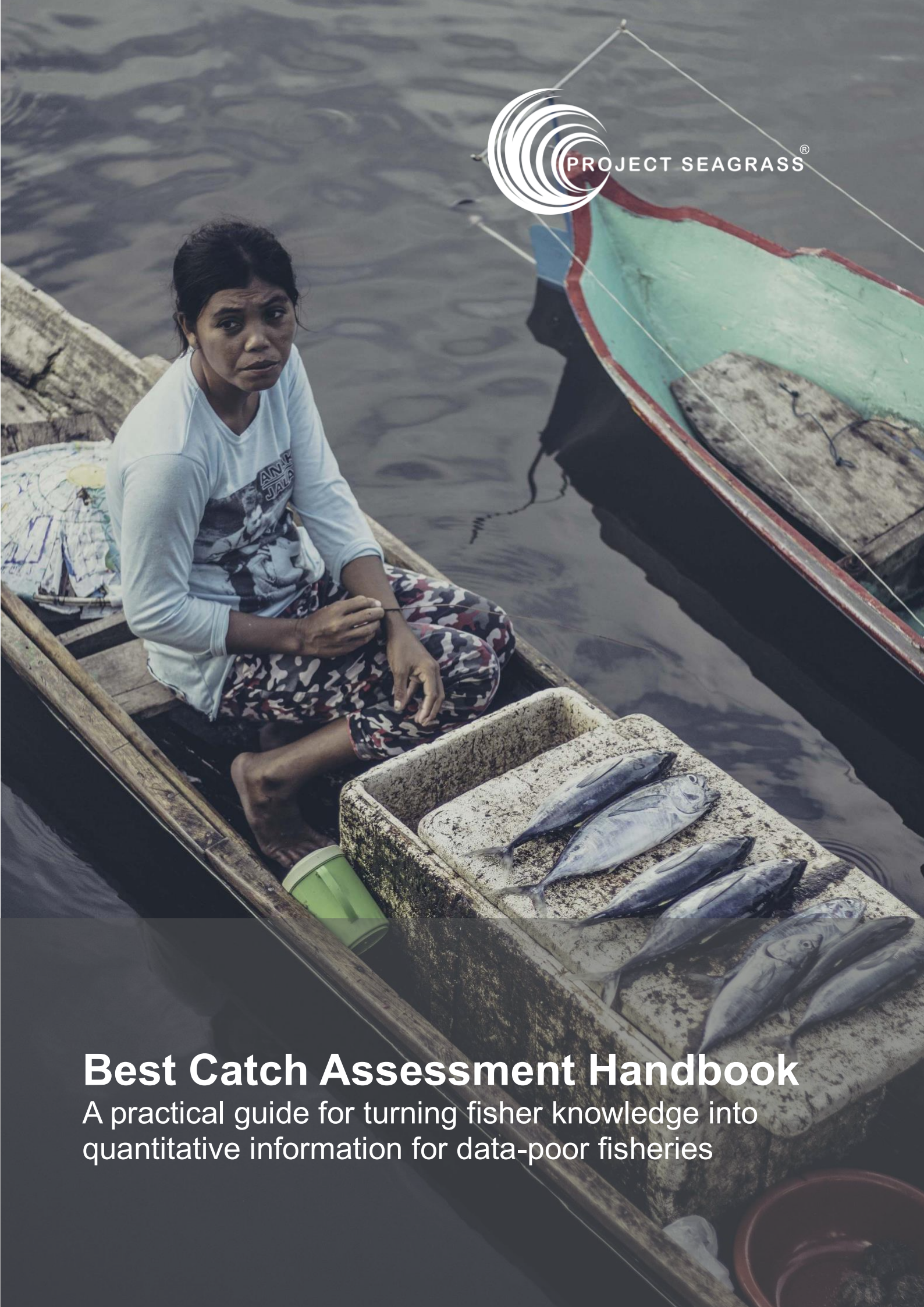

Best Catch Assessment Handbook

A practical guide for turning fisher knowledge into quantitative information for data-poor fisheries

Best Catch Assessment (BECCA) Handbook

A practical guide for turning fisher knowledge into quantitative information for data-poor fisheries

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Acknowledgements
A Best Catch Assessment (BECCA) was developed as a named and standardised approach by Project Seagrass in collaboration with Florida International University, with funding and support from the Bonefish & Tarpon Trust. The approach builds on earlier peer-reviewed work showing that fishers' recollections of best catches, largest individuals, and past catch rates can be used to reconstruct historical change in data-poor fisheries. The development of BECCA has been shaped by fishers, fishing guides, researchers, local partners, and conservation practitioners who have contributed their time, memories, feedback, and trust. In particular, the South Florida, USA applications demonstrate how structured questions about best fishing days can generate quantitative indicators of encounter rates, size structure, and long-term change. Like all community-facing methods, BECCA depends on relationships. It depends on people being willing to share what they know, and on researchers and practitioners being willing to listen, adapt, and return useful results. The handbook should therefore be read not only as a technical guide, but as an invitation to build better conversations between fishers, communities, scientists, NGOs, and managers.

Table of Contents

About this handbook

This handbook introduces the Best Catch Assessment (BECCA) as a practical method for collecting quantitative local knowledge in data-poor fisheries. It is intended to provide a "how to" guide for people who want to document long-term change in fisheries using information held by fishers, harvesters, guides, gleaners, divers, and other local knowledge holders.

The handbook connects practical field steps to the underlying principles of BECCA. It explains why the method focuses on best catches, why responses must include a number and a year, why fishing effort is essential, why respondent diversity matters, and why community validation should be part of the process. It is designed to support implementation by people who may not have advanced technical training, while still maintaining the scientific discipline needed for the results to be credible.

BECCA is not a complete fisheries management system. It is one tool within a wider management and monitoring process. It can help identify trends, recover historical baselines, generate discussion, prioritise future monitoring, and support community-led or co-managed fisheries decisions. It works best when combined with other forms of evidence, including landing records, ecological surveys, participatory mapping, market information, household surveys, biological monitoring, and community interpretation.

Purpose

There are four main reasons for producing this handbook.

First, the handbook provides practical information. It explains the logic of BECCA and gives step-by-step guidance on how to design, implement, analyse, and report a Best Catch Assessment. It is intended to be useful in the field, not only on a bookshelf.
Second, the handbook helps standardise methods that have existed in different forms across fisheries research but have rarely been presented as a coherent and repeatable protocol. Previous studies have used fishers' memories of best catches or largest individuals to reconstruct historical change. BECCA builds from that literature and turns the approach into a named, adaptable method.

Third, the handbook helps make local knowledge more visible in fisheries assessment. Many communities hold deep quantitative knowledge about catch, effort, size, and change, but this knowledge is often lost because surveys ask only general or qualitative questions. BECCA helps practitioners ask questions in a way that allows local knowledge to be analysed without stripping it of context.

Fourth, the handbook is intended to support action. Data-poor fisheries are often not poor in importance. They can be central to food security, livelihoods, culture, recreation, identity, and local economies. By documenting change in a structured way, BECCA can help communities and managers have better conversations about monitoring, stewardship, restoration, access, harvest rules, and long-term fisheries resilience.

Audience

This handbook is designed for local communities, fishing organisations, Indigenous and local knowledge holders, small NGOs, government partners, researchers, and practitioners working in fisheries where formal monitoring data are limited, fragmented, absent, or inaccessible.

It is intended for people who need a practical approach to collecting quantitative fisheries information without building a full stock assessment programme. This may include community-based organisations, fisher associations, Indigenous governance bodies, coastal NGOs, fisheries officers, conservation

practitioners, students, researchers, and local partners implementing projects with limited time and resources. The handbook is especially relevant for fisheries where people remember catch and effort clearly, but where those memories have not been formally recorded. This includes fisheries where catches are eaten at home, traded informally, released after capture, landed across many small sites, harvested by women or marginalised groups, or measured in local units that do not appear in official statistics.

Although BECCA was first developed through recreational flats fisheries, this handbook deliberately takes a broader view. It is written for anyone working in a fishery where a good question, asked consistently across a diverse group of knowledge holders, can help recover a history that would otherwise remain invisible.

Using this handbook

The handbook can be read from beginning to end, but it is also designed to be used as a reference. Practitioners who are new to BECCA should begin with the introductory sections, especially the sections on what BECCA is, why it was developed, and the core principles of number, year, and effort. These sections explain the logic of the method.

