to shore to breed, yielded large amounts of oil and floated when dead. Today some populations are recovering, but others are declining further.

* Right whale sailing?

You will often see right whales floating head down and tail up. Sometimes they will do this for hours and it looks like they are sailing in the wind, perhaps they do this just for fun.

* Right whale baleen

Baleen hangs from the upper jaw in rows of plates numbering from 400 - 800. The whale opens its mouth, engulfs its prey along with tons of water, it then use its tongue to push the water out. The prey is caught in the hairy fringe on the inside of the baleen and is scraped off by the tongue and swallowed.

* Blue whale feeding

This blue whale is feeding and has just engulfed an enormous mass of krill. The throat pleats of the animal reach half the length of its body, these grooves expand like a giant accordion allowing it to take in tons of water and prey. Blue whales are the largest animals that have ever lived on the planet. Its heart is the size of a car, a child could crawl through its largest arteries and the width of its tail is the same as the wings on a small plane. It can grow to over 100 feet in length and before all the biggest animals were hunted, probably weighed over 200 tons.

* Krill

It is ironic that the largest animal in the world feeds on one of the smallest.

Setion 4. One Ocean

This section concentrates on human impacts on whales, all sea life and their ocean environment.

* Odyssey at sunset

The Odyssey is at sea, searching for whales day and night. During our search we encounter the discarded refuse of humanity and bear witness to the negative impacts we humans are having on the oceans of the world and their inhabitants.

* Plastic pollution

Every minute, every hour, every day, there is no ocean or waterway that is immune and every creature is a potential victim. Plastic garbage kills approximately one million sea birds and over one hundred thousand marine mammals every year. Mistaken for food, discarded plastics are eaten by marine mammals, reptiles and birds. What refuse does not ensnare, choke, trap, drown or maim, ends up joining millions of tons of plastic litter washed up on beaches.

* Sea turtle

Of the seven species of sea turtles found worldwide, all are listed as endangered. Turtles drown in fishing nets and suffocate when they swallow floating plastic bags that impersonate their favorite food, jellyfish.

* Sea lion

Inquisitive seals and sea lions around the world often become entangled in marine debris, causing much unnecessary suffering. In the wild, the increased drag means the animal tires quickly, finds it difficult to capture prey and often starves.

* Traditional fisherman

With an escalating human population, pressure on the world's fish stocks is increasing. Where once traditional fisherman only took what they needed, global fishing fleets now roam the world's oceans 24 hours a day, every day of the year.

* Commercial fishing

The Elfride is a commercial tuna long liner, one of a fleet of 12 boats. Unfortunately large-scale commercial fisheries are often characterized by high catches, rapid growth and soaring profits for those who enter a fishery first. Such profit bonanzas attract more fishers and more vessels. As time passes, fishers have to work harder just to maintain their catch, let alone increase it. The numbers of fish that can be caught have their own biological limits, so fishers increase technology levels and fish with more boats for longer periods of time. The cycle of more effort being expended in the endeavour to chase fewer fish continues until increasing costs for fishers means they may have to leave the fishery or in some cases fish illegally in the protected or managed. Currently it is estimated that 75% of the world's fisheries are threatened or overfished.

* Bycatch

A stingray is caught as 'bycatch' on the hook of a tuna long liner and is killed before it is thrown back into the sea. Bycatch consists of everything caught on the line or in a net that has not been specifically targeted. These animals, if not already dead on the line are usually thrown overboard as waste. Often the amount of bycatch exceeds the number of the target species caught. In the prawn and shrimp fishery it is estimated that on average for every prawn caught, at least five other animals are taken and discarded as bycatch. Bycatch can include anything from fish, stingrays and sharks, to turtles, dolphins and other marine mammals.

* Shark finning

One of the most appalling fishing practices now being pursued is shark finning. It is the fishery that collects the fins of sharks so they can be used to make Shark fin soup. This fishery has become so lucrative owing to the high prices shark fins command in cities like Singapore, Taiwan and Hong Kong, where a bowl of apparently tasteless shark fin soup can cost \$90. To get fins for shark fin soup, fishermen catch any shark by any means (long lining is the usual technique), slice off its fins and often throw it overboard alive. So valuable are their fins

and so lacking the restrictions, that the young of large species get fished as well. The combined weight of all of a shark's fins is only about a twentieth of its total weight. So to get a ton of fins requires killing and disposing of twenty tons of shark. It is estimated that somewhere between 40 and 70 (perhaps even as high as 100) million sharks are killed each year worldwide, a take that has caused shark populations everywhere to crash after about ten years of fishing. Always make informed decisions before ordering of the menu.

* Aquarium reef fish trade

The capture of live tropical fish for the aquarium trade is another widespread and destructive fishing technique that is devastating the world's coral reefs. This practice involves a diver squirting cyanide into reef crevices, thus temporarily stunning whatever fish are present. The fish float to the surface and are easily scooped up in a net. Placed in small, plastic, holding containers many die, while only a small percentage of them eventually recover. However, a small percentage is enough to pay handsomely and the cycle continues. Only about 30% of fish caught with cyanide survive the poison and subsequent trip to many first world nations where they are sold in pet shops for the aquarium trade. Always ask the pet store owner where they get their tropical fish.

