IdeaFest: Interdisciplinary Journal of Creative Works and Research from Humboldt State University

Volume 5 Article 9

2021

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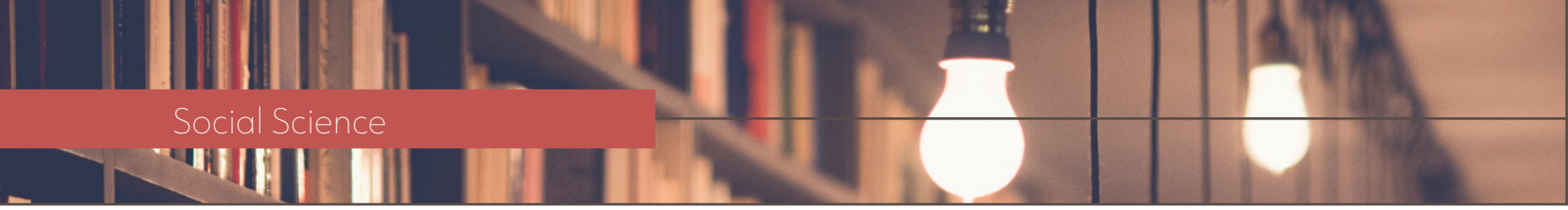
Acknowledgements

Thanks to my wife, daughter, and son. Thanks to all of the following: Dr. Laurie Richmond Humboldt State University, building citizen, fishing and Native American participation in Natural Resources, Catherine Khulman former Executive Director of the Ocean Protection Council, Dr. Snezanna Levic, University of London for constant encouragement, Troy Fletcher. The Yurok Tribe: Deceased former Executive Director of the Yurok Tribe, scientists Mike Belchik and Scientists Dave Hilliemier. Fishing Groups: North Coast Surf Fish representative Dennis Mayo, Humboldt Fish Marketing Association representative Vivian Helliwell, Jacque Hostler Fish and Game Commissioner and Executive Director of the Trinidad Rancheria. Blue Ribbon Task Force members Meg Caldwell, juris Doctor currently deputy Director Packard Foundation Ocean Conservation and Science, Roberta Cordera Chumash, Indigenous leadership, Mediator and Jimmy Smith former Humboldt County Supervisor (deceased). Waklow (Thank You) to my dad, mother, sister, daughter, and son. It's honor to advocate for the protection of Indigenous religious, cultural, and environmental rights for future generations. Much appreciation to the Yurok Tribe Awok' Troy Fletcher who would be proud of this work, Yurok Tribal Council and Council support (nothing would be done without these people). To all the surveyors, data entry, data analysis (Humboldt State University, Rural Center for Collaborative Policy), accountants and editors. To all the people who visited False Klamath Cove! We love you! North Coast Native Protectors invite you to join in our work and projects contact Ruthie A. Maloney (707) 502-9155 or northcoastnativeprotectors@gmail.com.



California North Coast Vehicle and Human Use Beach Survey of False Klamath Cove

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Keywords: survey, mpa, false klamath rock, tribes, statistical base line data

The California north coast (NC) lacks adequate statistical information on beach use. In an effort to provide current statistical data of human and domestic animal uses of NC beaches, a group of concerned and like-minded people formed the North Coast Native Protectors (NCNP) and the Eagle Eyes of False Klamath Cove (EEOFKC) study was developed. This study is located in the northwest corner of California in the County of Del Norte. The area is rural, and many inhabitants are Native Americans associated with federally recognized Tribes. The town of Klamath is approximately seven miles south of False Klamath Cove and is the headquarters for the Yurok Tribe, 80% of the residents are Native Americans from local Tribes (Tribe). This study consists of people who are aware of the north coast's unique landscape and are willing to contribute their expertise and knowledge to create local statistical information necessary for marine planning and management.

North coast communities include Tribes that practice their cultural traditions to this day as they have since time immemorial. Traditional Ecological Knowledge (TEK) of local Tribes should be acknowledged and included because it directly affects a cultural way of life that has existed since time immemorial. Preserving and maintaining traditional marine resources for future generations is essential to the religious ceremonies, traditional foods, and the health and well-being of California Native American Tribes. Our goal is for Tribal governments, Native Americans, and north coast communities to deliver high quality data for coastal management planning. This study is the first baseline data collection and analysis for the NC at False Klamath Cove (FKC) beach in Del Norte County. This study welcomes all races and Tribes to participate in EEOFKC/MPA Watch and baseline Behavioral Census Survey activities. This is important to end prior exclusions of Native Americans from marine planning science efforts. To implement these goals, we conducted a scientific observational study of False Klamath Cove, which is in the heart of Yurok Ancestral Territory, represents Park visitor populations, is heavily used by regional standards, and has an unusual variety of habitats to observe human behavior. This behavioral study reviewed the kinetic movements by boat, car, drone, bicycle, motorcycle, pedestrian, and domestic animal uses of coastal and marine resources at FKC in Klamath, California.

Observational data collection of human usage in and around FKC began in 2017 by enlisting the help of Tribal members, volunteers, and community groups. The location of the study lies within a designated Marine Protected Area Special Closure (MPASC) for bird rookery protection, False Klamath Rock, and took place from March 1st to August 31st annually (Game). The rookery protects the nesting areas of some 40,000 birds. In February 2018, EEOFKC teamed up with WILDCOAST/Marine Protected Area Watch (MPAW), a statewide collaborative effort to collect human use information to enhance the management and performance of MPA's. Data collected from this collaboration informs management, enforcement, and science of

Figure 1.

