HANDBOOK FOR PEER EDUCATORS
Promoting Sustainable Fisheries

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Promoting Sustainable Fisheries

By USAID Fish Right Program
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Introduction

The USAID Fish Right Program is a partnership between the Governments of the United States and the Philippines to promote sustainable fisheries. It aims to address biodiversity threats, improve marine ecosystem governance, and increase fish biomass in selected marine key biodiversity areas (MKBAs) in the Philippines. Building on the gains of previous USAID-supported coastal, marine and biodiversity conservation projects that introduced an ecosystem approach to fisheries management (EAFM), it seeks to promote the sustainable use of critical coastal and marine resources, enhance the resilience of these resources, and capacitate key actors in sustainable fisheries management. In particular, it gives special attention to wild or capture fisheries and the communities that depend on them.

The Program runs from 2018 to 2025 and is implemented by a diverse team of organizations led by the Coastal Resources Center of the University of Rhode Island. Its priority sites include the MKBAs of Calamianes Island Group, Visayan Sea, and South Negros, and the West Philippine Sea. Implementation is carried out using six strategic approaches (SAs):

- SA1: Increase management effectiveness of fisheries and coastal resources based on stakeholder agreements
- SA2: Strengthen institutional capacity and accountability to implement resilient and ecosystem-based fisheries management
- SA3: Improve the policy environment to enable a participatory and equitable governance system for resilient and ecosystem-based fisheries management
- SA4: Enhance participation and leadership of resource users and stakeholders for coastal and marine biodiversity conservation and ecosystem-based fisheries management
- SA5: Develop capacities to mainstream resilience into ecosystem-based fisheries management
- SA6: Enhance partnerships and research and development support for coastal and marine biodiversity conservation and ecosystem-based fisheries management

Underpinning these approaches is a sustainability-focused, behavior change-driven strategy stemming from the belief that interventions should address human behavior, because threats to fisheries and marine biodiversity often come from harmful human activities. A key feature of this strategy is Behavior Change Communication (BCC), and at the center of Fish Right's BCC strategy is the engagement of individuals – fishers, women, and youth – as peer educators. These peer educators are given training not only to educate others on topics related to fisheries management, but also and more importantly, to champion and advocate for sustainable fisheries, including engaging with and urging support from their local leaders and communities toward improving the management of fisheries and other marine resources.

The information in this handbook was primarily adapted from the following resources:

- *Train-the-Trainer Guide for Training PHE (Population, Health and Environment) Community-based Distributors and Adult Peer Educators Working on PHE Activities* produced by PATH Foundation Philippines, Inc. (PFPI) under its USAID BALANCED Project (2011)
- *Training-of-Trainers Manual for Community Health Outreach Workers* developed by PFPI under its USAID and David and Lucile Packard Foundation-supported Integrated Population and Coastal Resources Management (IPOPCORM) Initiative (2004)
- Haribon Foundation's *Philippine Biodiversity Conservation: A Trainer's Manual* (2006)

Additional materials were taken from various other sources, including the *Planning Communication Activities Manual* of the USAID Natural Resources Management Project (1997), the *EAFM Quick Reference Guide* produced by USAID and the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR) through the Ecosystems Improved for Sustainable Fisheries (ECOFISH) Project (2018), and the *Training Plan and Guide in Conducting the Eco-Rangers' Training* developed by Haribon Foundation for USAID's B+WISER Project (n.d.).

Ecology, Ecosystems, Biodiversity, and Climate Change

What is Ecology?

Ecology is the study of the relationships between organisms and their environment. The word comes from ancient Greek *oikos*, which means "house," and *-logía* ("study of"). Ecology looks at **organisms**, including their **niches** and **habitats**, at the individual, **population**, **community**, **ecosystem**, and **biosphere** level.

An **organism** is any living thing that functions as an individual, a **habitat** is a place where an organism lives, and **niche** means the organism's role and position in its environment.

Population refers to organisms that live in a particular locality and belong to one species (i.e., share common characteristics and can interbreed and produce fertile offspring).

A **community** is a group of two or more species commonly found in the same geographic area at the same time.

An **ecosystem** consists of all the organisms in an area, the community, and the abiotic factors that influence that community.

Biosphere means Planet Earth as an ecological system, or parts of Earth where life exists.

What is an Ecosystem?

An ecosystem is a geographic area where plants, animals and other organisms, as well as weather and landscape, work together to form a bubble of life. (National Geographic n.d.)

An ecosystem has two main components:
- **Abiotic**: relating to things in the ecosystem that are not living
- **Biotic**: living things in an ecosystem

The dynamic mix or interactions of biotic and abiotic factors shape the environment.

Organisms play **different roles** within their ecosystem, depending on how they obtain their food.
- **Producers** make their own food.
- **Consumers** get their energy by eating plants or other animals.
  a. Primary consumers eat producers.
  b. Secondary consumers eat primary consumers.
  c. Tertiary consumers eat secondary consumers.
  d. Quaternary consumers eat tertiary consumers.
- **Decomposers** break apart dead organisms into simpler form, recycling nutrients back into the soil for the producers.
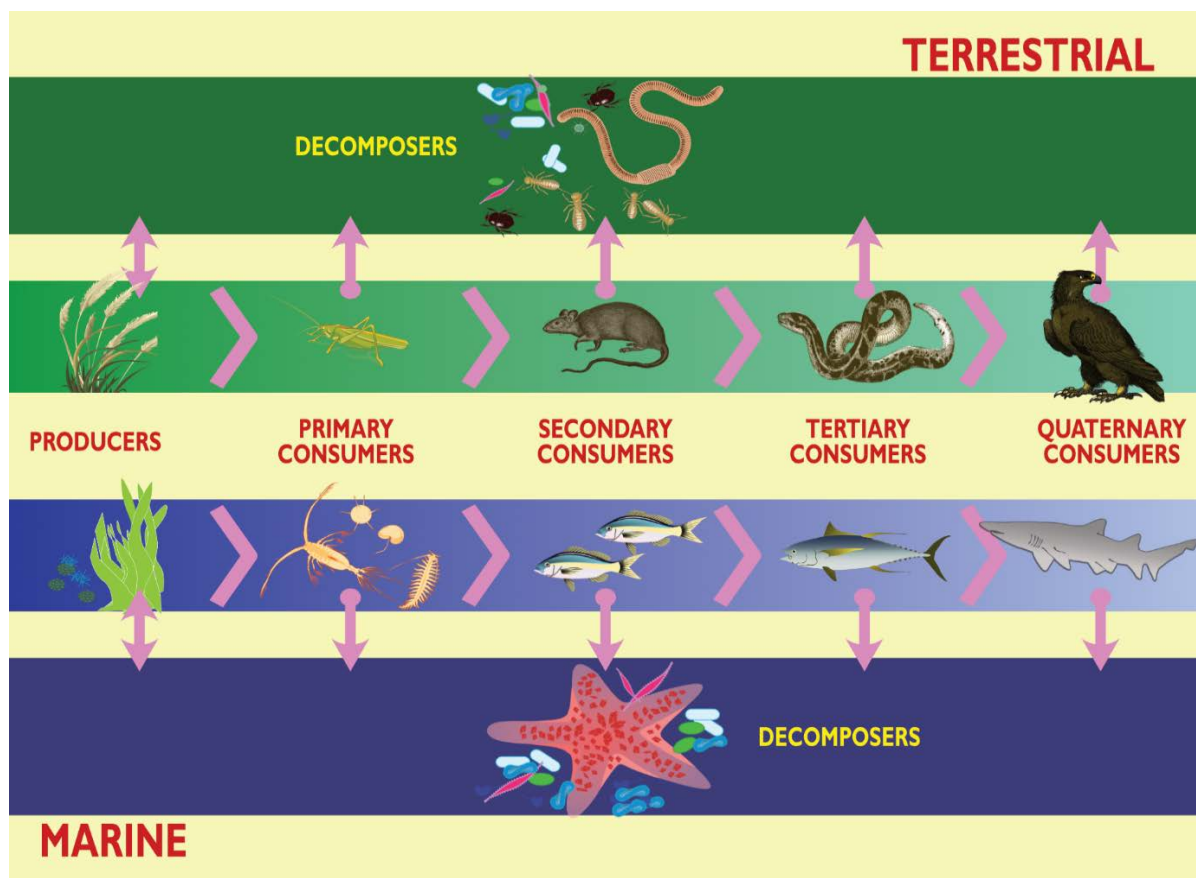
Graphic created from images by G. Johnson (Pixabay), OpenClipArt-Vectors (Pixabay), LadyofHats (CC0) and A. Sia/USAID Fish Right

An ecosystem has the following characteristics:
- In a balanced condition, it is **self-regulating** and **self-perpetuating**.
- It has a carrying capacity (number of organisms it can sustain).
- It has a **maximum sustainable yield** (largest possible amount that can be removed from a population over an indefinite period).
- It has a **waste assimilative capacity** (amount of waste material it can absorb without detrimental effects on the environment).
- It hosts a complex of **natural enemies** that help maintain ecosystem balance (predators that feed on other species, and parasites that live in, on or with another organism and obtain food or shelter at the host's expense).

Ecosystems have three main natural cycles:
- **Nutrient cycle**: the use, movement, and recycling of nutrients in the environment – elements such as carbon, oxygen, hydrogen, phosphorus, and nitrogen that are essential for life must be recycled in order for organisms to exist
- **Water cycle**: (also known as "hydrologic cycle") how water evaporates from the surface of Earth, rises into the atmosphere, cools and condenses into rain or snow in clouds, and falls again to the surface as precipitation
- **Carbon-oxygen cycle:** a continuous process that involves the interconnected processes of respiration and photosynthesis. During respiration, living organisms take in oxygen to break down glucose for energy, releasing carbon dioxide as a by-product. During photosynthesis, the carbon dioxide is taken up by organisms called autotrophs, which use light energy to convert water and carbon dioxide into sugar (glucose), releasing oxygen as a by-product.

The many and varied benefits that humans freely gain from properly functioning natural ecosystems are called **ecosystem services**, of which there are four broad categories:
- **Provisioning** (e.g., production of food and water)
- **Regulating** (e.g., control of climate and disease)
- **Supporting** (e.g., nutrient cycles and oxygen production)
- **Cultural** (e.g., spiritual and recreational benefits)

What is Biodiversity?

Biodiversity is the variety of all living things on Earth. Because each organism in an ecosystem has a purpose (niche), the loss of just one species could significantly alter ecosystem balance. Studies have shown that changes in biodiversity can affect both the size and stability of an ecosystem. If biodiversity declines, the ecosystem may become more susceptible to environmental stressors like drought, disease, and pests.