Teams preparing for fieldwork should focus on the sections on respondent selection, metric choice, survey structure, ethics, and implementation. These sections explain how to adapt the method to a specific fishery and how to avoid common mistakes.

People analysing results should use the sections on catch per unit effort, standardising to a fishing day, person-hours, gear-specific effort, data quality, and reporting. These sections explain how to turn responses into indicators and how to communicate uncertainty.

The handbook should eventually be used alongside a separate printable BECCA questionnaire. The handbook explains the method; the questionnaire is the field tool. The questionnaire should be adapted to each fishery, translated where necessary, and tested with local partners before use.

Throughout the handbook, examples are provided to show how BECCA might work in different fisheries. Some examples draw from South Florida bonefish and tarpon, where BECCA has already been applied. Other examples are hypothetical and are included to help practitioners imagine how the method could be adapted to gleaning, invertebrate harvesting, trap fisheries, fish fences, and small-scale fisheries. Hypothetical examples should not be treated as evidence from those fisheries. They are teaching examples.

A note on language

Different communities use different words for people who fish or harvest aquatic resources. Some use fisher, fisherman, fisherwoman, harvester, gleaner, collector, diver, guide, angler, crew member, or another local term. This handbook mostly uses “fisher” as a broad and inclusive term, but it also uses more specific terms where needed.

In this handbook, “fisher” can refer to anyone who catches, collects, harvests, targets, encounters, or depends on aquatic species through fishing or harvesting activity. This includes recreational anglers, fishing guides, small-scale fishers, subsistence fishers, commercial fishers, gleaners, invertebrate harvesters, divers, trap fishers, net fishers, and traditional fishing practitioners.

The most important rule is to use the words that make sense locally. If a community uses a specific term for a fishing method, a catch unit, a fishing role, or a harvest area, that term should be recorded. BECCA works best when it begins with the language of the fishery rather than imposing external categories too early.

Context of this handbook

Many fisheries are managed with too little information. This is especially true for small-scale, artisanal, subsistence, gleaning, invertebrate, and recreational fisheries, where catches may be dispersed across many landing sites, fishers may not report formally, and harvest may be used directly for food rather than sold through monitored markets. These fisheries are often described as data-poor, data-limited, or data-less, but those terms can be misleading. The issue is usually not that knowledge is absent. The issue is that knowledge has not been collected in a way that can be analysed, compared, and used in management.

Fishers, gleaners, guides, divers, harvesters, traders, processors, and community members often hold detailed knowledge of how catches, sizes, fishing effort, species composition, and fishing places have changed over time. In many places, this knowledge extends further back than formal monitoring programmes. The challenge is that this knowledge is often collected as stories, opinions, or general perceptions. These forms of knowledge are valuable, but they are difficult to compare or use in management unless they are collected in a standardised way[1,2].

The Best Catch Assessment, or BECCA, provides a simple and repeatable way to turn local fisheries knowledge into quantitative information. It does this by asking fishers to remember their best catches, the year those catches occurred, and the effort required to obtain them. When many responses are combined, these memories can be converted into long-term indicators of relative abundance, catch rates, encounter rates, size structure, and change through time.

BECCA was developed as a named and standardised approach by Project Seagrass in collaboration with Florida International University, with funding and support from the Bonefish & Tarpon Trust. It was first developed and tested through work on South Florida bonefish and later adapted for tarpon[3], but the underlying approach draws on a wider peer-reviewed literature in which fishers' recollections of best catches have been used to reconstruct historical change in data-poor fisheries[4-10].

BECCA is not a replacement for fisheries science. It is a practical bridge between local knowledge and quantitative assessment. It can be used where formal stock assessments are not possible, where long-term monitoring is absent, where conventional catch data do not exist, or where local people need evidence to describe change in the fisheries they depend on.

What is BECCA?

Definition

A Best Catch Assessment (BECCA) is a standardised local knowledge survey that asks fishers or harvesters to report numeric information about their best remembered catch or fishing events. A BECCA records the amount caught or encountered, the year in which the event occurred, the effort required, the fishing method used, and the place or fishing area.

At its simplest, BECCA asks four linked questions. What was your best catch or best fishing day in the current year? What was your best catch or best fishing day in the best year of your fishing life? What was your best catch or best fishing day in the year that you started fishing? How many hours, people, gears, traps, nets, or other effort units were involved?

The most important rule is that each answer must include both **a number** and **a year**. The number might be fish caught, fish seen, shots, eats, hookups, kilograms, pounds, baskets, sacks, bags, bushels, buckets, shells, crabs, or another locally meaningful unit. The year might be 1989, 2003, 2025, or any other year the respondent can remember. Without both a number and a year, the response cannot be used to reconstruct change through time.

A useful BECCA response is not “there were lots of fish when I was young”. A useful BECCA response is “in 1989, my best day was 65 fish in about six hours”. The first statement gives context. The second creates data.

The core BECCA idea

Fishers often remember exceptional fishing events. They remember the day they caught more than usual, the biggest fish, the most productive tide, the best season, the year when fishing was clearly better than it is now, or the place where fishing suddenly changed. These memories are not random stories. They often anchor long-term experience and can reveal how fisheries have changed across decades.

BECCA takes these memories and records them in a structured way. Instead of asking only whether fishing has become “better” or “worse”, BECCA asks how many were caught, how large they were, how many hours were spent fishing, what gear was used, and what year the event happened. This makes it possible to calculate effort-standardised indicators such as fish per hour, kilograms per hour, baskets per person-hour, trap catch per day, shots per standard fishing day, eats per unit effort, hookups per unit effort, or maximum size by year.

The approach is grounded in a simple proposition: a fisher’s best remembered fishing experience can act as an index of the underlying abundance and size structure of a fishery at that point in time. Individual memories can be imperfect, but when many memories are collected consistently, standardised by effort, and aggregated carefully, they can reveal long-term population signals that formal monitoring may have missed[11].

What BECCA is useful for

BECCA is most useful when a fishery has little or no formal long-term data. It can help communities and managers understand whether current catches are lower than remembered historical catches, whether fishers now need to work longer for the same catch, whether the size of fish or invertebrates has changed, whether different places show different trajectories, and whether local knowledge points to management concerns that need further investigation.

BECCA can be applied to recreational fisheries, commercial fisheries, small-scale fisheries, subsistence fisheries, gleaning, invertebrate harvesting, diving fisheries, trap fisheries, handline fisheries, net fisheries, and multi-species fisheries. Its first named applications have been in South Florida bonefish and tarpon fisheries, but the logic is much broader. Previous studies have used closely related best-catch questioning in the Gulf of California, the Red Sea, Brazil, the Philippines, Portugal, and other data-poor fisheries, even where the method was not yet named as BECCA[4-10].

What BECCA is not

BECCA is not a conventional stock assessment. It does not directly estimate total biomass, recruitment, fishing mortality, or maximum sustainable yield unless combined with other data and models. It does not remove the need for landing surveys, biological monitoring, participatory mapping, underwater surveys, fisher logbooks, market surveys, or ecological research.

BECCA is also not a casual perception survey. It should not rely only on vague statements such as “there used to be more fish” or “the fish were bigger before”. These statements are important context, but BECCA only works when responses are converted into numbers linked to years and fishing effort. It is therefore best understood as a structured, quantitative local knowledge method. It generates indicators of change, not absolute certainty.

Why BECCA was developed

The data-poor fisheries problem

Effective fisheries management usually needs information on catch, effort, abundance, size, species composition, fishing location, gear type, and change through time. In many places, this information is missing. Fisheries may be too dispersed, informal, small-scale, remote, or under-resourced to support conventional monitoring. In some recreational and catch-and-release fisheries, fish are not landed, which means harvest records are not available. In gleaning and subsistence fisheries, catches may be eaten at home, shared, bartered, or traded locally, so they never enter formal reporting systems.

This creates a major management problem. Without information, fisheries decline can go unnoticed. Local communities may observe change long before it appears in official records, but their knowledge is often not collected in a form that can influence decisions. BECCA was developed to address this gap.

The original development pathway

BECCA was first developed through work on flats fisheries in South Florida, especially bonefish, and later adapted to tarpon and permit. The original assessment was designed to create a standardised way of using local angler and guide knowledge to reconstruct long-term trends in fisheries where conventional data were limited. This development process had five stages.

The first stage was a review of the wider evidence base[1]. This review showed that Indigenous and local knowledge is increasingly recognised in fisheries science, but that most studies still collect it qualitatively. Few studies convert local knowledge into numeric indicators that can be analysed alongside fisheries data or used directly in assessment and management[1]. The same review identified a smaller group of studies that had asked fishers to recall best catches, largest individuals, catch rates, or past fishing conditions, creating a foundation for a more standardised BECCA protocol.