California's MPA's, providing insight on how human uses are changing because of MPA implementation. By involving local communities in this important work, North Coast Native Protectors and Marine Protected Area (MPA) Watch programs inspire and empower stewardship and educate California communities about ocean ecosystems (WILDCOAST). Volunteers are trained to observe and collect unbiased data on the uses of coastal and marine resources. This provided the basis of a successful citizen science monitoring program. Community and citizen science (CCS) projects of many kinds have played a prominent role nationally and in MPA monitoring and education, providing significant value to the State of California in many natural resources management policy decisions. CCS is relevant to multiple goals of the Marine Life Protection Act (MLPA) related to ecological performances as well as promoting research and education and even effective enforcement (Meyer).

Stewardship of False Klamath Rock Rookery

Reviewing the historical backgrounds of sites, to avoid massacre areas, is an essential consideration for Native American citizen participation in survey and research within ancestral territory. The FKC survey area covers former village sites by both the Yurok Tribe and Tolowa dee ni Nation. The Yurok village of 'Omen hee pur is located on the North side of FKC near the mouth of Wilson Creek (Tribe). The Tolowa of Crescent City and the Smith River area also claim an ancestral tie to these village sites and call them Daa-ghelh-ts'a'. No massacre occurred at this site and local Tribes would gather once a year for a marine feast and peaceful settlement of disputes. It is traditionally associated as a safe place for Native Americans.

FKC is an ideal site for study due to the wide variety of cultures and habitats. The coordinates are N 41 65249, W 124 10773 located approximately five miles North of the Klamath River. The site has variable substrates. This variety of substrates allows a study of broad-based beach behavior in a variety of different FKC beach habitats. The Northern boundary of FKC is the southern boundary of Wilson Creek, which sometimes moves. Wilson Creek is a freshwater stream with anadromous fish that were traditionally fished by Native Americans with gill and dip nets (Tribe).

The habitats of the site include beach, breakwater, cobblestone and reefs. We visited and appraised each habitat site, and the habitats clearly fit into each category. Beach is defined as loose deposits of sand including some gravel or shells that cover the shoreline (Wiki). Breakwater is defined as a barrier built out into a body of water to protect a coast, harbor, or highway from the force of waves (Merriam Webster). Cobblestone beach is defined as a class of rock defined on the Uddin-Wentworth scale as having a particle size of 64-256 millimeters (2.5-10.1 inches), i.e., larger than a pebble and smaller than a boulder (WIKI). Intertidal are the rocky areas of coastline between the low and high tide marks. This area is from the high-water mark to a depth of 2 feet (Google).

Figure 2.

Methods

The survey was conducted in three phases: (1) testing beach survey and proper survey protocol, (2) a yearlong survey generating sufficient data to determine the frequency for a random survey, (3) a random survey.

Phase One: NCNP conducted a beach survey data search. No previous studies were found. State and National Park Service staff were interviewed on attendance highs and lows as well as key holidays. There was a preliminary collecting of snapshot data of the number of vehicles in the North and South parking lots at 8:15 a.m. and 5:15 p.m. each day for six months. Redwood National Park Service 26 years of vehicle survey reports at Lagoon Creek parking lot were examined. Lagoon Creek is separated visually from FKC by a heavily vegetated area but is located nearby.

A paper survey data quality plan, establishing protocols for entering data, was created before the launch of the study. Phase one served the role of a bench survey and more than three testers were used. An extensive pilot study was conducted. While minimum recommendations are for two weeks (IPA Research Protocols), the FKC survey lasted six months. The survey included all uses of the beach, access points, and experimenting with different survey questions to get input from more than three surveyors. From this six-month period, survey questions were formed and tested by observers for clarity and ease of recording. This process determined what survey questions were necessary to cover all beach uses. Survey volunteer responses provided the experience necessary to author a practical volunteer instruction manual (Maloney). Binoculars as survey devices to enlarge and increase visibility were tested with favorable results.

Through the process of Phase one, we identified survey sites and issues. This was followed up by a transect survey. Consultation was made with MPA Watch, who administered the largest citizen beach survey and enforcement program in the State of California. MPA Watch developed academically reviewed lists of survey questions and, with their permission, many of the questions were adopted by this survey (WILDCOAST).

The survey observation site, located at the center of the beach on the west side turn out from Highway 101, was identified and nicknamed the "perch." This site overlooks the breakwater and provides a commanding view of the entire beach. During this test phase, surveyors were placed in the North Parking Lot (NPL) and the results were compared to perch surveys. It was determined that the perch surveys adequately identified beach attendance and activities surrounding the NPL. A similar determination concerning visibility of the south parking lot from the perch was made with the same numerical results. The Lagoon Creek Parking lot and the Yurok Loop Trail head are not visible from the perch. Surveys were conducted where the Lagoon Creek trail entered the beach and beach use was visible from the perch. The results showed exceptionally low traffic levels on that entrance to the beach areas. It was determined by observation that beach users from the Lagoon parking lot can be detected on the beach. Parking for surveyors was provided at the perch turn out. Communication systems with Park personnel were established (Park). All night surveys were conducted that established the almost complete lack of parking lot and beach use during the night. The survey established high levels of public compliance with posted beach hours of sunrise and sunset. The intensity of high beach attendance days were tested with the survey form, and it was determined surveyors could keep up.

The weather for FKC was determined to be a major factor affecting swimming and water sports. The cove receives 79.09 inches of rain a year over an average of 93 days with .01 or more precipitation. Beach attendance drops dramatically when it starts raining. Additionally, rough seas at FKC and the entire extreme northern California coastline have many days with higher waves than other areas of the state. The average daily high ambient air temperature is 61 degrees (data). The average water temperatures are considered cold for a swimming beach at 11.2 C, and this no doubt discourages water activities (Google).

