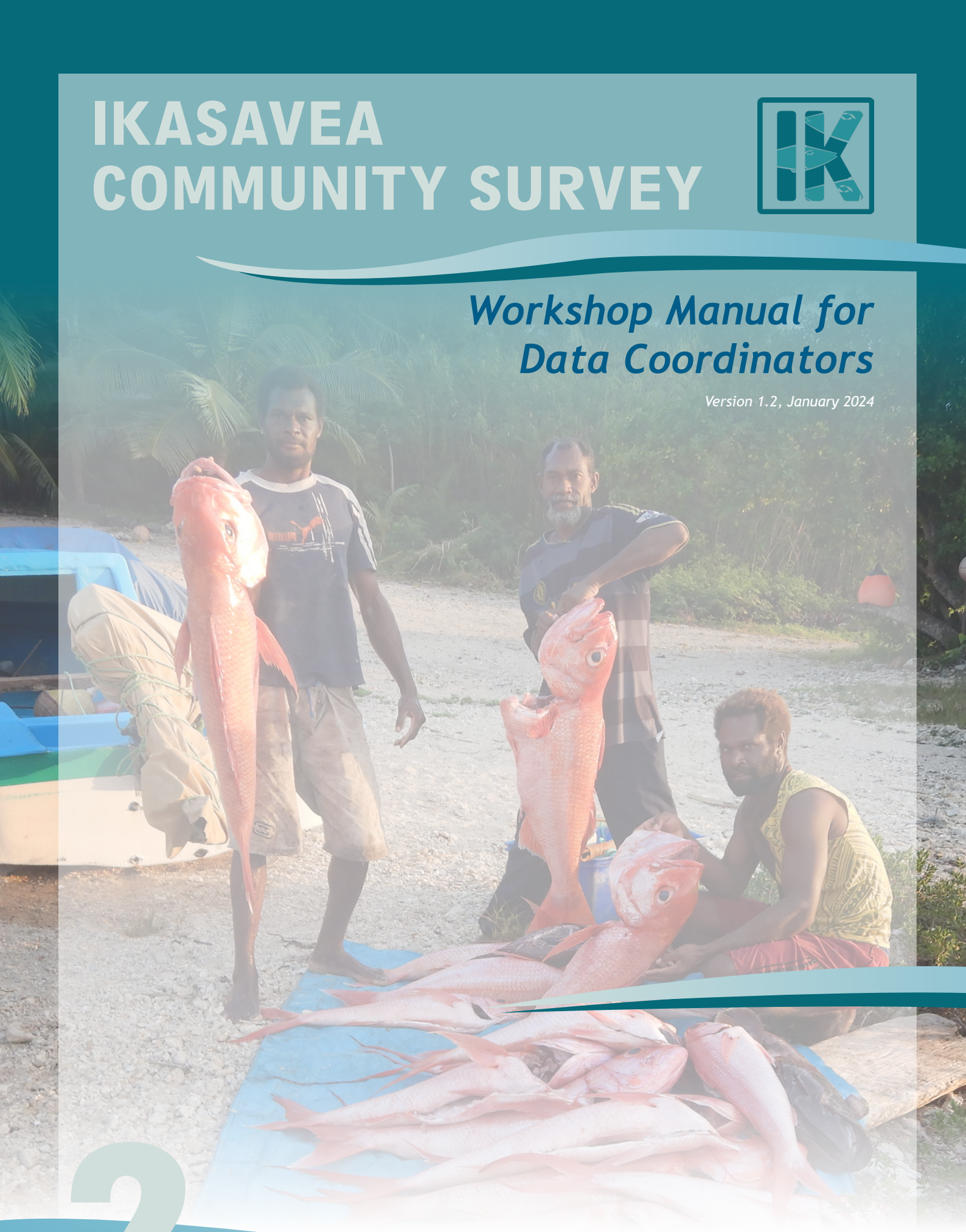
IKASAVEA COMMUNITY SURVEY

Workshop Manual for Data Coordinators

Version 1.2, January 2024



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OTHER CREDITS
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ANCORS

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SPC-FAME

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KIRIBATI

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CBFM optimised fishery monitoring program

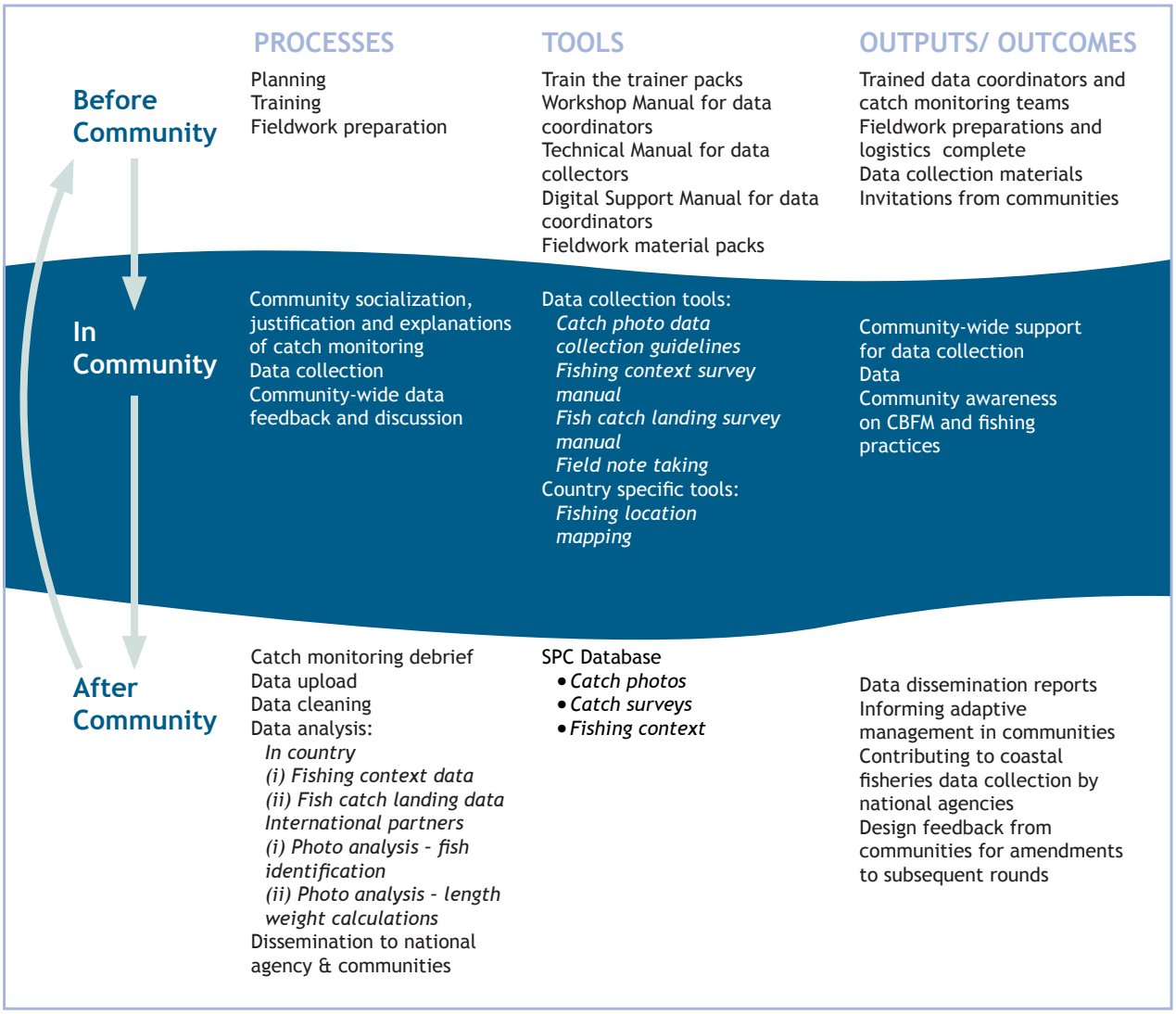


Figure 1. CBFM optimised catch monitoring programme

INTRODUCTION TO THE MANUAL

Training Workshop Manual

This manual is one of three designed to support the use of the Ikasavea Community Survey:

1. *Technical Manual for Data Collectors*
2. **Workshop Manual for Data Coordinators**
3. *Data Management Manual for Data Coordinators*

This training manual is a training and learning tool for data coordinators or other supervising staff.

It provides suggested guidance on how to run a training workshop for data collectors using the **Ikasavea Community Survey** to capture data about community-level coastal fisheries.

This document also includes training/support materials that can be printed out to assist in the training workshop, and also specifications for measuring mats appropriate for the **Ikasavea Community Survey**.

This manual was designed for those of you in charge of catch monitoring programmes designed to support CBFM using the tools developed by the Pathways project:

- **Catch monitoring data collection manuals**
- **Catch survey forms**
- **Fishing context survey forms**

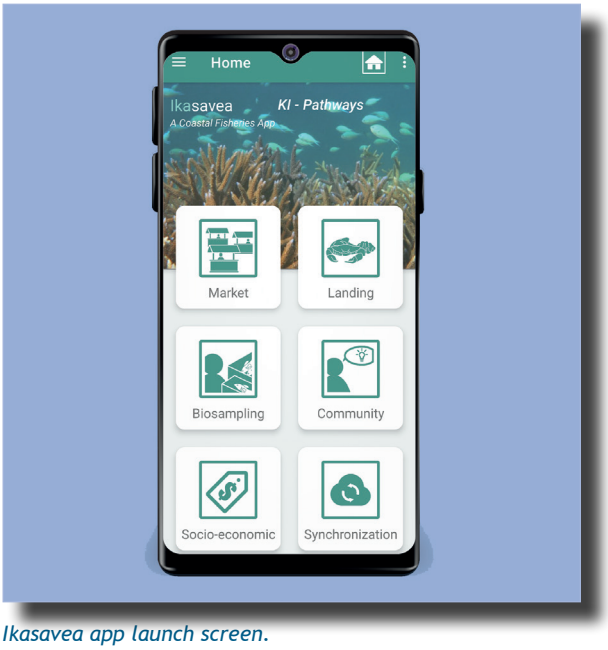
Specifically, this manual outlines a **three day workshop** covering the use of the correct interview technique, how to use the Ikasavea Community Surveys (catch surveys and fishing context surveys) instruments, and the taking of clear catch photos.

It is vital that the catch data we gather from the communities we visit is accurate and precise. Without accurate data, communities will not be able to have confidence that their management plans are functioning well, or be made aware if adjustments need to be made.

This manual, and its supporting materials will help you train catch monitors so that they can use the Ikasavea app, developed by Pathways, to gather accurate and precise catch data that will serve the communities and their management plans.

CATCH SURVEYS (after each fishing trip)

The **catch surveys** are vital for collecting data about each fishing method that was used, the areas and habitats that were fished, the number of people fishing, and the number of hours community members need to spend to catch their fish or gather their invertebrates.



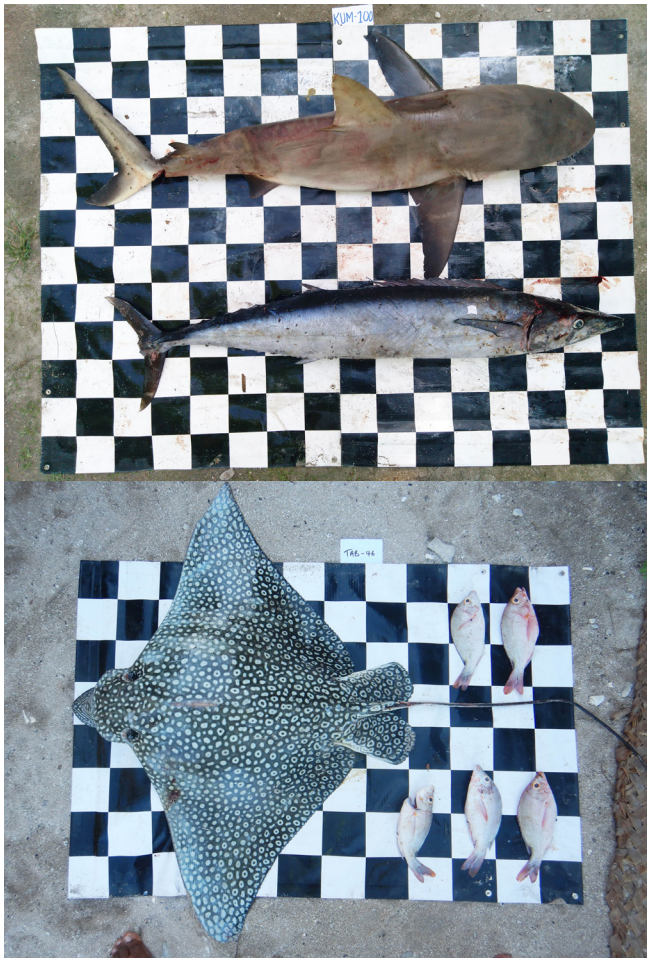
Ikasavea app launch screen.