There are three types of biodiversity:
- **Ecosystem diversity**: number of different ecosystems in a geographical area and their relative abundances
- **Species diversity**: number of different species in a geographical area and their relative abundances
- **Genetic diversity**: variability among individuals within a single species

Biodiversity provides both consumptive and non-consumptive benefits:

- **Consumptive benefits:** produced through activities that result in the organism no longer being present in its habitat, such as:
    a. Harvesting plants and animals for food, recreation, construction, firewood, medicines, research, use in fashion, etc.
    b. Taking wildlife from natural habitats to be kept as vanity or companion pets
    c. Altering habitat in a way that kills an organism or results in its consumption, even if the organism is not targeted directly
- **Non-consumptive benefits**: derived without harvesting or consuming the resource, e.g.:
    a. Air and water purification
    b. Carbon sequestration and climate regulation
    c. Pollination and seed dispersal
    d. Development of human culture

PHILIPPINE BIODIVERSITY

The Philippines is a **megadiverse country** with rich biodiversity and a high proportion of **endemic species** (species unique to a geographical area). These species include some of the most threatened in the world:

- Pygmy forest frog: one of the smallest frogs known in the Philippines
- Philippine mouse deer: one of the smallest representatives of hoofed mammals; more closely related to the antelope family than the true deer family
- Giant golden-crowned flying fox: largest bat in the world
- *Rafflesia*: world's largest flower
- Orca or killer whale: world's largest dolphin species
- Giant clam: largest clam species
- Saltwater crocodile: largest crocodile in the world
- Philippine eagle: world's largest eagle in terms of length and wing surface area

The Philippines is especially well-renowned for its marine biodiversity: south of western Luzon lies the Verde Island Passage, regarded as "the center of the center of marine shore fish diversity." (Carpenter and Springer 2005)

This rich biodiversity is attributed to the country's location, elevation, climate, and rainfall patterns.

Because of its high endemism and significant number of threatened or endangered species, the Philippines is considered a **biodiversity hotspot**.

Major threats to Philippine biodiversity include pollution, illegal and destructive fishing practices, deforestation, mining, siltation/sedimentation, illegal wildlife trade, and the introduction of invasive species.

Philippine Biodiversity at a Glance — in Numbers

Diversity & Endemism: `Megadiverse`

- Birds: 738 species (sp.) | 262 endemic (PSA 2023)
- Mammals: 208 terrestrial sp. | 136 endemic, 30+ marine sp. (PSA 2023)
- Reptiles: 372 sp. | 261 endemic (PSA 2023)
- Amphibians: 119 sp. | 97 endemic (PSA 2023)
- Fish: 362 freshwater and 3,484 marine sp., including 1,966 reef-associated sp. (FishBase as of April 22, 2024)
- Invertebrates:
    – Mollusks: 22,000 sp. (Ong et al. 2022)
    – Insects: about 21,000 sp. with 70% endemism (Gapud 2005)
    – Hard corals: about 500 sp. | 12 endemic (ADB 2014)
- Plants: 11,213+ wild flora sp. | 4,537 endemic (PSA 2023)
- Ethnic groups: 182 ethnolinguistic groups | 110 indigenous people groups (Reyes et al. 2017)

Status: `Severely threatened`

- Coral reefs in excellent condition: 1%
- Philippine mangroves: 240,824 hectares in 2010 (from 450,000 hectares in 1920) (Agduma et al. 2023)
- 2nd highest number of endangered endemic species per square kilometer; among the world's 25 top biodiversity hotspots (Myers et al. 2000)
- Destruction of Philippine forests in the last 100 years, with only 3% of the country remaining covered with pristine forests (La Viña et al. 2022)

Photo of Philippine eagle by Jomark Francis Velasco on Unsplash (recolored and background removed)

MAJOR PHILIPPINE ECOSYSTEMS

1. Forest
(Lowland tropical rainforest, montane or mid-mountain forest, cloud or mossy forest)

2. Agricultural

3. Freshwater

4. Marginal

5. Urban

6. Mangrove

7. Coral reef

8. Seagrass

9. Soft bottom

What is Climate Change?

Climate change refers to long-term shifts in temperatures and weather patterns attributed directly or indirectly to human activity altering the composition of the global atmosphere, in addition to natural climate variability observed over comparable time periods (United Nations Framework Convention on Climate Change 1992).

The world has been experiencing climate change for more than a century. As of the U.S. National Aeronautics and Space Administration (NASA)'s reporting in September 2023, the summer (June-August) of 2023 was Earth's hottest since global records began in 1880, reflecting a continuing long-term warming trend.

June, July, and August Global Temperature Anomaly (°C compared to 1951-1980 average)

NASA Earth Observatory images by Lauren Dauphin, based on data from the NASA Goddard Institute for Space Studies
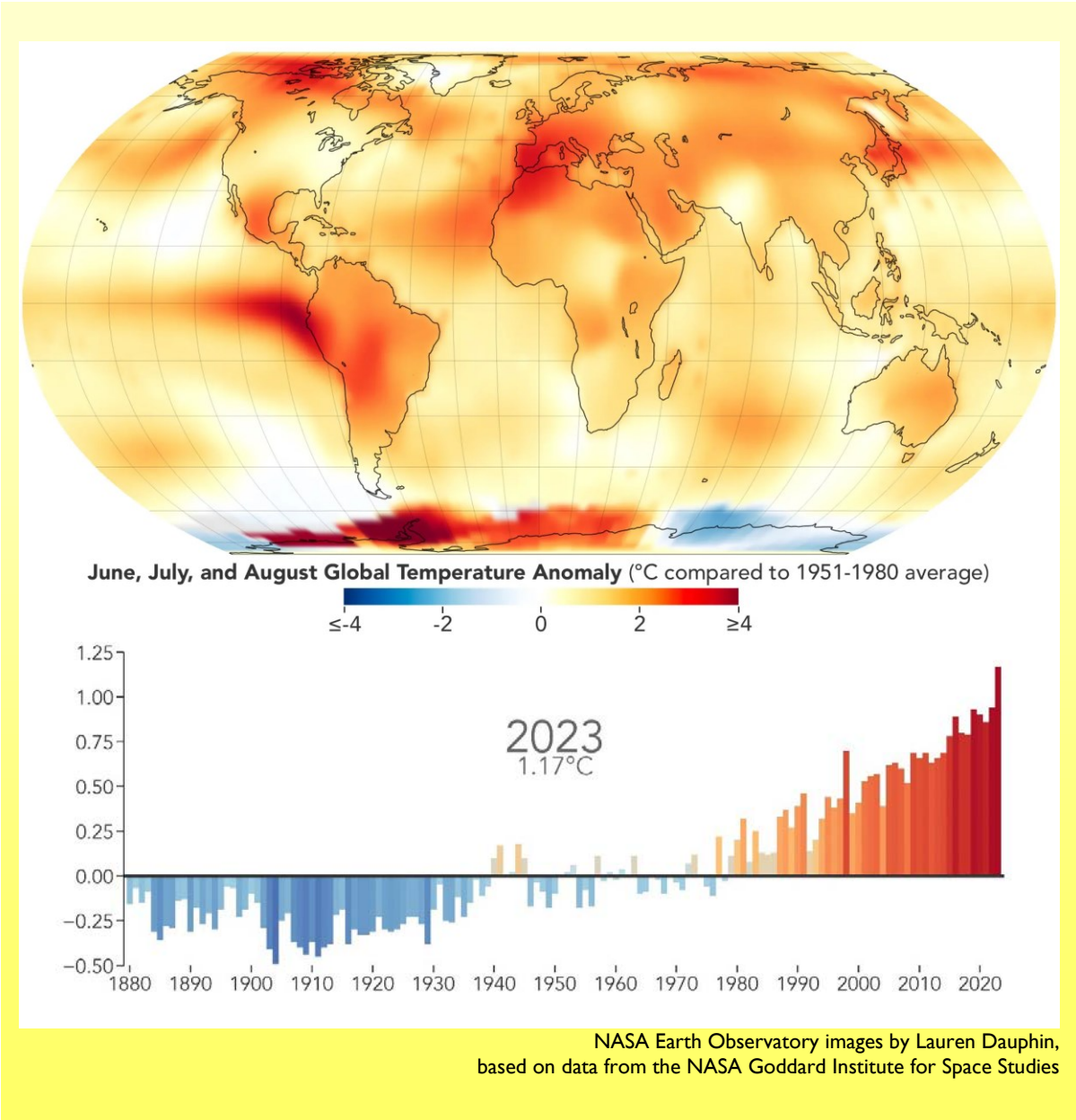
Weather is a specific condition of the atmosphere at a particular place and time. **Weather events** are short-term (minutes to months) changes in the atmosphere, e.g., changes in temperature, rain, cloudiness, wind speed, etc. In contrast, **climate** is the average weather over time (30 years or more) and space — climate is what you expect, weather is what you get. (NOAA n.d.)

Global warming is the average increase in Earth's temperature due to buildup of greenhouse gases in the atmosphere. Global warming is caused mainly by an enhanced greenhouse effect.

The **greenhouse effect** is the process by which atmospheric gases ("greenhouse gases") prevent the sun's heat from returning to space. It is a natural process, and essential for keeping the planet's temperature habitable to humans, but human activities have intensified it by increasing the concentration of greenhouse gases, trapping extra heat in Earth's atmosphere and slowly warming the planet. Greenhouse gases include water vapor, carbon dioxide, nitrous oxide, methane, and ozone. Human activities that contribute to the greenhouse effect include the burning of fossil fuels for transportation and electricity generation, agriculture, land use conversion, and waste generation.

1 Solar radiation reaches the Earth's atmosphere. Some of the radiation is reflected by Earth's atmosphere and surface. But most of the radiation is absorbed by the Earth's surface and atmosphere, warming it.

3 Some of the infrared radiation is trapped by greenhouse gases in the atmosphere, which causes Earth's surface and lower atmosphere to warm.

2 The Earth's surface re-emits some energy as infrared radiation. A portion of the infrared radiation escapes Earth's atmosphere and goes back into space.

4 Human activities are increasing the levels of greenhouse gases in the atmosphere, which is trapping extra heat and raising Earth's temperature.

Graphic by Sydney O'Shaughnessy, Environmental and Energy Study Institute (EESI) CC BY-SA 4.0

Climate change impacts are the observable ways that climate change is affecting Earth. These include changes in rainfall patterns that result in drought and flood events, extreme weather events that wreak havoc on lives and economies, and rising temperatures and sea levels that lead to crop losses, beach erosion and sedimentation runoff, coral bleaching and infectious diseases, and even changes in biodiversity within an ecosystem (e.g., loss of species or pest infestations). Climate change impacts can result in the loss of ecosystem services.