Phase Two: It was determined that a year of surveying would be required to gather sufficient evidence to prop-

erly determine the monthly frequency required for a random survey. There was a development of using an I-pad to instantaneously record results. This effort did not prove successful because reception at the site was unreliable. Reconciliation protocols for paper recording followed throughout the entire multi-phase survey period. Personal communication with Dr. Steven R. Martin, Ph. D. Professor and Department Chair of Environmental Science & Management at Humboldt State University, determined that Phase Two survey parked cars could be used for establishing sampling frequencies on the final Phase random survey. Dr. Mark Rizzardi, a tenured statistics professor at Humboldt State University, reviewed the calculations (Corbett, Attorney at Law).

Phase Three (The official survey): The recruitment of surveyors took place in one of the lowest income areas of California with an extremely high unemployment rate of 30% (EDD). This provided us the opportunity to recruit readily available, educated Native Americans for long 12-hour survey shifts. The effort instilled in the local community participants resulted in a sense of accomplishment and pride in their work ethics and commitment to this study. This study provided skill set training for Native surveyors, many of whom have used their experiences over the last two years to find employment. Our goal has been to broaden the base of Native American participation in supporting healthy oceans. This is the only multi-Tribal citizen beach monitoring study in the State of California and the only one run by Native Americans. Additionally, the EEOFKC/MPA Watch survey is a visual observation from a public area without interaction with the public nor identification of individuals. Therefore, no science or IRB permits were needed.

The frequency established to achieve a 5% accuracy was six days each month plus one extra day for the year for a total of 73 days. Each month six days were randomly selected. In addition, a marked seventh and eighth day were selected. These extra days were used in case a survey was short of hours, and hence discarded, or did not go forward on the planned date because of a surveyor's life circumstances. If a selected date did not happen, the next random seventh and eighth day was selected. The planned extra day,

Figure 3.

number 73, was selected first by a random month and then a selected day. There were three extra days because communications were unclear that a survey had been completed, and the next random days were selected. Rather than throw the surveys out, this resulted in three more days than were required. This was approved by e-mail correspondence with Dr. Martin (Martin).

The total days surveyed was 75, with 36 days in 2019 and 39 days in 2018. The average number of vehicles per day was averaged to develop strata categories. Strata number one was Saturday and Sunday. Saturday had 13 surveys totaling 4,280 vehicles and Sunday 12 survey totaling 4,338 vehicles. Strata two was Monday, with eight surveys totaling 2,131 for a total of 32 survey days equaling 10,749. Tuesday had ten surveys totaling 2,346 vehicles. Wednesday had ten surveys totaling 3,305 vehicles. Thursday had ten surveys totaling 2,906 vehicles and Friday 12 surveys totaling 3,251 vehicles. These numbers provide the basis for calculating total vehicle numbers from which to project a beach census number.

The survey consisted of six-pages that was completed by surveyor's starting at 7:00 a.m. to 7:00 p.m., which included time for breaks and lunch. Some surveyors split the shifts and each person of a team completed two six-hour surveys in shifts from 7:00 a.m. to 12:00 p.m. and 1:00p.m. to 7:00 p.m. At the end of each hour a new survey form was used. The EEOFKC conducted a beach survey data search. No data was found. State and National Park Service staff were interviewed on attendance highs and lows as well as key holidays.

Hourly survey forms of human beach use were collected by recording all offshore and onshore coastal activities within and outside FKRSC. Volunteers were trained to recognize different types of activities, using binoculars to view activities offshore and on shore, and to record what they saw on data sheets. Surveyors began and ended their surveys each hour. All collected data underwent rigorous quality assurance and quality control protocols (WILDCOAST). There were two designated inspectors to ensure surveyor compliance. Periodically, early morning inspections of volunteers occurred at the 7:00 a.m. start time and the 7:00 p.m. quitting time. There was no cell phone service, so surveyors who left for health or family concerns were directed to call one of the inspectors immediately when they entered an offsite cell phone reception area. Some surveys did not meet time standards because they surveyed for the whole 12-hour day and were discarded. Surveyor or personnel changes were made as appropriate.

The California Department of Public Health oversees the issuing of advisory warnings to not consume bivalves, and sometimes crustaceans, if they have dangerous level of Paralytic Shellfish Poisoning (PSP) and Domoic Acid Poisoning (DAP). There is a standard closure for the entire state for each year from May 1 to October 30 every year for many decades, which is for mussels. If conditions warrant the quarantine dates are extended. In recent years, all bivalves, clams, and sometimes crustaceans, such as Dungeness Crab, have been added to the quarantines. The effect of these health quarantines was not studied in this survey. We are not aware of other beach surveys that have quantified the effects. A review of tide pool harvest rates reflected in the survey suggests this will not substantially affect survey conclusions (Health). Most of the PSP baseline data is gathered by the Yurok Tribe for the California Department of Public Health. The Tribe independently notifies Tribal members and locals of closures.

NCNP, EEFKC, and RAM Consulting provided surveyors, a data entry specialist, and analyzed the data. Data entry was subject to a quality control program that required a minimum of three independent reviews of the data. The excel spread sheet was independently developed by an outside contractor. Data entry was independently entered and was then transferred to an independent auditor to review the data. Differences were recorded by survey date, time, and entry. The auditor reconciled the data. Next, the data was reviewed by Executive Director Ruthie A. Maloney, MA. Project advisor, and John Corbett carefully reviewed the data entry process and the results. This procedure met the data quality control plan and a statistical protocol for paper surveys (Service).