FISHING CONTEXT SURVEYS (ONCE PER FISHER PER SURVEY TRIP)

The **fishing context surveys** give us a longer range view, giving us an understanding of how the catches we have data on compare to catches in the past. There are also questions designed to capture information about seasonality and whether fishers have changed their fishing methods and locations, and whether certain habitats have changed or been damaged, and require more attention.

Capturing Diversity

The catch monitoring programme this manual supports has shown it is able to capture the incredible diversity of the fisheries depended upon by the women, children, youth and men of coastal communities in the Pacific.



Eagle Ray alongside shark and wahoo:

Sometimes, large Elasmobranchs are also recorded. Seen here are a Grey Reef Shark (*Carcharhinus amblyrhynchos*) and a Spotted Eagle Ray (*Aetobatus narinari*).

Tremendous diversity:

This one catch photo of 42 fish has individuals from 17 species representing 7 families (*Acanthuridae, Holocentridae, Labridae, Lethrinidae, Mullidae, Scaridae* and *Serranidae*).

Bare mat:

The fishers are also supportive of allowing that a photo of a bare mat will be recorded from time to time. Zero catch is important if we are to help communities gauge the relative success of their fishing efforts and track that over time.

Diversity of invertebrate harvesting strategies:

Invertebrates of many species are targeted or harvested opportunistically along with finfish. When invertebrates are targeted, the catch is typically much larger, with hundreds of individuals being harvested at a time. When invertebrates are targeted opportunistically, we typically see fewer than ten being harvested at any one time.

Small wrasse alongside large deepwater haul:

The fisheries used by fishers in the communities we visit are incredibly diverse. From inshore fisheries for small Purple Surge Wrasse (*Thalassoma purpureum*) and Stocky Hawkfish (*Cirrhitus pinnulatus*) not exceeding 20cm, to offshore fisheries for deepwater snapper species (*Etelis sp.*) upwards of 90cm in length.

AGENDA

Day 1 - Introduction to catch monitoring

TOPICS	MATERIALS	LEARNING OUTCOMES (LEARN TO...)
WHY CATCH MONITORING?	Notepads; slides	**Understand:** • What catch monitoring is, and why it is important • An understanding of what kinds of information the surveys are designed to collect
INTERVIEW TECHNIQUES	Tablet running Ikasavea app and synchronised to survey data; note pads; slides	**Use the:** • Catch monitoring survey accurately and appropriately • Fishing context survey accurately and appropriately

Slides in Appendix A

Day 2 - Field Skills

TAKING GOOD CATCH PHOTOS	Tablets; fish/ invertebrate cut-outs; notepads; slides	**Take useable photos of catch:** • Using the catch mats. • In challenging conditions (i.e. too many fish, bad light, varied light etc.)
AGGREGATED UNITS	Notepads	• Understand protocols for how to react when a fisher/gleaner presents their catch in an aggregated way. • Identify instances where catches might be presented in consistent aggregated units (e.g. there are always 10 shucked clams on each string)
SCENARIO TRAINING	Tablets; fish/ invertebrate cut-outs; notepads; Ikasavea community survey technical manuals	• Approach fishers/gleaners with different catches/circumstances and gather the most accurate data • Maximise the chances of gathering accurate data from fishers/gleaners who are hard to approach

Slides in Appendix B

Day 3 - Debrief and shared learnings

IMPORTANCE OF DEBRIEFING	Notepads; Ikasavea community survey technical manuals	**Understand:** • What is involved in debriefing • The team's protocol for gathering and organising the data collected each day
DEBRIEF	Notepads	• Approach the task of gathering catch data in your communities • Identify places where the prescribed approach might need to be adjusted to work in your communities

DAY 1 - INTRODUCTION TO CATCH MONITORING

Please use the presentation attached in Appendix A. The below text will complement the text and materials on the slides provided.

Why catch monitoring?

Catch monitoring will give us a better understanding of the fishing and gleaning patterns and trends in communities with management plans. Not only does this information help during the design of the management plans, but also gives feedback to the communities regarding:

- Whether their sacrifices have resulted in good fisheries outcomes
- Whether some adjustments need to be made to the management plans

Without accurate catch data, we cannot help the communities answer either of these questions with confidence.

Please go through the presentation provided in Appendix A.

Interview techniques

Please take the time to ensure your catch monitors can follow the following instructions:

- ☐ Enumerators/catch monitors coordinate with each other (if travelling as a group) as to who will go where and when so that a good sample of different fishing/collecting practices by men and women, and different ages can be captured
- ☐ Enumerators/catch monitors will need to coordinate to make sure no surveys or catch photos share the same ID number(s)
- ☐ When a fisher/collector is first approached, before any data collection takes place, enumerators/catch monitors must first explain to the fisher and collector why the data collection is taking place and why their voluntary participation is an important part of the long term success of the community fisheries management plan, as well as of the project's understanding of fishing activities in the community
- ☐ Enumerators/catch monitors must be ready to answer any questions the fishers/collectors might have before the survey begins. If the enumerator/data collector does not know the answer, they must know who to ask, and ensure the fisher/collector receives a satisfactory answer
- ☐ Ensure each fisher or collector has given their consent to participate
- ☐ Ensure any fisher/collector who has their catch photographed and surveyed is also asked to answer the fishing context survey
- ☐ Survey even those fishers/collectors with zero catch - either for a particular method or for the whole. It is still really important to catch survey them (assuming they are willing)

  In these cases, catch monitors/ enumerators should tick the 'No catch for this fishing event' in the catch survey
- ☐ After completing the surveys, check, and double-check to make sure all sections of the surveys are filled out, in particular the consent, fisher's full name and gender
- ☐ Not sure about a question or a response? Extra information given? Notice something unusual? Put it all in the comments! There is no such thing as too much information.

DAY 2 - FIELD SKILLS

Please use the presentation attached in Appendix B. The below text will complement the text and materials on the slides provided.

Taking catch photos - the basics

Following these steps will help your catch monitors take good catch photos:

1. Lay the catch mat down on a flat and even surface.

   For example, make sure the mat is not bunched up, or in a hole, or does not have a big rock underneath

2. For each unique 'fishing method' (see definitions below):
   - ☐ Place all fish, shells, etc. caught on the mat
   - ☐ Make sure that they are all as flat as possible, side-by-side with no overlaps
   - ☐ Make sure all four corners of the mat are visible in the photograph

3. Take one catch photo for each fishing method used in a fishing trip – there may be more than one catch photo for a single fishing trip.

   Rarely, (if the catch is really big or the fish is really big) you may need to take 2 photos for a single method.

When taking photos, try to be quick, careful, and efficient - these fish are someone's livelihood!

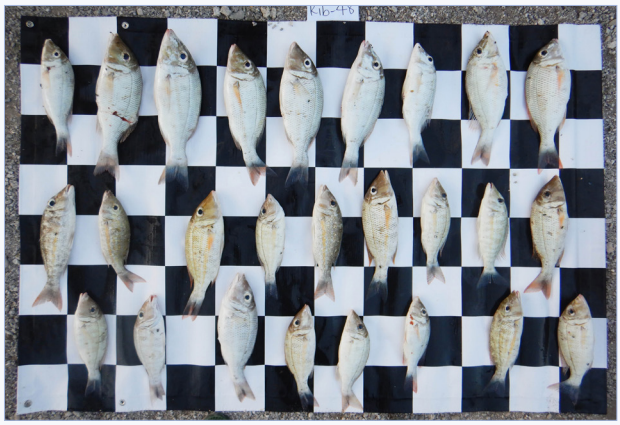
A bare catch mat.

How to take good catch photos

IN THE BEST LIGHTING POSSIBLE:

- ☐ Take a photo of the catch from straight above the mat (not on an angle)
- ☐ Avoid shadows crossing over mat that will make it difficult to see/identify species
- ☐ Make sure all caught species are laid out as described in the mat section above
- ☐ Make sure all four corners of the mat are visible in the photograph

A photo taken in this way will make the identification of the different fish species as easy as possible, while also making sure that each fish can be measured as accurately as possible.



This is an ideal photo. The photo is well lit, all four corners of the mat are visible, has been taken from directly above the catch mat, and the fish are not obscuring one another. The fish in this photo will be easy to count, identify and measure.

TOO MANY FISH:

It is understandable that you may wish to try and get the entire catch on the mats provided. However, if the only way to photograph the entire catch is to take a photo from an angle, or crowd the fish on the mat (*see images*), **it is better to take several photos from straight above.**

This **photo has been taken at an angle, causing the fish to be foreshortened.** This makes measuring the fish accurately difficult/impossible, and in extreme cases, can also make it impossible to identify the species of the fish.

Ideally, **catch photos should be taken from directly above the catch mats** - the easiest way to tell is if the opposing edges of the catch mat are different lengths (e.g. the closest edge appears longer than the furthest edge).

Here there are instances where **fish have been placed upon one another,** obscuring heads and tails (marked with red circles).

When the **head, or the fork of the tail are obscured, fish become hard/impossible to measure accurately,** but in some instances, not being able to see even small parts of their heads or tails can make accurate identification impossible too.

HOW TO USE THE CATCH MAT FOR CATCH SAMPLING.

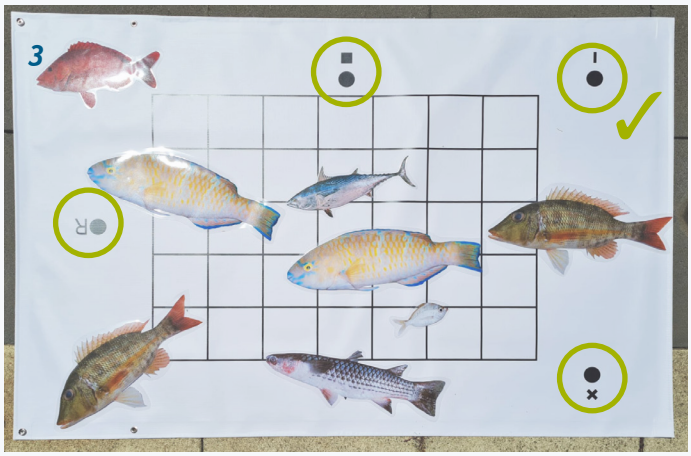
If you are using an SPC mat, then please ensure at least four of the symbols are visible, without three of the four symbols visible on a single side. See examples below.

Example 1: INCORRECT

- Four (4) registration dots need to be visible
- If only four (4) dots are visible, three (3) of the registration dots cannot be on the same side of the catch mat

Example 2: INCORRECT

- Four (4) registration dots need to be visible
- If only four (4) dots are visible, three (3) of the registration dots cannot be on the same side of the catch mat



Example 3: CORRECT

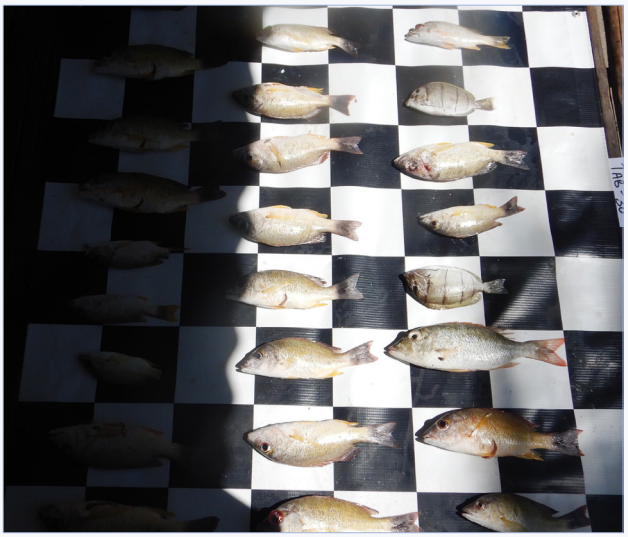
- Four (4) registration dots are visible
- The dots are on multiple sides of the catch mat

To see catch mat options and measurements see **Appendix F.**

CHALLENGING LIGHT CONDITIONS:

It is likely your catch monitors will encounter situations where light levels can make taking good photos difficult.

Likewise, if there is too little light, digital cameras struggle to take clear photos.



This photo was taken in an area partly shaded from bright sunlight. In these instances, **the camera's light sensor struggled to adjust for both light levels,** and the fish in the shadow can be obscured significantly. When fish are obscured this way, **species identification and measurement can be difficult or impossible.**

It is completely understandable that your catch monitors will encounter fishers/ gleaners who only return to the landing site/ village as night falls or even later.

In these instances, it is still possible to take useable photos.

Here is a catch photo taken during the night in the best possible way. **An additional light source was used,** and held high above the mat.

If it is dusk or dark, the following tips might help your catch monitors take useable pictures:

- Putting the camera in night mode
- Holding a flashlight (the one from your phone will be fine) as high as possible over the catch, making sure not to over-expose some animals while leaving others in darkness, or make shadows that cross over the mat. Where possible, using more than one light source is better.
- Holding the camera as still as possible while the photo is to minimise blurriness. Camera light sensors need more time to take clear pictures when there is only a little light. If the pictures are too blurry, the species will be hard to identify.

As a general rule, digital cameras take the most useable photos when there is a uniform source of light.

So, it is best to avoid taking photographs where the camera must adjust to bright and dark areas at the same time (e.g. partly shaded areas).