- **Coastlines** are highly vulnerable to sea level rise, increased sea surface temperatures, and storm surges from more severe tropical cyclones fueled by the warming ocean, with some areas more vulnerable than others depending on their geology and geography, as well as the population density and infrastructure in the coastal zone. Sea level rise and increases in sea surface temperatures are the most probable climate change-related stresses on coastal ecosystems. Large tidal variations and tropical cyclones, coupled with the potential increase in rainfall, translate to increased risk of coastal hazards in terms of both frequency and magnitude. Densely settled and intensively used low-lying coastal plains, islands, and deltas are especially vulnerable to coastal erosion and land loss, sea water inundation and sea flooding, and the upstream movement of the saline water into freshwater sources (intrusion of seawater into freshwater sources).

- **Ecosystems** represent a key asset contributing to the economy by providing food and water that sustain human life, and natural resources that support commercial enterprises like fisheries and forestry. The loss of ecosystems can threaten the economic, social and cultural stability of a region. Land-use change and degradation, overexploitation of water resources and biodiversity, and contamination of inland and coastal waters threaten many species. Coral reefs may be able to keep up with the rate of sea level rise, but may suffer bleaching from higher temperatures. Mangrove communities are affected by sea level rise and the changing rainfall patterns and runoff that alter the flow of freshwater to the coastal zone, not to mention changes in saline habitat distribution potentially hampering the function and survivability of the mangrove habitat. On a positive note, in some areas, the elevated levels of atmospheric carbon dioxide that go hand-in-hand with climate change can contribute to greener landscapes and expanded habitats for some species, although this is a mixed blessing given the negative consequences of high concentrations of carbon dioxide in the atmosphere. (Green 2024)

- **Agricultural output** will be affected in many ways as irrigation systems are impacted by changes in rainfall and runoff, and subsequently, water quality and supply. Some researchers suggest positive crop yield effects for temperature increases of 2°C to 3°C, but once average global temperature increases rise above 4°C, crop yields begin to fall (Center for Climate and Energy Solutions 2020). In addition, rainfall variability increases in a warmer climate, threatening agricultural yield (Pendergrass et al. 2017).

- **Water issues** will exacerbate the current water stresses being experienced. Climate change will further aggravate water problems caused by extreme events, such as droughts that undermine food security, or extreme rainfall events that aggravate the risk of flooding. Challenges to water resource management will be exacerbated by sea level rise contributing to saltwater intrusion in freshwater resources.

Vulnerability describes the degree to which physical structures, people, or natural and economic assets are at risk of exposure to loss, injury or damage caused by hazard impacts.

Disaster risk reduction means reducing disaster risks through systematic efforts to analyze and reduce the causal factors of disasters. Reducing exposure to hazards, lessening vulnerability of

people and property, wise management of land and the environment, and improving preparedness for adverse events are all examples of disaster risk reduction.

Resilience refers to the ability of people and communities exposed to hazards to adapt by resisting or changing in order to attain or maintain an acceptable level of function and structure.

Adaptation refers to actions to lower vulnerability to climate change, e.g., increasing household water storage capacity.

Resilience building is the process of developing the capacity of governments, communities, and businesses to anticipate climate risks and hazards, absorb shocks and stresses, and reshape and transform development pathways in the longer term (United Nations Framework Convention on Climate Change Climate Action Pathways: Climate Resilience 2021). Such actions should consider: scale, robustness, rapidity, redundancy, flexibility, and self-organization.

ACTIONS FOR CLIMATE PROTECTION

Mitigation
- Don't cut trees.
- Stop burning waste.
- Minimize waste.
- Reduce use of fossil fuels (in power plants, vehicles).
- Ride a bike (instead of using fossil fuel vehicles).

Adaptation
- Conserve mangrove forests, seagrass beds.
- Protect beach forests.
- Establish marine protected areas (MPAs) and MPA networks.
- Stop overfishing (e.g., establish open and closed seasons for fishing).
- Establish livelihoods that do not depend too much, or at all, on coastal resources.

Photo by A. Sia/Fish Project
(cropped, background removed, and color-adjusted)

Ecosystem Approach to Fisheries Management (EAFM)

What is EAFM?

The Implementing Rules and Regulations of The Philippine Fisheries Code of 1998 as amended by Republic Act No. 10654 entitled *An Act to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing* defines EAFM as "an approach to fisheries that strives to balance diverse societal objectives or needs by taking into account the knowledge and uncertainties about the biotic, abiotic and human components of ecosystems and their interactions, and applying an integrated approach to fisheries management within ecologically meaningful boundaries."

What are the Components of EAFM?

Ecological well-being
- Healthy ecosystems that maximize ecosystem services
- Biodiversity that leads to ecosystem resilience
- Supportive ecosystem structure
- Food webs with a diverse and abundant base of primary producers

Human well-being
- Food security
- Equitable access to fishery resources
- Sustainable livelihood and economic security
- Health
- Education
- Personal Safety
- Human rights (e.g., political voice and empowerment across sectors)

Good governance
- Planning and implementation mechanisms
- Compliance and enforcement
- Processes and institutionalization that facilitate:
  - Voicing of interests
  - Mediating differences
  - Exercising legal rights
  - Meeting obligations
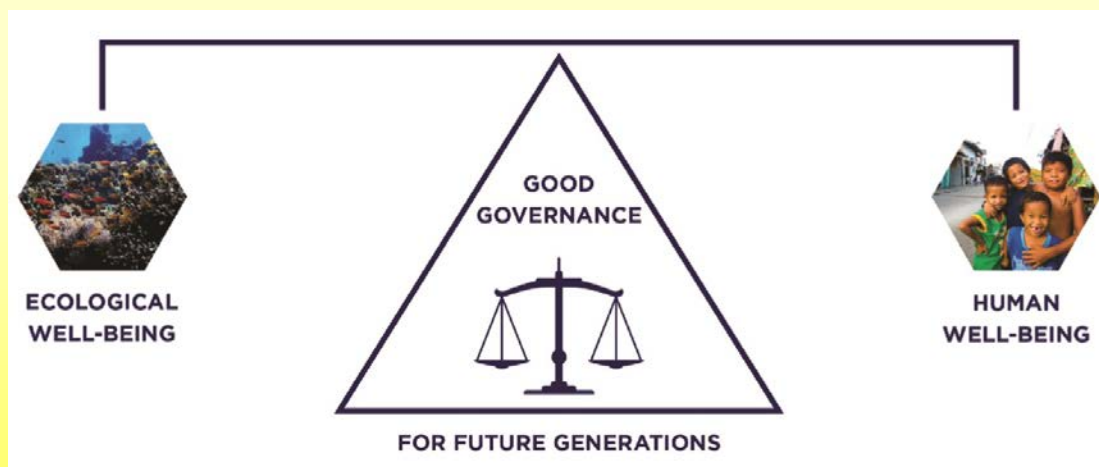
Image source: DA-BFAR 2018

Why EAFM?

Fisheries face many threats and issues. Fishery resources and the aquatic environment are severely degraded in many parts of the world, especially in Asia. This impacts fishing communities and key stakeholders along the value chain that are dependent on fish and fisheries for their livelihood, and on a larger scale, the economy of entire municipalities, provinces and even the whole country. In the past, fisheries management focused on fish and fishing without considering many of the broader issues. This produced limited success, because fisheries are affected by issues beyond those directly related to fishing. Fisheries issues cannot be realistically separated from environmental, economic and social issues: these are closely interlinked issues needing a holistic approach at local, regional, national, and ecosystem scales.

Conventional fisheries management is mainly target species-focused, production-driven, centralized/top-down, and based primarily on controlling fishing. In contrast, EAFM looks at habitats, people, and non-target (including bycatch and protected) species as well as target species. It also considers how fisheries impact ecosystems, and it manages both internal and external threats to fisheries, relying on good governance and participatory mechanisms to guide both planning and implementation of management measures. *In EAFM, the human dimension is essential for success. People are central to finding solutions. We manage people and their actions, not ecosystems.*

BENEFITS OF EAFM

- Promoting a broader consideration of the links between components in an ecosystem and fisheries
- Facilitating trade-offs between the different stakeholders' priorities
- Balancing human and ecological needs
- Increasing stakeholder participation, which promotes better communication and trust
- Enabling recognition of larger-scale, longer-term issues and their solutions
- Increasing support for better governance, which can lead to better compliance and enforcement
- Reducing conflicts, especially between the different fisheries sub-sectors and other sectors
- Helping with access to financial resources for fisheries
- Allowing for good planning and momentum by fostering support from governments, donors and NGOs
- Building on what is already in place by:
  – Improving existing management and integrating it into a participatory planning process
  – Strengthening agencies through better planning and cooperation
  – Employing existing traditional and scientific knowledge
  – Improving human capability in skills needed for sustainable management

Ways by which EAFM builds on conventional fisheries management

CONVENTIONAL	EAFM
Mainly about addressing target species concerns	Looks at both target and non-target species
Focused on fish and fishing	Includes habitats and people
Production-driven	Also considers fisheries' impacts on the ecosystem
Manages through control of fishing	Manages threats to the fisheries from both internal and external factors
Government-driven	Relies on good governance and participatory mechanisms

Adapted from BFAR 2018

7 Principles of EAFM

The principles of EAFM are not new but grew out of the acceptance of sustainable development. They are based on a set of guiding principles first put forward in the FAO (Food and Agriculture Organization) Code of Conduct for Responsible Fisheries (CCRF), which covers all aspects of fisheries management and development, including the capture and processing of fish, trade in fishery products, fishing operations, aquaculture, fisheries research, and incorporating fisheries into integrated coastal management (ICM). (DA-BFAR 2018)

OVERVIEW OF THE EAFM PRINCIPLES

The key EAFM principles can be summarized as follows (DA-BFAR 2018):

1. **Good governance**, defined by the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) as having eight major elements: participation, rule of law, transparency, responsiveness, consensus orientation, accountability, equity and inclusiveness, and effectiveness and efficiency. (UN ESCAP n.d.)

2. **Appropriate scale** that takes into account connections within and across ecosystems and social systems, which may be place-based, across different environments, land-air-sea, and across geographical, political or administrative scales, e.g., municipal → provincial → national → international.

3. **Increased participation** of key stakeholders

4. Management of **multiple objectives** to balance social trade-offs, i.e., working across scales and with different stakeholder objectives to develop objectives that address multiple challenges/concerns

5. **Cooperation and coordination** both vertically across different levels of government and society, and horizontally across agencies and sectors.