The second stage was information optimisation. Rather than assuming that only the oldest fishers or recognised experts should be interviewed, the project tested whether smaller but diverse groups could produce reliable estimates of fishery trends. This work supported a Wisdom of Crowds approach[12,13]. Small, diverse groups produced estimates of fishery quality that were similar to those from larger groups and from more experienced or homogeneous groups. In the bonefish optimisation work, a subsample of 66 respondents captured approximately 75% of unique responses, and even groups as small as 20 respondents produced relatively robust estimates in that specific fishery[14].

The third stage was protocol design and beta testing. Questions were refined with recreational anglers and guides to ensure that the survey was understandable, not too long, and capable of producing usable numbers. The target survey length was approximately 10 to 15 minutes. Testing showed that questions needed to use language that fishers already use, such as sightings, shots, eats, hookups, and size, rather than forcing all fisheries into the language of conventional landing statistics.

The fourth stage was implementation. The approach was implemented for bonefish and later adapted for tarpon. In the bonefish assessment, fishers reported their best fishing days in terms of sightings and size. These data were standardised into sightings per unit effort and compared with independent tournament records, showing strong alignment with existing fisheries-dependent evidence[3]. In the tarpon assessment, the method was expanded beyond

landed catch into encounter metrics such as eats and hookups, demonstrating that BECCA can be adapted for catch-and-release fisheries where fish are not necessarily harvested.

The fifth stage was manual development. This handbook builds from that process but broadens the method beyond flats fisheries so that it can be adapted for recreational, small-scale, subsistence, gleaning, invertebrate, trap, net, and traditional fisheries across a range of different habitats and contexts.

The logic of best-catch information

Why ask about best catches?

A common concern is whether people can accurately remember past catches. This concern is valid, but it needs to be treated carefully. People may struggle to remember routine days, average catches, or exact sequences of ordinary events. However, memorable personal events are often recalled more clearly than routine experiences, particularly when they are emotionally significant, unusual, or repeatedly retold[11,15].

Fishing is full of these memorable events. The biggest fish, the fullest net, the best tide, the heaviest basket, or the day when “everything came together” often becomes part of a fisher’s personal history. BECCA deliberately uses this cognitive strength. It asks about memorable high points, not vague averages from the distant past.

This does not mean that all memories are perfect. A respondent may round numbers, confuse dates, or report an event that was influenced by unusual conditions. BECCA manages this uncertainty by asking many respondents the same structured questions, collecting effort data, recording confidence, aggregating responses, and returning results to the community for validation.

Previous uses of best-catch approaches

Although BECCA is newly named and standardised here, best-catch style questioning has a strong history in peer-reviewed fisheries research. Sáenz-Arroyo et al. used fishers’ anecdotes and historical information to reassess the status of Gulf grouper in the Gulf of California[4,5], helping to expose shifting baselines and historical decline. Tesfamichael et al. used fishers’ knowledge from the Red Sea to generate long time series of catch rates[7], including locally meaningful units such as kilograms, boxes, sacks, and bundles. Bender et al. combined local ecological knowledge, landing data, and underwater visual census to reveal overexploitation in a multi-gear artisanal fishery in Brazil[6]. Lavides et al. used fishers’ knowledge in the Philippines to infer coral reef fish disappearances[8]. Leduc et al. used local ecological knowledge to support conservation assessments for data-poor sharks in Brazil[9]. Braga et al. used fishers’ knowledge to reconstruct historical changes in Allis shad in the Minho River between Spain and Portugal[10].

These studies differ in design, species, geography, and terminology, but they share a central insight. Fishers can provide quantitative historical information when they are asked questions that allow them to answer numerically. BECCA takes this wider practice and turns it into a standardised, practical protocol.

Core principles of BECCA

Number, year, effort

The foundation of BECCA is simple. Every usable response needs a number, a year, and an effort measure. The number describes what was caught, seen, hooked, harvested, or collected. The year places that event in time. The effort measure allows comparison between people, gears, places, and years.

A fisher who caught 20 fish in two hours had a different fishing day from someone who caught 20 fish in ten hours. A gleaner who collected two buckets alone in three hours had a different experience from a household group collecting two buckets over a full day. A trap fisher using 10 traps cannot be compared directly with a trap fisher using 100 traps unless the number of traps and soak time are recorded.

The minimum effort variable is the number of hours fished or harvested in a day. Where relevant, BECCA should also record the number of people involved, the number of gears used, the number of traps, the number of hooks, net length, soak time, number of hauls, number of dives, or any other local effort unit that strongly affects catch.

Key takeaway:
A BECCA response should look like this:
"In 1989, my best day was 65 fish."

or:
"In 2004, I collected 3 sacks in one day."

or:
"In 2012, my best day was 18 hookups."

or:
"In 1995, I harvested about 25 kg in 6 hours."

The number and year are the foundation of the method.

Current and past together

BECCA works because it anchors the present against remembered historical baselines. Every survey must ask about the best catch in the current year. This is mandatory. Every survey must also ask either about the respondent's best ever catch or about the best catch in the year they started fishing. The strongest version asks all three.

The current-year question tells us what the fishery looks like now. The best-ever question identifies the point in a respondent's experience when fishing was most productive. The first-year question helps place each fisher's personal baseline in time and is especially useful for detecting shifting baselines across generations.

Use locally meaningful units

Fishers and harvesters do not always speak in kilograms. They may speak in baskets, buckets, bags, sacks, bundles, boxes, coolers, strings, plates, trays, bushels, or boatloads. In recreational fisheries they may speak in shots, follows, eats, hookups, landed fish, or fish weight. These units should not be dismissed. They are often the units by which the fishery is actually remembered, shared, traded, and managed locally.

The role of BECCA is to record the local unit clearly and then standardise it where possible. If someone says they collected three sacks, the interviewer should ask what type of sack,

Key takeaway:
Record the local unit, then ask follow-up questions to standardise it.

For example:

- *"How many fish are usually in one basket?"*
- *"How many kilograms does one full sack usually weigh?"*
- "How many crabs fit in one bucket?"
- "What size is the bag you are referring to?"
- "Is that a household bucket, market bucket, rice sack, feed sack, or another type?"

whether that sack is a common local size, whether it varies by species, and approximately how many individuals or how much weight a full sack represents. The aim is not to erase local measurement systems. The aim is to document them clearly enough that they can be analysed.

Match the metric to the fishery

The best BECCA metric is the one that fishers can report accurately and consistently. In some fisheries this will be number of fish. In others it will be weight. In gleaning fisheries it may be buckets or baskets. In trap fisheries it may be catch per trap per day. In sight-based recreational fisheries it may be shots, eats, or hookups rather than landed fish. In single-species fisheries, size is often critical, because changes in maximum size can reveal changes in population structure even when catch rates are unclear.

The metric should be familiar, countable, linked to a specific year, linked to effort, and comparable across respondents after standardisation.

Wisdom of Crowds: who should be interviewed?

Diversity is the design principle

The most important sampling principle in BECCA is diversity. A good respondent pool should include people with different levels of experience, different ages, different gears, different fishing areas, different roles, and different relationships to the fishery.

Older and more experienced fishers are essential because they extend the dataset backwards. They may remember conditions before formal monitoring began, before major habitat change, before market expansion, before new regulations, or before a fishery became commercialised or recreationally important. Their knowledge helps recover historical baselines that would otherwise disappear.

Younger and newer fishers are equally essential because they anchor the present. They provide information on current catches, current effort, current fishing areas, and recent change. They also prevent the dataset from becoming overly weighted toward the past. If a BECCA only interviews older experts, it may produce a rich historical story but a weak picture of current fishing. If it only interviews current active fishers, it may describe the present well but miss the scale of historical change. A strong BECCA needs both.

This is the central Wisdom of Crowds logic. The aim is not to identify one perfect expert. It is to combine many partial views into a stronger collective estimate. In the bonefish optimisation work, small but diverse respondent groups performed as well as, and in some cases better than, homogeneous groups of highly experienced fishers. This supports a practical rule: prioritise diversity before prestige [14].

Why not only interview experts?

Expert fishers matter, but “expert-only” sampling can introduce bias. Highly experienced fishers may cluster in older age groups, use particular gears, fish particular places, or represent a specific social group. They may remember the past extremely well, but they may not represent current fishing patterns. Conversely, newer fishers may not know what the fishery was like decades ago, but they may be the best source of information on current catch rates, present-day effort, and recent changes in behaviour.