This photo was taken with **too little light.** From time to time, the fishers we need to collect data from will be landing their catches in the night, and far from buildings with good sources of light. The photo does not necessarily need to be well lit, but **ID and measurement become difficult or impossible when it is only possible to see the silhouette** of the animal(s).

Aggregated units

Before you move on, please discuss what to do when animals are presented in an aggregated unit (i.e. not an individual).

Usually, it is invertebrates that are presented in various vessels (e.g. buckets, bags etc.), or strung on a cord. Animals presented this way are difficult to count and ID. However, it might not be possible or appropriate to place the individual animals on mats to photograph them.

As an example, the animals might be:

- Too numerous
- Alive and likely to escape
- Removed from their shells (in which case ID and measurement might be possible anyway)

We *only suggest* that protocols be put in place where catch monitors know who to contact in the instances where animals are presented in aggregated units, and what to do in the instance that their supervising team member is unavailable or not possible to reach.

We strongly suggest that in those instances, your catch monitors take clear photos of the animals in aggregated units, and take detailed notes that might provide helpful insight into whether this aggregated unit might be consistent (e.g. a string of shucked clams is always 10 individuals, the container is a known volume etc.).

There is no clear-cut solution here. However, we suggest that you as a department/team come to a collective decision regarding how to deal with these aggregated units.

CRABS

Crabs are often still alive when they are presented to you, which can make photographing them on a mat difficult. We suggest taking a spare bag or bucket with you so that you can count the crabs out safely, and then photographing some of the more sluggish ones on the mat (if possible).

Images: Checked mat and bucket photos from Pathways project team.

INVERTEBRATES

Sometimes invertebrates are either too soft-bodied to measure meaningfully, or they are shucked before being landed, making measurement impossible. In these instances, we suggest photographing the animals as best you can so they can be identified, and counting them (if possible), noting the number down in the catch survey. If you can establish whether clams and worms etc. are usually threaded together in consistent numbers, this will make things even easier.

LARGE CATCHES OF SMALL FISH

Sometimes, when there is a large catch of small baitfish, they are presented in buckets or bowls. We suggest taking a sample of 10 or so and laying those out on the mats for ID and measurement, counting them (if possible), and noting down the number on the catch form. You will need to decide how many fish are too many to count as a team. We suggest doing that prior to beginning your catch surveys.

Images: Checked mat and bucket photos from Pathways project team.

MOLLUSCS

Molluscs of many varieties are often presented to you in bags, sacks or bowls. If there are too many to sensibly lay out on the mats and photograph, then we suggest placing a few on the mats so an approximate average size can be calculated, and then counting the others out, noting the number on the catch survey. As with the baitfish, you will need to decide how many molluscs are too many to lay out on the mats as a team.

Image: Mud Shells, Hampus Eriksson

Scenario training

This role-playing exercise was designed to help new catch monitors familiarise themselves with the Ikasavea data gathering tools (i.e. surveys, catch mats etc.), and also to put them in situations that they are likely to face in the field. These different situations will require the enumerators to adjust their approach in slightly different ways so that accurate data can still be gathered, and the results will reflect each community's catches and fisheries as closely as possible.

SCENARIO TRAINING CHECK LIST

For the scenario training activities, you will need the following for each trainee:

- ☐ Technical manuals (can be shared between two)
- ☐ Tablets with the Ikasavea app loaded onto them and relevant survey data downloaded and synchronised
- ☐ Pencil/pen
- ☐ Fish and invertebrate cut-outs for each scenario
- ☐ Catch mat

RUNNING THE SCENARIO EXERCISES

1. Split people into 3 *or* 4 groups of 2 people
2. Randomly allocate one of the scenarios below to each pair of people: one scenario per data collector + fisher/collector
3. Run-through: full data collection exercise - approaching fisher/collector, catch photo label, both surveys, photos
4. 2 rounds (~20 min each), switch fisher/collector and data collector
5. Group debrief

- How did each enumerator/trainee need to adjust their approach to make sure they captured a complete picture of what the fisher did during their trip?
- What were the cultural and social aspects that needed to be treated with sensitivity during the exercise?
- Which scenarios required the enumerator/trainee to pay close attention to what had not been said, or was being actively hidden?
- Were there any instances where enumerators needed to deal with catches presented in aggregated units, and how did they cope with the situation?

We suggest placing the pairs in circumstances where they might need to make adjustments to ensure a good catch photo can be taken. Some examples for you to consider:

- Partial/harsh shade
- Areas of almost complete darkness
- Catch hidden in buckets/bags
- A catch that is too large to present on one mat

Scenarios

Cut outs can be found in Appendix C.

The following scenarios were created to get you started, and represent some of the more common situations your enumerators are likely to encounter. If you feel your enumerators/trainees are likely to encounter a scenario that is not in the table, please feel free to create the situation yourself.

SCENARIO	FISHER BEHAVIOUR	ISSUES	CUT OUTS
IDEAL	Completely compliant	None	All caught using one fishing method
IDEAL *- varied (location and method)*	Completely compliant, BUT does not realise the fish need to be sorted according to fishing methods	Catch from multiple methods, BUT the fisher does not realise this is important. Clue will be that the fisher has several types of equipment (a net, hand-line).	Fish usually caught inshore *(i.e. mullets, goatfish);* reef fish *(i.e. emperor, snapper, grouper);* and pelagic fish *(i.e. tuna)*
VARIED - METHODS	Completely compliant	The fisher fished in one location but with numerous gears. Clue will be that the fishery has several types of equipment even though they only mention one fishing location.	
SECRET BAIT	Completely compliant	Fisher does not consider fishing for bait to be an 'method'. This fisher stopped to catch bait before heading offshore and fishing deeper water. Clue will be that the fisher has bait gathering gear (i.e. a net or handline for trolling) on-board as well as deep water fishing gear.	Small mullet or small tuna
DODGY	A sceptic, mistrustful of government, a little bit evasive	Needs to be convinced to participate. Has possibly been poaching the local protected area.	Fish speared from a nearby reef (i.e. surgeonfish, parrotfish). Also Tridacna clams
GLEANER/ COLLECTOR	A lady, has a basket full of collected shellfish, BUT will not approach, because she is "not a fisherman". Compliant and engaged when approached.	Will need to be sought out and approached deliberately.	Molluscs for gleaners - reef Molluscs for gleaners - lagoon
ZERO CATCH	Does not understand why he/she should participate if he caught nothing	Went fishing, caught nothing (using 2 methods).	NIL


TAB-46

DAY 3 - DEBRIEF AND SHARED LEARNINGS

Debriefing

At the end of each day in the field, it is important for the team to get together and debrief. Debriefing involves letting each other know how the day went, and sharing learnings that might help the team collect better data into the future. As an example, catch monitors might take the time to talk about difficulties they experienced, and how those difficulties could be resolved.

The team should also take this time to ensure no fishers have done two fishing context surveys, and that fishers' names are spelled consistently.

The debrief is also a good time for the team to add the name(s) of fishers/collectors of fishers who have not yet filled in a fishing context survey to the list of people who need to be visited and surveyed before the team's departure.

The debrief is also a good time for everyone to get organised for the next day, ensuring that each catch monitor has an adequate number of forms, and if you as a team decide to allocate catch survey numbers, then ensuring that there is no overlap.

Debriefing checklist

Upon completion of the data collection trip, a debrief with catch monitors should be organised with the data coordinator. The debrief should cover any issues and/or concerns that may have arisen during the trip.

Catch monitors should also debrief on specific issues that arose during data collection and make records of decisions and modifications which were made to allow for consistency or revision during the next round. The debrief should also make mention of feedback or concerns from community members and/or CBFM committees.

The data coordinator could encourage the catch monitors to use their field notebooks to assist with the debrief. The data coordinator should also backup the catch monitors' data, check for repeated fishers and missing information, and ask catch monitors for input. Gears can be returned at that time and photos taken separately can also be backed up.

DEBRIEFING CHECKLIST

Discuss issues/concerns that catch monitors have become aware of during the day

- ☐ Discuss solutions or ways to mitigate the issues that have arisen
- ☐ Discuss feedback or concerns relayed from community members over the course of the day
- ☐ Collect all catch surveys and fishing context surveys
- ☐ Ensure each catch survey has an accompanying fishing context survey

  Note those community members who might need to be re-visited if they have filled in a catch survey, but not a fishing context survey
- ☐ Download catch photos
- ☐ Ensure photos match the catch surveys, and are taken properly
- ☐ Plan the next day's activities

Why monitoring?

We want to

• Better understand fishing/collecting patterns and trends in communities with fisheries management plans

• Provide feedback to these communities about how their fisheries are doing

So that

• Communities have more information to help them make decisions about their management plans now and into the future

• "adaptive management"

You are vital!!!

- Without good data, all our analyses will be flawed
- Inaccurate data is very hard/impossible to fix
- Good data serves the communities, bad data will hurt them

Overview of catch monitoring work

- 5 communities
- 4 trips max per community (2 min), 2 per year
- 2 weeks in each community
- 2 survey forms:
  - 1 catch survey to record fish/invertebrates harvested per method
  - 1 fishing context survey to provide information about general fishing in the community (outside the 2 weeks we are in the village).
- Photos of catch on gridded mat

Data collection in communities

- Interview as many fishers, collectors as possible
- Men/women, from different ages
- Catch survey
  - When a person comes back from fishing/collecting
  - Include 'zero' catch
  - You can survey the same person several times during the 2-week survey period
  - Take pictures of the catch per fishing method on the mat
  - Don't forget to label the survey form and the photos

Context survey

- Trends beyond our visit
- Targeted fish/invertebrates
- Usual fishing methods
- Usual fishing frequency
- Catch over a longer period of time
- Effort increases or decreases over a year
- Perceptions of CBFM and its impact
- Relates to SPC socio-economic survey

Fishing over the past 7 days

- Explanation on the last 7 days:
  - Do **not** include the day of the interview
  - If you interview a fisherman on Monday, then ask them if they have gone fishing/collecting from last Monday to the day before (Sunday)
  - Make sure that the answer on number of days gone fishing/collecting in question 1b is the same as the number of days you tick in question 6

Important notes – fishing context survey

- Question 11 about local restrictions **is inclusive of CBFM rules** (obviously some people may not know there are some).
- Take as many notes as possible about fishing/collecting in the community or details fishers tell you about.
- Information from the above will help the CBFM team know if there is a need for further info/awareness at he community level.

Important notes – fishing context survey

- Please use the fishing context survey to interview as many fishers/gleaners as you can. **The information is valuable, even if that person was not fishing/gleaning that day.**
- The fishing context survey form only needs to be filled in once per fisherman per 2-week period. Fill it out again during the next trip (**important to capture possible changes in fishing behaviour**)
- Some people who fish might not go fishing during our 2-week data collection = we are missing some general information about fishing in the community.
- The fishing context survey helps us understand what happens outside the 2-week period = more data to assist communities with the CBFM decision-making

Catch survey

- What community members have caught
- Length/weight
- Numbers of fish/invertebrates harvested
- Techniques community members are using to catch certain fish
- Habitats that community members are fishing/gleaning in
- Time spent during most recent fishing/gleaning trip

Catch survey: Trip versus Method

- FISHING TRIP: A journey to catch fish/collect invertebrates over a defined time period, i.e. date/time of departure/return
- May have more than one associated 'method'
- May have zero, one, multiple, associated catch photos

Survey form section: Fishing trip info

FISHING TRIP DETAILS:

Date and time of departure

Date and time of return

Sea condition: Calm Average Rough Not at sea

Boat type (circle one): No boat Motor Paddle Sail

How many different fishing methods were associated with this fishing trip?:

Was it more difficult to fish/collect today than usual:

More difficult About the same Easier

Please note any special events:

Please fill in this information even when there is zero catch. The information is about effort taken by fishers/collectors in the community to collect marine resources.

Catch Survey: Trip versus Method

- **FISHING METHOD**: a discrete fishing episode in which a **specific** fishing method was used during a fishing trip
- There may be multiple methods per single trip
- Separate 'fishing methods' should be recorded:
  - Where there was a **change in fishing method** used during a fishing trip, even if targeting the same species
  - Where there was **a change in habitat fished**, implying a significant change in location

Catch Survey: Trip versus Method

- Trolling then drop -stone lining for yellowfin tuna would be **two distinct 'fishing methods'**
- Cast netting for bait and then trolling for fish would be **two distinct 'fishing methods'**
- Hand collecting using different hand tools for different invertebrate species in the same habitat would be **one 'fishing method'**
- Hand collecting using different hand tools for different invertebrate species in 2 different habitats would be **two distinct 'fishing methods'**

Catch Survey: Trip versus Method

- Please fill in the section on fishing method details even when there is zero catch for a method. **It is again about effort of fishers/collectors in the community.**
- Fill in the method #, the method used, time spent fishing, number of fishers, habitat fished
- Answer "no" for was there catch for this method?
- Leave photo number(s) blank
- Add any general comments (if any)

Survey form section : FISHING METHOD DETAILS:

Fishing method #:
Fishing method used (select one)
Approx. time spent actively fishing (**hrs and minutes**)
Number of active fishers
Habitat (select one)
Was there catch from this method (circle)?
- If no, tick "No catch for this fishing event"

Main intended use for this catch (select one)

General Comments: Anything important to note

Save, upload and review photos

Add bundle
- Only if the animals are on the 'commodity' list
- Count
- Note size of container in "comments"

Important notes – both forms

- Don't forget to get consent and tick "consent obtained": it just means that you did not force the person to answer your questions ☺
- Make sure that you fill in all the questions
- **Tip**: look at the survey forms (catch and fishing context) each day with your data enumerator partner to check that there is no missing info. Easier to remember on the day than later.