The California Center for Collaborative Policy at Humboldt State University conducted the final analysis of data in SPSS Statistic program. SPSS totaled the surveys as to each category, area of the beach, and human behavior for all 2018 and 2019 survey months. Each habitat type, such as intertidal rocky and sandy beach, were totaled. The types of vehicles (Federal Highway Admnistration) of each of the four parking lots were tallied, i.e. Northwest parking lot, Westside (Southbound lane), East (Northbound lane) of Hwy 101, and the South West Parking lot. Total domestic animal use in each section off leash vs on leash were record.

Results

Survey results were then calculated for annual projec-

tions of vehicles, human and domestic animal use of FKC beach. This data was compiled in a format acceptable to Humboldt State Professors Dr. Martin and Dr. Mark Rizzardi, who have conducted many census studies (S. a. Martin). The data showed, based on a sample of 86 days at 12 hours a day over a year, that there's an average of 396 vehicles per day, with a standard deviation measure of the day-to-day variation in vehicle counts of 167 cars. In order to achieve a 5% confidence interval (+1-20 vehicles per day) requires a sample of 73 days/year (– 6 days/month) for a sample (Martin).

We determined from the Phase three survey that there were two strata. Strata one consisted of Saturday and Sunday and strata two consisted of Monday through Friday. The strata were selected based upon the survey results and were reduced to average cars by day of the week.

A minimum of six surveys a month were required. For most months, eight days were randomly selected to ensure non-bias. This was in case one of the required six days did not go forward on the planned date or a survey was short an hour and discarded. Road closures and life circumstances of surveyors resulted in the need for the next date of the random draw. Total days surveyed was 75, with 36 days in 2019 and 39 days in 2018. Survey days are in the chart below.

Days of strata were determined by reviewing the chart. Strata one is Saturday, with 13 surveys totaling 4,280 vehicles and Sunday with 12 surveys totaling 4,338 vehicles. Strata two is Monday, with eight surveys totaling 2,131 for a total of 32 survey days equaling 10,749 vehicles for Strata one survey results. Tuesday had 10 surveys totaling 2,346 vehicles, Wednesday had 10 surveys totaling 3,305 vehicles, Thursday had 10 surveys totaling 2906 vehicles, and Friday had 12 surveys totaling 3,251.Out of 892 hourly observations, about half (67%) or n = 579 occurred on a weekday (Monday– Friday) and about 33.1 n = 287 of observations occurred during the weekend (Saturday –Sunday).

From 2018–2019, there were a total of 892 observations documented at FKC. About 460 were from 2018 (July 1, 2018, to December 23, 2018) and 432 were from 2019 (January 1, 2019, to June 27, 2019). The total of these numbers were converted to daily averages and multiplied by the days of the week per year for the total beach and vehicle census data.

Each observation was gathered by individual location and parking sites, making for a complex survey but one where detailed site information can be developed for each sub site. Combined figures are provided for interpretation and analysis. Therefore, the results from the observations will be described by combining all the parking lots. Parking lots were counted in two ways: (1) Redwood National Park and Humboldt Redwood Park ownership sites only, i.e. the Northwest and South parking lots, and (2) the public parking on the sides of the road overlooking the beach. The study area included a Northwest parking lot, South parking lot, West side (South Bound Lane), and East Side (North Bound Lane) of Highway 101.

The survey data shows that a total of 22,486 vehicles were observed and recorded from all four areas. Formula

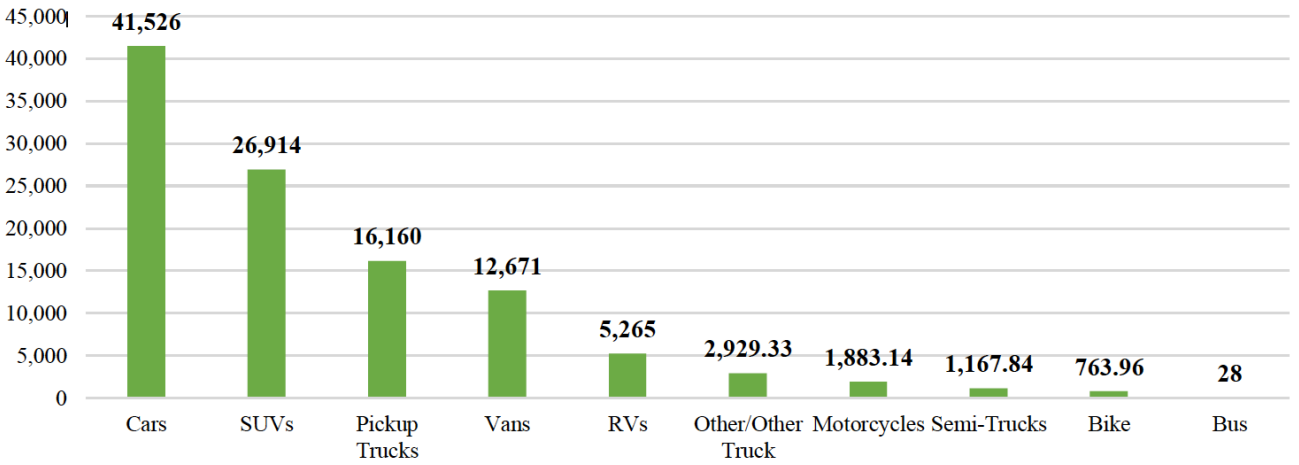

Figure 4. Annual Vehicle Projection at False Klamath Cove by Vehicle Type (n = 109,416.87).

applied 22,486 / 75 survey days = 299.8 cars per day x 365 days a year for a projected total of 109,427 vehicles annually.

To gain further insight into the number of people in the vehicles, this study applied the National Highway Administration (2009) modes of transportation to recreational passenger numbers from a chart provided by Cal Trans.