A BECCA should therefore seek a respondent pool that spans as many years as possible. The ideal dataset includes people who began fishing in different decades. Someone who started fishing in 1975 helps reconstruct the 1970s and 1980s. Someone who started in 1995 helps reconstruct the 1990s and 2000s. Someone who started in 2020 helps anchor the current baseline. Together, these respondents create a time series that no single fisher can provide alone.

Practical sampling guidance

There is no universal sample size that works for every fishery. A small village fishery may only have 20 active harvesters. A regional recreational fishery may have hundreds or thousands of participants. The practical goal is to interview enough people to capture the diversity of the fishery and enough people within each important area to avoid one or two voices dominating the pattern.

For a very small fishery, the best strategy may be to interview as many active and former fishers as possible. For a small community fishery, 20 to 40 respondents may provide a useful first assessment. For a medium-sized fishery, 50 to 75 respondents is a stronger target. For a large regional fishery, 75 or more respondents is preferable, especially if the fishery is divided across multiple regions. Where spatial comparisons are important, a useful working target is at least 20 to 25 respondents per important region, while recognising that this may not always be possible.

Recruitment can combine open community invitations, fisher association networks, landing site interviews, guide networks, women's harvesting groups, market contacts, local partner recommendations, snowball referrals, and public survey links. The final report should always explain how respondents were recruited and which groups may be underrepresented.

Key takeaway:
As a practical guide:

- **Very small fishery**: interview as many active and former fishers as possible.
- **Small community fishery**: aim for 20 to 40 respondents if possible.
- **Medium fishery**: aim for 50 to 75 respondents.
- **Large regional fishery**: aim for at least 75 respondents, and more where possible.
- **Spatially divided fishery**: aim for at least 20 to 25 respondents per important area, where feasible.

Choosing the right catch metric

The metric should come from the fishery

Before designing the questionnaire, the field team should ask local partners and fishers a simple question: “When people talk about a good fishing or harvesting day here, what unit do they use?” The answer will often reveal the best BECCA metric.

If people say “we count the number of fish”, use number of fish. If they say “we sell by basket”, record baskets and convert them. If they say “we remember the biggest one”, include a size metric. If they say “we rarely land the fish, but we know how many shots or hookups we had”, use encounter metrics. If they say “the catch depends on how many traps were soaked overnight”, use catch per trap per soak or catch per trap per day.

The table below provides guidance, but it should not be treated as a fixed template. BECCA should be adapted to local fishing practice.

Table 1. Types of fishery with possible best catch metrics.

Fishery type	Possible BECCA metric	Effort variable	Practical note
Recreational sight fishing	shots, follows, eats, hookups, landed fish, maximum size	hours fished per angler	Useful where fish are not always landed. Early encounter metrics may reflect availability better than landed catch.
Recreational bait or lure fishing	bites, hookups, landed fish, released fish, kept fish, maximum size	hours fished per angler	Separate landed, released, and retained fish where possible.
Catch-and-release fisheries	encounters, bites, hookups, landed fish, fish length or weight	hours fished per angler	Do not rely only on harvest because harvest may be zero.
Small-scale handline fishery	number of fish, weight, baskets, boxes, bundles	hours fished per fisher or crew; number of hooks	Record hook number if this strongly affects catch.
Net fishery	number of fish, weight, baskets, boxes	soak time, net length, mesh size, hours fished	Gear details strongly affect catch.
Seine or drag net fishery	weight, number of fish, baskets, boxes	number of hauls, hours, crew size, net size	Catch may be standardised per haul as well as per hour.
Trap, pot, or basket fishery	number of individuals, weight, baskets	number of traps, soak time, hours checking traps	CPUE may be catch per trap per day.
Fish fence or weir fishery	number of fish, weight, baskets, sacks	days set, tide cycles, fence length, number of fishers	Effort may need a locally defined unit.

Fishery type	Possible BECCA metric	Effort variable	Practical note
Gleaning	buckets, bags, bowls, number of individuals, weight	hours gleaned per person	Record whether catch is individual, household, or group catch.
Shellfish or invertebrate harvesting	number of individuals, weight, bags, buckets, baskets	hours harvested per person; area harvested if known	Size metrics may be shell length, carapace width, or market grade.
Diving fishery	number of individuals, weight, sacks, bags	dive hours, number of divers, number of dives	Separate boat time from underwater search time if possible.
Multi-species artisanal fishery	total catch weight, species-specific catch, baskets, boxes, sacks	hours fished, gear, crew size	Record species groups clearly.

Gleaning and invertebrate harvesting

In gleaning and invertebrate harvesting, catch is often remembered in containers rather than formal weights[16,17]. A female gleaner may say that her best day was “four buckets of cockles”, “two bags of clams”, or “a basket of crabs”. These are valid BECCA responses if the unit is documented clearly.

A hypothetical BECCA in a coastal invertebrate gleaning community might begin with a short conversation about how people usually describe a good collecting day. If most harvesters talk in buckets, the survey should use buckets first and then ask how large the bucket is, whether it is a household bucket or market bucket, and approximately how many invertebrates or kilograms fit in one full bucket. The interviewer might also ask whether the bucket is filled to the top, whether mud and shell are included, and whether the same bucket is used by most people.

The best current-year question might be:

“Thinking about this year, what was your best day collecting cockles on the flats? How many buckets did you collect, how many hours were you out, and how many people were collecting with you?”

The historical question might be:

“Thinking back across your collecting life, what was the best day you ever had? What year was that, how many buckets did you collect, and how many hours were you collecting?”

In this example, the analysis could produce buckets per person-hour, estimated kilograms per person-hour, or estimated individuals per person-hour. If shell size is important, a size question could ask about the largest shell or the typical size class that people remember from different periods.

Artisanal and small-scale fisheries

In artisanal and small-scale fisheries, catch units may vary by gear, species, community, and market. One community may describe catch by number of fish, another by boxes, another by baskets, and another by sacks or bushels [7]. The survey should accept the locally meaningful unit and then document it carefully.

A hypothetical BECCA in a small-scale handline fishery might ask fishers about their best day catching reef fish. A fisher might report that in 1998, their boat caught six baskets in a day using handlines on the outer reef. The interviewer would then ask how many people were on the boat, how many hours they fished, how many hooks were used if known, what size basket was used, and whether six baskets represented the whole boat or the fisher's individual share. The same respondent would then be asked about their best day in the current year using the same species group and method.

A hypothetical BECCA in a trap fishery would need a different effort measure. If the catch depends mainly on the number of traps and soak time, the core indicator may be catch per trap per day rather than catch per hour.

The question might ask:

"In your best trap fishing day this year, how many crabs did you catch, how many traps were set, and how long had they been soaking?"

A historical version would ask for the same information in the respondent's best ever year.

A hypothetical BECCA for a fish fence or weir fishery may need to use tide cycles or days set as the effort unit. If a fisher says the best catch came after a spring tide, the interviewer should record the number of tide cycles, the number of people involved, and whether the catch was from one fence, one section of fence, or a shared community structure.

Recreational fisheries

In some recreational fisheries, especially sight-based fisheries, landed catch may be a poor indicator of fish abundance. A fishing day involves several stages: finding fish, having an opportunity to cast, getting a follow, getting an eat, hooking the fish, landing the fish, and then releasing or keeping it [18]. Each stage can fail for reasons unrelated to abundance. Weather, visibility, fisher skill, line breakage, handling, or fish behaviour may determine whether a fish is landed [14].

For this reason, BECCA can use earlier-stage interaction metrics. In South Florida, respondents were asked separately about their best day in terms of shots, and size[3]. The survey made clear that the best day for shots and the largest fish could all fall in different years. This matters because each metric captures a different part of the fishing process. Shots represent fish opportunities to cast, which occurs before landing and can therefore be less affected by fight duration, gear failure, or handling than landed catch alone.

For recreational fisheries, the field team should work with fishers to identify the interaction metrics that are widely understood. A tarpon fisher may speak naturally about eats and hookups. A bonefish fisher may speak about sightings, shots, or follows. A lure fisher may speak about bites and landed fish. The words should come from the fishery.