Important notes – both forms

- You could do a catch survey first and then a fishing context survey
- You can also do a fishing context survey first and then a catch survey
  - Confirm who has been surveyed in the community by debriefing with other data collectors
- Either way, all fishers interviewed with the catch survey **need** to have a fishing context survey form
- You can have a fishing context survey without a catch survey (i.e. instances where a person who usually fishers/gleans did not do so over the 2 week sampling period

Thank you!

Taking photos to support the Ikasavea community survey

Good photos are crucial

Accurate species identification, and measures of length can help answer the following questions:

- Which species of fish/invertebrates are the community members catching?
- What amount/weight of certain species of fish/invertebrates are the community members catching?
- Which species of fish/invertebrate might need protection?

Calculating weight

$$\text{Weight (g)} = \text{Coefficient A} \times \text{Length (cm)}^{\text{Coefficient B}}$$

Length x weight ratios

FamilyName	Genus	Species	Coeff_A	Coeff_B	Source
Priacanthidae	Priacanthus	tayenus	0.029681041	2.803791	Length-Weight MK / Genus
Acanthuridae	Acanthurus	sp.	0.028032882	2.982884	Length-Weight MK / Genus
Gobiidae	Callogobius	plumatus	0.026387532	2.622566	Length-Weight MK / Families
Serranidae	Hyporthodus	niphobles	0.012236976	3.052671	Length-Weight MK / Genus
Nemipteridae	Nemipterus	virgatus	0.006809978	3.306867	Length-Weight MK / Genus
Lethrinidae	Lethrinus	microdon	0.016499811	3.043427	Length-Weight MK / Genus
Scorpaenidae	Iracundus	sp.	0.024587436	2.907526	Length-Weight MK / Families
Pomacentridae	Chrysiptera	galba	0.025946838	2.92639	Length-Weight MK / Genus
Serranidae	Pseudogramma	gregoryi	0.013415232	3.030514	Length-Weight MK / Families
Acanthuridae	Zebrasoma	flavescens	0.037833693	2.856767	Length-Weight MK / Genus
Carangidae	Trachinotus	rhodopus	0.008334081	3.197238	Length-Weight MK / Families
Serranidae	Serranus	tabacarius	0.013415232	3.030514	Length-Weight MK / Families
Scaridae	Scarus	prasiognathos	0.023373877	2.956463	Length-Weight MK / Genus

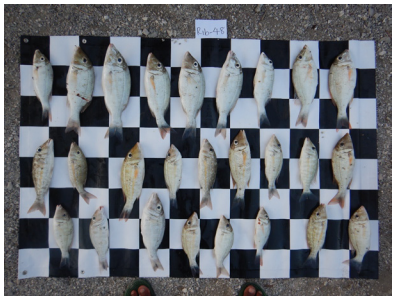
Photo label

- STRONGLY suggested if you need to take photos before doing the catch survey
- Filling these out CORRECTLY will help you keep track of photos
- An example for Kiribati:

Community	DDMMYY	Fisher's name	Photo #
Kuma	080723	XXXXX XXXX	1

What makes a good photo

- Flat – taken from directly overhead
- All 4 corners of mat visible
- Easily visible photo label (if taken separate to catch survey)
- Good, even light
- No parts of the fish obscured
- Fish on catch mat with squares of known size



Examples of poor photos – too much angle

- Photo taken at an angle
- Fish furthest away are difficult/impossible to ID
- Accurate measurement for any of these fish is not possible

Examples of poor photos – crowded mat

- Multiple instances where fish overlap
- When the whole fish cannot be seen, ID and accurate measurement become difficult/impossible
- One corner of mat out of view

What to do – too many fish

- If there are too many fish/invertebrates to place on one mat, or take a photo of from directly overhead, you can take multiple photos
- But PLEASE, ensure a label is correctly filled out and visible for EVERY photo if you take these photos BEFORE doing the catch survey

Examples of poor photos – partial shade

- Partial shade makes it difficult for the camera sensor to adjust
- Here, fish in the shade are almost impossible to see

Examples of poor photos – too little light

- This photo was taken with too little light
- The detail necessary to accurately ID these animals is not possible to see

What to do – poor light

- If there is bright light with partial shade, take the photo either completely in the shade, or completely in the light
- If the photo needs to be taken at night, consider providing a light source held as high as possible to minimise shadows and over-lighting some animals while under-lighting others
- Some cameras also have a night mode.

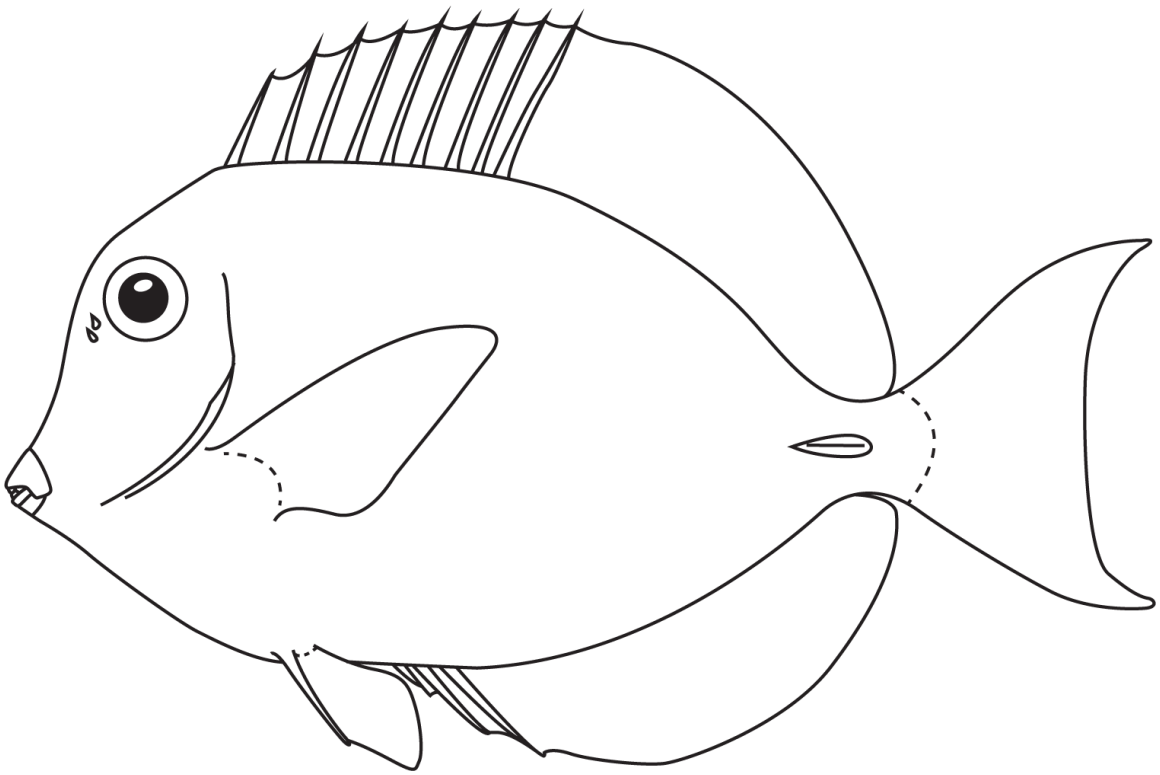
What to do - poor light

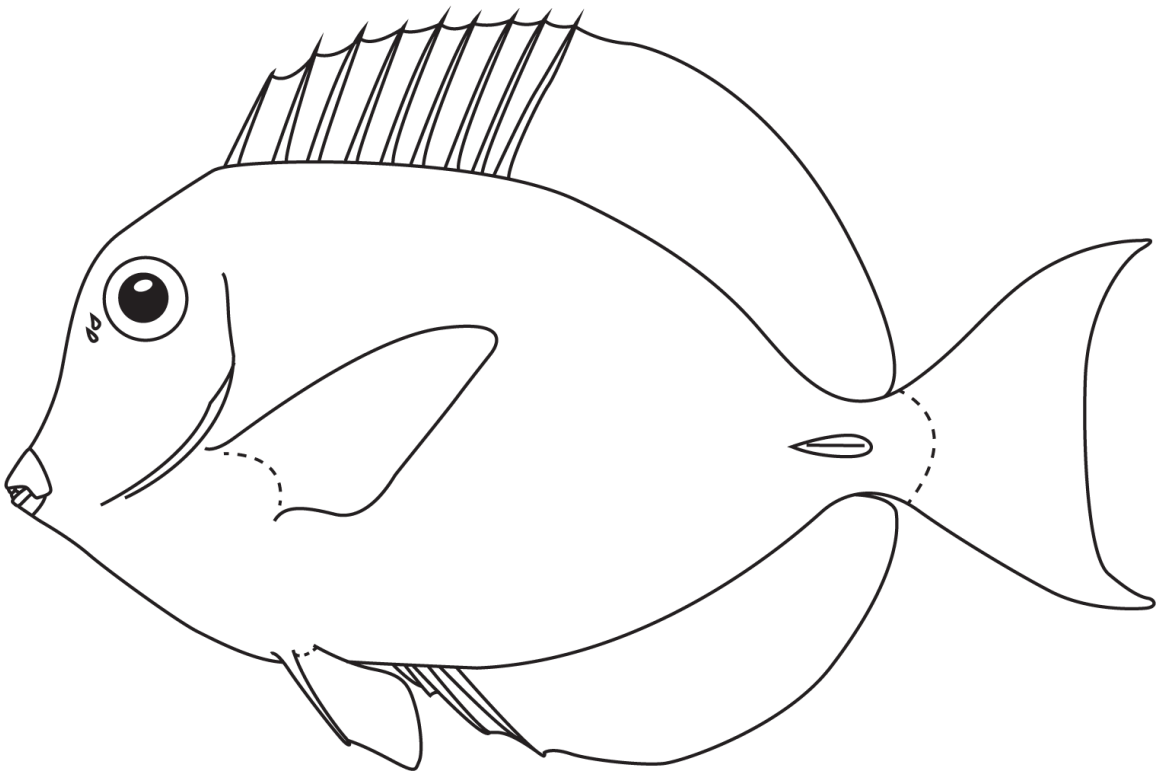
An example of an ideal photo taken at night:

Practical time

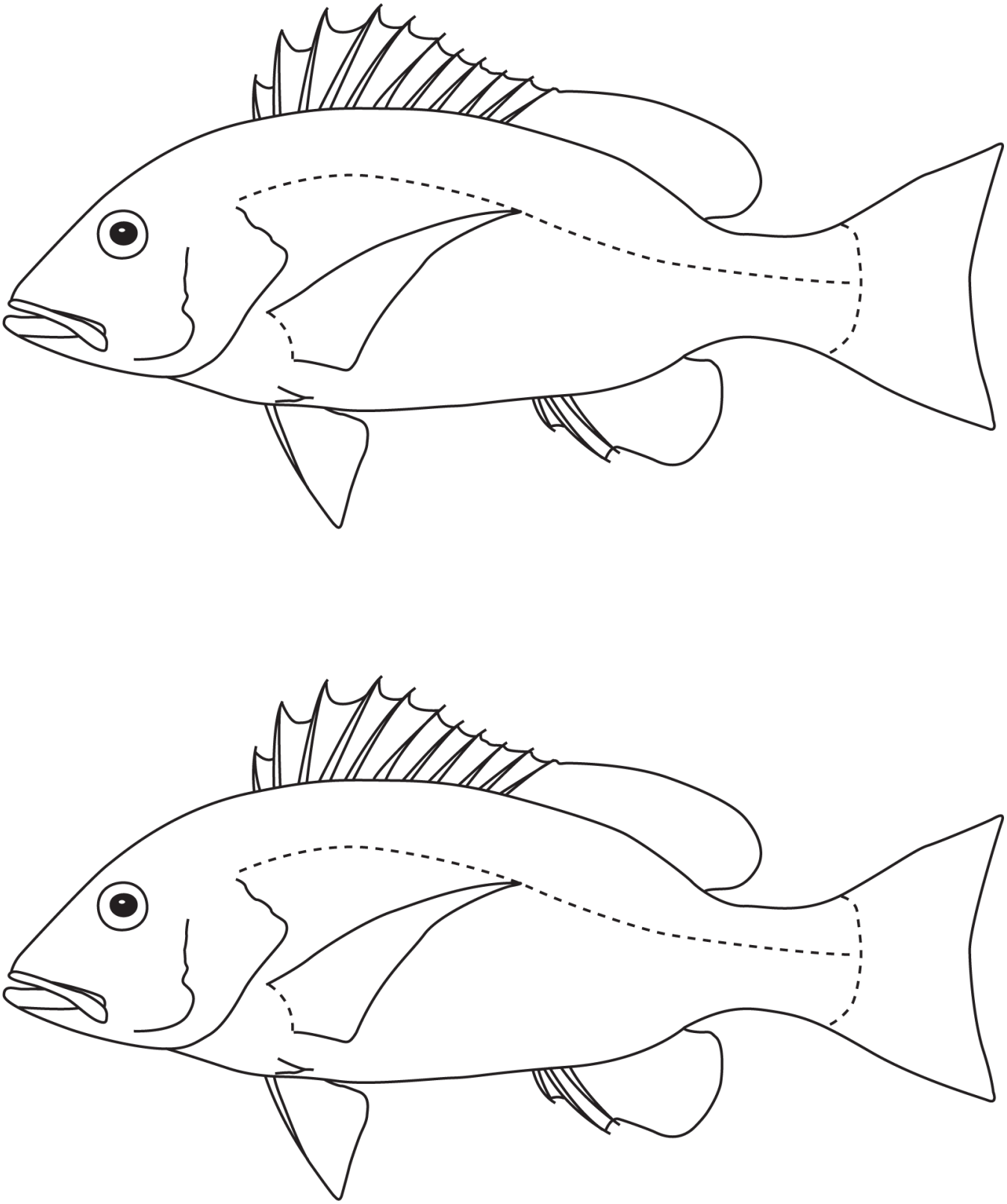
- Catch monitors to practice taking photos in challenging situations
- Data coordinator to check work and offer advice