6. **Adaptive management** that continually improves management through doing, learning and adapting by building appropriate systems and processes, including feedback loops that allow for learning by doing and adapting

7. Use of the **precautionary approach** where uncertainty exists

ZOOMING IN ON THE PRINCIPLES
(Excerpted, with minor editing, from DA-BFAR 2018)

Good Governance

Governance is the way rules are set and implemented. It includes the mechanisms, processes and institutions through which citizens and governing groups (institutions and arrangements) voice their interests, mediate differences, exercise their legal rights, and meet their obligations (AusAID 2000). Governance is often a complex mixture of formal and informal processes that might involve a geopolitical entity (e.g., nation-state government), a sociopolitical entity (e.g., tribe, family, etc.), or any number of different kinds of institutions and arrangements.

Governance comprises:
- Key political support
- Legal authority to manage
- Effective institutions
- Coordination arrangements with governments, external agents, resource user groups, and community members
- Community support through participatory processes
- Enforcement and compliance
- A collaborative decision-making process
- Information and data to support monitoring and learning-by-doing
- Adequate and dedicated resources (personnel, funding, equipment) for management
- Staff skills and commitment

- Consideration of external factors affecting governance, including market forces, climate change, natural disasters, level of socioeconomic or human development, etc.

While the concept of governance is descriptive, the idea of good governance is standard setting, i.e., normative in nature. The exact meaning of "good governance" varies according to the policy area in question, but based on the UN ESCAP (n.d.) definition, good governance is rooted in rule of law, consensus-oriented, participatory, accountable, transparent, responsive, effective and efficient, and equitable and inclusive.

Appropriate Scale

Scaling can be considered in four dimensions, three of which align to the three components of EAFM:

1. **Ecological scales**: distribution of behavior of the target species, large-scale processes, smaller-scale features, and food web processes

2. **Socioeconomic scales**: administrative boundaries, cultural norms ("we have always fished here"), changing economic preferences (driven by market demand), area and species management or protection approaches, rules and regulations, fuel prices, fishing vessels and methods, and migrant fishers and illegal fishers

3. **Political/Governance scales:** legal and jurisdictional scale of the fisheries management area

4. **Temporal scales**: short-term to long-term ecosystem benefits

Increased Participation

In EAFM, the communities, local resource users, and the government at various levels (local, provincial, national, regional) share the responsibility and authority for managing and determining the sustainability goals of the fishery. EAFM is participatory, and this means that the stakeholders are a central part of the management process.

In some cases, stakeholders are competitors and their inclusion can be challenging, especially if there is a preexisting conflict between resource users or even between institutions (e.g., environment and fisheries departments). Nevertheless, in the long run, having diverse user perspectives represented and involved in the management planning process serves to increase the understanding of the issues and can help to reconcile differences.

Multiple Objectives

EAFM deals with interactions within the fisheries sector and among fellow resource users. Since each sector or user group often has their own objectives, addressing various interests requires balancing multiple objectives and reducing conflicts, which in turn requires stakeholder engagement and negotiation.

The success of EAFM depends on reaching a *balance between conservation and sustainable use of fishery resources within the limits of ecosystem functioning and between ecologic, economic and social objectives within specific geographical areas.* EAFM requires commitment to overcome difficulties (both conceptual and practical) in making choices that require trade-offs and compromises between sectors of society. This calls for long-term political will (backed by sufficient resources) and short-term economic and social support, particularly for the local stakeholders.

Cooperation and Coordination

With EAFM, there is a need to ensure harmony between scales of governance and management, and linkages need to be established between and among the various scales, particularly governance scales that likely range from individual communities to municipalities, provinces, and national governments.

The scaling of governance (legal and jurisdictional considerations) ties in closely with the need for institutional cooperation and coordination. This is because, to be able to move beyond what fisheries agencies typically do (which is to manage fisheries in lots of places) and toward what EAFM does (i.e., to manage in one place the different fishing and non-fishing activities and sectors affecting fisheries and associated ecosystems), other non-fishery sectors need to be engaged and involved in the management process.

EAFM requires institutional cooperation and coordination because it more explicitly deals with the interactions of the fishery sector with other sectors. But before connections are made with other sectors, it is important to first make sure that internal institutional cooperation is in good order. In developing interagency arrangements, formalized memorandums of understanding or other binding agreements can help establish cross-sector collaboration.

Adaptive Management

Adaptive management provides a framework for managing change over time through learning from doing. Adaptive management involves managing and learning from what has been done by evaluating the outcome of the management action. It is closely linked to the precautionary approach, which states that, when faced with a potential risk, it is not necessary to

wait until all the data and information are available and analyzed before taking action. Management actions can be put in place, and then monitored and evaluated so they can be modified based on the lessons learned from their implementation.

Precautionary Approach

The two ramifications of the precautionary approach are:

1. **Lack of data and information should not be used as an excuse for not taking action.** A claim of insufficient information is often used as a delaying tactic. Instead of dealing with an obvious environmental problem, the catchcry of "need more research" is used to focus the issue back on the scientific community, rather than starting to deal with the problem using an adaptive management approach. A common myth is that the scientific information available is insufficient to apply EAFM to any ecosystem, let alone ecosystems that are poorly studied. *However, EAFM is NOT about managing the whole ecosystem; it is about integrating adaptive management – at a minimum, it means managing the direct human impacts of fisheries (and other human activities).* In fact, there is always enough information to begin action, otherwise the issue would not have been identified.

2. **Where there is uncertainty, management actions should be less risky.** The greater the information gap and the amount of uncertainty, the more risk-averse management should be. If, through adaptive management, the learning is that the situation is much worse than originally described, the management should allow room for later correction.

   The Philippine Supreme Court has adopted the precautionary principle in its Rules of Procedure for Environmental Cases, which state, "When human activities may lead to threats of serious and irreversible damage to the environment that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that threat."

People perceive information in many ways. What a person remembers, and how that person reacts and makes decision, are affected by how that person perceives information. Understanding how perception works can help you create more effective strategies and m...

Communicating Ecosystem Approach to Fisheries Management (EAFM)

Perception

Perception is how people make sense of the messages they encounter in their daily lives. It is an active process that the brain uses to process information. Perception affects how people assign meaning to the messages you put out into the world. By knowing how perception works, you can avoid communication misunderstandings before they happen.

THE PERCEPTION PROCESS

Perception follows a **three-step process**:

1. **Selection**: a process whereby we determine which information gets our attention — At any given time, we are bombarded by many different messages, and our human brain has limits on what it can perceive and absorb. To avoid overload, our brain prioritizes what to focus on by selecting and paying attention to certain messages or specific parts of a message that it perceives to be salient. Perceptual **salience** is defined as "the degree to which something attracts our attention in a particular context" (Goodman 2023). How we select information is influenced by our needs, interests, and expectations. Often, we pay attention to information "that we perceive to meet our needs or interests in some way," and when we expect something to happen, "we may be extra tuned in to clues that it is coming" (Libretexts 2022). The process of selection affects the rest of the perception process.

2. **Organization**: arranging and organizing the information we perceive — How each of us organizes information is heavily determined by our respective past perceptions and experiences, but we all tend to organize information based on similarity and difference: Things that look similar are perceived to belong together, while those that seem different from the rest do not. (Libretexts 2022)

3. **Interpretation**: attaching meaning to the information we perceive — While we select and organize information pretty quickly and without much conscious thought, this last step in the perception process happens more deliberately and consciously. Interpretations are subjective, because to interpret new information, we use mental structures called "schemata." **Schemata** are like databases containing related information from our past experiences that we use to interpret new experiences. (Niosi 2021)

FACTORS AFFECTING PERCEPTION

There are many factors that affect perception. In this section, we focus on how **physiology**, **past experiences**, **culture**, and present **feelings** influence our perception.
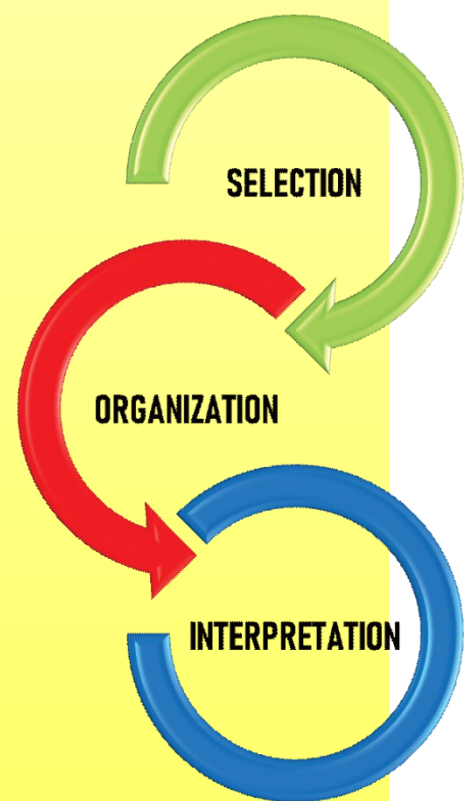
Perception and Physiology. Physiological factors, including age, gender, and physical characteristics, affect how people perceive information. For example, children perceive information differently from teenagers who view things differently from adults; the way an individual once perceived information as a child will change as they grow older. A small child may perceive someone who is 4 feet tall to be enormous, while an average-size adult may perceive that same person to be short.

Perception and Past Experiences. A person's past experience plays a big role in shaping their perception. People who have had a bad experience in attending barangay assemblies (e.g., they started very late or reached no resolution on a certain issue) may think or perceive all such assemblies to be a waste of time.

Perception and Culture. Perceptual differences may be due to cultural differences. People from the **same nation, social group or geographical group often share the same social customs and values** and may perceive things, stimuli or information the same way, while people belonging to a different culture may perceive the same information or stimuli very differently.

Perception and Present Feelings. Perceptions can be affected by the present feelings of the people you are communicating with. If the person is in a bad mood at the time you are communicating with them, they may perceive your message negatively.
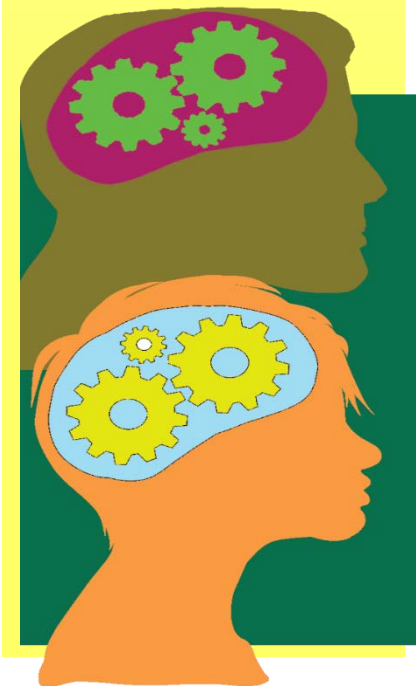
PERCEPTUAL BIASES

All people carry biases they learned, mostly unconsciously, over time, and this can influence the way they perceive information, people, and events. For example, if our initial perception is positive, we tend to view later interactions as positive, and minimize or ignore their negative aspects, a phenomenon known as the **halo effect** (Goodman 2023).