The minimum BECCA question structure

Opening language

The opening script should be simple, respectful, and transparent. It should explain that the survey is not designed to judge individual fishing activity, but to understand long-term change in the fishery. For example:

"We are asking fishers and harvesters about their best catches, both now and in the past. We are doing this because many fisheries do not have long-term catch records, but local fishers often hold detailed knowledge of how catches have changed. We are not asking this to check or judge individual fishing activity. We are trying to understand long-term change in the fishery. Your answers will be combined with other fishers' answers and reported as community-level patterns, not as individual records."

Respondent background

The background section should establish who the respondent is in relation to the fishery, how long they have been involved, where they fish or harvest, and how much effort they normally expend. In a community fishery this may be done conversationally. In an online survey it may be asked through short, fixed questions.

At minimum, the survey should record the respondent's role, year they started fishing or harvesting, years of experience, main fishing area, main gear or method, typical number of fishing or harvesting days per year, and typical number of hours per fishing or harvesting day. Where appropriate and ethical, age and gender can be collected to assess whether the respondent pool is diverse.

Current year best catch

The current-year question is mandatory. It anchors the assessment in present conditions and provides the comparison point for historical best catches.

A general version is:

Thinking about the current year, what was your best fishing or harvesting day for [species or fishery]? How much did you catch, collect, see, hook, or encounter on that day? How many hours did you fish or harvest? What gear or method did you use? Where did this happen?

Best-ever catch

The best-ever question reconstructs historical peaks. It should be asked separately for each major metric. The best day for catch amount may not be the same as the best day for size.

A general version is:

Thinking across your whole fishing or harvesting life, what was your best ever day for [species or fishery]? What year was this? How much did you catch, collect, see, hook, or encounter? How many hours did you fish or harvest? What gear or method did you use? Where did this happen?

First-year catch

The first-year question is especially valuable for shifting baseline analysis. It links each respondent's starting point to a catch amount and year.

A general version is:

Thinking back to the year you started fishing or harvesting [species or fishery], what was your best catch or best fishing/harvesting day in that first year or early period? What year was this, how much did you catch, and how many hours did you fish or harvest?

This question may be difficult for some respondents, especially if they started fishing as children. If they cannot remember the exact first year, an early-career period can be used, but the uncertainty should be recorded.

Size questions

For single-species fisheries, or fisheries where body size is central to value, ecology, or management, BECCA should include a size metric. Size can be reported as weight, length, shell length, carapace width, market grade, or another locally meaningful measure.

The question should make clear that the largest individual may come from a different year than the largest catch. For example:

Thinking across your whole fishing life, what was the largest [species] you ever caught or harvested in this area? What year was this, how large was it, and was that size measured, weighed, estimated, sold at market, photographed, or remembered visually?

Survey delivery options

BECCA can be delivered in person, online, by phone, or through a mixed approach. The right delivery method depends on the fishery, literacy, internet access, trust, language, and local partner capacity.

In-person interviews are often best for small-scale, subsistence, Indigenous, rural, and gleaning fisheries. They allow the interviewer to explain questions, clarify local units, use photographs or containers, and build trust. They are also more appropriate where sensitive livelihood information is being collected.

Online surveys can work well where respondents are digitally connected, such as recreational fisheries, guide networks, or formal fisher associations. A bonefish BECCAs used online structured surveys designed to be completed on phones and computers [3]. This allowed rapid data collection across a large region, but it relied on strong networks, clear language, and a respondent group comfortable with digital tools.

Text message or mobile surveys may be useful for repeated low-burden monitoring after an initial full BECCA. For example, fishers might be asked once per season to report their best day, number of hours, and area. This is not a full BECCA by itself, but it can help keep current-year data updated.

Focus groups are useful for designing the survey, agreeing local terms, checking unit conversions, interpreting trends, and validating findings. However, individual catch histories should usually be collected individually, because group settings can influence responses[1].

How to calculate BECCA indicators

Catch per unit effort

The basic BECCA calculation is catch-per-unit-effort. In the simplest case:

Catch per hour = catch amount / hours fished or harvested

If a fisher caught 40 fish in five hours, the catch rate is eight fish per hour. If a gleaner collected three baskets in six hours, the catch rate is 0.5 baskets per hour. If an angler had 18 hookups in four hours, the hookup rate is 4.5 hookups per hour.

Standardising to a fishing day

It is often easier to communicate results as catch per standard fishing day. This is calculated by dividing catch by reported hours and multiplying by a locally defined standard day.

Catch per standard day = (catch amount / hours fished) × standard day length

In the bonefish BECCA, sightings were standardised by dividing reported sightings by each respondent's reported hours per trip and multiplying by the average fishing day length across all respondents. This produced sightings per standardised fishing day. The same logic can be used for eats per day, hookups per day, fish per day, baskets per day, or kilograms per day.

The length of a standard day should be chosen locally and reported clearly. It might be six hours, 7.5 hours, eight hours, or another locally meaningful value.

Person-hours and group catch

Many fisheries involve group effort. If four people collect eight buckets in four hours, the catch should not be treated as one person collecting eight buckets. Total effort is four people multiplied by four hours, or 16 person-hours. The catch rate is therefore 0.5 buckets per person-hour.

This is especially important for gleaning, seining, netting, crew-based fishing, fish fences, and household harvesting. Every BECCA should ask whether the reported catch was for one person, one boat, one crew, one household, or a larger group.

Gear-specific effort

In some fisheries, hours alone may not be enough. A trap fisher using 100 traps is not comparable to a trap fisher using 10 traps. A net fisher using a 500 m net is not comparable to one using a 50 m net. A fisher using 20 hooks is not comparable to one using two hooks.

Where gear strongly affects catch, BECCA should record gear effort. The analysis may then use catch per trap per day, catch per hook per hour, catch per metre of net per soak, catch per haul, catch per tide cycle, or catch per diver-hour. This does not mean every BECCA needs complex effort metrics. It means the field team should understand the fishery well enough to choose the effort measure that makes comparisons fair.

Size indicators

Size is usually not divided by effort. Instead, size is plotted by year, decade, region, or respondent cohort. Size metrics can include largest fish weight, largest fish length, shell size, carapace width, or market grade. In the bonefish and tarpon BECCAs, maximum size was treated separately from encounter metrics because the largest fish reported by a respondent could occur in a different year from their best encounter day.

Aggregating responses

After effort-standardising individual responses, the data can be grouped by year, decade, region, species, gear type, fishing area, respondent group, or management zone. For each group, the analysis should report the number of respondents contributing to the estimate. Means, medians, confidence intervals, and uncertainty ranges can then be calculated depending on the sample size and technical capacity of the team.

For community-facing reports, simple visualisations are often more useful than complex statistical outputs. A line showing catch per standard day through time, with the number of respondents contributing to each decade, can be more powerful than a technical model that communities cannot interpret.

Data quality and validation

BECCA relies on memory, so uncertainty should be expected and managed rather than ignored[3,11,14]. Respondents may round numbers, be unsure of the exact year, report group catches as individual catches, or use local units that vary between people. Gear may have changed through time. Access, regulations, markets, and habitat conditions may also have changed. These are not reasons to avoid BECCA, but, they are reasons to design it carefully.

A strong BECCA records respondent confidence, asks why the event is remembered, distinguishes individual from group catch, records the gear used, records the hours fished or harvested, and documents whether the unit is exact, estimated, or locally converted. Responses can then be assigned simple quality flags. A high-quality response includes a clear number, year, effort, gear, unit, and area. A lower-quality response may be missing effort or have an uncertain unit. Responses without a number or year should not be used in the main time-series analysis.

Community validation is recommended. Results should be returned to fishers and harvesters before final reporting where possible. This can happen through community meetings, fisher association meetings, small focus groups, local partner workshops, online sessions, printed summaries, or local language briefings. The purpose is not to check every number. It is to ask whether the overall pattern makes sense, whether important context is missing, whether any groups were underrepresented, and whether the interpretation is fair.

Good validation discussions ask whether the trends match local experience, whether there are years that look wrong, whether storms, regulations, market changes, access changes, habitat loss, or gear changes explain the pattern, and what actions should follow.

Ethics and community safeguards

BECCA should never be treated as a way to extract knowledge from communities without returning value. Fishers and harvesters are contributing information that may relate to livelihoods, food security, cultural practice, identity, access rights, and management decisions. They should understand why the information is being collected, how it will be used, who will see it, and how results will be returned.

Catch information can be sensitive. It may reveal fishing grounds, high-value species, illegal activity, customary practices, or livelihood dependence. The survey should avoid collecting personally identifiable sensitive information unless it is necessary and consented.
Where possible:

- anonymise individual responses;
- report results at community or regional level;
- avoid publishing exact fishing spots without permission;
- store data securely;
- explain who will have access;
- avoid using results to punish individual fishers; and
- discuss risks with local partners before publication.