* Pilot whale hunt

The hunting of small whale and dolphin species is prevalent in many countries around the world. Small whales and dolphins are not protected in international waters under International Whaling Commission (IWC) regulations and individual countries decide whether to protect them inside the boundaries of the 200-mile territorial limit. The annual pilot whale 'grind' is a tradition in the Danish Faeroe Islands, where between 1,500 and 3,500 animals may be killed every year. The whales are driven into a bay, their escape route is blocked and they are hacked to death for food.

* 'Scientific' whaling

This minke whale, the smallest of the rorquals is still alive and attached to a whaling ship by the harpoon that was just fired into its back. The exploding head is designed to detonate inside the whale's body, ripping into the inner organs. Since the global moratorium on commercial whaling was imposed in 1986, Japan has continued to hunt Minke whales. In addition to 600 Minke whales, they have added 50 Brydes whales, 50 Sei whales and 10 Sperm whales to the list. These whales are being killed in the name of "science". Japan maintains it is continuing to whale for scientific purposes and is also able to make a tidy profit by selling the meat on the market. Global opinion is against whaling, but Japan continues its annual hunt that occurs to a large extent in the southern ocean whale sanctuary. By collecting tissue samples from sperm whales and studying the live animal, the Odyssey crew are able to contribute to a far more comprehensive data set, while allowing the animal to continue on its way, unharmed.

* Commercial whaling, sperm whale

The head of a sperm whale being cut up on a flensing deck in Albany western Australia. This whaling station closed for good in 1978. This is a scene we thought would remain in our past forever. Since the end of commercial whaling Australia has been a world leader in whale conservation. Unfortunately, things are beginning to change as pro-whaling nations such as Japan and Norway increase the pressure to resume the commercial hunt. What this means is that once they leave the protection of Australian waters, the very same sperm whales that the Odyssey crew have taken benign samples from will be a target for Japanese whalers. Japan resumed the hunt for sperm whales in the year 2000. They are now targeting 4 species of great whale, Minke, Sperm, Bryde's and as of this year the endangered Sei whale.

* Propaganda used by whalers

An example of the misleading propaganda employed by Japanese whaling interests. In this illustration presented in a document to Kiribati fisheries officials while in Japan, the whale is portrayed as taking an important food resource, fish, away from humans. This tactic is meant to scare smaller nations into thinking that the whale is taking away their important commercial stock. The intention is that the country will then allow Japanese

whalers to solve the whale problem by killing them. In fact most baleen, whales migrate to Antarctic waters to feed, estimates putting food intake at 90% of their annual consumption. While sperm whales feed on deep water squid, a resource human fisherman do not even have access to. It is estimated that humans are actually overfishing 75% of the world's fish stocks. The pattern that has emerged from the vast majority of fisheries studies in every major fishery from all over the world is that rather than predators, like whales, being the problem, it is almost always human fishing practices that cause the big depletions of fish stocks. Which makes sense... after all, whales have occupied these waters for millions of years, maintaining themselves at populations which have always allowed plenty of fish to survive and reproduce.

* Overseas Development Aid

When the Odyssey crew left Kiribati last year, there were about thirty large crates on the dock, addressed to Kiribati Fisheries from "Japan Aid"-obviously a gift to Kiribati from Japan to help them develop their fisheries. In addition, there is a new commercial fishing market being built on the Kiribati dock to which these crates were destined. This is a familiar pattern: Japan makes a major investment in the fisheries of some small country like Kiribati, then gets that country to support them in the international whaling commission in an effort to overturn the moratorium on commercial whaling.

* Sperm whale stranding

Sperm whales have been known to strand all over the world, once on land, there is no way to return them to the sea and they are crushed by their own body weight. Studies are showing that perhaps not all strandings are as natural as we first thought and that human impact on the marine environment, such as pollution may be playing a significant role. Toxic metals in the blood of stranded sperm whales and pilot whales have shown levels associated with severe toxicity. It has been suggested that such toxic loads may have an indirect effect on the health status or behavior of cetaceans. One theory that ties in directly to the research that is being carried out by the Ocean Alliance is that toxicants are linked with health problems in marine mammals.

* Pollution

The chemical revolution of the past 50 years has produced thousands of synthesized compounds. Unfortunately these chemicals are resistant to change and do not break down in the environment.

"If we get only a little of these immortal poisons in our systems during our lifetimes we may be alright, but after a few years of eating them in small amounts they inexorably accumulate to levels which can cause serious mischief in our lives." - Roger Payne

* Our Ocean Planet

"No matter where we live or what shore we visit the air and the ocean bring all of the problems that anyone has created elsewhere home to us, however far away those problems may have been at the start." - Roger Payne

It is important to be aware of the fact that we all share one fragile earth, which is sustained by one ocean system. We can all contribute to its demise, but more importantly we are all responsible for the conservation of our marine environment and the amazing life it supports. We do not need to make sacrifices in our lives, only minor modifications. Reduce, Reuse and Recycle. We can all make a difference.

The Ocean Encounters program was produced, designed and directed by Chris & Genevieve Johnson in conjunction with the Ocean Alliance.

For contact information for Chris and Genevieve Johnson, email questions@oceanalliance.org.