Appendix C: Fish cut-outs

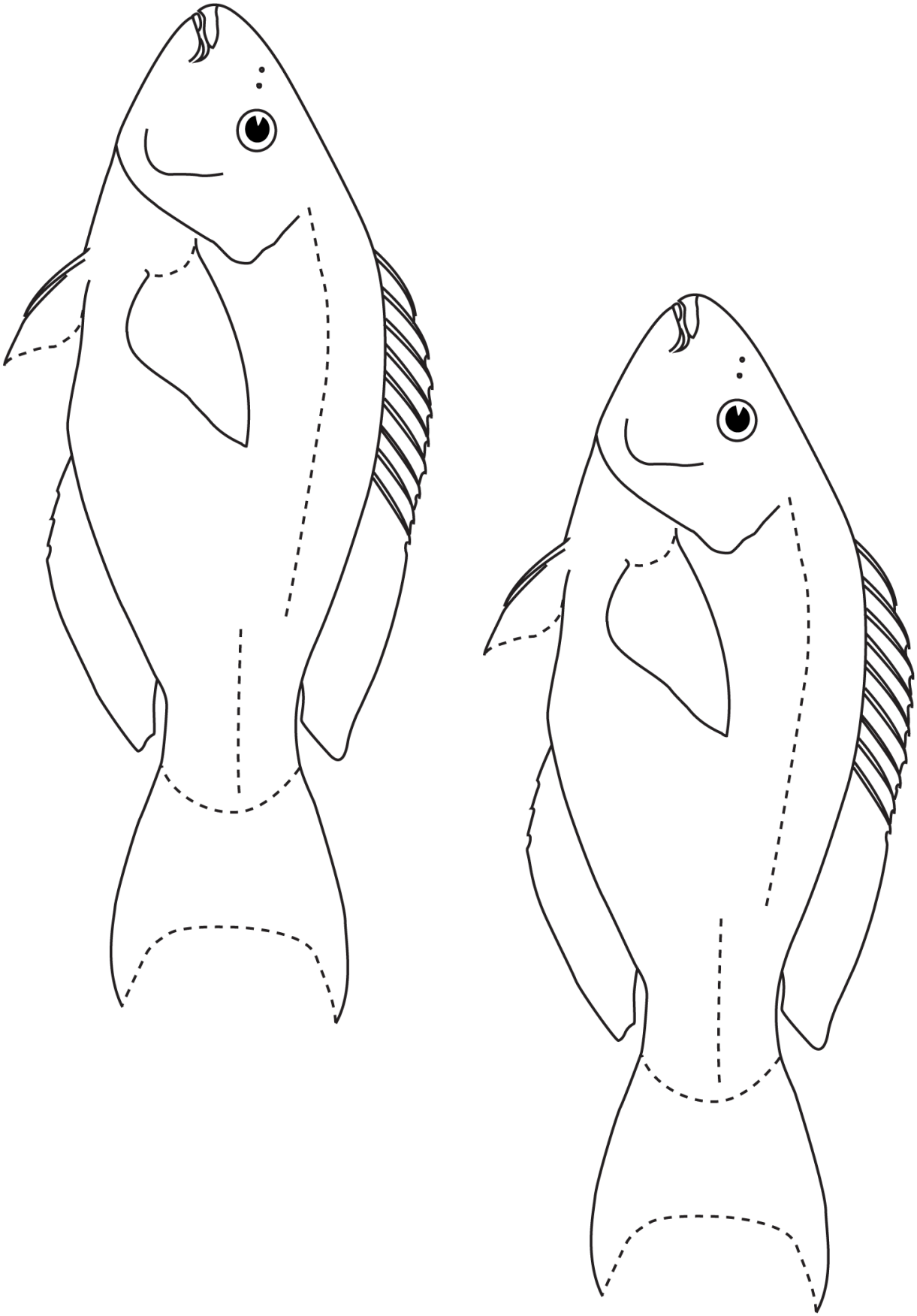




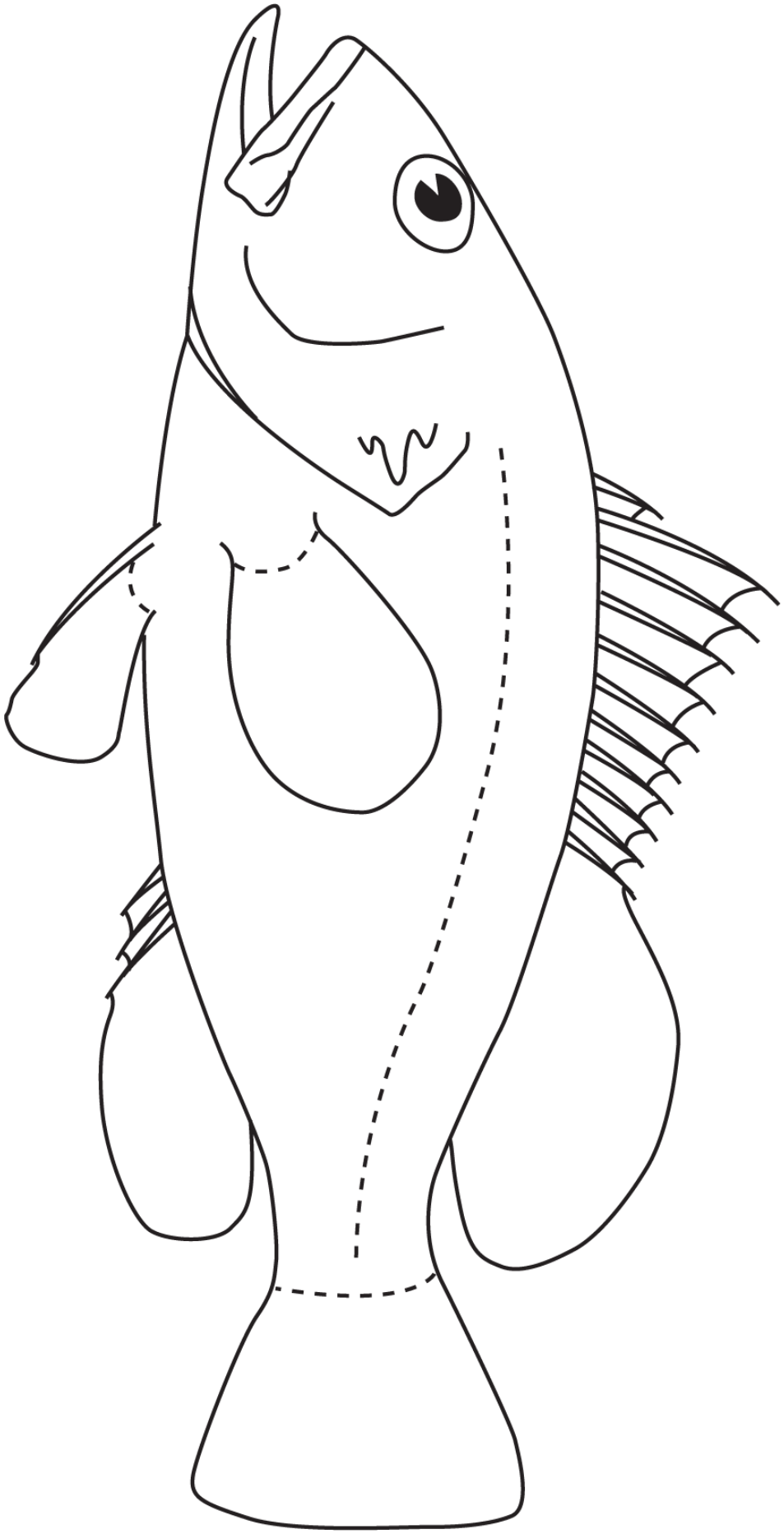
ACANTHURIDAE - SURGEONFISH



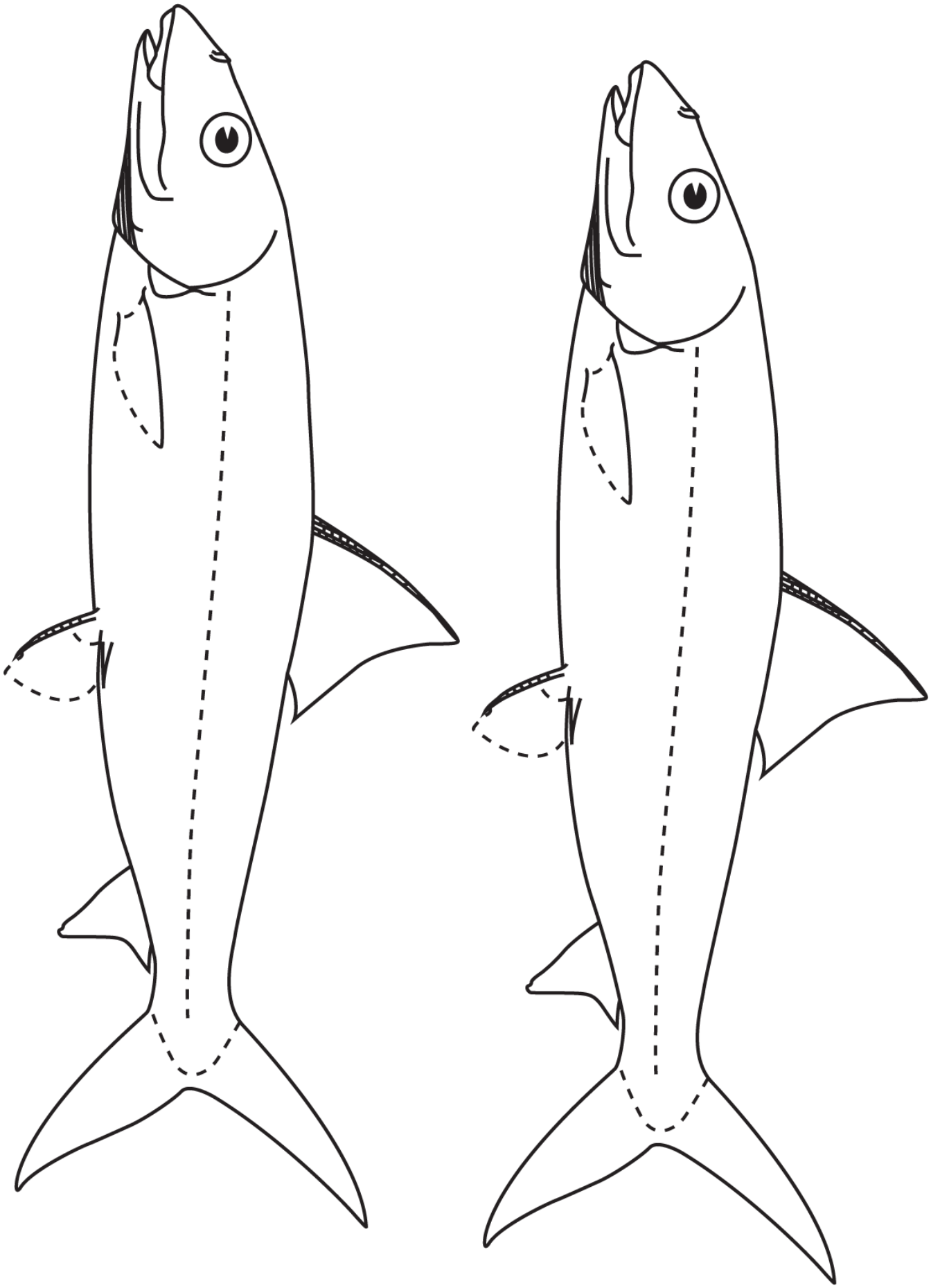
LUTJANIDAE - SNAPPER



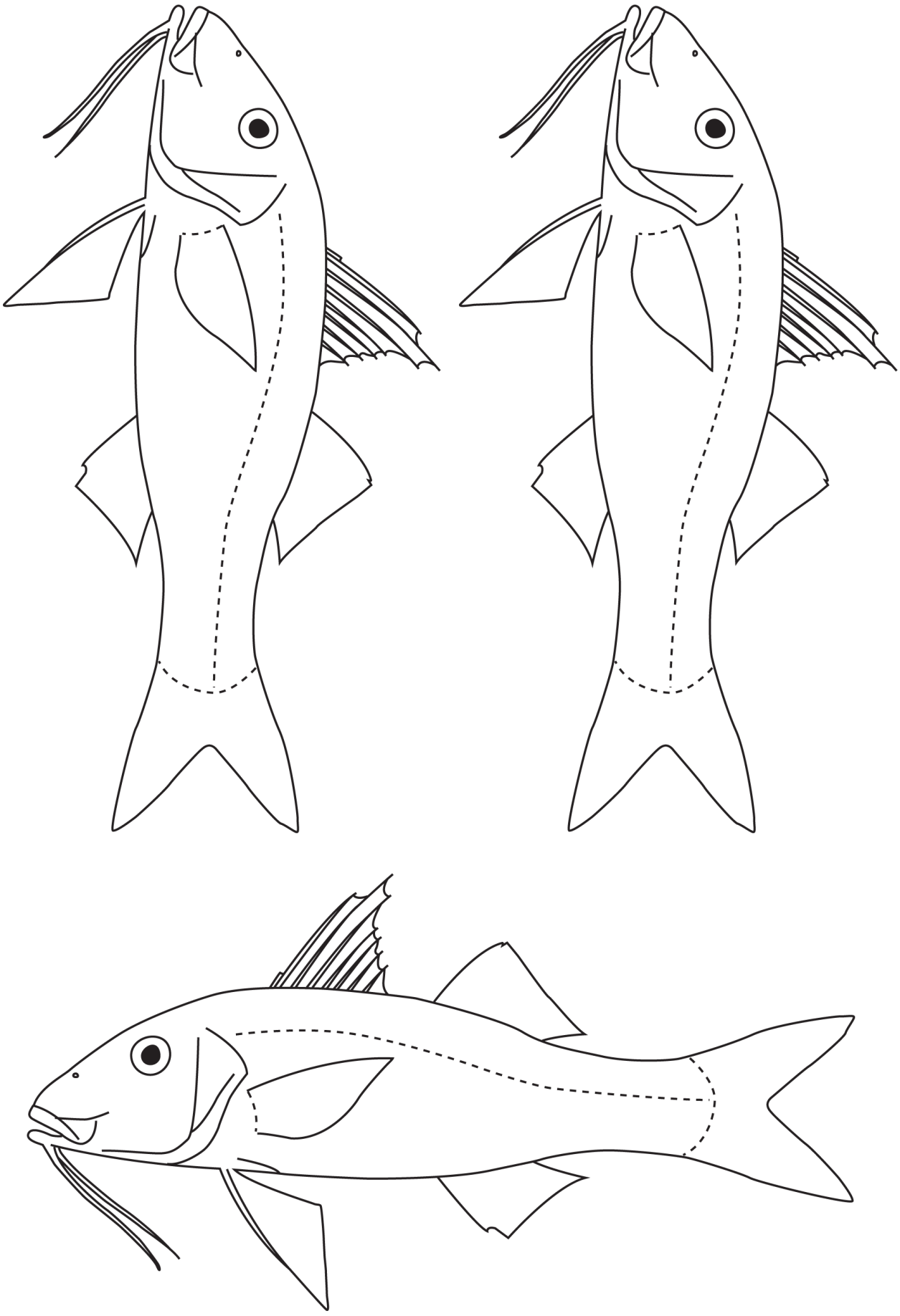
SCARIDAE - PARROT FISH



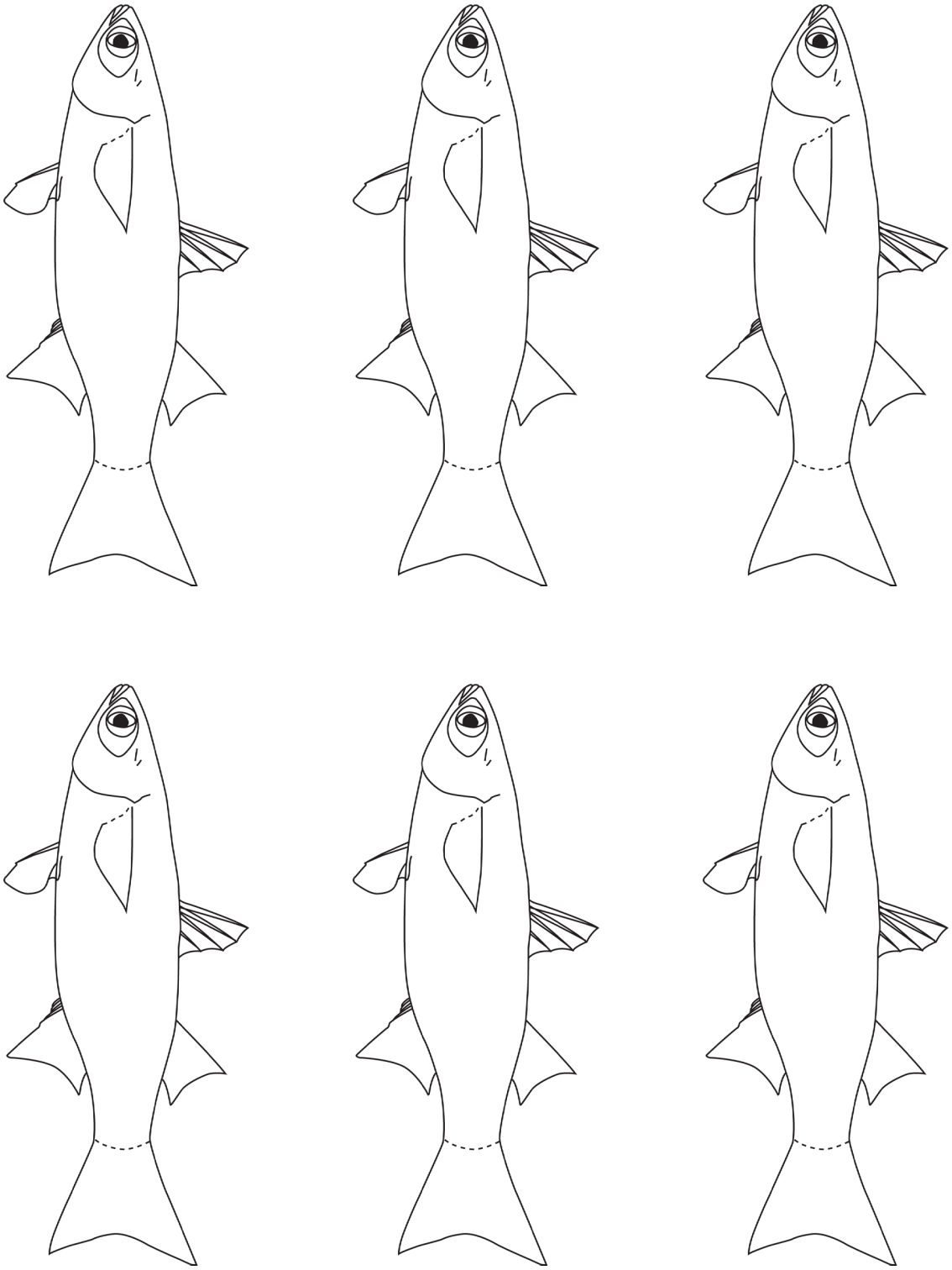
SERRANIDAE - GROUPER