Where BECCA is used with Indigenous Peoples or customary communities, the process should follow local protocols and principles of free, prior, and informed consent. Communities should be involved in deciding what is asked, how data are stored, who owns the data, who can access the data, and how results are shared.

BECCA can reveal decline. Decline may lead to calls for restrictions, closures, gear changes, habitat protection, or restoration. These decisions can affect livelihoods. Findings should therefore be discussed with communities before being converted into policy recommendations. The method should support fairer management, not top-down control based on extracted knowledge.

Sample ethics and consent form

Participant information sheet

Project title: Best Catch Assessment for [fishery/species/community]

Who is carrying out this work?
This assessment is being carried out by [organisation/local partner/research team] in collaboration with [community/fisher group/management partner].

Why are we doing this assessment?
Many fisheries do not have long-term catch records, but fishers and harvesters often hold detailed knowledge of how catches have changed. This assessment asks about best catches now and in the past so that we can better understand long-term change in [species/fishery].

What will I be asked?
You will be asked about your fishing or harvesting experience, the year you started, your best catch or best fishing day in the current year, your best catch or best fishing day in the past, the amount caught or encountered, the year it happened, the effort involved, the fishing method used, and the general area. The interview should take approximately [10–20] minutes.

Do I have to take part?
No. Taking part is voluntary. You can choose not to answer any question, and you can stop the interview at any time.

Will my answers be anonymous?
Your individual answers will not be reported with your name. Results will be combined with responses from other fishers and reported as community-level or regional patterns. If we want to use your name, quote you directly, or show a photograph of you, we will ask for separate permission.

Are there any risks?
Some catch or location information may be sensitive. We will not publish exact fishing locations or individual catch records unless this has been agreed. If any question makes you uncomfortable, you do not have to answer it.

What are the benefits?
The assessment will help document local knowledge and may support better understanding, monitoring, and management of the fishery. Results will be shared back with [community/fisher group/local partner] in [meeting/report/briefing/dashboard].

Who will use the information?
The information may be used by [community/local partner/research team/management agency] to understand fishery change. It may also be included in reports, presentations, or publications, but individual respondents will not be named unless they have given explicit permission.

Who can I contact?
If you have questions, contact [name, organisation, phone/email].

Consent statement

Before starting the survey, the interviewer should read or summarise the following statement:

I have been told what this assessment is about. I understand that taking part is voluntary, that I can skip questions, and that I can stop at any time. I understand that my answers will be combined with answers from other fishers and that my name will not be used in reports unless I give separate permission. I agree to take part in this Best Catch Assessment.

Record consent as verbal or written depending on local ethics requirements.

Participant agrees to take part: Yes / No
Consent type: Verbal / Written
Date:
Interviewer:
Participant name or anonymous code:

Optional permissions
These should be asked separately from the main consent.

May we contact you again to check results or invite you to a community feedback meeting? Yes / No
May we use anonymous quotes from your interview? Yes / No
May we take or use a photograph of you for the report? Yes / No
May we record the interview for note-checking only? Yes / No

Hypothetical worked examples

Example 1: A catch-and-release tarpon-style fishery

A local NGO wants to understand whether a catch-and-release tarpon-like fishery has changed over time. Fish are rarely kept, so landing data are almost useless. Fishers and guides, however, talk constantly about the number of eats and hookups they have in a day. The survey therefore focuses on eats, hookups, and maximum fish size.

Respondents are first asked how many years of experience they have, how many days they typically fish each year, how many hours they fish in a typical day, and what proportion of their fishing occurs in each region. The survey then asks about each region where they spend at least 10% of their fishing time. For each region, they are asked for their best ever day in terms of eats, their best ever day in terms of hookups, and the largest fish they ever caught. Each question asks for the year and the number. The survey then asks the same questions for the current year.

The analysis produces eats per standard fishing day, hookups per standard fishing day, and maximum size by year. Because the best day for eats may differ from the best day for size, the survey treats these as separate memories. This allows the assessment to show whether encounter rates and size structure have changed in the same way or whether they tell different stories.

Example 2: An invertebrate gleaning fishery

A coastal community collects invertebrates from intertidal seagrass meadows. Most harvest is eaten locally or sold informally, so there are no landing records. Harvesters describe catch in buckets, not kilograms. During the survey design meeting, local women explain that a “bucket” usually means a 10-litre household bucket filled to the rim, although some households use larger containers.

The BECCA asks each harvester about their best collecting day this year, their best ever collecting day, and their best collecting day when they first started. For each event, the interviewer records the number of buckets, the year, the number of hours spent collecting, the number of people collecting, the tide or season if remembered, and the general collection area. A short local unit exercise is then used to estimate how many invertebrates and how much weight one full bucket usually represents.

The analysis produces buckets per person-hour and, where conversion is reliable, kilograms per person-hour. The community validation meeting then helps interpret whether declines are linked to harvesting pressure, sediment change, water quality, market demand, access restrictions, or changes in who collects.

Example 3: A trap-based crab fishery

A small-scale crab fishery uses baited traps set overnight. Fishers do not think of catch in hours because the traps fish while they are away. They think in terms of number of crabs per trap set. The BECCA therefore records catch, number of traps, and soak time.

A fisher might say that in 2007 their best day was 300 crabs from 50 traps soaked overnight. In the current year, their best day might be 120 crabs from 80 traps. If the analysis used catch alone, the decline would appear moderate. But when standardised by trap effort, the change is much clearer. The historical best catch was six crabs per trap per soak, while the current

best catch is 1.5 crabs per trap per soak.This example shows why effort matters. Without effort standardisation, BECCA can misread the fishery.

Example 4: A multi-species reef handline fishery

A reef handline fishery catches many species, and fishers sell catch in baskets at the landing site. During survey design, the field team learns that fishers can remember total baskets well, but species-specific baskets less reliably. The BECCA therefore records total reef fish catch, but also asks whether the catch was dominated by snapper, grouper, parrotfish, emperor, or mixed reef fish.

A respondent reports that their best day in 1995 was eight baskets from a six-hour trip with three crew. Their current-year best day was three baskets from seven hours with four crew. The analysis can calculate baskets per boat-hour and baskets per person-hour. If basket weight can be estimated, the data can also be converted to kilograms per person-hour.

The community validation discussion may reveal that catch composition has changed even where total baskets appear stable. This can trigger a follow-up survey or a more detailed species-specific BECCA.

Example 5: A traditional fish fence or weir fishery

A traditional fish fence catches fish moving with the tide. Fishers describe the best catches by sacks and by tide cycles, not by hours. The BECCA therefore records the year, number of sacks, number of tide cycles, number of people involved, and whether the catch came from one fence, one section, or a shared community structure.

The analysis may use sacks per tide cycle, or estimated kilograms per tide cycle if sack conversion is reliable. If the fish fence has changed in size or construction over time, this is recorded as context. The final report should be careful not to compare catches across decades without explaining changes in fence length, location, ownership, or access.

Field implementation plan

Before the survey

Before launching a BECCA, the team should define the fishery, the target species or species group, the study area, and the intended use of the results. A short design meeting with local partners and fishers should identify local catch units, gear types, fishing areas, sensitive questions, and the most appropriate survey format. The survey should then be translated where necessary, piloted with a small number of people, and revised before wider rollout.

Pilot testing is essential. The bonefish BECCA was beta tested with anglers and guides of varying experience before launch. This helped refine question wording, reduce burden, and ensure that the survey produced usable numeric responses.

During the survey

During the survey, the interviewer should explain the purpose clearly, obtain consent, ask the minimum BECCA questions, and record numbers exactly as given. Local units should be recorded without judgement. If a respondent uses an unfamiliar unit, the interviewer should ask follow-up questions to clarify it. The interviewer should also record whether the catch was individual or group catch, what gear was used, how many hours or gear units were involved, and how confident the respondent is in their answer.

After the survey

After the survey, the team should check that each response includes a number, year, unit, effort, gear, and area. Local units should be converted where possible. Catch per unit effort should be calculated using the most appropriate effort measure. Uncertain responses should be flagged rather than hidden. Trends should then be summarised by year, decade, area, gear, or respondent group, depending on the question being asked.

The results should be shared back with the community before final reporting. This step is not optional good practice; it is part of making BECCA credible, ethical, and useful.