This study added 2 additional categories not included in the Cal Trans as Highway conversion chart. (1) Bicycles were calculated at one person, and (2) two persons were assigned for each bus, because it is exceedingly difficult to count passenger numbers and no data on how many for bus use was available. This will result in an undercount of the number of bus passengers by vehicles counted in the survey. Of course, bus passengers were counted at 100% if they entered the beach.

Applying the California Average Vehicle Occupancy (Persons) by Mode and TD Vehicle Occupancy (Mean), survey data shows the total estimate of passengers for all vehicles (at all four parking lots) is about 50,275.13 passengers who visited FKC. Formula applied 50,275.13 divided by 75 survey days equals 670.33 people per day visit FKC. Converting the number of visitors 670.33 x 365 per days per year creates an estimated annual projected number of 244,670.45 passengers that will go to FKC parking lots and beach.

There were various types of human beach activities that were recorded. Activities were grouped into the following categories/sub-categories: (1) on the reef, either visiting, collecting, or doing research; (2) shore beach activities such as walking, playing, using the picnic table, hiking, sunbathing, rock climbing, running, making a bonfire, sleeping, camping, making art, and watching wildlife; (3) shore based fishing, biota collecting activities (interference with wildlife) including carrying a 5-gallon bucket for gathering biota, domestic animal use, hook and line fishing, trap fishing, net fishing, and spear fishing; (4) domestic animal use of beach, (4a) dogs off leash, (4b) dogs on leash; (5) type of clothes visitors wore, including (5a) warm clothes, wet suit, hiking clothes, or a swimsuit; (6) offshore activities including (6a) surfing/boogie board (6b) kite/wind surf (6c) standup paddle, (6d) swimming/body surfing; and (7) type of boats (active/inactive).

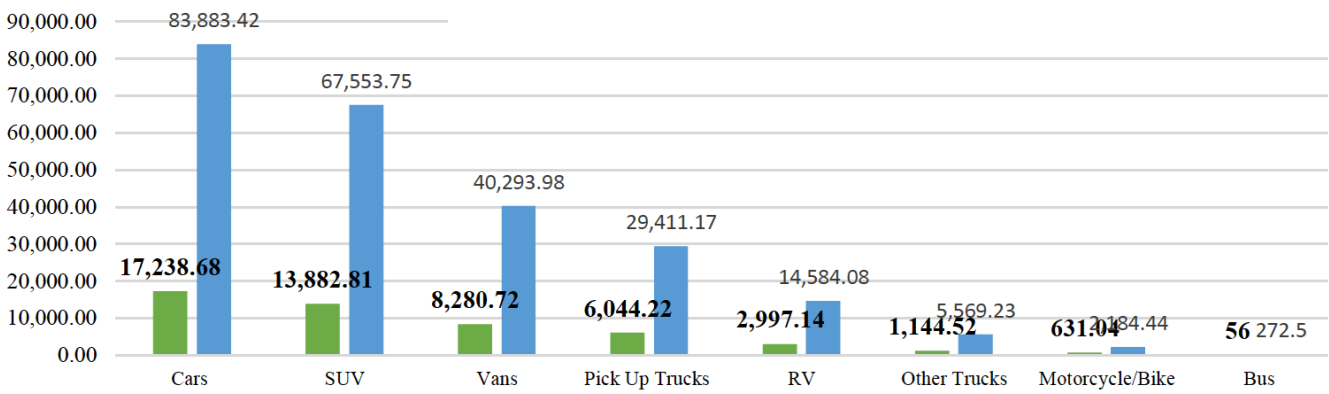

Figure 5. Total estimate of passengers by vehicle type (all parking lots combined and annual projection of passengers. Green bar survey numbers. Blue bar projected annual passengers.

Our annual projection is estimated to be 85,363 expected activities to occur at FKC. Figure 6 demonstrates the total number of human-based activities observed, including recorded (green bar) and estimated annual human activities (blue bar).

Domestic Animal Beach Use

EEOFKC/MPA Watch survey showed there were 1,782 domestic animals observed, mostly in the sandy area. Approximately 994 domestic animals were on leash and 778

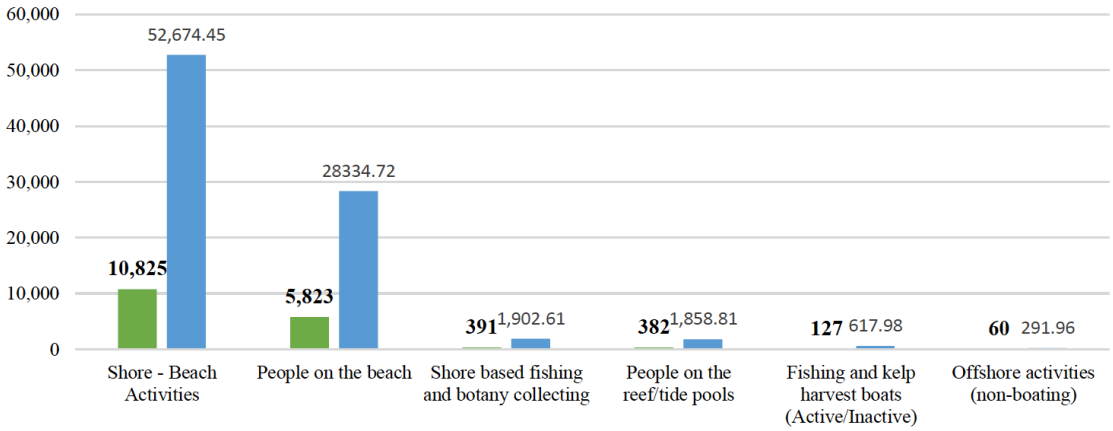

Figure 6. Total human activities at False Klamath Cove by Type.