Errors or distortions in thinking and perception that affect how an individual evaluates information and makes judgment are called **perceptual or perception biases**. Perception biases distort our judgment and can lead to bad decision-making (Niosi 2021), even false beliefs. Sometimes, a person's false belief can trigger a behavior "that makes the initial false belief actually or seemingly come true" – a **self-fulfilling prophecy**. (University of Minnesota Libraries Publishing 2016)

Peer Education

WHAT IS PEER EDUCATION?

Peer education is an approach by which community members are supported to promote positive behavior change among their peers. It refers to the process of teaching or sharing information, values and behavior among members of a specific community to achieve positive outcomes in the context of human and ecological well-being. Peer education can also be described as learning from one's peers.

HOW DOES PEER EDUCATION WORK?

Peer education programs are designed to develop 'experts' in a certain subject, who then become peer educators and are encouraged to pass on information to others in their social network or community. The goal is to generate change within the network or community. ("Peer Education" n.d.)

A basic premise underlying peer education is that individuals who move in 'like' networks can effectively help each other gain knowledge while also learning in the process. ("Peer Education" n.d.)

Common Applications of Peer Education
- Peer education is a popular strategy to disseminate accurate information and encourage activities that promote human and ecological well-being.
- Peer education is used for a broad range of activities in both informal settings (e.g., social interactions and everyday conversation) and formal settings (e.g., structured educational sessions).
- Peer education can be applied in different contexts to influence individual knowledge, attitudes, beliefs or behaviors.
- Peer education is a powerful tool for community outreach:
    - **Active outreach** involves physically providing information in an area where the target community members are located (e.g., fish landing sites, market)
    - **Fixed outreach** is carried out in a designated site (e.g., barangay hall, community center, municipal office, NGO office), thus allowing the organization to establish a relationship with the community and recognition as a dependable source of information and services.

WHAT IS A PEER EDUCATOR?

A peer educator is a person trained to:

- Assist others in their peer/social group to make decisions and support sustainable fisheries activities through the provision of information and assistance or referral services

- Actively participate in community or project interventions related to sustainable fisheries, including conservation activities like coastal cleanup, mangrove planting, tree planting, conservation-based enterprises, and information campaigns

WHAT DOES IT TAKE TO BE A PEER EDUCATOR?

To be a peer educator, you must be:
- At least 18 years old, interested in, and have no reservations about, talking to your community about sustainable fisheries and related interventions. To qualify for training as a youth peer educator, individuals must be between the ages of 18 and 22. *Note: Qualified youth peer educators are encouraged to target youth ages 16 (average age of Grade 10 students) to 24.*
- Supportive of local sustainable fisheries interventions, programs, and plans
- Have good interpersonal relations with the other members of the community
- Willing to work without monetary compensation (salary)
- Willing to be trained
- A respected, accepted and trusted member of the community
- An elected government official (e.g., a member of the Sangguniang Kabataan) and/or endorsed by the community

WHAT DOES A PEER EDUCATOR DO?

The roles and responsibilities of a peer educator include:
- Educating members of the community about the project's (or local) activities related to sustainable fisheries
- Distributing sustainable fisheries information, education, and communication (IEC) materials to community members
- Promoting sustainable fisheries by motivating individuals and communities to support national and local sustainable fisheries laws and policies
- Referring individuals or groups to available relevant services provided by local governments and other agencies
- Completing and submitting monitoring and reporting forms to the responsible person or office
- Attending training conducted by NGOs or LGUs and other agencies, as appropriate

AI-generated using Microsoft Designer, with the background removed and some elements resized/added/deleted

> **Peers can be
> the best teachers,
> because they're the ones
> that remember
> what it's like
> to not understand.**
>
> *— Peter Norvig* | TEDTalk Jun 2012 —

HOW DOES ONE KNOW IF THEY WANT TO BE A PEER EDUCATOR?

You would likely want to be a peer educator if:
- You have a desire or passion to help others in your community.
- You want to learn how to protect or conserve fisheries and natural resources.
- You want the personal satisfaction and reward that come from helping others.
- You are concerned about and engaged in addressing environmental issues in your community.
- Community environmental education is officially part of your job, or you have been tasked by an authority figure — e.g., mayor, municipal agriculture officer (MAO), your NGO employer, community leader, etc. — to promote environmental conservation in your community.

WHY DO PEER EDUCATORS QUIT?

Some reasons why some volunteers lose interest in and stop doing their peer education and advocacy work include:
- Lack of confidence
- A bad experience in the community or with a client
- Lack of resources/support from the program
- Lack of time (busy with job or family matters)
- Physical obstacles (limited transportation, large coverage area)
- Lack of interest or response from the community
- Health issues
- Burnout
- Personal problems

Concept of Communication

Communication is a process, not a thing. It is dynamic, ongoing, ever changing, moving.

The word 'communication' is derived from the Latin word *communis*, which means "common." When we communicate, we try to find something in common with the person or persons we are interacting with.

ELEMENTS OF COMMUNICATION

1. **Source/sender**: origin of the message, meaning the communicator. Communicators have to consider certain factors that may affect their effectiveness and credibility as a source of message. Some of these factors are communication skills (ability to speak, listen, etc.), knowledge of the subject matter and attitude toward the subject, and the audience.

2. **Message:** the idea to be communicated. Peer educators are expected to disseminate messages. Being the message source, they are responsible for selecting and organizing messages to best suit their audience. Messages may be a statement or a piece of information, entertainment, encouragement, motivation, etc. Messages are generally expressed in verbal symbols or language, but they can also be expressed in nonverbal ways such as tone of voice, body movements, facial expressions, etc.

3. **Channel:** the means by which messages are transmitted from the source to the receiver. For peer educators, messages are usually interpersonal channels involving face-to-face conversation, counseling, group discussions, and assemblies, among others. **Interpersonal channels** are effective in producing attitude change and persuading people to accept new ideas because they provide for face-to-face discussion that allows people's questions to be answered immediately, and because information that is more detailed can be provided through interpersonal communication.

   For campaigns that need to reach many people, **mass media** would be a more powerful channel — although often seen as a less viable tool for effecting behavior change in some fields, it has been shown to produce "modest but positive impacts on health behaviors" (Grady et al. 2021).

4. **Receiver (target audience):** the person or persons who receive, interpret, and respond or react to the message. Communication is successful if the receiver understands the intent of the message and responds/reacts as intended by the source.

5. **Effects**: changes occurring in the target audience because of the transmission of the message. There are three main types (levels): (1) changes in receiver knowledge, (2) changes in receiver attitude, and (3) changes in receiver behavior.

6. **Feedback**: response or reaction given by the recipient to the sender. Where there is constant feedback and there is repetition, there is more effective communication.

7. **Feedforward**: providing context of the message before sending it. The concept of feedforward, first introduced by English rhetorician I.A. Richards in 1951, is described by

Moraga-Leaño (2012) as "a swift, before-the-event recognition of how something will seem to people looking at it from angles other than one's own… A sensitive and intelligent interpersonal communicator sees things from other perspectives. He thinks more than twice before sending a message because he takes into consideration how the listener would react to his message. When a communicator adjusts his messages to his listener based on their perceived reactions, he employs feedforward." Moraga-Leaño (2012) calls this *paniguro:* "It is used to ensure that the message will be understood by the other communicator to show that they value the *kapuwa.*"

Feedforward implies **knowing your audience** well enough to anticipate their reactions to your message. "Know your audience" is a basic precept of effective communication. Ask around about your target audience. Observe. Find out what their information needs are. Listen to what they say. Understand what they value. This is called **audience analysis**.

Knowing your audience can help you decide how they should be approached, what message to communicate, and what channel to use. Understanding your audience will facilitate exchange of ideas and ensure effective communication.
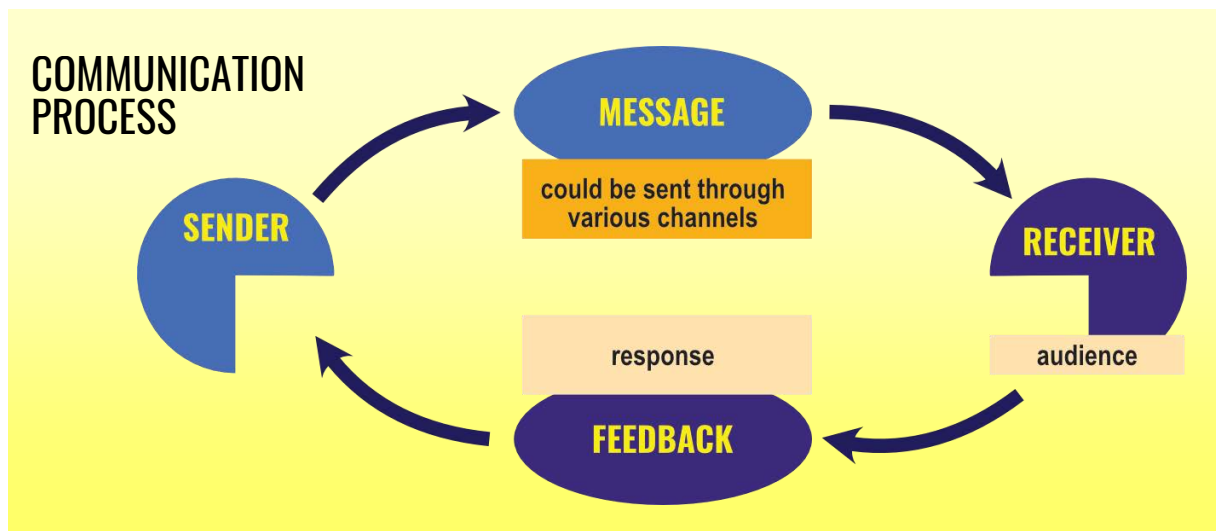
FORMS OF COMMUNICATION

There are five major forms of communication:

1. **Intrapersonal communication**: communication with one's self. In intrapersonal communication, the source (sender) and receiver are the same person, so feedback happens without any interruption. One communicates with oneself through pain, thinking, feelings, etc.

2. **Dyadic or interpersonal communication**: communication involving two persons, each interacting with the other as both receiver and source. This type of communication is a dynamic process where feedbacks are shared between source and receiver.

3. **Small group communication**: communication involving more than two persons. In small group communication, everyone can be both source and receiver through sharing information and giving feedback to the other members of the group.

4. **Public communication**: act of communication where one person (source) conveys a message to a large group of people (receivers). Unlike in a small group communication, this type of communication provides very little room for feedback.