Recommended outputs

A BECCA should produce outputs that communities and managers can understand. At minimum, the report should show current best catch per unit effort, historical best catch per unit effort, change through time, size trends where relevant, regional or gear-based differences where sample size allows, and a clear statement of sample size and uncertainty.

A strong BECCA report also includes community interpretation. The numbers may show decline, recovery, stability, or spatial difference, but fishers often know why those patterns might exist. Habitat change, market demand, gear shifts, regulations, storms, pollution, access restrictions, tourism, conflict, and changes in fisher behaviour can all shape catch rates. BECCA should therefore report the quantitative pattern and the local interpretation together.

Reporting BECCA results

BECCA reports should use careful language. Avoid saying that BECCA “proves” a stock has declined. Instead, use language such as: “Fishers’ reported best catches suggest a long-term decline in catch-per-unit-effort”, “Local knowledge indicates that current best catches are lower than remembered historical best catches”, or “Reported maximum size has declined over time, suggesting a possible change in size structure”.

Every result should report the number of respondents contributing to it. A trend based on 80 respondents is different from a trend based on six. Older years often have fewer respondents because fewer people were fishing then or fewer older fishers remain available. This does not make older information useless, but it means uncertainty should be communicated clearly.

A good report separates what the numbers show, what fishers think explains the pattern, what other evidence supports or challenges the pattern, and what management or monitoring actions may follow. It should also include limitations. Common limitations include small sample size, underrepresentation of some groups, uncertain local unit conversions, changes in gear through time, reliance on best catches rather than average catches, and the fact that BECCA estimates relative change rather than total stock size.

Practical checklist

A BECCA is valid only if it collects the current-year best catch, at least one historical benchmark, a number for each catch, a year for each catch, effort, catch unit, gear or method, respondent experience, and enough responses to produce a meaningful community-level pattern.

A stronger BECCA collects current-year best catch, best-ever catch, first-year catch, size information, local unit conversions, gear details, fishing area, confidence, community validation, data quality flags, transparent reporting, and a plan for repeat surveys.

Where possible, BECCA should be repeated every two to five years. A three-year cycle is often practical. Repeating the survey allows new current-year data to be added while preserving historical baselines from earlier respondents. Over time, BECCA can become a lightweight community monitoring system.

Glossary

Best catch
The highest catch, best fishing day, best harvesting day, greatest number of encounters, or largest individual remembered by a respondent for a defined species, fishery, place, and year.

BECCA
Best Catch Assessment. A standardised method for collecting numeric local knowledge about current and historical catches, encounters, effort, and size.

Catch-per-unit-effort (CPUE)
Catch divided by a measure of effort, such as hours fished, person-hours, trap-days, boat-days, or gear-days.

Effort
The amount of fishing or harvesting activity used to obtain a catch. This may include hours, number of people, number of traps, net length, soak time, number of hooks, number of dives, or number of hauls.

Encounter
A fishery interaction that may occur before capture, such as a sighting, shot, follow, bite, eat, or hookup in recreational fisheries.

First-year catch
The best catch remembered from the year, or early period, when a respondent started fishing or harvesting.

Gleaning
Collection of marine organisms by hand or simple tools, often in intertidal or shallow-water habitats.

Local unit
A locally meaningful measure of catch, such as a basket, sack, bucket, box, string, bundle, bushel, cooler, or market container.

Person-hour
One person fishing or harvesting for one hour. Four people harvesting for three hours equals twelve person-hours.

Standard fishing day
A locally chosen number of hours used to make catch rates easier to compare and communicate.

Wisdom of Crowds
The principle that combined estimates from diverse groups can be more reliable than estimates from a small number of similar individuals.

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Best Catch Assessment (BECCA) Questionnaire

Best Catch Assessment (BECCA) Questionnaire

A printable field form for collecting quantitative fisher knowledge in data-poor fisheries

How to use this questionnaire

This questionnaire is designed to be used alongside the Best Catch Assessment (BECCA) Handbook. The handbook explains the method and this questionnaire is the field tool.

The questionnaire has a core section that should be used in every BECCA. It then includes optional modules that can be added depending on the fishery. Field teams should adapt the wording, species names, local places, gear categories, and catch units before printing or programming the survey into a digital form.

The most important rule is simple: every usable BECCA response must include a number, a year, and an effort measure. If one of these is missing, the response may still be useful context, but it cannot be used properly in the main quantitative analysis.

This questionnaire can be completed as an interview, a self-completed paper form, an online form, or a phone-based survey. For most community fisheries, an interviewer-led format is recommended because it allows local units, effort, and uncertainty to be clarified.

Interviewer checklist before starting
Before beginning, the interviewer should confirm that the respondent understands the purpose of the assessment and has agreed to take part. The interviewer should also make clear that the assessment is not judging individual fishing activity and that responses will normally be reported only as combined community-level or regional patterns.

During the interview, record the respondent's words as accurately as possible. Do not force people into kilograms or scientific categories too quickly. If they describe catch in baskets, buckets, bags, sacks, bushels, strings, coolers, or another local unit, record that unit first. Then ask follow-up questions so the unit can be described and, where possible, converted later.

Before finishing each interview, check that each best-catch response includes:

Required item	**Current year best catch**	**Best-ever catch**	**First-year or early-career catch**
Catch or encounter number	☐	☐	☐
Year	☐	☐	☐
Unit	☐	☐	☐
Hours or effort measure	☐	☐	☐
Gear or method	☐	☐	☐
Area or place	☐	☐	☐
Individual, boat, household, crew, or group catch	☐	☐	☐
Confidence recorded	☐	☐	☐

Participant information and consent

Participant information

Project title: Best Catch Assessment for _____

Who is carrying out this work?
This assessment is being carried out by:

Organisation / local partner: _____

Contact person: _____

Phone / email: _____

Why are we doing this assessment?
Many fisheries do not have long-term catch records, but fishers and harvesters often hold detailed knowledge of how catches have changed. This assessment asks about best catches now and in the past so that we can better understand long-term change in this fishery.

What will you be asked?
You will be asked about your fishing or harvesting experience, the year you started, your best catch or best fishing day in the current year, your best catch or best fishing day in the past, the amount caught or encountered, the year it happened, the effort involved, the fishing method used, and the general area.

The interview should take about: _____ minutes.

Do you have to take part?
No. Taking part is voluntary. You can choose not to answer any question, and you can stop the interview at any time.

Will your answers be anonymous?
Your individual answers will not be reported with your name. Results will be combined with responses from other fishers and reported as community-level or regional patterns. If we want to use your name, quote you directly, or show a photograph of you, we will ask for separate permission.

Are there any risks?
Some catch or location information may be sensitive. We will not publish exact fishing locations or individual catch records unless this has been agreed. If any question makes you uncomfortable, you do not have to answer it.

What are the benefits?
The assessment will help document local knowledge and may support better understanding, monitoring, and management of the fishery. Results will be shared back with the community or local partners where possible.

Consent statement
Interviewer: please read or summarise this statement before starting.

I have been told what this assessment is about. I understand that taking part is voluntary, that I can skip questions, and that I can stop at any time. I understand that my answers will

be combined with answers from other fishers and that my name will not be used in reports unless I give separate permission. I agree to take part in this Best Catch Assessment.

Participant agrees to take part: ☐ Yes ☐ No

Consent type: ☐ Verbal ☐ Written

Date: _____

Interviewer name: _____

Participant name or anonymous code: _____

Optional permissions
May we contact you again to check results or invite you to a feedback meeting?
☐ Yes ☐ No

If yes, preferred contact details: _____

May we use anonymous quotes from your interview?
☐ Yes ☐ No

May we take or use a photograph of you for the report or communication materials?
☐ Yes ☐ No

May we record the interview for note-checking only?
☐ Yes ☐ No

Section A. Interview details

A1. Interview ID:

A2. Date of interview:

A3. Interviewer name:

A4. Location of interview:

A5. Community / village / landing site / fishing area:

A6. Survey format:
☐ In-person interview
☐ Phone interview
☐ Paper form completed by respondent
☐ Online survey
☐ Focus group-assisted individual form

☐ Other: _____

A7. Language used: _____

Section B. Respondent background

B1. Which of these best describes your role in this fishery?

Tick all that apply.
☐ Small-scale fisher
☐ Subsistence fisher
☐ Commercial fisher
☐ Recreational fisher
☐ Fishing guide
☐ Gleaner / shore collector
☐ Diver
☐ Trap / pot fisher
☐ Net fisher
☐ Fish fence / weir fisher
☐ Fish processor
☐ Fish trader / seller
☐ Boat crew
☐ Community fisheries leader

☐ Other: _____

B2. What species or fishery are we discussing today?