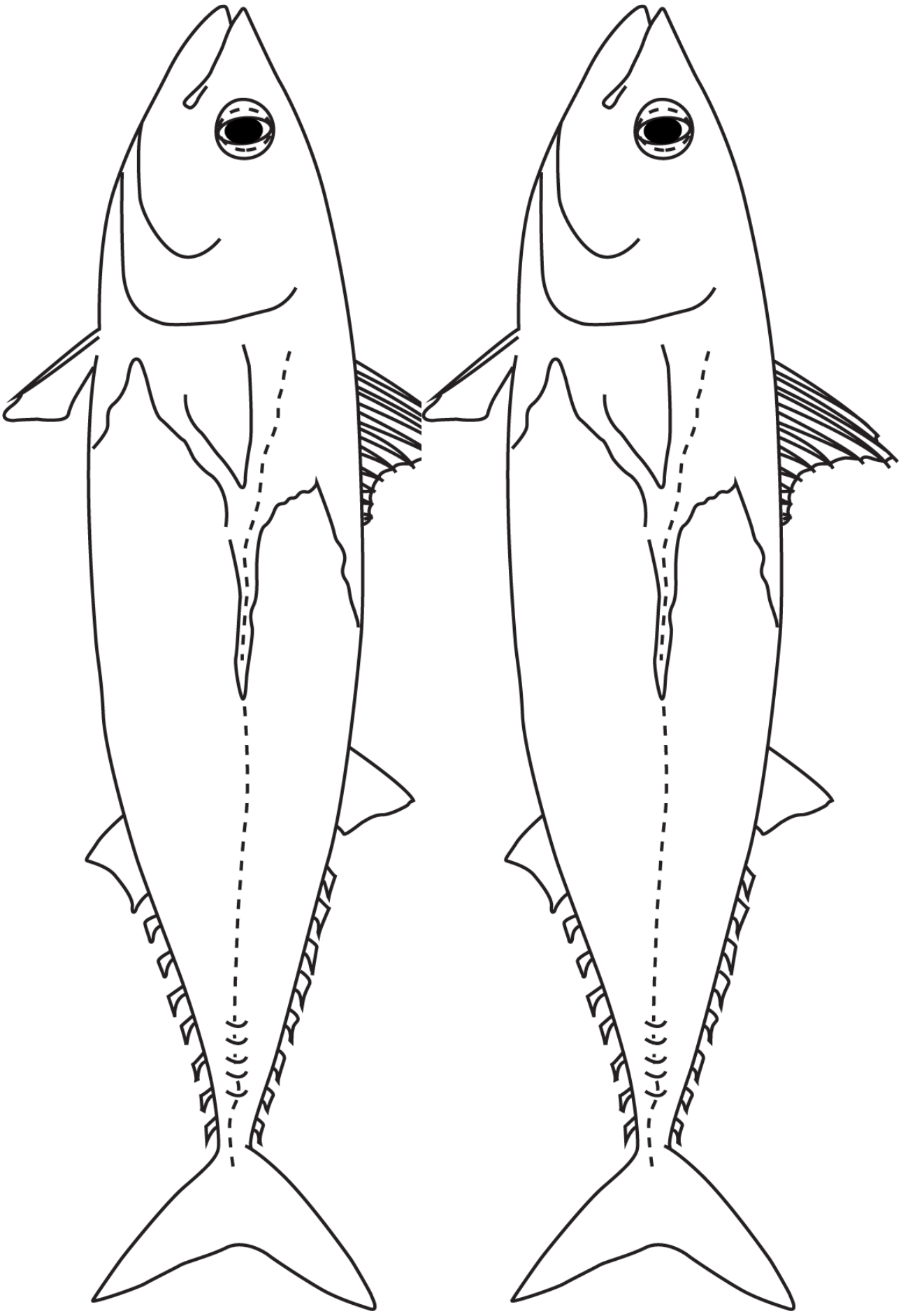
ALBULIDAE - BONEFISH



MULLIDAE - GOATFISH



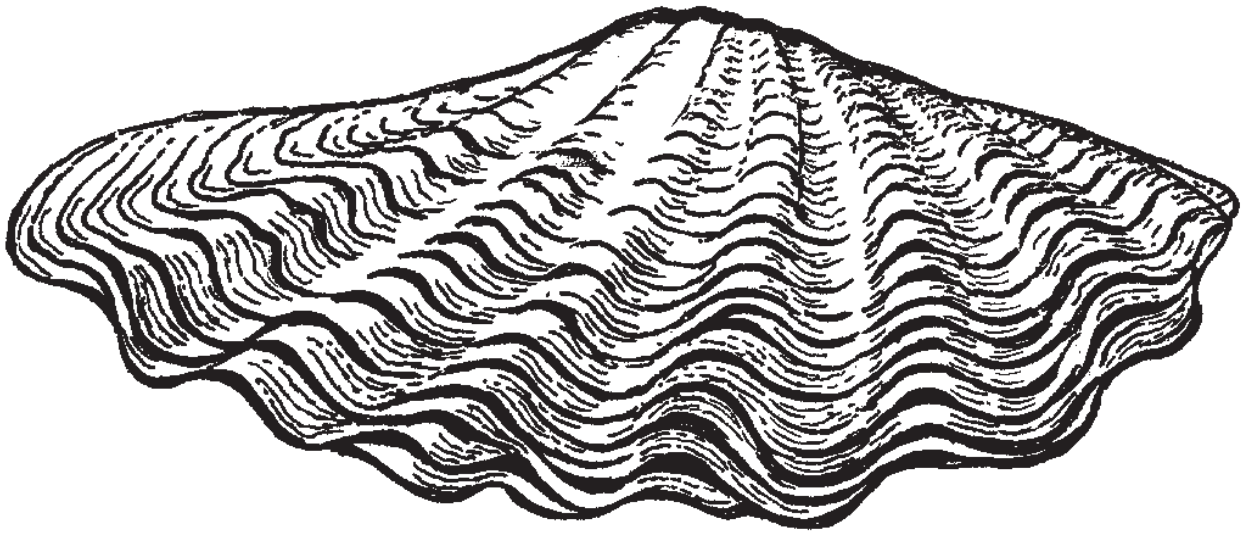
MUGILIDAE - MULLET



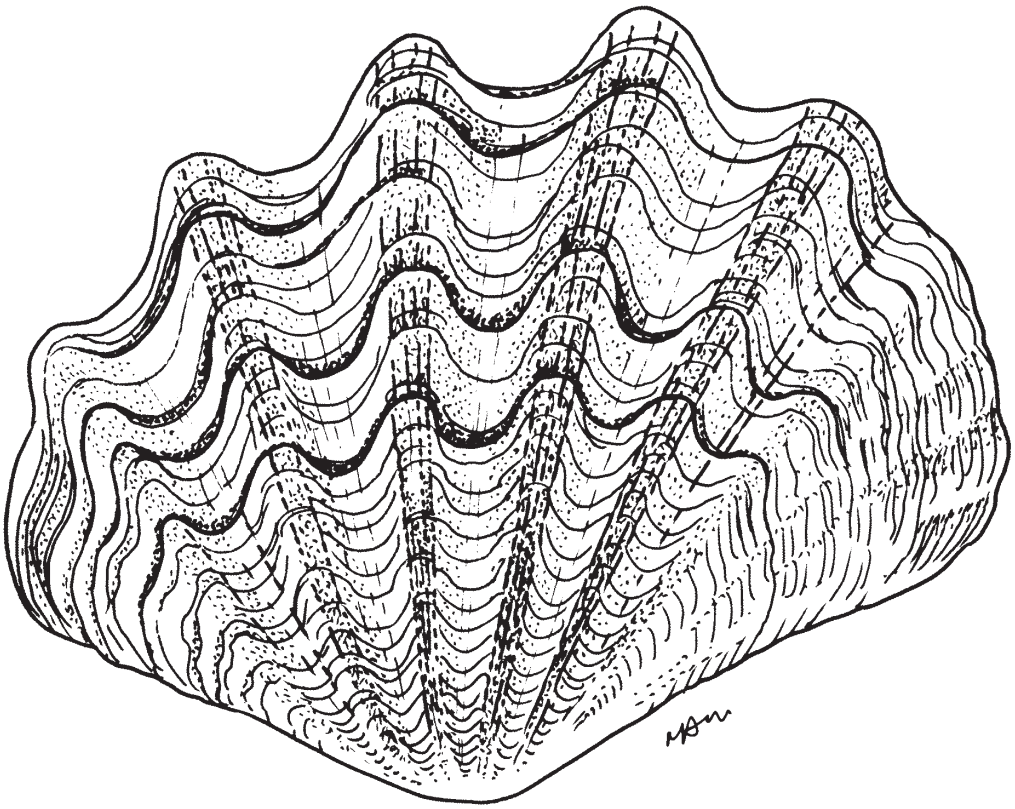
SCOMBRIDAE - TUNAS/ MACKERELS/ BONITOS

Appendix D: Mollusc cut-outs

Giant Clams

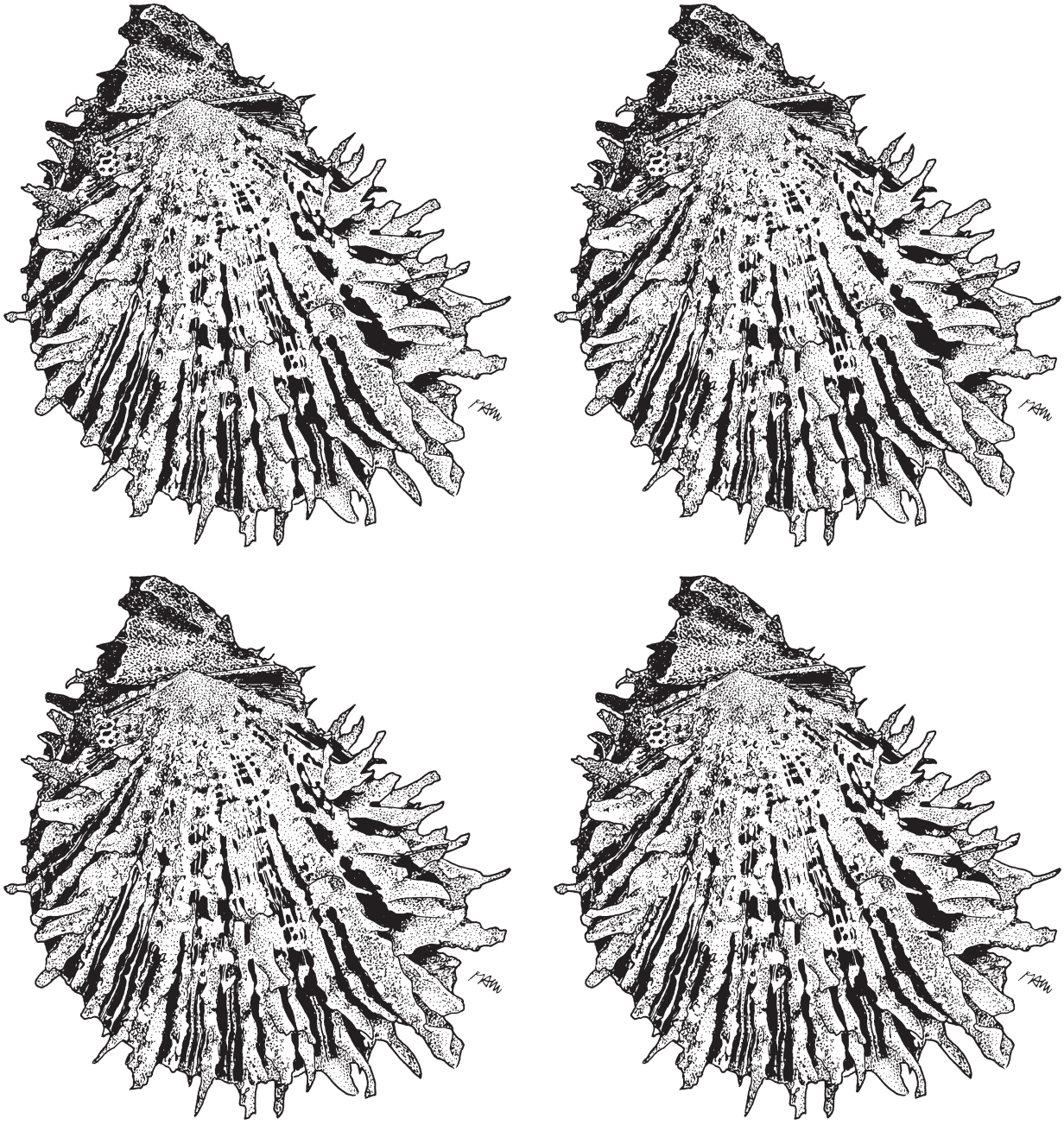


TRIDACNA MAXIMA



TRIDACNA CROCEA

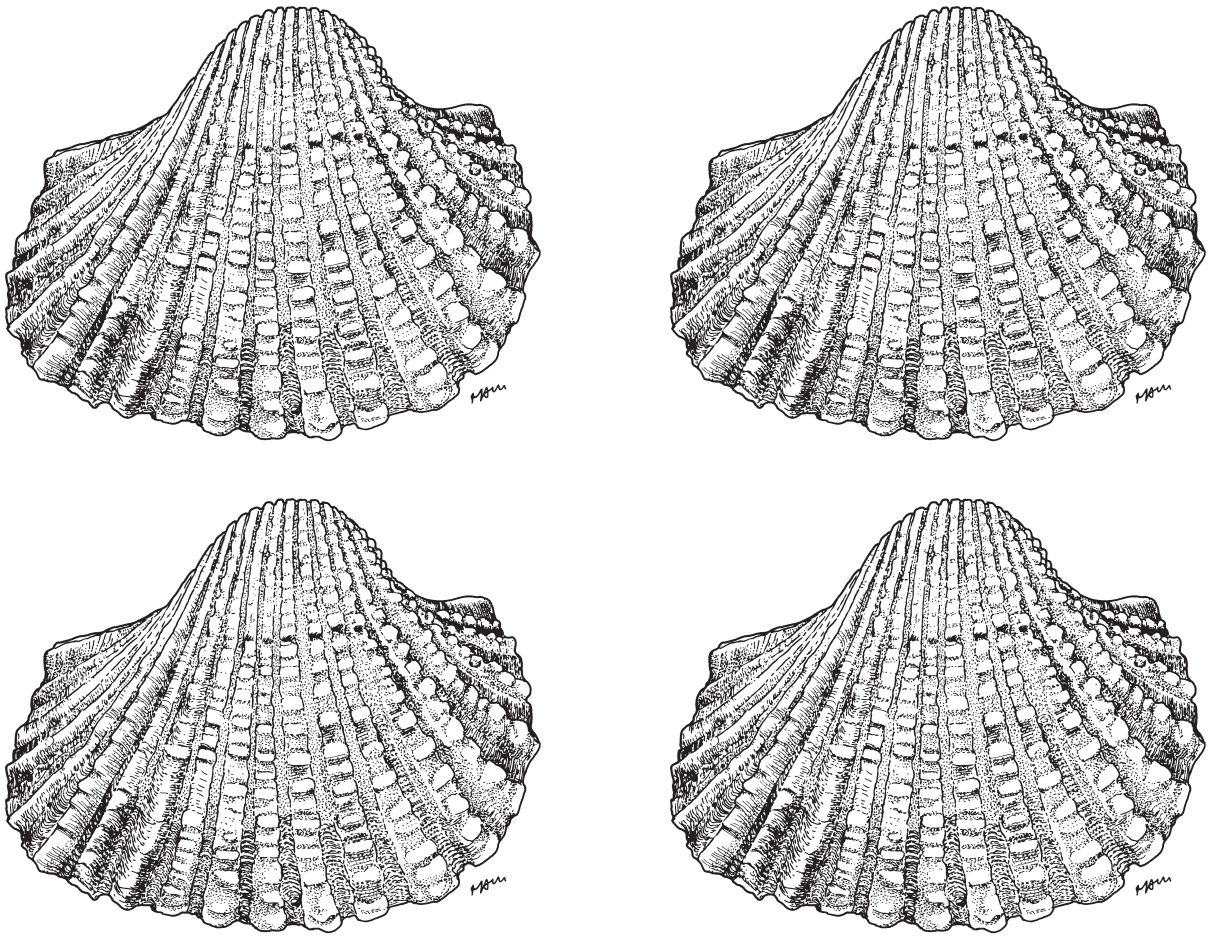
Reef-associated species



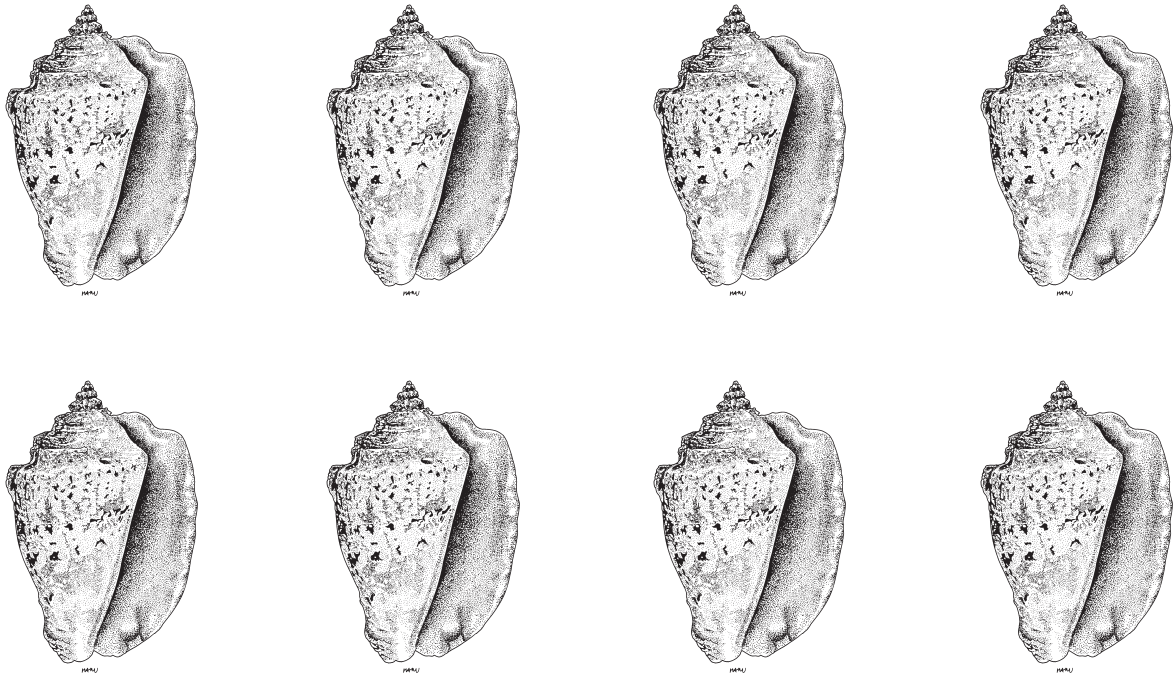
SPONDYLUS SQUAMOSUS

TURBO SETOSUS

Lagoonal species



ANADARA GRANOSA



STROMBUS LENTIGINOSUS

E: Catch photo labels

Use these if your camera/tablet is malfunctioning or to keep track of photos taken before catch surveys are done.

COMMUNITY	DD/MM/YY	FISHERS' NAME	PHOTO #

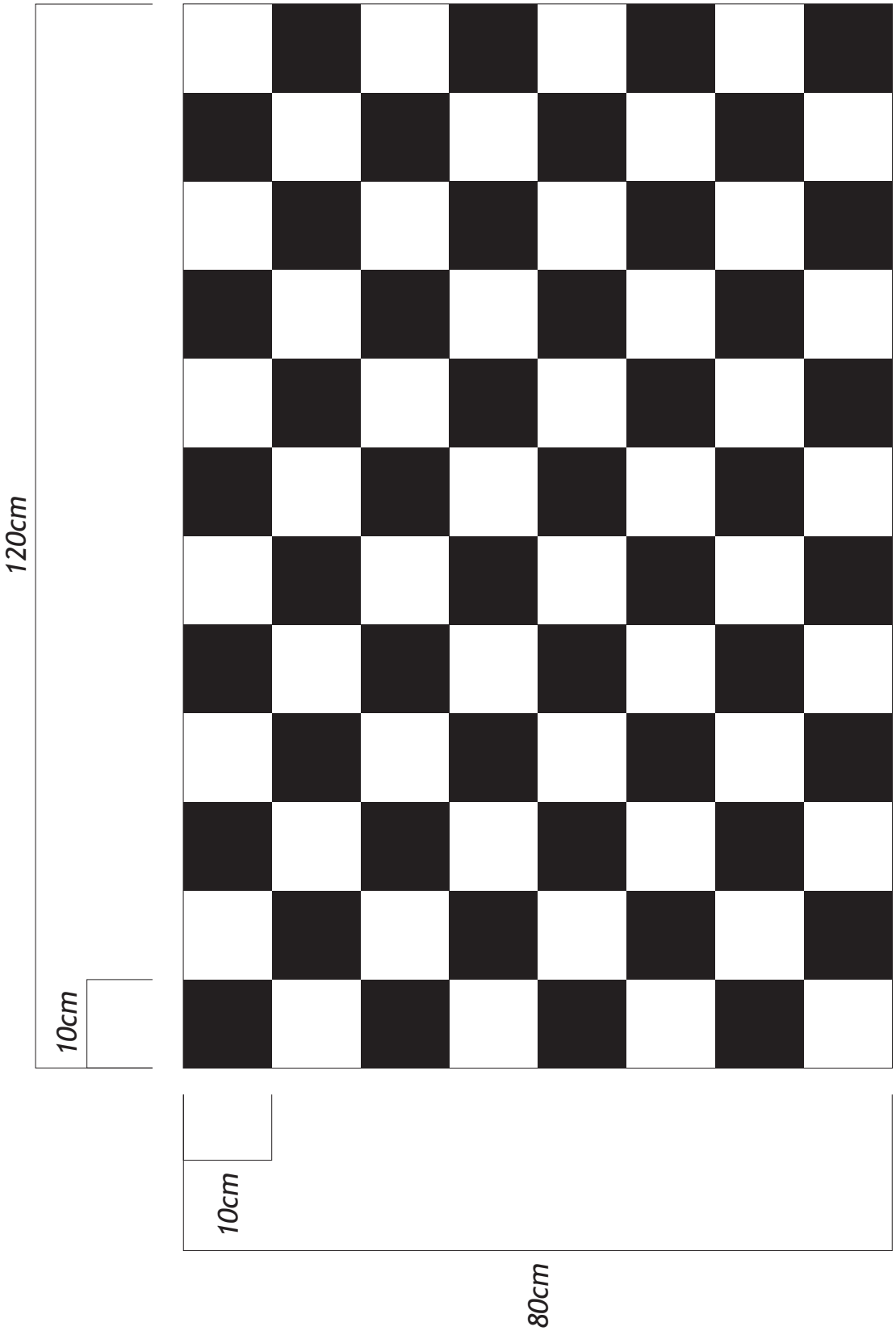
COMMUNITY	DD/MM/YY	FISHERS' NAME	PHOTO #

COMMUNITY	DD/MM/YY	FISHERS' NAME	PHOTO #

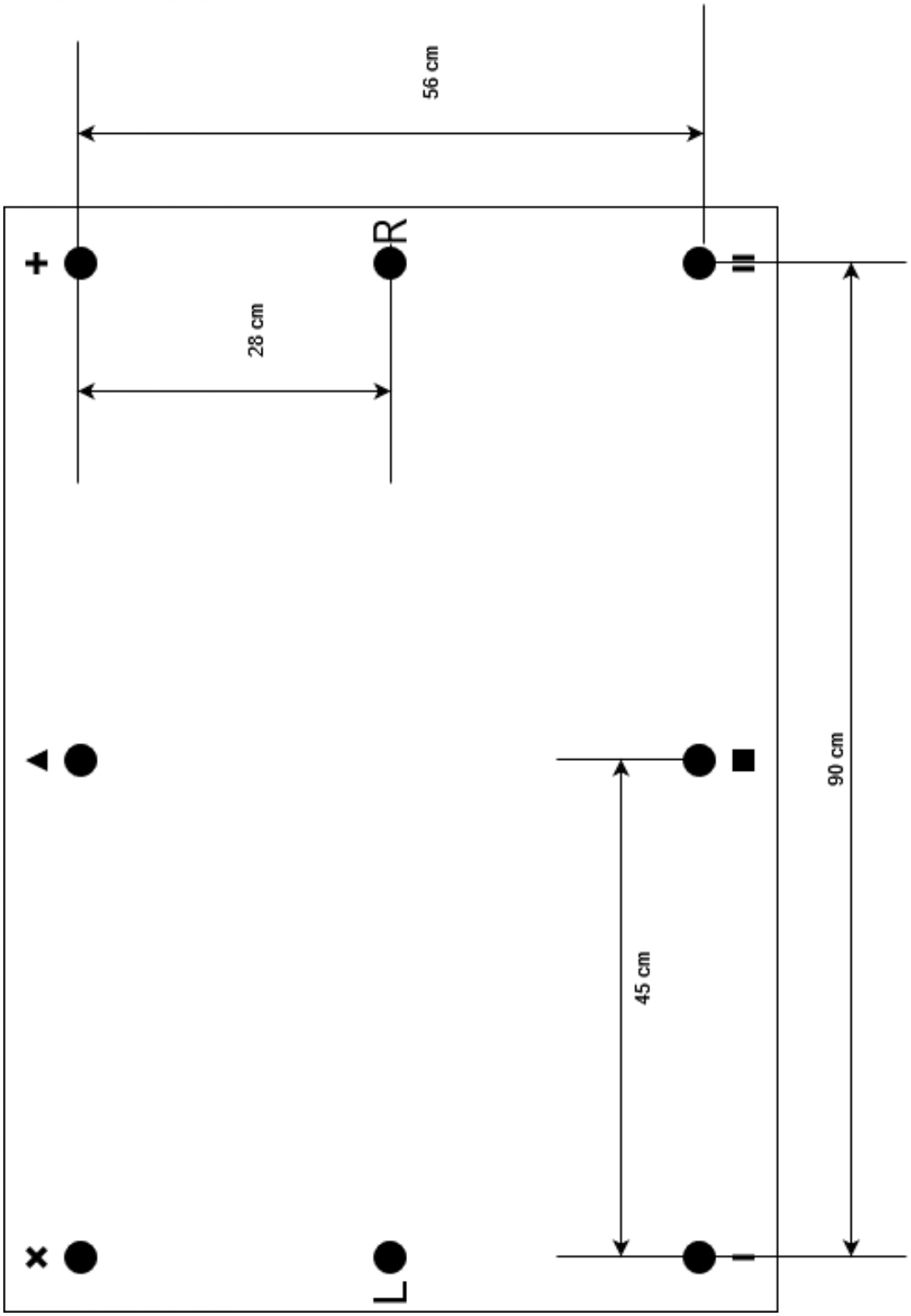
F: Catch mats

There are three types of catch mat, see the folllowing figures i), ii) and iii).

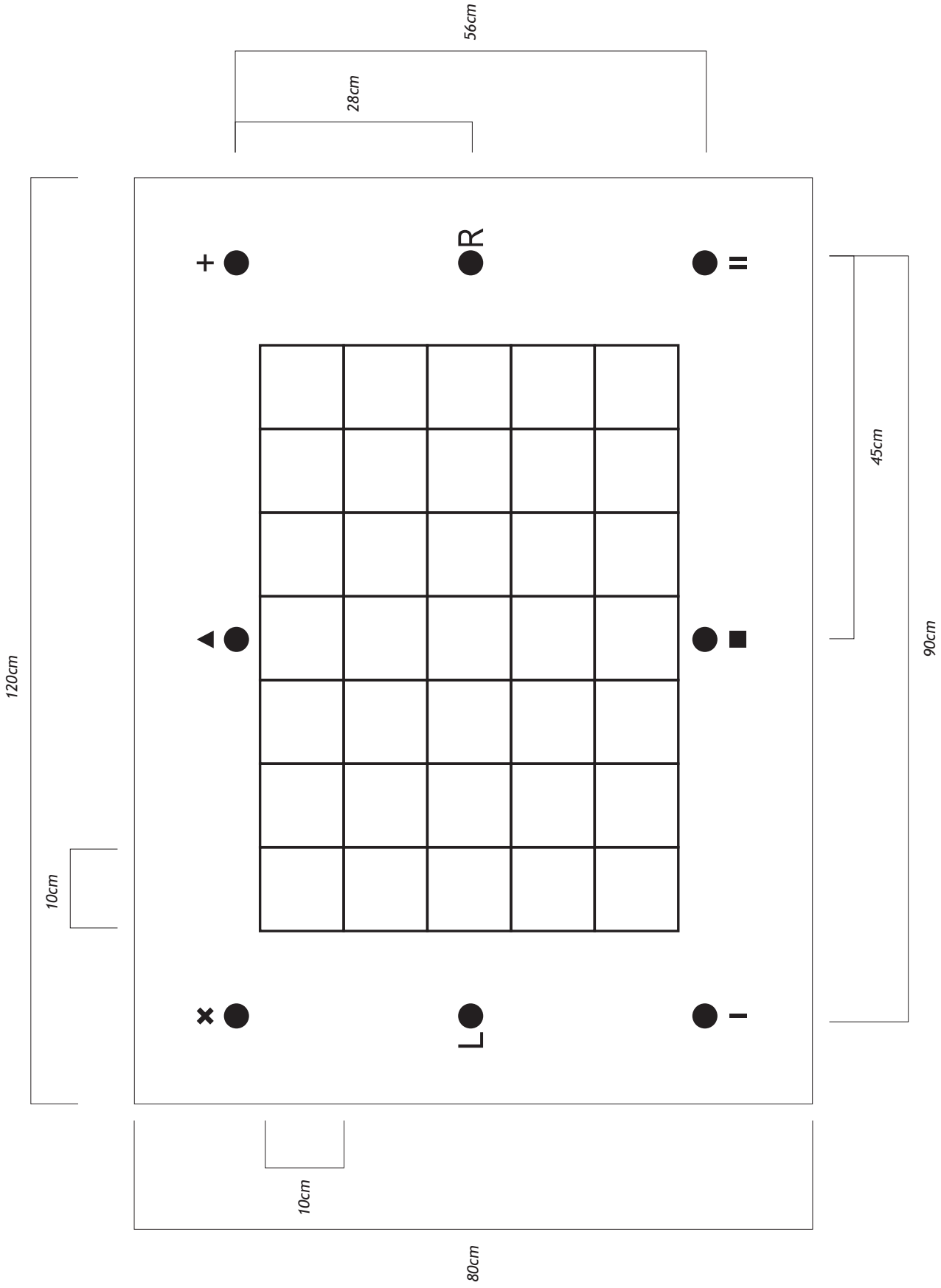
i. Checkerboard mat



ii. SPC catch mat



iii. Hybrid catch mat



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