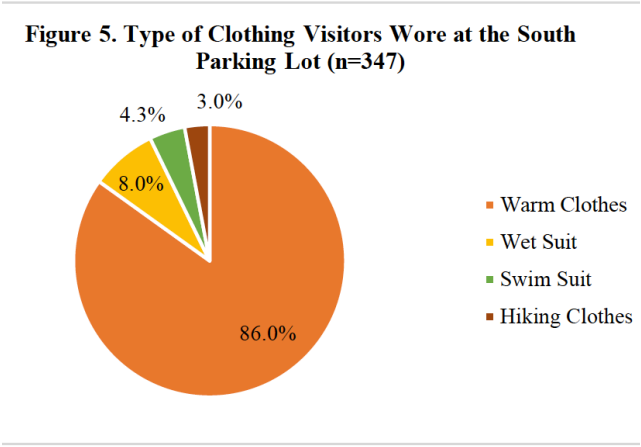

Figure 7. Type of Clothing Visitors Wore at the FKC among 347 visitors.

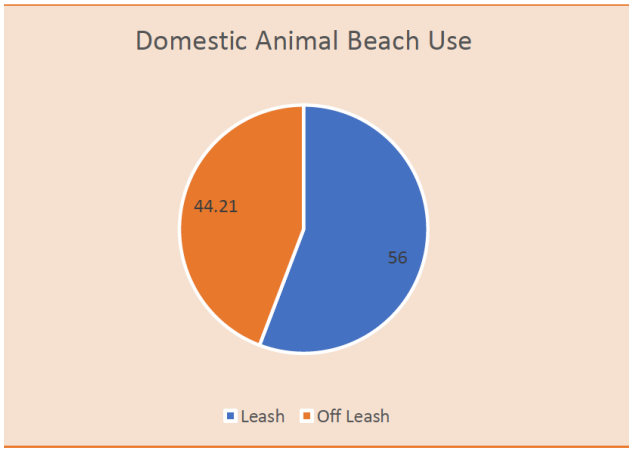

Figure 8. Domestic Animal Beach Use.

were observed off leash. It was noted that people tend to have their dogs off leash in rocky areas compared to on a leash.

Formula applied the total number of domestic animals 1,782 / 75 survey days equal 23.76 domestic animals per day x 365 days a year for an annual projected number of 8,672.40 domestic animals that will visit FKC beach.

Boating

A total of 127 boats were recorded. Figure 9 represents the type of boats observed at the northwest parking lot. There were no fishing boats utilizing a net, trap, or line documented. The low number of fishing boats may reflect the long distances between ports and rough seas.

Outlook

The potential users of EEOFKC and MPA Watch data might include academia, natural resource management agencies, local communities, and Tribes. A key focus for the

Type of Boats Documented at the Northwest Parking Lot	Active	Inactive	Total
Unknown Type of Fishing Boat – Recreational	16	3	19
Unknown Type of Fishing Boat – Commercial	17	4	21
Unknown Type of Fishing Boat – Unknown	79	1	80
Net Fishing Boat – Unknown	1	0	1
Hook and Line Fishing Boat – Commercial	1	0	1
Trap Fishing Boat Commercial	1	2	3
Dive Fishing Boat – Unknown	0	1	1
Kelp Harvest Boat – Unknown	1	0	1

Figure 9. Type of Boats observed and whether they were inactive or active.

program was to inform California's management of MPAs and marine resources. This data is being collected and used already for the MPA Watch program statistics. Data is meant to expand baseline data used by management, enforcement, and MPA science on the North Coast. It can also clearly show how essential Native peoples are to the well-being of the ecosystems and how marine management is enhanced by participation of local people in data collection and decision making about the places where they live. The data will support high quality information that will be available for Tribal marine plans.

Conclusion & Recommendations

The findings from this study can offer important data for future policy related to beach management, public health, land use planning, environmental sciences and economic development. Rural areas are managed based upon available information. The lack of such information has created State natural resource management programs based solely upon Southern California beach use patterns. A positive way to address this problem is developing local data base monitoring. Given the overall lack of funding and research interest, this is a perfect area for citizen science to produce high quality base line data. For a rural beach, False Klamath Cove has significant attendance of approximately 85,681 thousand visitors annually, and we hope data like this will address the lack of natural resources management information.

Marine citizen science programs were developed to be an integral part of marine management and were first developed by using fisherman logs, including Commercial Passenger Fishing Vessel (CPFV) logs, rather than requiring expensive on-board monitoring by scientists. This has grown until now and, in California, major beach monitoring occurs under programs sponsored by the California Resource Agency as part of a statewide program. The University of California Davis is providing support services for such a program. Our project is unique in the State of California because it is being run by Native Americans; 90% of the surveyors are local Indigenous peoples. Unlike many Tribal project's, participants are from many different Tribal memberships: Yurok, Navajo, Tolowa, Karuk and Hoopa. This project is a testament to the capability of Native Americans to participate in the generation of data within their traditional ancestral territory.

The FKC beach site runs itself. Entrance is obtained by turning off the road into two national park service parking lots and then stepping off the lot and walking on the beach. There are no ranger stations or checkpoints. There are bear proof trash receptacles but no retail outlets and no onsite restrooms. Visitors are directed to restrooms that can be found down the next highway.

These restrooms are not visible from the beach. There are two fire pits and one picnic table on the north parking lot. By and large visitors follow the signed rules, except that many dogs run on the beach without a leash. There are occasional Redwood National Park patrols. There are minimal homeless users probably because it is so far from services. There was a homeless person nicknamed the "pipe man" for living in the large culvert beneath the highway. After several

months the rains came, and he left. There are rare beach camping fires. Park rules are from sunrise to sunset and closely adhered to. The one exception are families sitting at the lone picnic table who are late barbecuing their dinner. They will wait past closing time to cook and eat their meal. Many of the visitors seem inspired by a reverence for the National Park. Locals have a special relationship with their local beach park as well. From a Native American standpoint, the beach was a traditional annual meeting place for local Tribes to feast together and where problems were worked out peacefully. The primary attraction of the site is the scenic nature of the location.

It is important to remember that the monitoring sites were different between the car surveys and the beach surveys. You had to be on the beach to be counted in the beach survey. For vehicles, the survey area was expanded to cover all four parking sites including bluff sites that overlook the beach without access. Visitors stop here, take a photograph and then drive on. Combining the beach and parking lot sites creates a combined total of 229,775 beach and view sites. This shows that photography and selfies are key recreational uses of the site. While not monitored for, a smaller data set shows 65,628 visitors taking pictures and then driving off and never entering the beach. This suggests the actual numbers are very high and no doubt strongly contributed to the numbers of beach visitors when all parking lots, including non-beach access lots, are considered monitored for. We are unaware of any other beach use survey that includes any quantification of photo/selfies. We are in the process of further refining our survey and expect to find significantly more visitors participating in photos and selfies, as we survey sector by sector until there is an overall reliable quantification system.

Our study hypothesis was that actual beach attendance figures on the North Coast as shown in this study would be much less than the Marine Protection Act Science Advisory Team (SAT) projections. This hypothesis was strongly confirmed by this EEOFKC Beach Census Study. There was a further hypothesis that as information was gathered differences with Southern California beach users would be found. That has proved true. Remarkably for a bird rookery area, there are few birds observed flying around and minimal bird watching. The birds tend to leave the rookery area as soon as they can and disperse along the coast. Mussel and tide pool gathering is extremely limited to the extent it is insignificant. The survey shows public harvesting is primarily in the northern reef. This is fortuitous because the base line studies performed over the years by Humboldt State University, the Partnership for the Interdisciplinary Study of Coastal Oceans (PISCO) monitoring, and MPA follow up to reserve design are all located in the southern reef. This spatial separation minimizes any anthropological disturbances in the science monitoring areas. The results of this study should provide a conceptual framework for the use of local beaches rather than extrapolations from Southern California Beach surveys.

For large segments of the public, their relationship with FKC is visual and involves kinetic movements to take pictures i.e. nature photographs and selfies. There is a national trend of photography but it is particularly evident at FKC. This is due to the growth in technology from facing cameras and the immediacy of social media planforms (Evans). This also seems to be due to an adaptation to environmental forces, such as the cool ambient temperature and cold seas. Two extreme examples of this behavior are visitors taking pictures out of their front windows and then leaving without ever getting out of their car. In another example, a truck driver parked alongside the road and climbed from the cab door straight to his flatbed, took a scenic shot, and then returned to his cab without ever touching the ground. This use of visual beach resources is growing ever larger compared to other more physical beach uses.

Much of the Beach behavior is heavily influenced by environmental factors. These factors are cold ambient air temperatures, cold ocean waters and rough seas. In response to these factors, beach users have moved activities upslope from the ocean, and it is expected this will guide beach behavior on other North Coast beaches. Upslope Beach use at FKC is 86%walking on the beach with warm clothing. This contrasts with a recreational survey at Southern California Beach where walkers were only 5.8% of the activity (Christensen). The 1% contact with the water at FKC is significantly less from the 45% in Southern California waters, where 45% have water contact (Dwight). Sunbathing is an inconsequential use at FKC at 1%, compared to being a major attraction of Southern California beaches at 45%. The colder ambient and ocean temperatures are simply less attractive. Surprisingly, this movement upslope has spilled into the parking lots with photographic activity limiting exposure to the elements.

In conclusion, FKC is a vibrant rural beach located in the heart of the redwoods and Native country. The public has adapted uses up the beach slope and away from the water because of the cool ambient temperature, cold ma-

rine waters and rough seas. The two major uses are walking along the beach and photographing the beach experience. It is predicted that as surveys of other rural northern California beaches occur, the public adaptations to these environmental experiences will be similar. This provides a conceptual framework for the management of marine resources far different than those of Southern California beach uses. The project represents a positive step by Native Americans to gather data for the better management of their natural resources. Clear, well-thought-out protocols are necessary for the credibility of such citizen science data bases. Such statistical projections are in no way a substitute for Traditional Ecological Knowledge and other science as the Tribes choose to present. The study, while always strongly supported locally, was initially determined not to be grant fundable at the state level review committee for a variety of reasons, including a lack of confidence that Native Americans had the capacity to meet deliverables. NCNP proceeded with the study anyway without funding during the early years.

Our recommendations for what future studies should look at are as follows: (1) what is the average time on the beach at False Klamath Cove and North Coast beaches? Our hypothesis is that average beach times will be less in Northern California than for Southern California. This would be based on cooler ambient air, ocean conditions and rougher seas in Northern California. (2) The Federal Highway Modes of transportation is a 2016 phone survey of 300,000 people and is considered the gold standard for extrapolating passenger numbers by vehicle type. Information gathered coterminous with the event would be more accurate and more recent information needs to be gathered. The word "recreation" is very broad and information specific to beach uses would be best, and consumer vehicle patterns have changed recently. Our hypothesis is SUVs will be more frequent than in the past and that beach recreational travel will have different numbers of passengers. (3) Technology and culture changes have made the use of beaches for photography purposes a major and growing activity. So far this major use of beaches has not been quantified and is lacking in current surveys. The current survey found, from a narrow spectrum of data, 65,602 photographic uses of the beach, suggesting the numbers of such uses will be quite large and significant. (4) We recommend the provision of sanitary bathrooms at the beach, as well as better directions and marketing about the availability of the Lagoon Creek parking lot for buses going to False Klamath Cove. (5) The Humboldt Redwoods Park and the Redwood National Park might require the redesign and refinishing of the Northwest parking lot, as mitigation of environmental disruption from Cal Trans long term Last Chance Grade construction work . (6)There needs to be work done with Native Tribes to develop informational signage in their native language. Marine Life Protection Act (MPA Watch) is already committed to developing language that, when approved by the Tribes, can be used by the National Park Service.

Acknowledgements

Thanks to my wife, daughter, and son. Thanks to all of the following: Dr. Laurie Richmond Humboldt State University, building citizen, fishing and Native American participation in Natural Resources, Catherine Khulman former Executive Director of the Ocean Protection Council, Dr. Snezanna Levic, University of London for constant encouragement, Troy Fletcher. The Yurok Tribe: Deceased former Executive Director of the Yurok Tribe, scientists Mike Belchik and Scientists Dave Hilliemier. Fishing Groups: North Coast Surf Fish representative Dennis Mayo, Humboldt Fish Marketing Association representative Vivian Helliwell, Jacque Hostler Fish and Game Commissioner and Executive Director of the Trinidad Rancheria. Blue Ribbon Task Force members Meg Caldwell, juris Doctor currently deputy Director Packard Foundation Ocean Conservation and Science, Roberta Cordera Chumash, Indigenous leadership, Mediator and Jimmy Smith former Humboldt County Supervisor (deceased).

Waklow (Thank You) to my dad, mother, sister, daughter, and son. It's honor to advocate for the protection of Indigenous religious, cultural, and environmental rights for future generations. Much appreciation to the Yurok Tribe Awok' Troy Fletcher who would be proud of this work, Yurok Tribal Council and Council support (nothing would be done without these people). To all the surveyors, data entry, data analysis (Humboldt State University, Rural Center for Collaborative Policy), accountants and editors. To all the people who visited False Klamath Cove! We love you! North Coast Native Protectors invite you to join in our work and projects contact Ruthie A. Maloney (707) 502-9155 or northcoastnativeprotectors@gmail.com.

References

Administration, National Highway. Average Vechcile Occupancy by Mode and Purpose. 2009. https://nhts.ornl.

gov/tables09/fatcat/2009/avo_TRPTRANS_WHYTRP1S.html.

Barclays. "California Code of Regulations ." n.d.

Christensen, J. King, Phillip. "A new Generation's Challenges on the California Coast, Summary Statistics from Beach Intercept Surveys conducted in Southern California in Summer of 2016." Institute of Environment and Sustainability (2016 Summer): 8 Chart Primary reasons people go to beach.

Corbett, John W. Attorney at Law 1973.

Corbett, John W. IRB Not needed for hourly recording of EEOFKC survey Dr. Brater. 2018. email correspondence.

Data, US Climate. July 2021. usclimate data.com/climate/klamath/California/united states.

Dr., Brater. Humboldt State University Institutional Reivew Board. Arcata, CA, 14 July 2017. sb64@humboldt.edu.

Dwigtht, Peter et al. "Beach Attendance and Bathing Rates for Southern California Beaches."

Ocean and Coastal Management (2007): 50 - 19, 87-858.

EDD, California. https://data.edd.ca.gov/en/Labor-Force-and-Unemployment-Rates/Local-Area- Unemployment-Statistics-LAUS-Del-Norte-/jtkp-jzg4/data. n.d. 11-28-2020 November 2020.

Evans, C. "Risky Photography in National Parks: An examination of the role of online identify management in wildlife Risk Perception." Colorado State University , 2018.

Falk, Martin. Impact of weather conditions on tourism demand in the peak summer season over 50 years. City of Encinitas Beach Attendance Report 2016. Encinitas, 2016.

Game, California Fish and. Marine Life Protection Act. Sacramento, July 2010. google. google.com/search=averageocean+temperature+false+Klamath. July 2021.

Health, California Department of Public. n.d.

https://www.cdph.ca.gov/Programs/OPA/Pages/Shellfish-Advisories.aspx.

Maloney, Ruthie MA. "Eagle Eyes of False Klamath Cove MPA Watch Training Manual." July 2019.

Martin, Dr. Interview. John w. c. n.d.

Martin, Steven and Rizzardi, Mark. Personal communications with Humboldt State University faculty 2018-2019.

Meyer, Ryan Dr., Korabik, Angela, Ballard, Heidi Dr. Examining the Role of Community and Citizen Science Projects in Caliofornia Marine Protected Areas. Davis, CA, May 2021.

Park, Redwood National. IRB Permit needed for EEOFKC observational survey John W. Corbett. 2017.

Ramos, Seafha. "Hikelonah Ue Meggetohl In An Ever Changing World." Cooper-Lara, Kishan & Lara, Walt J. Sr. Ka'm-t'em A Journey Toward Healing. Temecula, CA: Great Oak Press, 2019. 85-93.

Ranger, Redwood national Park. Ownership of False Klamath Cove. Orick, CA, 20 July 2021. e- mail.

Schaeffer, R.L., Mendenhall, W., Ott, L. Elementary Survey Sampling, 4th Editiion. PWS-KENT Publishing Company, 1990.

Service, U.S. Fish and Wildlife. How to Develop Survey Protocols, a Handbook . Fort Collins, CO: U.S. Department of Interior, 2013. Version 1.0.

Tribe, Yurok. "Yurok Marine Resources." n.d.

WILDCOAST. "MPA Watch ." n.d.