5. **Mass communication**: communication using mass media (newspaper, radio, TV) to reach a wider audience.

COMMUNICATION APPROACHES

Some key communication approaches used in peer education include:

1. **Information-education-communication (IEC)**
   - Educates individuals/community about the existence/benefits of services, projects, programs (usually development programs)
   - Attempts to change/influence behaviors (usually of program/project beneficiaries)
   - Uses media as education channels, e.g., entertainment-education (enter-educate) programs (radio, TV, newspapers, comics)
   - Uses interpersonal communication channels, e.g., presentations/orientations, assemblies
   - Uses collateral materials, e.g., brochures, newsletters, posters, pamphlets, billboards

2. **Social marketing**
   - Uses commercial marketing tools (market research, market segmentation, product positioning, etc.) to change/influence ideas, attitudes, behaviors (usually of target beneficiaries)
   - Employs advertising-type campaign, such as through mass media (airing plugs over TV/radio, publishing print ads in newspapers)
   - Uses interpersonal channels (promos, presentations, etc.)
   - Uses collateral materials (leaflets, posters, etc.) for promotions

3. **Behavior change communication**
   - Uses an adaptive process of communication, usually to support development work
   - Requires a process to understand, analyze, and design programs that will promote positive behaviors and an enabling environment that will sustain behavior change
   - Employs a systematic process that starts with formative research and behavior analysis, followed by communication planning, implementation, and monitoring and evaluation.
   - Carefully segments audiences, and pretests messages and materials
   - May employ both mass media channels (radio, TV, billboards, print material, and internet) and interpersonal channels (e.g., client-provider interaction, group presentations)
   - Uses community mobilization to achieve defined behavioral objectives

4. **Development support communication**
   - Tries to influence attitudes, behaviors, and ideas (usually of target beneficiaries) in support of a development project, program, or cause
   - Uses materials such as brochures, newsletters, posters, promotional videos, etc.
   - Promotes networking with media groups

5. **Social mobilization**
   - Attempts to mobilize people into doing something, such as supporting a cause (i.e., it tries to influence people's beliefs and behaviors)
   - Uses grassroots networking
   - Involves heavy use of interpersonal communication (assemblies, home visits)
   - Uses community radio, participatory video documentation
   - Uses collateral materials such as leaflets, flyers, (handed out during outreach activities)

6. **Advocacy**
   - An act or process (involves a set of target actions) that supports a cause or issue
   - Aims to build support or influence others to support a cause; tries to influence decisions, laws, and policies
   - Usually targets decision/policymakers (mayors, congresspeople) and those who can influence their way of thinking (media, people's organizations/POs, religious leaders)
   - Uses different information channels and employs networking/coalition building

COMMUNICATION PRINCIPLES AND SKILLS

Communication can be verbal or nonverbal.

Verbal communication is the use of language to exchange messages between people. The term evokes the idea of spoken communication, but written communication is also part of verbal communication. Verbal communication is about language, including spoken, written and sign language. (Hahn et al. 2024)

Nonverbal communication is communication between people through nonverbal or visual cues, including gestures, facial expressions, body movement, timing, touch, and anything else that communicate without the use of words. *Nonverbal cues can be as important, and in some cases even more important, than what we say.* Nonverbal communication can have a great impact on the listener and the outcome of communication.

Image by poli_ from Pixabay

	Verbal Communication	Nonverbal Communication
Vocal	Spoken language	Laughing, crying, coughing, tone, etc.
Nonvocal	Written language, sign language	Gestures, body language, etc.

Adapted from University of Minnesota Libraries Publishing 2016

Verbal Communication

Verbal communication serves many functions, some of which are listed below (excerpted with minor editing and adaptation from Wrench et al. 2020; University of Minnesota Libraries Publishing 2016):

1. The main purpose of verbal communication is **to convey information and meaning using language**, which is the most important element in human communication. Language is made up of words, which are arbitrary symbols. This means verbal communication is rules-based, because words have different rules to help us understand the meaning, and we also have rules (**grammar**) that help us put words together into meaningful sentences. Knowing the rules is important in order to be understood in writing and speaking.

2. Verbal communication helps us **to meet our various needs** through our ability to express ourselves. We use verbal communication to ask questions that provide us with specific information. We also use verbal communication to express our identities, or to describe things, people, and ideas. Verbal communication helps us inform, persuade, and entertain others, which are the three general purposes of public speaking. It also helps us form personal relationships through verbal expression of our observations, thoughts, feelings and needs. (McKay, Davis, & Fanning, 1995)

3. Verbal communication is **a means of control**, which can be positive, neutral, or negative. We can offer verbal communication in the form of positive reinforcement to praise someone, or we can withhold or use it in a critical, aggressive, or hurtful way as a form of negative reinforcement. But rather than verbal communication being directed at one person as a means of control, the way we talk can foster overall climates of communication that may control many. Verbal communication characterized by empathy, understanding, respect, and honesty creates an open environment that leads to more collaboration and more information.

4. Verbal communication is key to **bringing people together and maintaining relationships**. We use verbal communication to initiate, maintain, and even terminate interpersonal relationships. "We language" – i.e., the words *we, our,* and *us* – can be used to promote a feeling of inclusiveness, while "I language" can be useful when expressing thoughts, needs, and feelings because it leads us to "own" our expressions and avoid the tendency

to mistakenly attribute the cause of our thoughts, needs, and feelings to others. Communicating emotions using "I language" may also facilitate emotion sharing by not making our conversational partner feel at fault or defensive.

5. Verbal communication can **solidify intent**. The act of saying or writing the words "I promise," "I guarantee," or "I pledge" commits the speaker to a certain course of action (Crystal 2005). Of course, promises can be broken, and there can be consequences, but other verbal communication is granted official power that can guarantee action. The two simple words "I do" can mean that a person has agreed to an oath before taking a witness stand or assuming the presidency. In that sense, language is much more than "mere words."

Nonverbal Communication

Nonverbal communication helps people to:

1. **Reinforce or modify what is said in words.** For example, people may nod their heads vigorously when saying "Yes" to emphasize that they agree with the other person. A shrug of the shoulders and a sad expression when saying, "I'm fine, thanks" may actually imply that things are not fine at all!

2. **Convey information about one's emotional state.** Your facial expression, your tone of voice and your body language can often tell people exactly how you feel, even if you have hardly said a word. Consider how often you have said to someone, "Are you OK?" You look a bit down." We know how people feel from their nonverbal communication.

3. **Define or reinforce relationship.** If you have ever watched a couple sitting talking, you may have noticed that they tend to 'mirror' each other's body language. They hold their hands in similar positions, they smile at the same time, and they turn to face each other more fully. These movements reinforce their relationship: they build on their rapport, and help them to feel more connected.

4. **Provide feedback.** Smiles and nods tell someone that you are listening and that you agree with what they are saying. Movement and hand gestures may indicate that you wish to speak. These subtle signals give information gently but clearly.

5. **Regulate the flow of communication**. There are a number of signals that we use to tell people that we have finished speaking, or that we wish to speak. An emphatic nod and firm closing of the lips indicate that we have nothing more to say, for example. Making eye contact with the chair of a meeting and nodding slightly will indicate that you wish to speak.

Aspects of nonverbal communication

Aspects of the face and voice that are particularly important to communication include the following (adapted from Minnesota Libraries Publishing 2016):

1. **Facial expressions** help set the emotional tone for a speech. Smiles, in particular, are powerful communicative signals. In order to set a positive tone before you start speaking, for example, you can communicate friendliness, openness, and confidence with just a brief look and a smile at your audience. Facial expressions communicate a range of emotions and can be

used to infer personality traits and make judgments about a speaker's credibility and competence. They can communicate that a speaker is tired, excited, angry, confused, frustrated, sad, confident, smug, shy, or bored. Even if you are not bored, for example, a slack face with little animation may lead an audience to think that you are bored with your own speech, which is not likely to motivate them to be interested. So make sure your facial expressions are communicating an emotion, mood, or personality trait that you think your audience will view favorably, and that will help you achieve your speech goals. Also, make sure your facial expressions match the content of your speech. When delivering something light-hearted or humorous, a smile, bright eyes, and slightly raised eyebrows will nonverbally enhance your verbal message. When delivering something serious or somber, a furrowed brow, a tighter mouth, and even a slight head nod can enhance that message. If your facial expressions and speech content are not consistent, your audience could become confused by the mixed messages, which could lead them to question your honesty and credibility.

2. Many of us use **gestures** with specific agreed-on meaning. For example, in most cultures, nodding indicates agreement, acceptance, or acknowledgment; thumb and index finger connected in a circle with the other three fingers sticking up means 'OK'; the thumbs-up gesture signifies agreement, approval, satisfaction or achievement; and the thumbs-down gesture is associated with disapproval, rejection, or dissatisfaction. There are also gestures we use subconsciously. These may be gestures related to excitement (e.g., lifting our head up) or interest (e.g., head tilt) or anxiety (e.g., clicking pens or shaking our legs), or they may be gestures we automatically do when we speak to illustrate or emphasize what we are saying.

3. When combined with particular gestures or other nonverbal cues, **posture** can express many different meanings. Putting our hands on our hips while standing is a nonverbal cue that we use subconsciously to make us look bigger and show assertiveness. Leaning back while sitting shows informality and indifference, straddling a chair is a sign of dominance (but also some insecurity because the person is protecting the vulnerable front part of his or her body), and leaning forward shows interest and attentiveness (Pease & Pease 2004).

Image by Mote Oo Education from Pixabay

4. **Eye contact** serves several communicative functions. We can use eye contact to signal to others that we are ready to speak, or we can use it to cue others to speak. During an interaction, eye contact changes as we shift from speaker to listener. While speaking, we typically look away every few seconds, making more direct eye contact toward the end of our speaking turn to indicate we are finishing up. While listening, we tend to make more sustained eye contact, not glancing away as regularly as we do while speaking (Martin & Nakayama 2010). We can use eye contact to determine if an audience is engaged, confused, or bored, and adapt our message accordingly. Or we can use eye contact to communicate that we are paying attention and are interested in what another person is saying. Also, people know not to interrupt when we look away or avoid eye contact, which signals we do not want to make a connection. And while eye contact helps establish rapport or connection, staring in some contexts could communicate intimidation.

5. **Paralanguage** is the vocalized but nonverbal part of a spoken message, including pitch, volume, speaking rate, vocal signature, and verbal fillers.
   - *Pitch* helps convey meaning, regulate conversational flow, and communicate the intensity of a message (e.g., we recognize that questions have a higher pitch ending, and that greetings have a rising emphasis, while farewells have falling emphasis).