Target species / species group: _____

Local name(s): _____

Scientific name, if known: _____

B3. What year did you first start fishing, harvesting, guiding, collecting, or working in this fishery?

Year started: _____

If unsure, approximate year when started: _____

B4. How many years of experience do you have in this fishery?

Years of experience: _____

B5. What is your age?

Age: _____

Prefer not to say: ☐

B6. Gender

☐ Woman
☐ Man

☐ Another gender: _____
☐ Prefer not to say

B7. Do you fish or harvest mainly for:

Tick all that apply.
☐ Household food
☐ Sale / income
☐ Recreation
☐ Cultural or customary practice
☐ Mixed reasons

☐ Other: _____

B8. In a typical year, how many days do you fish, harvest, or collect in this fishery?

Days per year: _____

B9. On a typical fishing or harvesting day, how many hours do you usually spend fishing, harvesting, or collecting?

Hours per day: _____

B10. What gear or method do you primarily use in this fishery?

Tick only one and record local names where possible.
☐ Handline
☐ Rod and line
☐ Fly fishing
☐ Cast net
☐ Gill net
☐ Seine net
☐ Drag net
☐ Lift net
☐ Trap / pot
☐ Basket trap
☐ Fish fence / weir
☐ Spear
☐ Diving
☐ Gleaning by hand
☐ Rake or digging tool
☐ Hookah / compressor diving
☐ Boat-based harvesting
☐ Shore-based harvesting

☐ Other: _____

Local gear name(s): _____

OPTIONAL: B11. What are your main fishing or harvesting areas?

Area 1: _____
Area 2: _____
Area 3: _____
Other: _____

Section C. Current-year best catch

This section is mandatory for every BECCA.

C1. Did you fish, guide, harvest, collect, or target [species/fishery] in the current year?

Current year: _____
☐ Yes
☐ No
If no, skip to Section D.

C2. Thinking about the current year, what was your best fishing or harvesting day for [species/fishery]?

Please describe the day briefly:

C3. How much did you catch, or collect on that day?

Number / amount: _____

C4. What unit are you using?
☐ Number of fish / individuals
☐ Kilograms
☐ Pounds
☐ Baskets
☐ Bags
☐ Buckets
☐ Sacks
☐ Boxes
☐ Bushels
☐ Bundles
☐ Strings
☐ Coolers
☐ Landed fish
☐ Shells
☐ Crabs / lobsters / invertebrates

☐ Other: _____

C5. Was this catch total for:

☐ You alone
☐ Your boat
☐ Your crew
☐ Your household
☐ A group
☐ A fish fence / weir / shared gear

☐ Other: _____

C6. How many people were involved?

Number of people: _____

C7. What gear or method did you use on that day?

Gear / method: _____

Local gear name: _____

C8. How confident are you in this answer?

☐ Very confident
☐ Fairly confident
☐ Unsure

C9. Any notes about this catch?
For example: weather, tide, season, unusual event, market day, group catch, special trip.

Section D. Best-ever catch

This section is mandatory for every BECCA.

D1. Thinking across your whole fishing or harvesting life, what was your best ever fishing or harvesting day for [species/fishery]?

This means the day when you caught or collected the highest amount, *using the unit that makes most sense for this fishery.*

Can you describe the day briefly?

D2. What year did this happen?

Year: _____

If unsure, approximate year: _____

D3. How much did you catch or collect on that day?

Number / amount: _____

D4. What unit are you using?

☐ Number of fish / individuals
☐ Kilograms
☐ Pounds
☐ Baskets
☐ Bags
☐ Buckets
☐ Sacks
☐ Boxes
☐ Bushels
☐ Bundles
☐ Strings
☐ Coolers
☐ Landed fish
☐ Shells
☐ Crabs / lobsters / invertebrates

☐ Other: _____

D5. Was this catch or encounter total for:
☐ You alone
☐ Your boat
☐ Your crew
☐ Your household

☐ A group
☐ A fish fence / weir / shared gear

☐ Other: _____

D6. How many people were involved?

Number of people: _____

D7. What gear or method did you use on that day?

Gear / method: _____

Local gear name: _____

D8. Why do you remember this catch or fishing day?

D9. How confident are you in this answer?
☐ Very confident
☐ Fairly confident
☐ Unsure

D10. Any notes about this catch?

Section E. First-year or early-career best catch

This section is strongly recommended but is not mandatory. It is alternative to Section D.

E1. Thinking back to the year you started fishing or harvesting [species/fishery], what was your best fishing or harvesting day in that first year or early period?

If you cannot remember the exact first year, think about your earliest period in this fishery.

Please describe the day or early period briefly:

E2. What year was this?

Year: _____

If approximate, please explain: _____

E3. How much did you catch or collect on that day?

Number / amount: _____

E4. What unit are you using?

☐ Number of fish / individuals
☐ Kilograms
☐ Pounds
☐ Baskets
☐ Bags
☐ Buckets
☐ Sacks
☐ Boxes
☐ Bushels
☐ Bundles
☐ Strings
☐ Coolers
☐ Landed fish
☐ Shells
☐ Crabs / lobsters / invertebrates

☐ Other: _____

E5. Was this catch or encounter total for:

☐ You alone
☐ Your boat
☐ Your crew
☐ Your household
☐ A group
☐ A fish fence / weir / shared gear

☐ Other: _____

E6. How many people were involved?

Number of people: _____

E7. What gear or method did you use on that day?

Gear / method: _____

Local gear name: _____

E8. How confident are you in this answer?
☐ Very confident
☐ Fairly confident
☐ Unsure

E9. Any notes about this catch?

Section F. Size information

Use this section where body size, shell size, market size, or maximum size is important.

F1. Across your whole fishing or harvesting life, what is the largest individual [species] you remember catching, harvesting, or encountering?

Description:

F2. What year was this?

Year: _____

If unsure, approximate year: _____

F3. What was its size?

Size: _____
Unit:
☐ Kilograms
☐ Pounds
☐ Length in cm
☐ Length in inches
☐ Shell length
☐ Shell width
☐ Carapace width
☐ Market grade
☐ Local size class

☐ Other: _____

F4. How was this size known?

☐ Measured
☐ Weighed
☐ Sold at market
☐ Recorded in a logbook
☐ Photograph exists
☐ Estimated from memory

☐ Other: _____

F5. What gear or method was used?

Gear / method: _____

F6. How confident are you in this answer?

☐ Very confident
☐ Fairly confident
☐ Unsure

F7. Largest individual in the current year

Did you catch, harvest, or encounter this species in the current year?
☐ Yes ☐ No

If yes, what was the largest individual this year?

Size: _____ Unit: _____

Was it measured, weighed, or estimated? _____

Local unit conversion sheet

Use this sheet whenever respondents use local units such as baskets, buckets, bags, sacks, boxes, bundles, strings, bushels, coolers, plates, trays, or boatloads.

Local unit name	Description of unit	Approx. number of individuals per unit	Approx. weight per unit	Does this vary by species or size?

Notes on local units:

Data quality checklist

Complete this after the interview.

Q1. Does the current-year best catch include a number, unit, year, and effort measure?

☐ Yes ☐ No ☐ Not applicable

Q2. Does the best-ever catch include a number, unit, year, and effort measure?

☐ Yes ☐ No ☐ Not applicable

Q3. Does the first-year or early-career catch include a number, unit, year, and effort measure?

☐ Yes ☐ No ☐ Not applicable

Q4. Were gear or method details recorded?

☐ Yes ☐ No

Q5. Was the catch identified as individual, boat, crew, household, group, or shared gear catch?

☐ Yes ☐ No

Q6. Were local units described clearly enough for later conversion?

☐ Yes ☐ No ☐ Not needed

Q7. Overall data quality flag
☐ A: complete and clear
☐ B: minor uncertainty but usable
☐ C: missing effort or unclear unit
☐ D: missing year or catch number
☐ E: contradictory or implausible, needs checking
Interviewer notes:

Closing script

Thank you for sharing your knowledge and experience. Your answers will be combined with those from other fishers and harvesters to help understand how this fishery has changed over time. Individual answers will not be reported with names unless separate permission has been given. Where possible, results will be shared back with the community or local partners.

Would you like to be informed about the results or invited to a feedback meeting?
☐ Yes
☐ No

Preferred contact details, if yes: