Introduction

Around 85% of global fish stocks are over-exploited, depleted, fully exploited or are in recovery from exploitation (Vince, 2012). This is a startling statistic due to the fact that many societies rely on aquatic life to sustain their own life. Fish are known as a “common pool” renewable natural resource. Common pool resources are not privately owned and can generally be exploited by anyone with ease. This sharing of a renewable resource often leads to problems when the demand for that resource is steadily increasing; such as it currently is for fish. On average, people eat four times as much fish now than they did in 1950 (Vince, 2012). The increased fish consumption due to market demands reduced global fish stocks, but the unsustainable fishing practices currently employed by large-scale fishing operations is what is rapidly destroying fisheries across the world. Around 17-22% of fish caught in U.S. fisheries are discarded before reaching port, likely amounting to two billion pounds every year (Keledjian et al., 2014). This waste of a precious resource is directly linked to unsustainable fishing practices. A prime example of a common unsustainable fishing practice is the use of shrimp trawlers. Trawling is one of the most common and currently effective methods of catching shrimp because the preferred fishing practice is to use large trawl nets, which are dragged across the seafloor or through the water, capturing almost everything in their path (Keledjian et al., 2014). Shrimp trawlers are not only responsible for the methods employed by the companies to catch the shrimp, but also because of the lack of consistent regulations and outdated policies that these trawling companies are supposed to follow. Fishing regulations change almost as often as the fish populations themselves, and failing to use the best available information is a direct result of the public (Keledjian et al., 2014). Not only is using inadequate and outdated policies that these companies are supposed to follow, but fishing companies often ignore regulations because of the methods employed by the companies to catch the shrimp, thus damaging vulnerable habitat. The income from shrimp is directly linked to unsustainable fishing practices. A prime example of a “common pool” renewable natural resource is a fishery where companies are allowed to catch as much fish as they can, while also leaving as much fish in the sea as possible. The companies’ gameplay behavior has a direct effect on the system of the game.

The increased fish consumption due to market demands reduced global fish stocks, but it is continually for fish. On average, people eat four times as much fish now than they did in 1950 (Vince, 2012). This is a direct result of the public’s lack of awareness about the resources they are exploiting. A “common pool” renewable natural resource is a fishery where companies are allowed to catch as much fish as they can, while also leaving as much fish in the sea as possible. The companies’ gameplay behavior has a direct effect on the system of the game. The increased fish consumption due to market demands reduced global fish stocks, but it is continually for fish. On average, people eat four times as much fish now than they did in 1950 (Vince, 2012). This is a direct result of the public’s lack of awareness about the resources they are exploiting. A “common pool” renewable natural resource is a fishery where companies are allowed to catch as much fish as they can, while also leaving as much fish in the sea as possible. The companies’ gameplay behavior has a direct effect on the system of the game.

87% of the world's fish species are exploited, overexploited or have collapsed.
**PROJECT DEVELOPMENT, MANAGEMENT, & COMPLETION**

Catch© is a systems dynamic, strategic, renewable natural resource management simulation game. Dr. Harold Glasser created the game many years ago and envisioned it to be utilized as a learning tool in a variety of settings and applications. Catch© was initially created as a paper-based game that participants would play face-to-face. I was assigned to work with Dr. Glasser in revisiting and revising the game’s structure, content, and overall delivery system. It was our goal to make all of the material open-source and to have a web-based interface that the “Game Manager” would interact with, yet still have the game be played face-to-face. To make the Catch© game materials open-source and available online, we needed to bring in a multi-disciplinary team of students to assist with the project.

A group of students from Western Michigan University's College of Business, specifically, Computer Information Systems, were recruited to make the game available online and to have all of the necessary game materials open-source. They also created the graphical “Game Manager” user interface to input players' decisions during a game session. Dr. Alan Rea, a professor of CIS, led the team of CIS students. This group of individuals was called the “Development Team”.

I worked with the Development Team in managing the project and answering any content questions that they had. I also worked directly with Dr. Glasser editing the content of Catch©. I was responsible for creating the majority of the game materials, such as: Catch© rule sheets, “Game Manager” guidelines, Player Demographic sheet, etc. The Development Team then used this information to build the graphical user interface, code, and construct both the front-end and back-end database. The back-end database will house the decisions of the players throughout the game and will allow a variety of scientists and researchers to explore a plethora of investigative questions. The Development Team also created a server for Catch©.

There was a beta test at the Office for Sustainability in mid April of 2016. The majority of players said they enjoyed the gameplay experience and that they learned some lessons. Feedback was gathered through a survey that was distributed to each player after the beta test session. The project is currently on its final stages. Over the summer, I will work with Dr. Glasser to finalize the last details regarding certain aspects of the game and finish creating, as well as revising, any remaining Catch© documents that need to be completed. Once Catch© has been completely revised and tested, it can then be used as a research tool to address a variety of questions related to socio-economic, policy making, and natural resource management issues, as well as many more. Not only is Catch© a great game for the classroom or boardroom, but it is a fun game that any individuals can choose to play. It is our hope that Catch© becomes a game that gets played all over the world.
REFERENCES


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