- *Volume* helps communicate intensity: a louder voice is usually thought of as more intense, although a soft voice combined with a certain tone and facial expression can be just as intense. We typically adjust our voice volume based on our setting, the distance between people, and the relationship. A voice at a low volume or whisper can be appropriate when sending a covert message, but it would not enhance a person's credibility.
- *Speaking rate* – i.e., how fast or slow a person speaks – can lead others to form impressions of our emotional state, credibility, and intelligence. A slow speaker could bore others and lead their attention to wander. A fast speaker may be difficult to follow, and the fast delivery can distract from the message, but speaking a little faster than the normal 120–150 words a minute, can be beneficial, as people tend to find speakers whose rate is above average more credible and intelligent (Buller & Burgoon 1986). When speaking at a faster-than-normal rate, it is important to also clearly articulate and pronounce words.
- Each voice has a distinct quality known as a *vocal signature*. Voices vary in terms of resonance, pitch, and tone, and some voices are more pleasing than others. Voices that people typically find pleasing employ vocal variety and are not monotone, are lower pitched (particularly for males), and do not exhibit particular regional accents. Many people perceive nasal voices negatively and assign negative personality characteristics to them (Andersen 1999).
- *Verbal fillers* are sounds that fill gaps in our speech as we think about what to say next. They are considered a part of nonverbal communication because they are not like typical words that stand in for a specific meaning or meanings. Verbal fillers such as "um," "uh," "like," and "ah" are common in regular conversation and are not typically disruptive. In fact, the use of verbal fillers can help a person "keep the floor" during a conversation if they need to pause for a moment to think before continuing on with verbal communication. However, verbal fillers in more formal settings, like a public speech, can hurt a speaker's credibility.

6. **Proxemics** refers to the study of how space and distance influence communication. Space, communication, and relationships are closely related. In general, space influences how people communicate and behave. In the context of human communication and interaction, researchers have categorized space into four zones: public, social, personal, and intimate (Hall 1968):
    - *Public space* starts at about 12 feet from a person and extends out from there. This is the least personal of the four zones and would typically be used when a person is engaging in a formal speech. In terms of regular interaction, we are often not obligated or expected to acknowledge or interact with people who enter our public zone.
    - *Social space* is about 4-12 ft away from our body. Communication that occurs in this zone is typically in the context of a professional or casual interaction, but not intimate or public. Students in large lecture classes should consider sitting within the social zone of the teacher, since students who sit within this zone are more likely to be remembered by the teacher, be acknowledged in class, and retain more information because they are close enough to take in important nonverbal and visual cues.
    - *Personal space* is what we typically think of as our "personal space bubble" where much of our communication occurs. The outer-personal zone extends from 2.5 feet to 4 feet and is useful for conversations that need to be private but occur between people who are not interpersonally close. The inner-personal zone extends from 1.5 feet to 2.5 feet and is a space reserved for communication with people we are interpersonally close to or trying to get to know.

- *Intimate space* (less than 1.5 ft from our body) is reserved for only the closest friends, family, and romantic/intimate partners. It is impossible to completely ignore people when they are in this space, even if we are trying to pretend that we are ignoring them. A breach of this space can be comforting in some contexts and annoying or frightening in others. Interestingly, we do not often use verbal communication to defend our space during regular interactions. Instead, we rely more on nonverbal communication like moving, crossing our arms, or avoiding eye contact to deal with breaches of space.

EFFECTIVE COMMUNICATION

There are quite a few **skills** that a peer educator needs to have to be an effective communicator. These include effective speaking and active listening using different skills, as described below:

1. **Effective speaking** involves three main elements: the words you choose, how you say them, and how you reinforce them with nonverbal communication. Together, these elements affect the way your message is transmitted, and how it is received and understood by your audience. Your tone of voice (pace, pitch, volume, and inflection) helps communicate your intent, your level of interest and commitment, or whether you are nervous about others' reaction.

    There are a number of techniques that can be used to improve the effectiveness of verbal communication:
    - **Reinforcement**: use of encouraging words alongside nonverbal gestures (head nods, a warm facial expression, maintaining eye contact, etc.) to help build rapport and openness. The use of encouragement and positive reinforcement can (Beukes 2022):
        – Show interest in what people have to say
        – Pave the way for development and/or maintenance of a relationship;
        – Allay fears and give reassurance
        – Show warmth and openness
        – Reduce shyness or nervousness
    - **Questioning**: how we obtain information from others on specific topics. Questioning is a useful way to clarify areas that are unclear, to test your understanding, or to explicitly seek support from others. In a more social setting, questioning is also a useful technique to start conversations, draw someone into a conversation, or simply show interest. Effective questioning is therefore an essential element of verbal communication (Beukes 2022). Questions come in two broad categories:
        – **Close-ended questions** tend to seek only a one- or two-word answer (e.g., 'yes' or 'no'), thus limiting the scope of the response. Examples of closed questions are: "Did you go fishing today?" and "Did you see your mother yesterday?" These types of question allow the questioner to remain in control of the communication. Closed-ended questions can be useful for focusing discussion and obtaining clear, concise answers when needed.
        – **Open-ended questions** demand further discussion and elaboration, thus broadening the scope for response. Examples are: "What was the market like this morning?" and "What would you like to gain from this discussion?" Open-ended questions will take longer to answer, but they give the respondent far more scope for self-expression and encourage involvement in the conversation.
    - **Reflecting and clarifying**: the process of feeding back to another person your understanding of what has been said. Reflecting is a specialized skill often used in
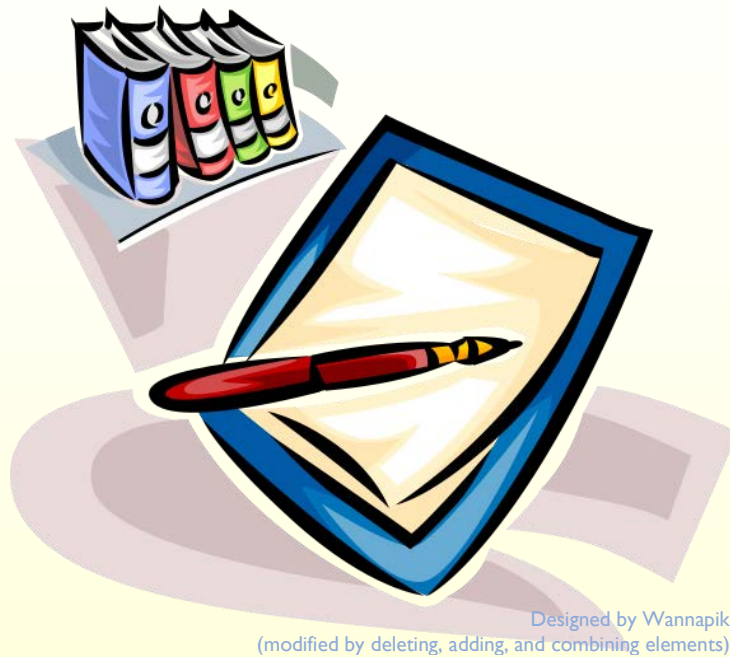
counseling, but it can also be applied in a wide range of communication contexts and is a useful skill to learn. Reflecting often involves paraphrasing in your own words the message communicated to you by the speaker. You need to try to capture the essence of the facts and feelings expressed, and communicate your understanding back to the speaker. It is a useful skill because:

- It allows you to check if you understood the message clearly.
- The speaker gets feedback about how the message has been received and can then clarify or expand if they so wish.
- It shows interest in, and respect for, what the other person has to say.
- It is a way to demonstrate that you are considering the other person's viewpoint.

- **Summarizing**: providing an overview of the main points or issues raised. Summarizing can also serve the same purpose as 'reflecting,' while allowing both parties to review and agree on the message, and ensure that communication has been effective. When used effectively, summaries may also serve as a guide to the next steps.

- **Closing**: process of ending an interaction. The way communication is closed or ended will, at least in part, determine the way a conversation is remembered. People use both verbal and nonverbal signals to end a conversation. Verbal signals may include phrases such as "Well, I must be going," and "Thank you so much for spending time with me today, you've been so helpful." Nonverbal conclusions may include starting to avoid eye contact, standing up, turning away, checking the time, or closing notepads or books. These nonverbal actions indicate to the other person that the initiator wishes to end the communication. People often use a mixture of these, but tend to start with the nonverbal signals. Do not end abruptly. Instead, allow the person you are interacting with to round off what they are saying. This means allowing yourself enough time for winding up and ending the conversation, including making future arrangements.

2. **Active listening** involves preparing to listen, observing what verbal and nonverbal messages are being sent, and then providing appropriate feedback to show attentiveness to the message being presented (University of Minnesota Libraries Publishing 2016). Effective listening is vital for good communication. There are a number of ways to ensure you are listening actively. These include:

- Be prepared to listen. Concentrate on the speaker, and not on how you are going to reply.
- Avoid interrupting the speaker.
- Keep an open mind and avoid making judgements about the speaker.
- Concentrate on the main direction of the speaker's message. Try to understand broadly what they are trying to say overall, as well as the details of the words that they are using.
- Avoid distractions if at all possible. For example, if there is a lot of background noise, you might suggest that you go somewhere else to talk.
- Be objective.
- Do not be trying to think of your next question while the other person is giving information.

Adults spend an average of **70%** of their time engaged in some sort of communication. Of this, research shows that an average of **45%** is spent listening **30%** speaking, **16%** reading, and **9%** writing.

(Adler, R. et al. 2001)

That is, by any standard, a lot of time listening. It is worthwhile, therefore, to take a bit of extra time to ensure that you listen effectively.

Job Aid for Peer Educators

Checklist for when you are unfamiliar with the person or group you will talk to

1. Be sure to bring the following with you when you conduct interpersonal communication visits/meetings:
    - Ball pen or pencil with eraser
    - Small notepad
    - Reference manual – with illustrations
    - IEC materials (e.g., brochures), if available
    - Reporting forms
    - Directory for referrals (fisher and vessel registration, fishing gear registration, livelihood, etc.)

2. Start a conversation:
    - Greet your "client" (could be one person or a group of persons).
    - Introduce yourself/your organization/project/group.

- Ask for your client's name and other personal information such as work, residence, family, etc.
- Similarly, share your personal information with your client.
- Say that your project (e.g., Fish Right) helps local governments improve fisheries management to support a healthy environment or ecosystems, families, and communities.
- Explain your role as a peer educator.

3. Ask the client the following questions as may be relevant (the questions to ask will vary by sector: women, youth, fishermen, community leaders, policymakers):
   - How is your place/locality/community doing?
   - What are the common concerns in your community — health, children, and natural resources?
   - How are the fishers in your area doing? What do you know about their fish catch? Is it less or more than in the past?
   - Do you see any difference in your fisheries today compared to in the past?
   - Do you think the state of your fisheries is affecting your community?

4. Ask the client what they can do to help improve fisheries and human well-being. Inform them about the actions they can take to contribute to sustainable fisheries, using the list below as a starting point (you can add to this list, or tailor it to the age, interest, occupation, etc. of the person or group you are working with):
   - Fisher and vessel registration
   - Fishing gear registration
   - Supporting closed season for fishing
   - Returning juvenile fish back to the sea
   - Protecting endangered species
   - Reporting IUU fishing to authorities
   - Volunteering with the Bantay Dagat
   - Participating in forest and mangrove rehabilitation
   - Participating in coastal cleanup activities
   - Participating in community dialogues
   - Disposing of garbage properly so it does not end up in the ocean
   - Considering managing family size to reduce pressure on fishing, for mothers to regain health, and for children to grow strong and healthy
   - Sharing information with family and peers

5. Encourage questions and provide clarifications.

6. Ask your client what particular action they are interested in. Provide information or refer to the appropriate office or agency if needed or requested.

7. End the talk by:
   - Providing IEC materials to the client/s (if available)
   - Referring the client to available services as needed
   - Thanking the client for their time and attention
   - Giving the client your contact information should they need more information

Checklist for when you are familiar with the person or group you will talk to

1. Be sure to bring the following with you when you conduct interpersonal communication visits/meetings:
    - Ball pen or pencil with eraser
    - Small notepad
    - Reference manual – with illustrations
    - IEC materials (e.g., brochures), if available
    - Reporting forms
    - Directory for referrals (fisher and vessel registration, fishing gear registration, livelihood, etc.)

2. Start a conversation:
    - Greet your "client" (could be one person or a group of persons).
    - Introduce yourself/your organization/project/group.
    - Ask for your client's name and other personal information such as work, residence, family, etc.
    - Similarly, share your personal information with your client.
    - Say that your project (e.g., Fish Right) helps local governments improve fisheries management to support a healthy environment, families, and communities.
    - Explain your role as a peer educator.

3. Motivate your client to join or initiate community activities to help improve fisheries and human well-being. Inform them about the actions they can take to contribute to sustainable fisheries, using the list below as a starting point (you can add to this list, or tailor it to the age, interest, occupation, etc. of the person or group you are working with):
    - Fisher and vessel registration
    - Fishing gear registration
    - Supporting closed season for fishing
    - Returning juvenile fish back to the sea
    - Protecting endangered species
    - Reporting IUU fishing to authorities
    - Volunteering with the Bantay Dagat
    - Participating in forest and mangrove rehabilitation
    - Participating in coastal cleanup activities
    - Participating in community dialogues
    - Disposing of garbage properly so it does not end up in the ocean
    - Considering managing family size to reduce pressure on fishing, for mothers to regain health, and for children to grow strong and healthy
    - Sharing information with family and peers

4. Encourage questions and provide clarifications.

5. Ask the client what particular action they are interested in. Provide information or refer to the appropriate office or agency if needed or requested.

6. End the talk by:
    - Providing IEC to the client/s (if available)
    - Referring client to available services as needed
    - Thanking the client for his time and attention
    - Agreeing on a schedule for follow-up discussion

Stakeholder Analysis

WHAT IS STAKEHOLDER ANALYSIS?

For our purposes, a stakeholder is an individual, a group of people, or an organization who can affect or be affected positively or negatively by a fisheries management project or program.

Before you can start an awareness, education or advocacy campaign, you need to conduct a stakeholder analysis. **Stakeholder analysis** involves **identifying** and **analyzing** the people or groups who have interest in, or have impact or influence on, your project or program (categorizing them into priority groups). This will help you develop the right plan for communicating with them.

WHY IS STAKEHOLDER ANALYSIS IMPORTANT?

- By engaging with the right stakeholders, you will have vital information and support (additional resources, endorsement for your project) that could spell the difference between success and failure.
- Knowing who your stakeholders are will allow you to work immediately with the right stakeholders, and thus save time and project/program resources. Without prior stakeholder analysis, you could end up working with the wrong stakeholders, resulting in a waste of project/program investments.
- Failing to identify and engage the right stakeholders could potentially result in delays in project/program implementation, or your project going over budget, missing important deadlines, wasting the time and energy of the people delivering the project/program, and ultimately, being labeled a failure — or worse, shelved.

HOW DO YOU CONDUCT A STAKEHOLDER ANALYSIS?

Step 1. Determine who your stakeholders are (identification) — Whether you do this yourself or in a group comprising your core project team (which is advised), you can help to kick-start stakeholder identification by asking the following questions in a brainstorming session:
- Who is affected positively and negatively by the project/program?
- Who has the power to make it succeed (or fail)?
- Who makes the decisions about resources (funds, personnel assignments)?
- Who has influence over other stakeholders?
- Who could help solve potential problems with the project/program?
- Who has the specialist skills crucial to the project/program?
- Which group has the numbers to help influence policymakers?
- Which group could be relied upon to provide voluntary assistance?
- Which group would benefit the most from project/program interventions, and therefore would presumably have the highest interest in making it succeed?

STEP 2. GROUP AND PRIORITIZE YOUR STAKEHOLDERS (ANALYSIS) — This means placing them in categories of priority. Prioritizing is important because some people, more than others, have an interest in or enthusiasm for what your project/program does, and could play a more important role in its success. This analysis will help you decide which group to engage and communicate with first and how often, and when and how often to engage/communicate with the rest of the groups.

You can break down your stakeholders into four categories:

1. **High Power/High Interest/High Impact (Fully engage them).** These stakeholders are your primary priority, the ones that need to be engaged regularly and managed closely. These are the key players. This group will require the most effort to keep satisfied.

2. **High Power/Low Interest/Low Impact (Keep them satisfied).** Although these stakeholders may have some influence, their having low interest in the project/program means they potentially also have low impact on what you want to achieve. There is no need to engage them. Just keep them satisfied by keeping them informed, without relying on their support.

3. **Low Power/High Interest/High Impact (Keep them informed, involve them).** This group could be another priority group. You should keep these stakeholders adequately informed, consult with them regarding their areas of interest, and make sure they do not have any major issues with the project/program. With their high interest and enthusiasm, these stakeholders can often help with program implementation.

4. **Low Power/Low Interest/Low Impact (Minimum effort).** This is the least priority, requiring minimum effort. Do not overload these stakeholders with information, but keep them in the loop with general information and keep monitoring them as they could become more influential to or develop a higher interest in your program goals, such as if they assume a new position or responsibility at work.

Created using icons adapted from Harish Sharma and Raisa Binte (Pixabay)

Actions to Encourage
to Promote Sustainable Fisheries

Below is a list of sustainable fisheries actions from which peer educators can draw ideas in terms of what activities to use with their own groups to promote fisheries, and which stakeholders or target audiences should be addressed by such activities.

1. **Promoting ecosystem-scale fisheries management and sustainability**
   - *Fisherfolk organizing themselves into a network or federation* to jointly manage fisheries at a larger ecosystem scale to ensure that smaller, interconnected ecosystems within that larger ecosystem are protected.
   - *LGU leaders supporting federation or network activities* by providing technical and other assistance. In turn, fisherfolk federations serve as the LGU's allies in improving fisheries management.

2. **Improving equity in fisheries management**
   - PO leadership actively *engaging women and youth in fisheries management* — Women and the youth seem to be generally much more concerned about the environment than men and older people (Steger et al. 1989, Paoletti 2022). In particular, mothers exhibit "a greater concern for environmental risk than both fathers and women without children," an indication of how much they care about the profound effects on their children and grandchildren as environmental degradation builds up over time (Price et al. 2019). An article in the journal *The Conversation* reports that when women participate in decision-making, they make a significant impact on improving equity in small-scale fisheries (Galappaththi et al. 2022).
   - *Women assuming leadership roles* in fisheries management to promote representation and recognition of women, and to engage other women in fisheries management. There are many stories of women who have taken on a leadership role as resource managers.

3. **Addressing illegal, unreported, unregulated fishing**
   - *'Community Watch'*/Community members reporting to authority incidents of illegal fishing and other violations in their area. Illegal fishing methods like the use of dynamite and cyanide cause not only overfishing and the extinction of certain fish species, but also the destruction of vital marine habitats.
   - LGUs conducting *law enforcement* operations to deter IUU fishing and to prevent destruction of marine habitats that support the livelihoods of a large portion of their constituency
   - LGUs implementing *registration of fishers, fishing vessels, and fishing gears* in order to regulate fishing effort to an optimum level. Too many fishers will kill fisheries, with dire consequences for the broader economy.
   - Young people conducting *information, education and advocacy activities* to enhance their community's awareness of the dangers of illegal fishing and overfishing. Young people are passionate about the environment because it is their future at stake. Surveys from the last few years show that Gen Z and millennials are the most concerned about negatively impacting our planet's future viability (Paoletti 2022).
   - LGU leaders providing *incentives to encourage community members to report illegal fishing* activities, and to actively participate in efforts to combat IUU fishing

4. **Expanding MPAs or establishing more MPAs**
   - Fishers supporting the *expansion of existing MPAs or the establishment of new MPAs* to better protect the sustainability of marine resources. MPAs are one of the most effective tools for protecting marine biodiversity and critical habitats. They also help support fisheries because the reduction or elimination of fishing pressure within the MPAs allows fish to grow to larger sizes, increasing their reproductivity and eventually producing a spillover effect (when fish inside the MPA become so abundant that some fish move outside the MPA boundaries into the surrounding areas).
   - LGUs enacting an *ordinance to provide for effective MPA management*

5. **Right-sizing of fishing efforts**
   - Fishers gaining understanding of how certain fishing gears and methods destroy fish habitats, and consequently *shifting to nondestructive (or at least less destructive) fishing practices*
   - Community members rallying LGU leaders to establish *open and closed fishing seasons* for certain species in order to allow the species to recover from exploitation
   - LGU leaders establishing *limits on the issuance of fishing licenses*

Reporting

Steps in reporting your accomplishments as a Peer Educator:

1. When doing a peer education activity (meetings, visits, etc.), always bring with you a Peer Educator Monthly Reporting Form (see next page for a printable copy of the form).

2. Complete the Peer Educator Monthly Reporting Form and submit to the designated office or person (trainer, MAO, NGO) every month.

3. Take photos of the events or activities you help organize (e.g., fun run). Ask permission before taking someone's photo.

Peer Educator Monthly Reporting

Name of Peer Educator:

Month:

Municipality:

Interviewed	Age	Sex	Work	New	Follow up	Concerns/Topics discussed						Referred to
						MPA	Bantay Dagat	Livelihood	Licensing	Right sizing	Others	

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HANDBOOK FOR PEER EDUCATORS
Promoting Sustainable Fisheries