# Exploratory figures for CNHS

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*6/3/2020*

Notes for Mike:

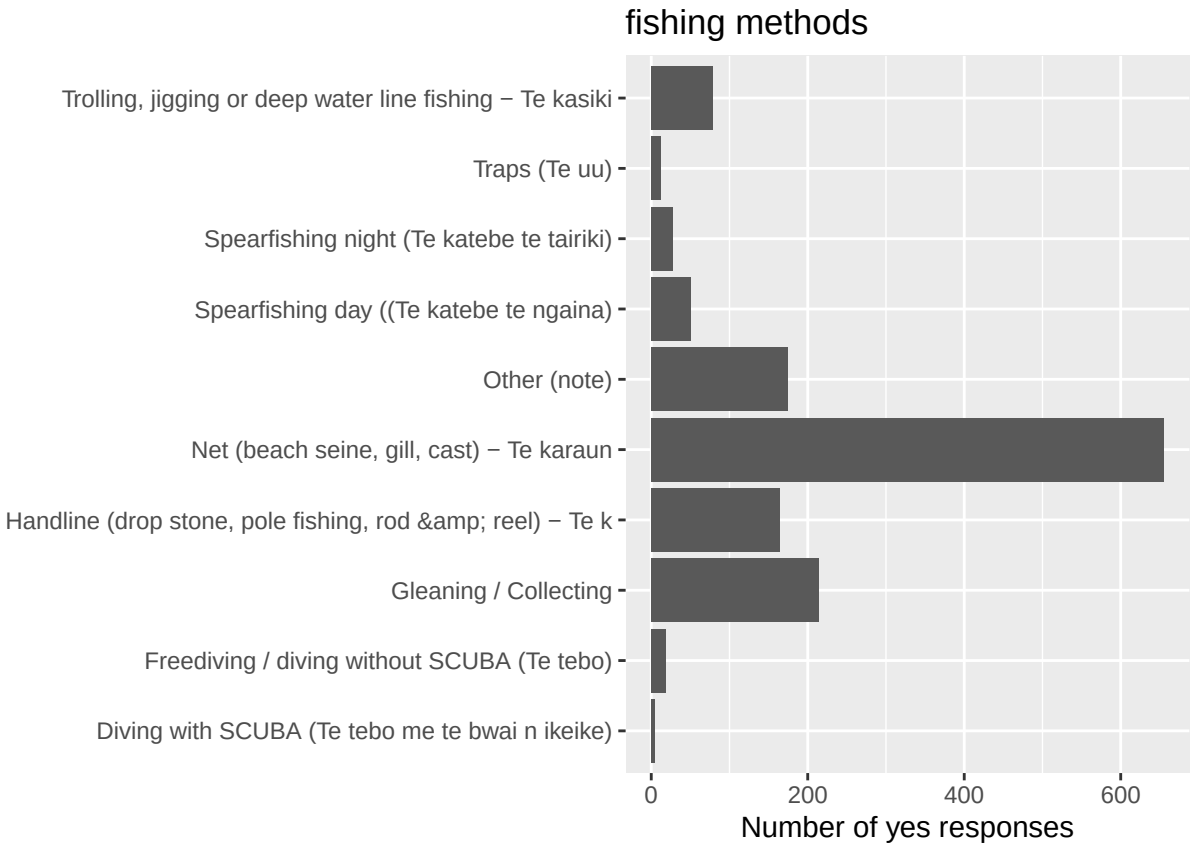
- Where is the market availability data that we had in the last iteration?
- [name of product]_roster is the availability data
- What is the meaning of NA in the multiselect variable columns?
- "." and ".a" in STATA both mean missing. Refer to Mike's May 27 email for example (and to check for consistency with R)
- Why does VRS have household info and anemia info?
- Why are these output as different files (vrs, market, etc. each broken into multiple separate files)
- It is easiest to have the fewest number possible
- Are they going to translate the HIES iKiribati responses?
- Variable labels are cut off (how do we get the full answers back?) see: var_labels
- How to standardize units when none is given (e.g., question == Travel time outside boundary in outsideRoster dataset includes "12", "3", "30 minutes", "1 hour", etc)
- Is a response of "zero" the same as blank response?

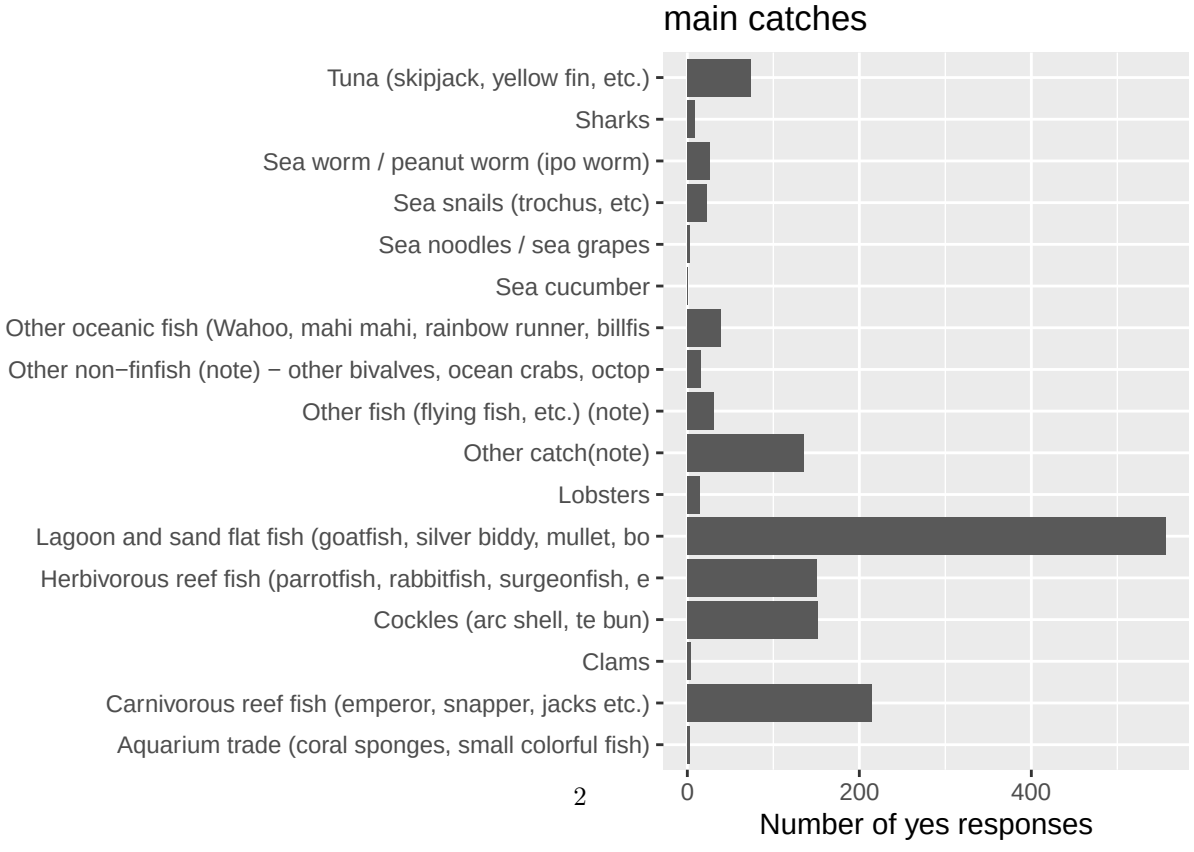
Suggested path forward:

1. Write out tidy versions of each data set and share csv
2. Write functions to visualize each question type:
    - Multi- and single-select, produce bar chart
    - Integer, produce bar chart
    - Continuous, produce histogram and (TBD: box and whisker)
    - Free response, compile unique answers with unique IDs for translation, question, island, possibly role
3. Loop through data and produce pdf of all plots
4. TBD: Start to creat summaries by village/island

## Fisheries data

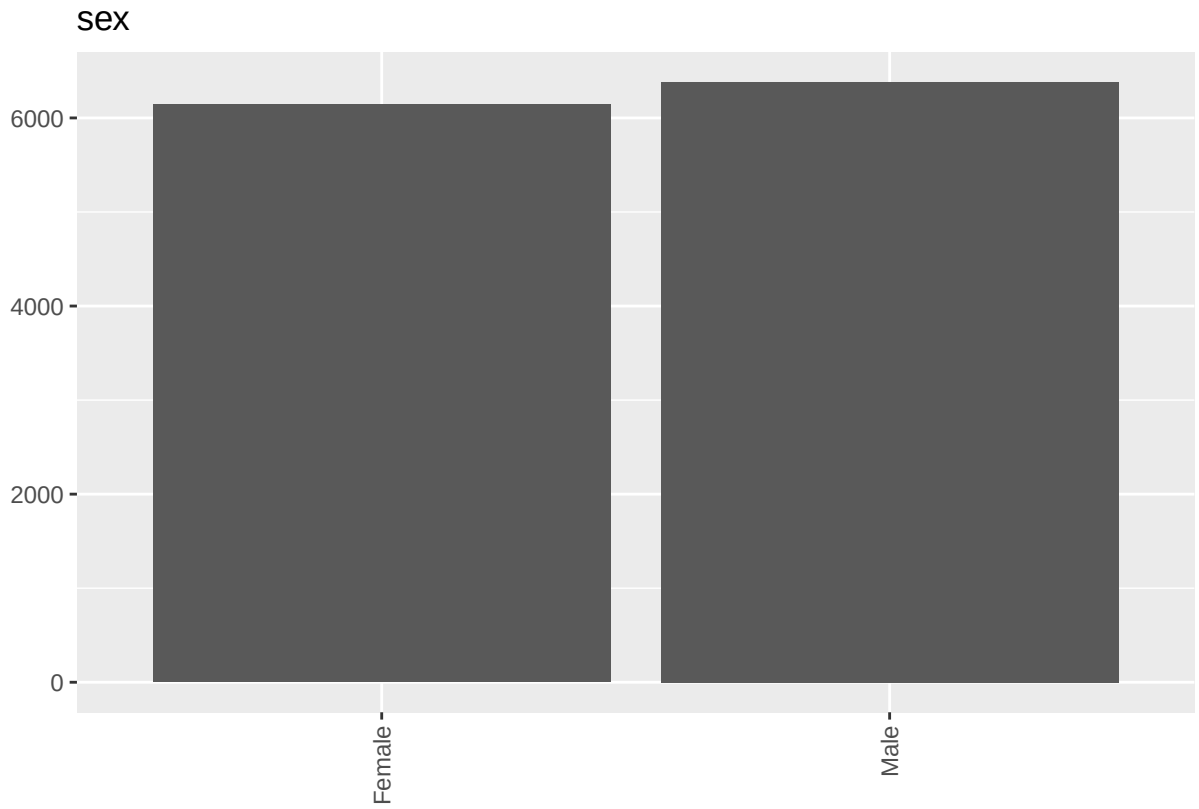
### *Multi-response questions*

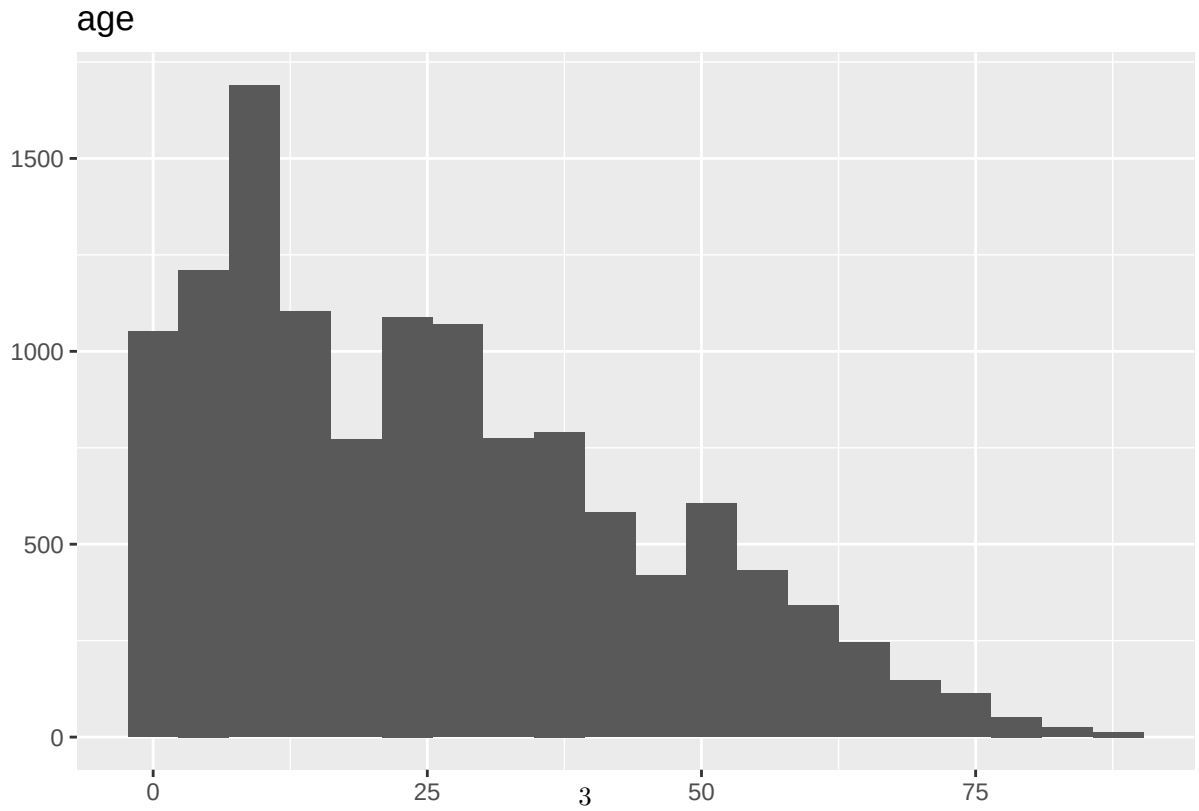


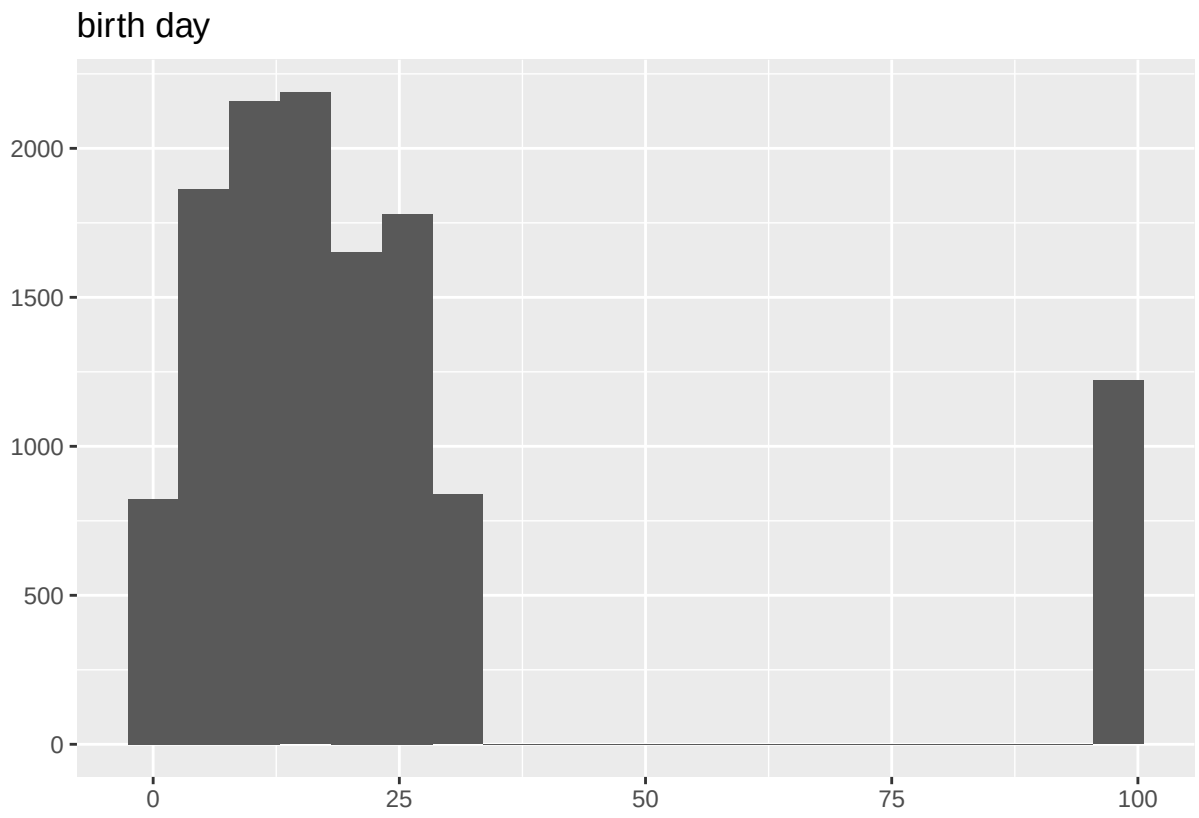



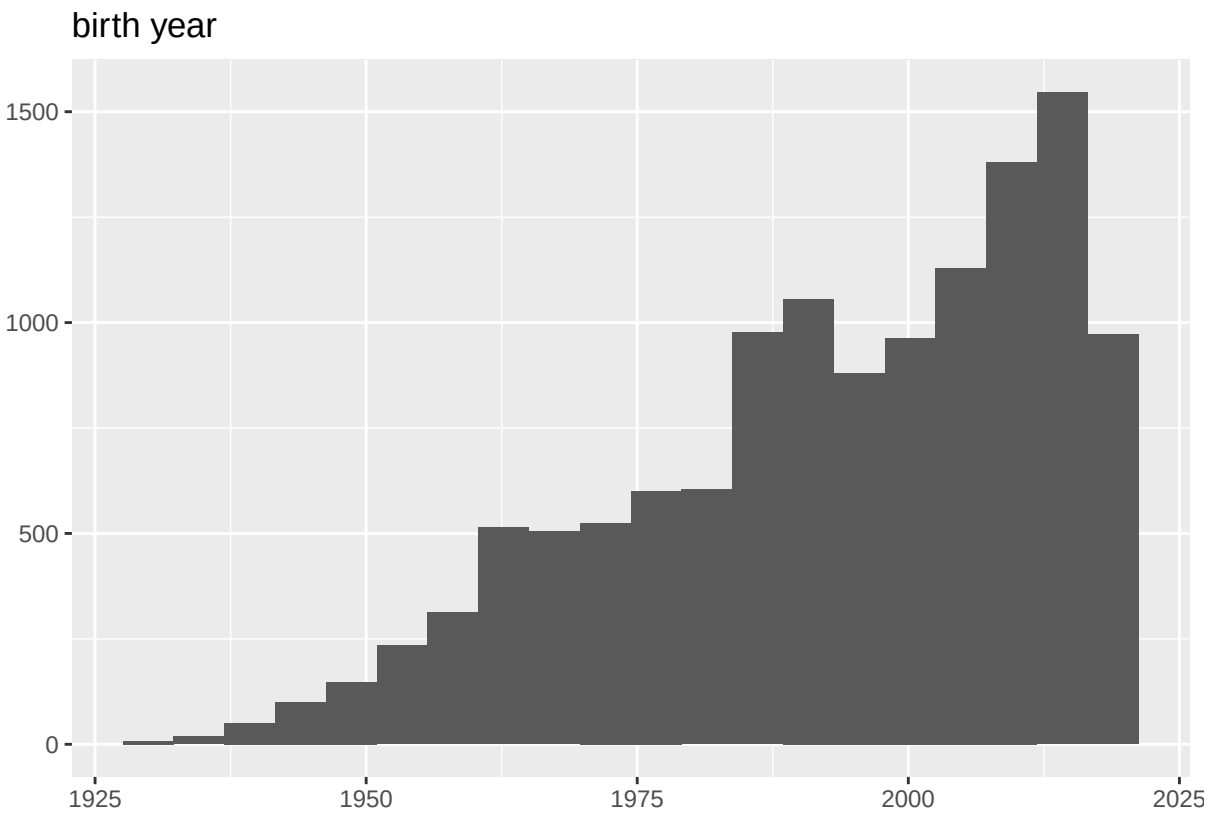
**Fisheries continued...**

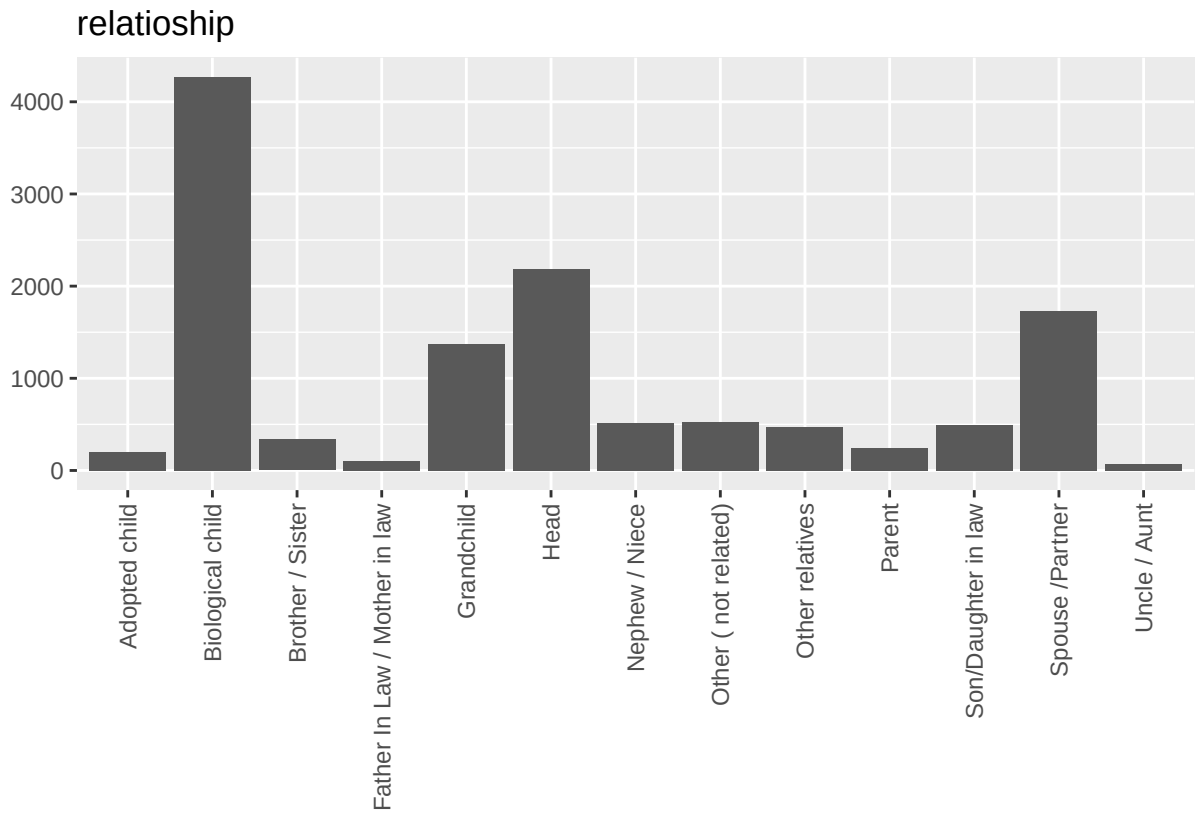
***Single response questions***

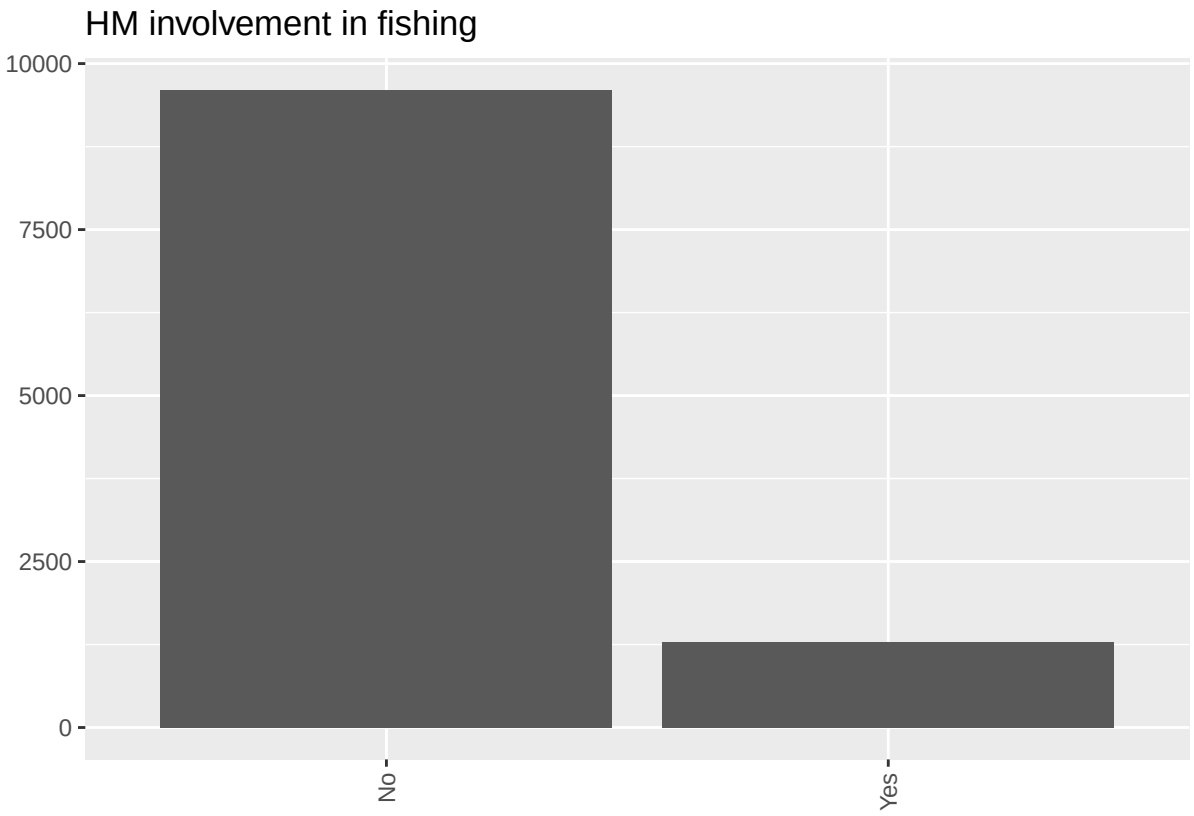


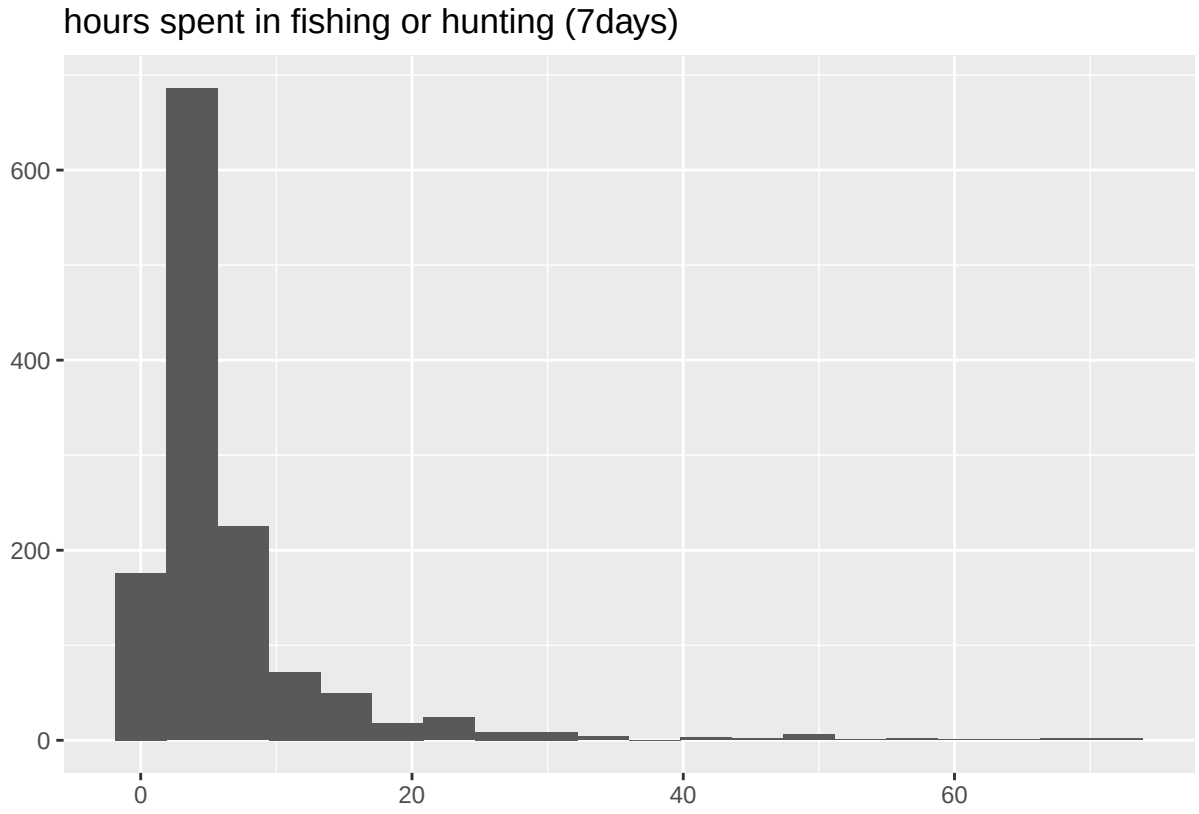



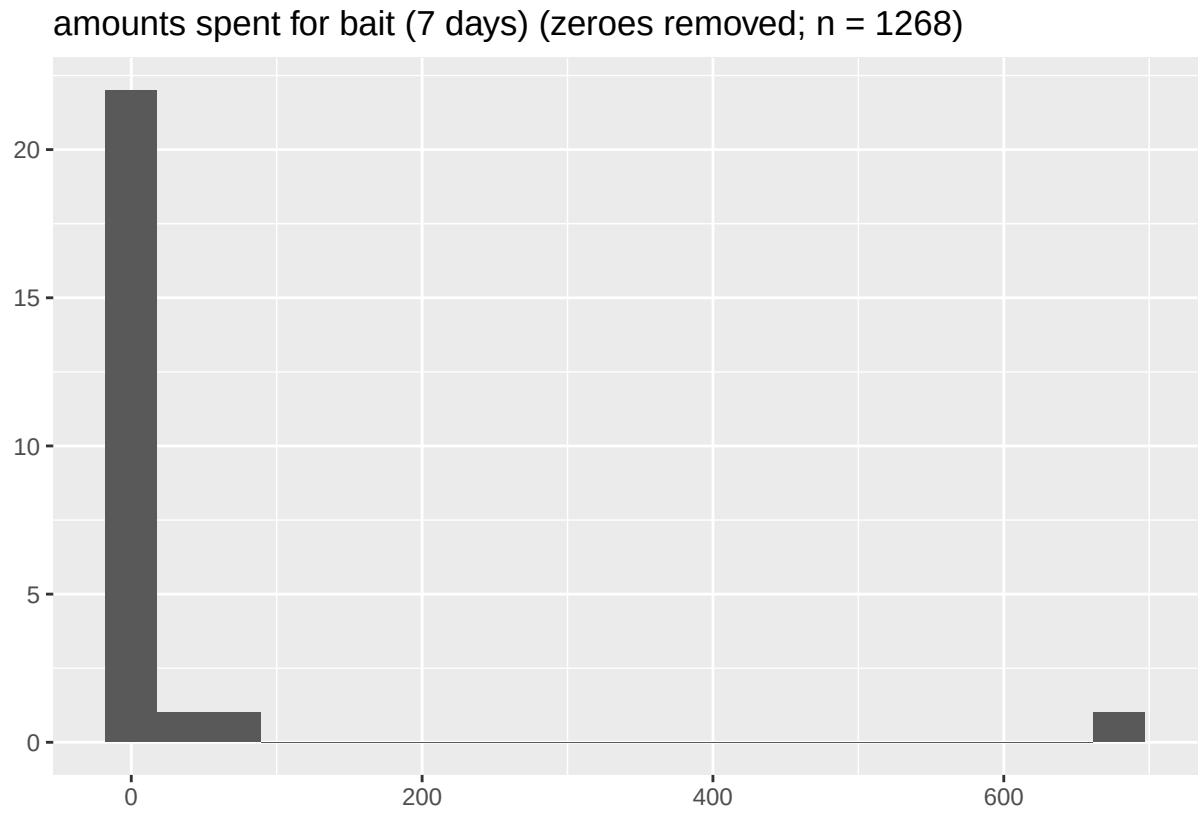

birth day
2000
1500
1000
500
0
0
25
50
75
100

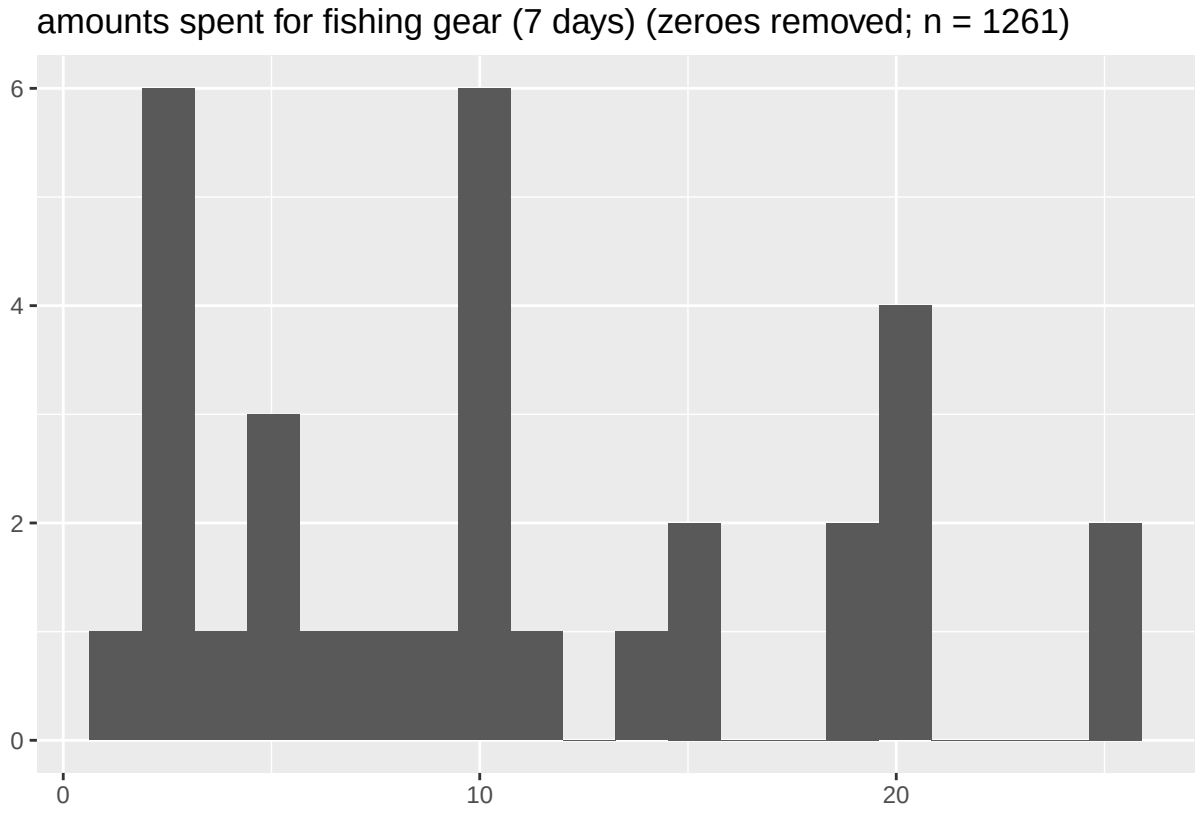

birth year
1500
1000
500
0
1925
1950
1975
2000
2025

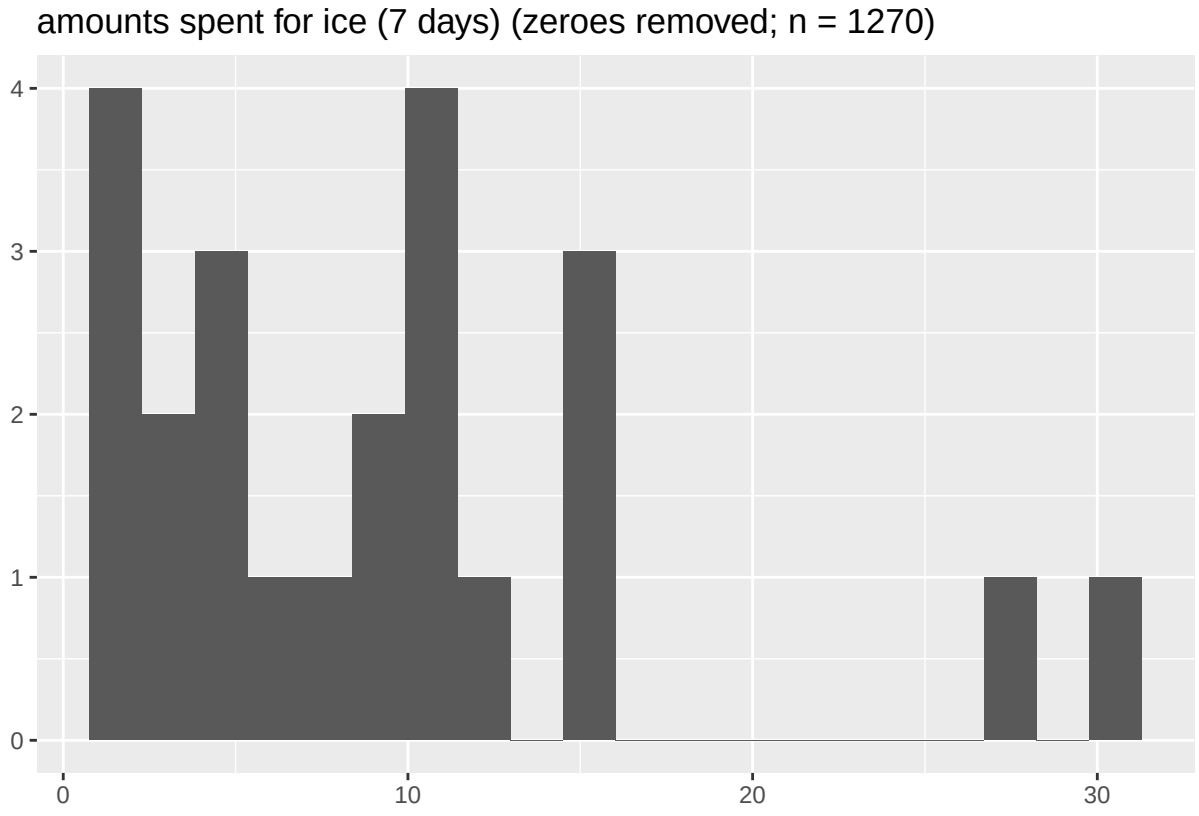

relatioship
4000
3000
2000
1000
0
Adopted child
Biological child
Brother / Sister
Father In Law / Mother in law
Grandchild
Head
Nephew / Niece
Other ( not related)
Other relatives
Parent
Son/Daughter in law
Spouse /Partner
Uncle / Aunt


HM involvement in fishing
10000
7500
5000
2500
0
No
Yes

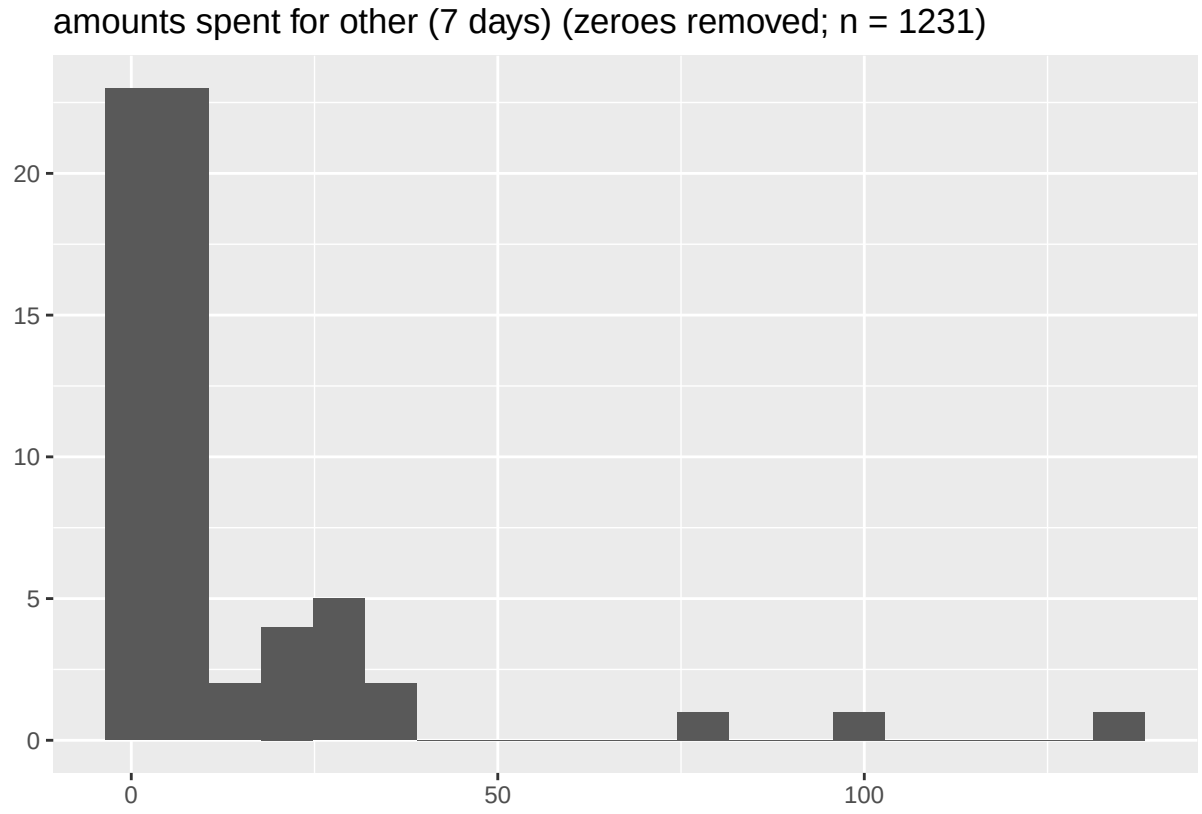

hours spent in fishing or hunting (7days)
600
400
200
0
0
20
40
60

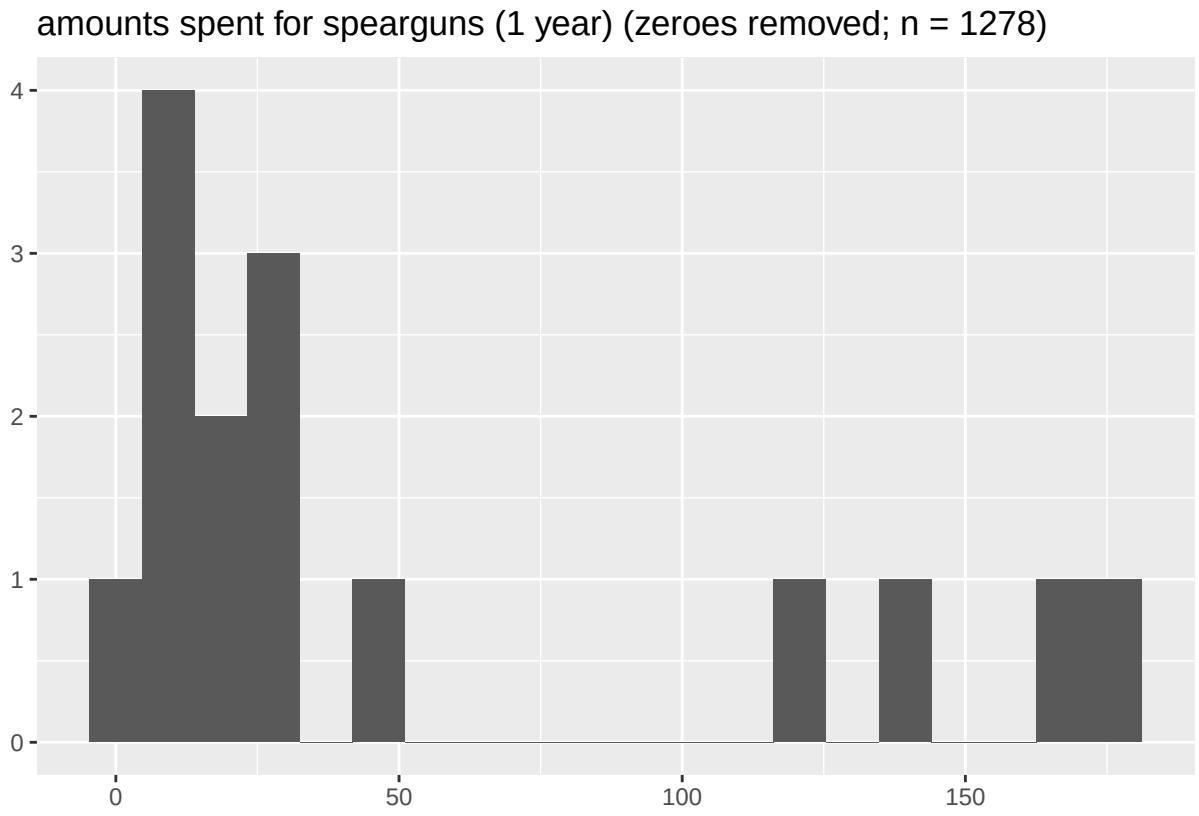

amounts spent for bait (7 days) (zeroes removed; n = 1268)
20
15
10
5
0
0
200
400
600

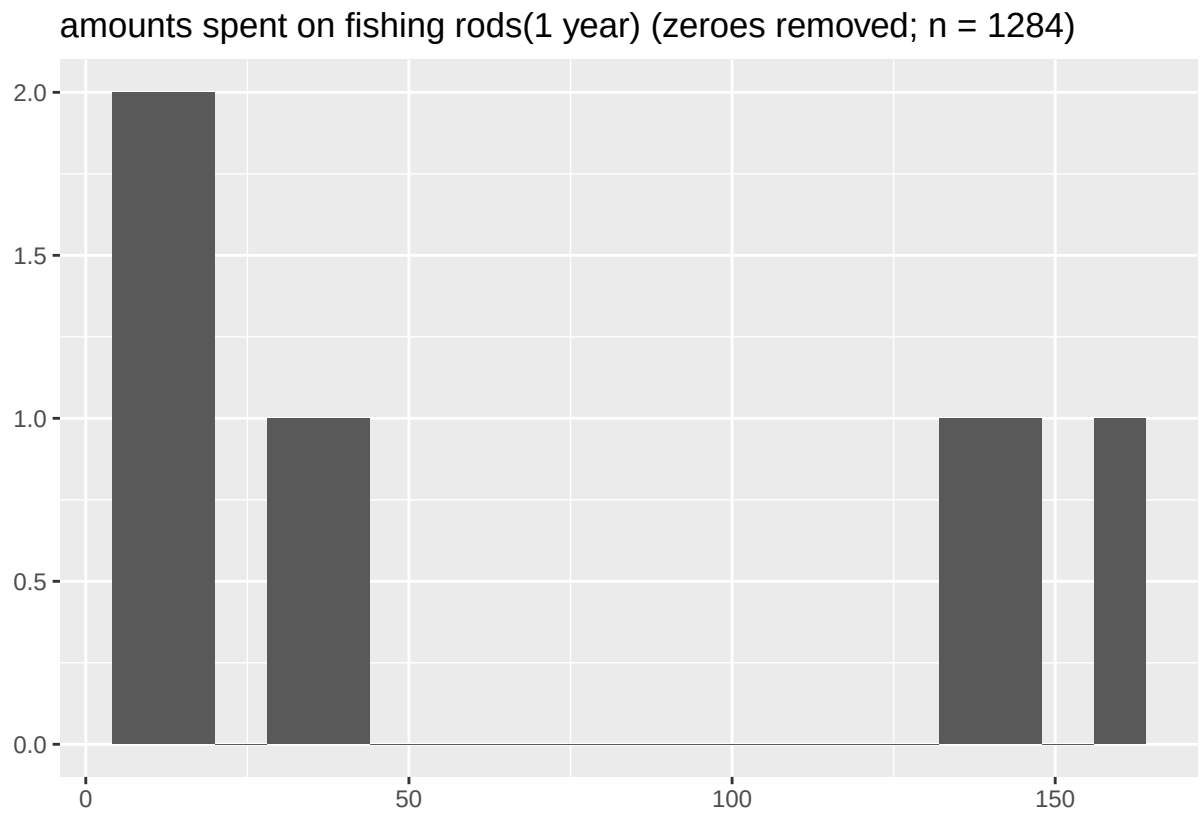

amounts spent for fishing gear (7 days) (zeroes removed; n = 1261)
6
4
2
0
0
10
20

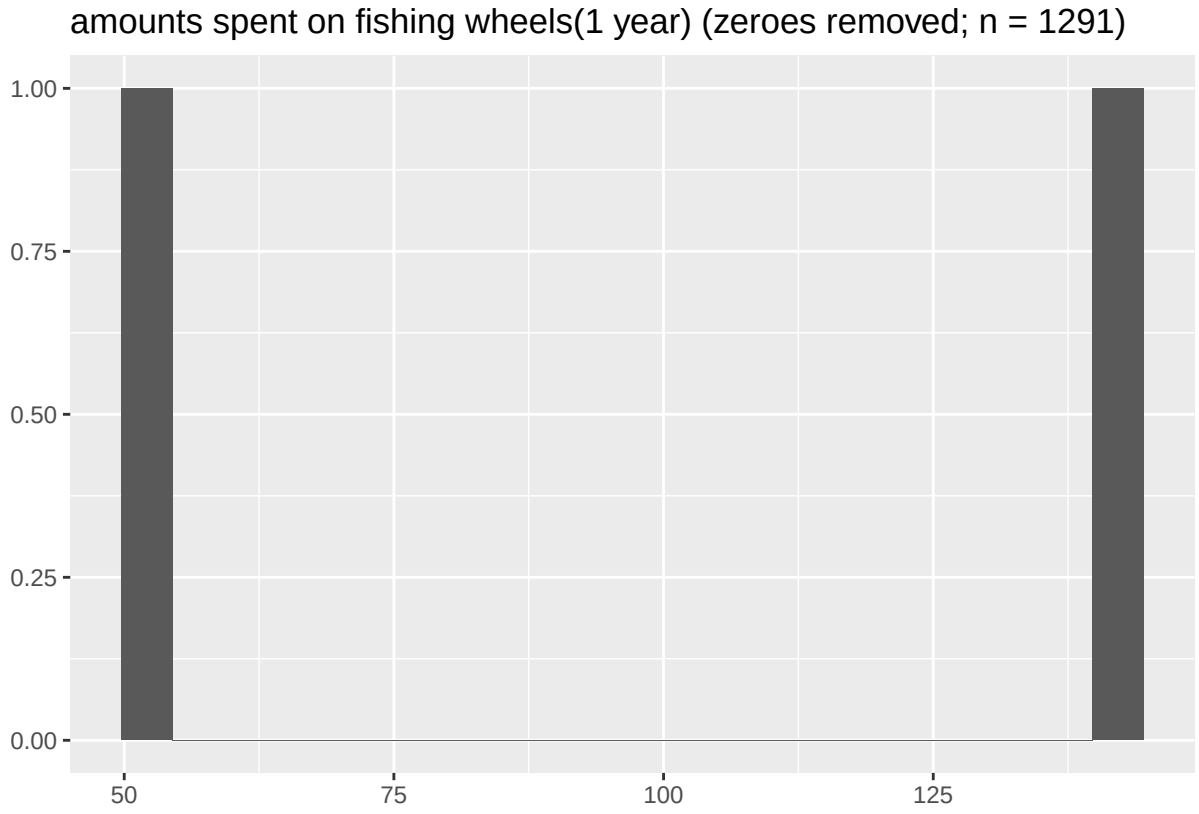

amounts spent for ice (7 days) (zeroes removed; n = 1270)
4
3
2
1
0
0
10
20
30

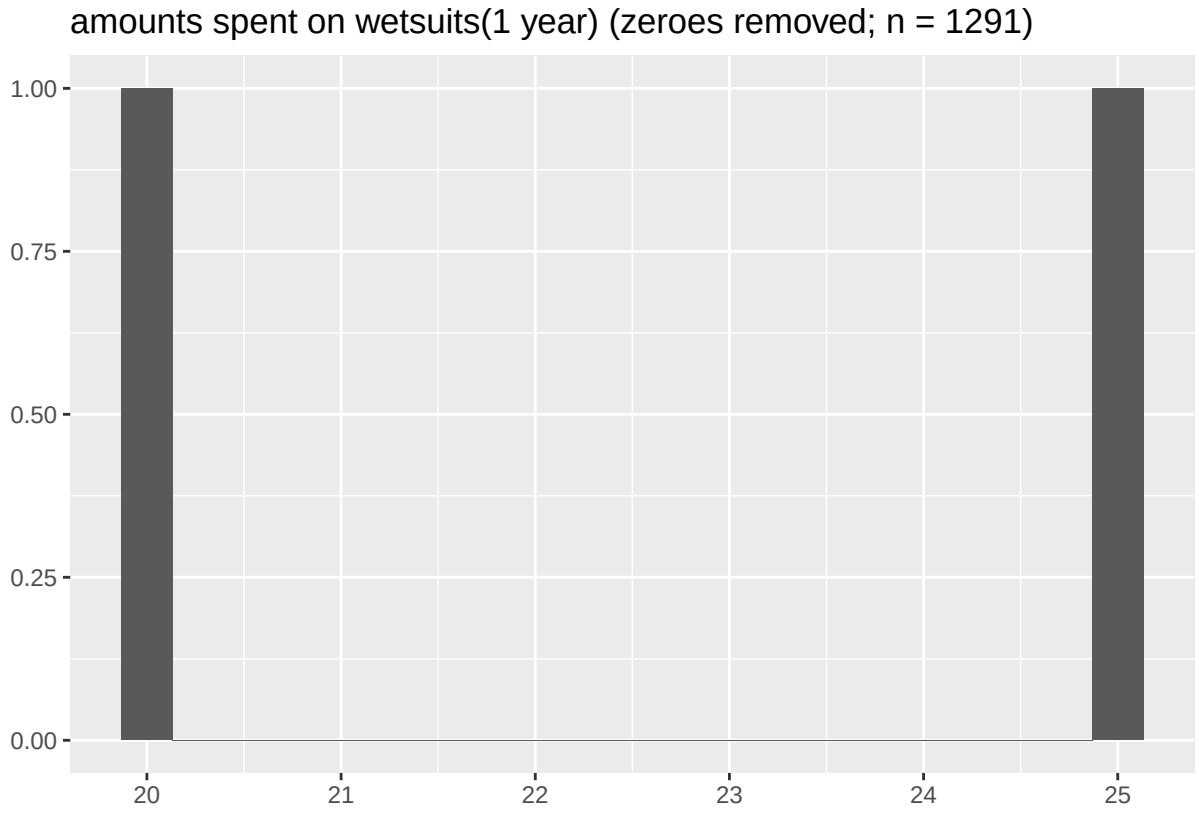

amounts spent for labour/help (7 days) (zeroes removed; n = 1289)
1.00
0.75
0.50
0.25
0.00
10
15
20
25
30

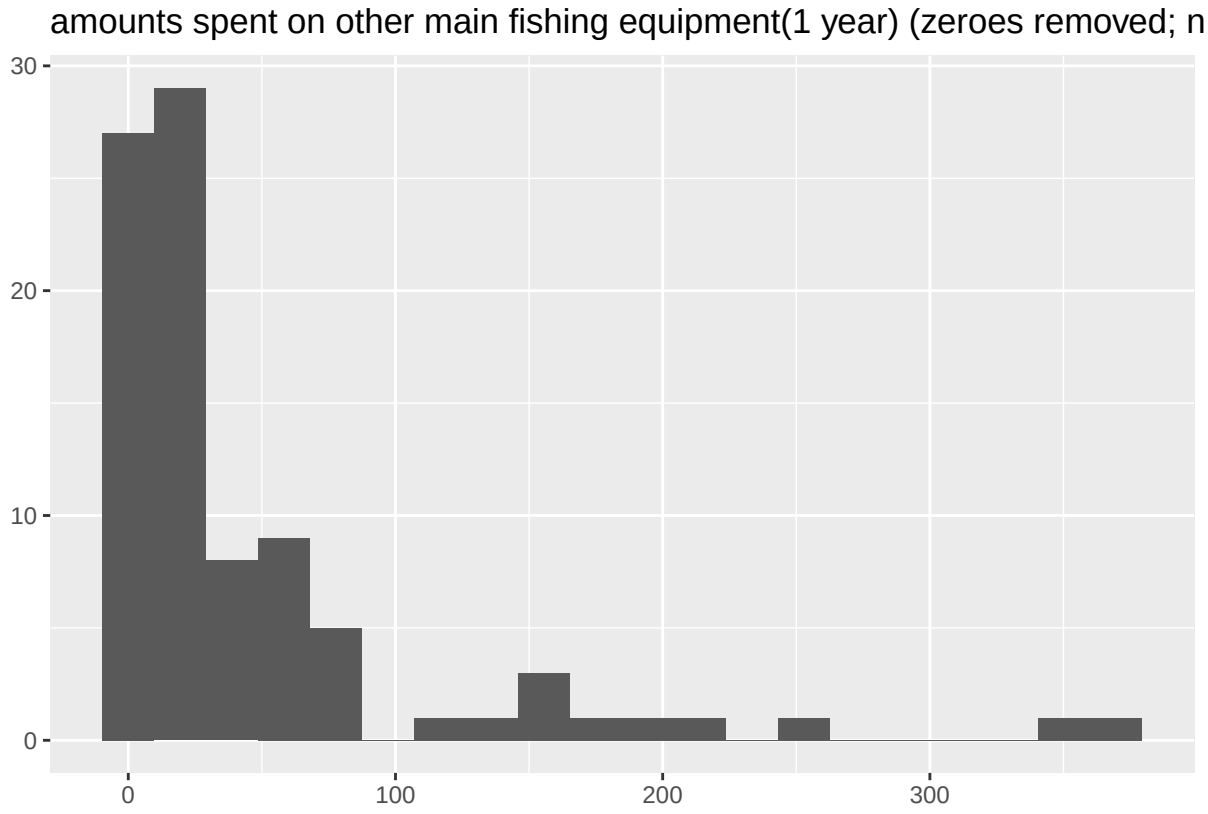

amounts spent for other (7 days) (zeroes removed; n = 1231)
20
15
10
5
0
0
50
100

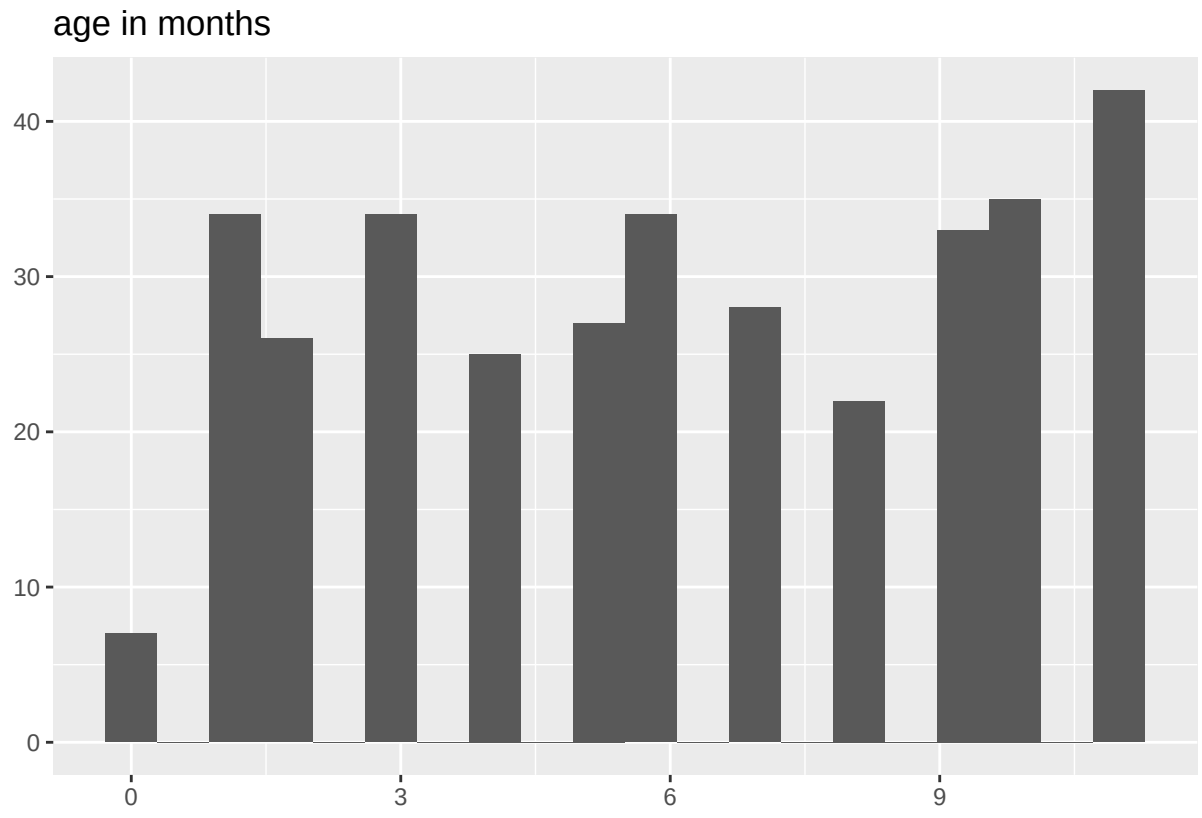

amounts spent for spearguns (1 year) (zeroes removed; n = 1278)
4
3
2
1
0
0
50
100
150


amounts spent on fishing rods(1 year) (zeroes removed; n = 1284)
2.0
1.5
1.0
0.5
0.0
0
50
100
150


amounts spent on fishing wheels(1 year) (zeroes removed; n = 1291)
1.00
0.75
0.50
0.25
0.00
50
75
100
125

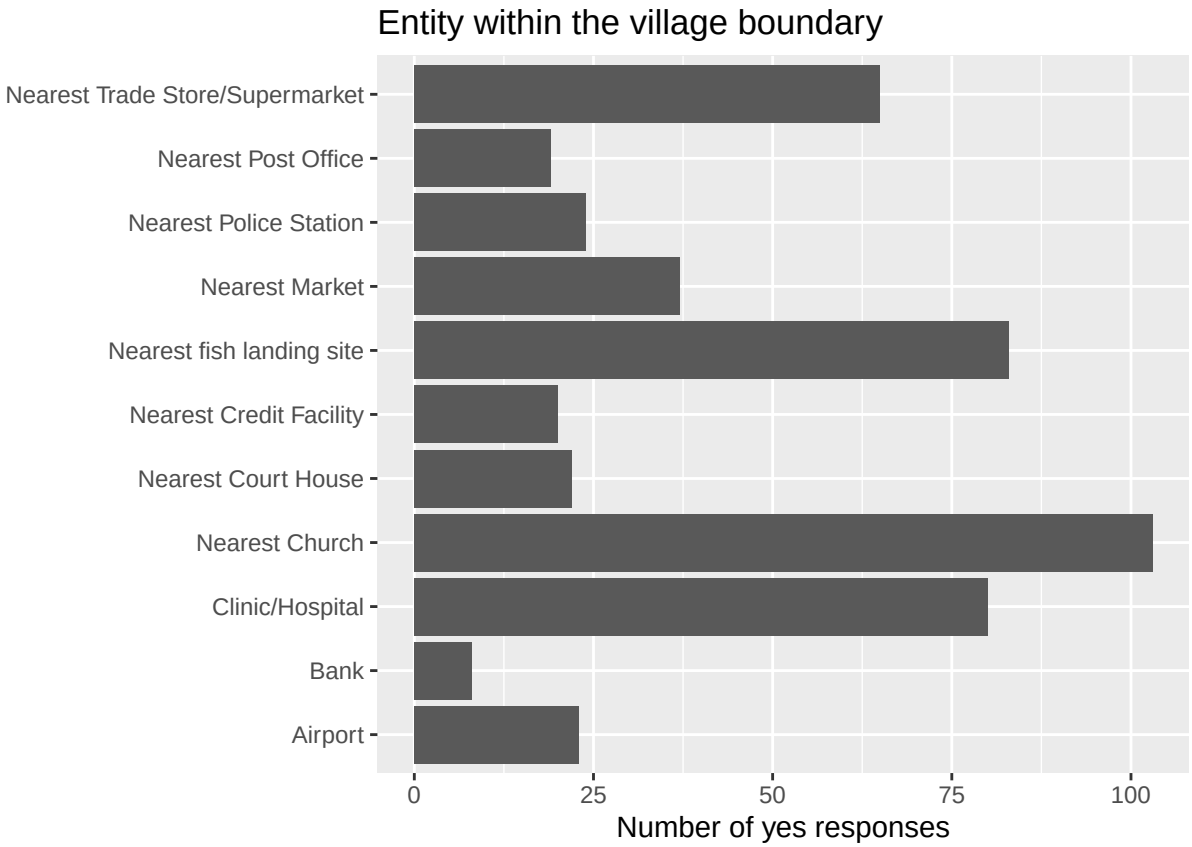

amounts spent on wetsuits(1 year) (zeroes removed; n = 1291)
1.00
0.75
0.50
0.25
0.00
20
21
22
23
24
25

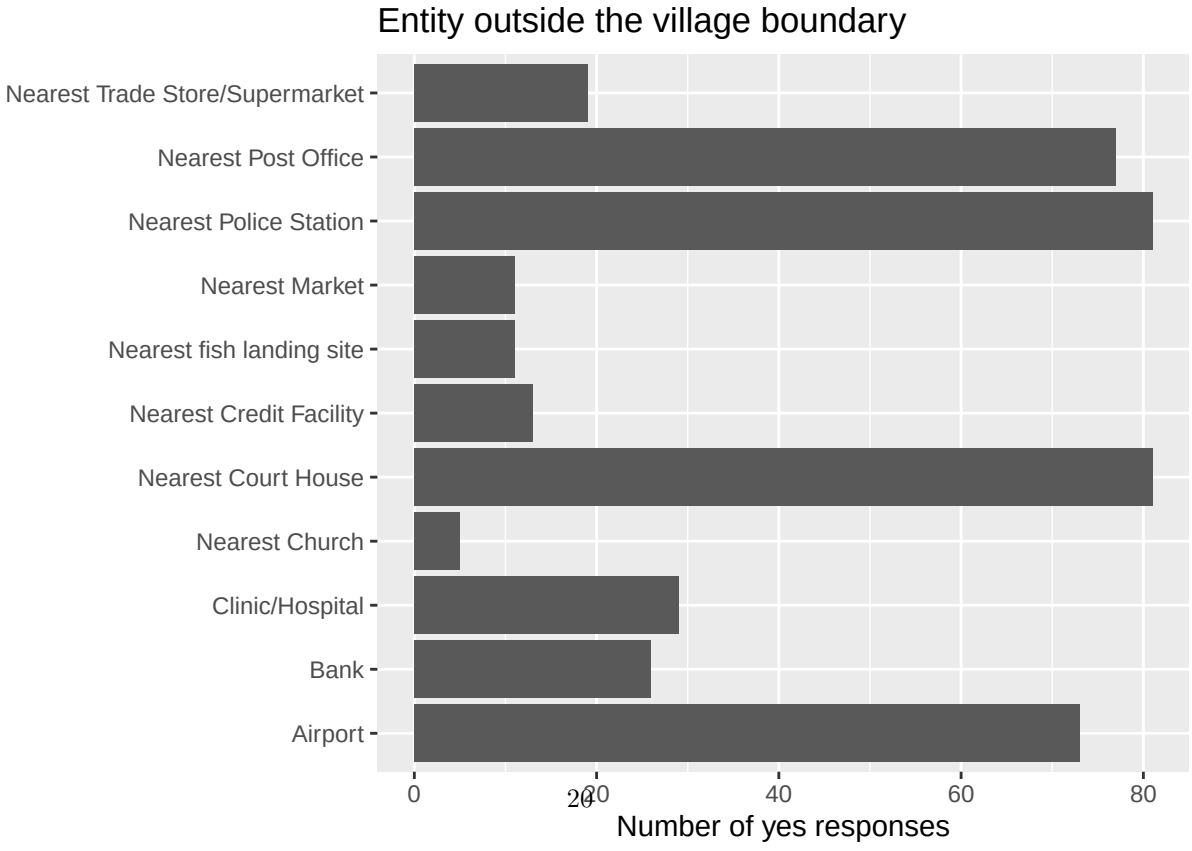

amounts spent on other main fishing equipment(1 year) (zeroes removed; n
30
20
10
0
0
100
200
300

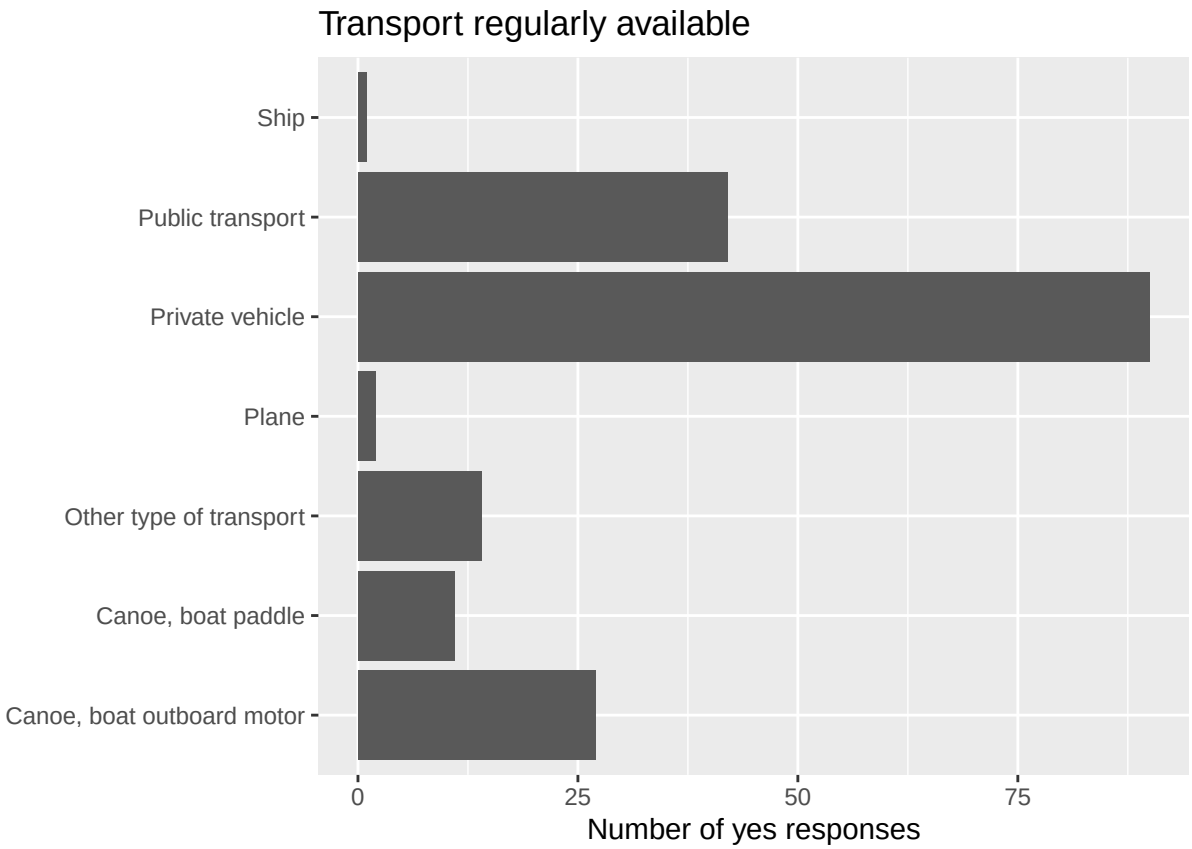

age in months
40
30
20
10
0
0
3
6
9

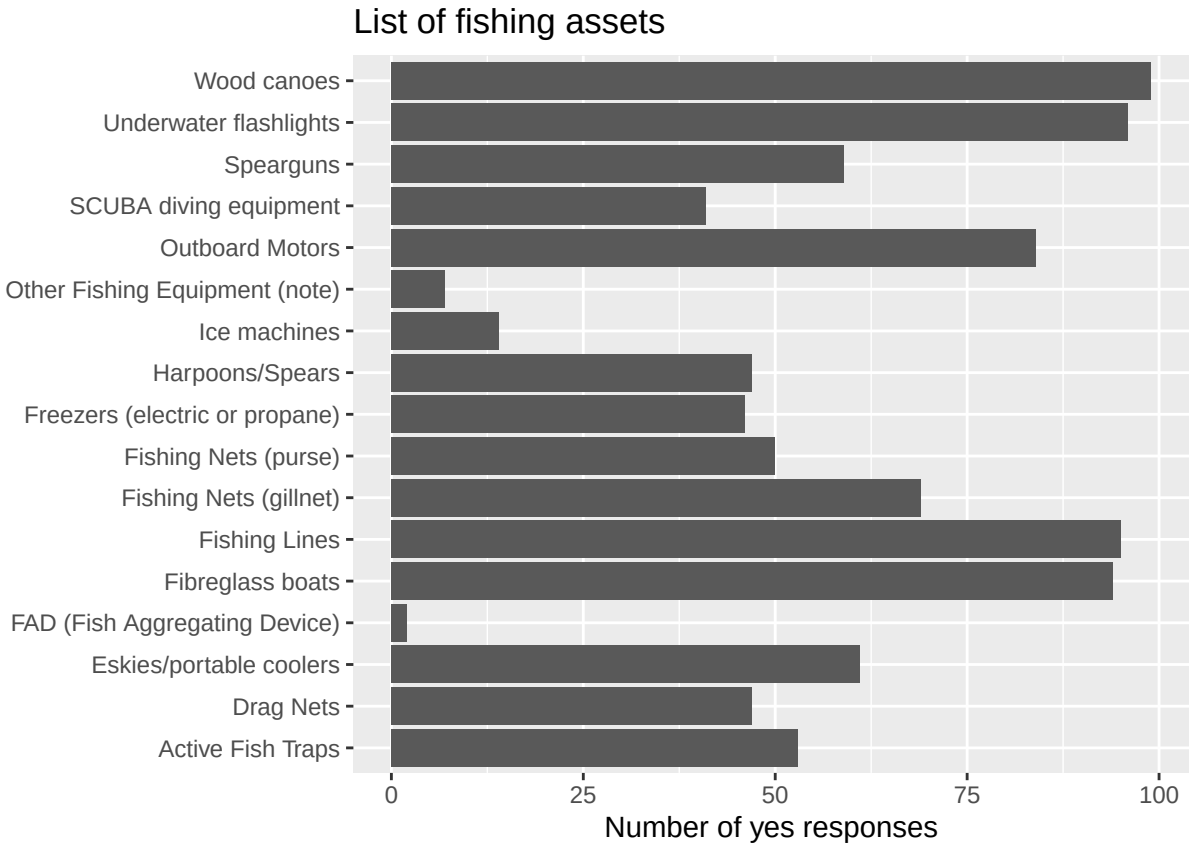
## VRS Data

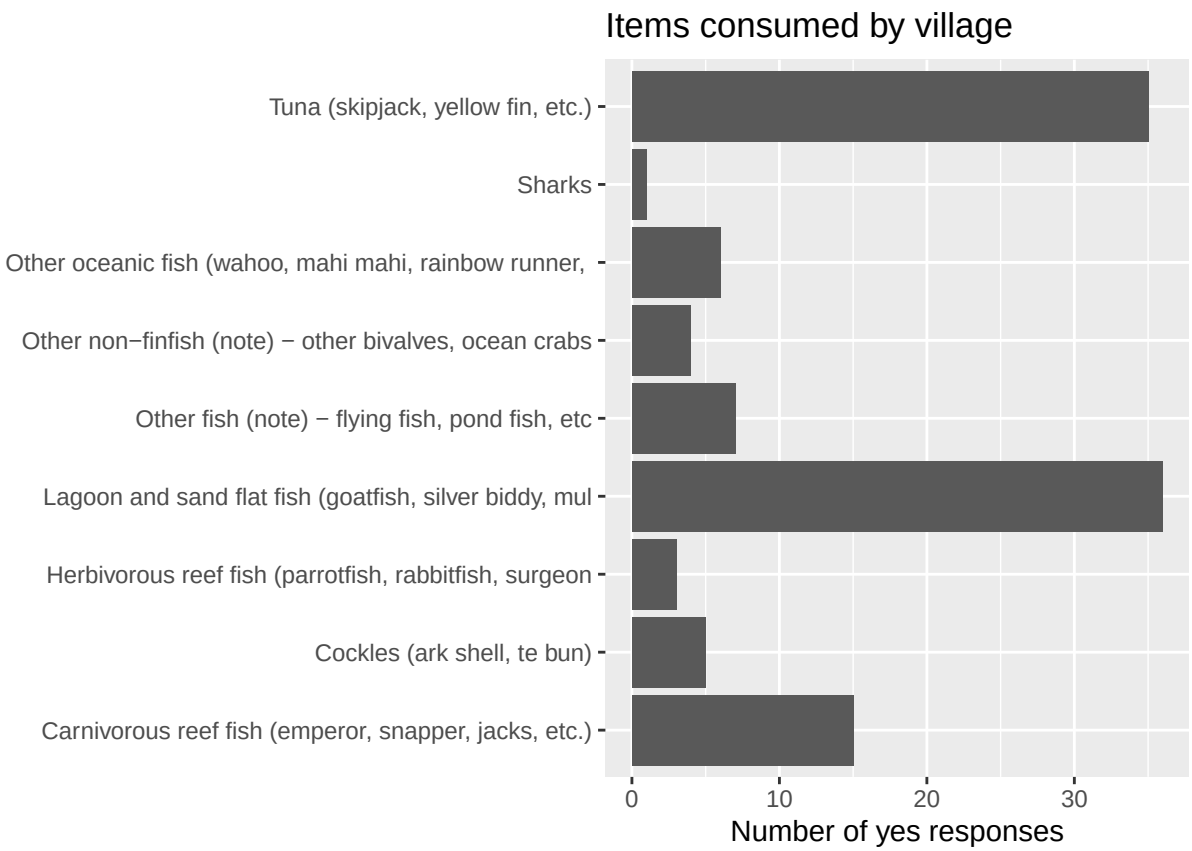
***Multi-response questions***

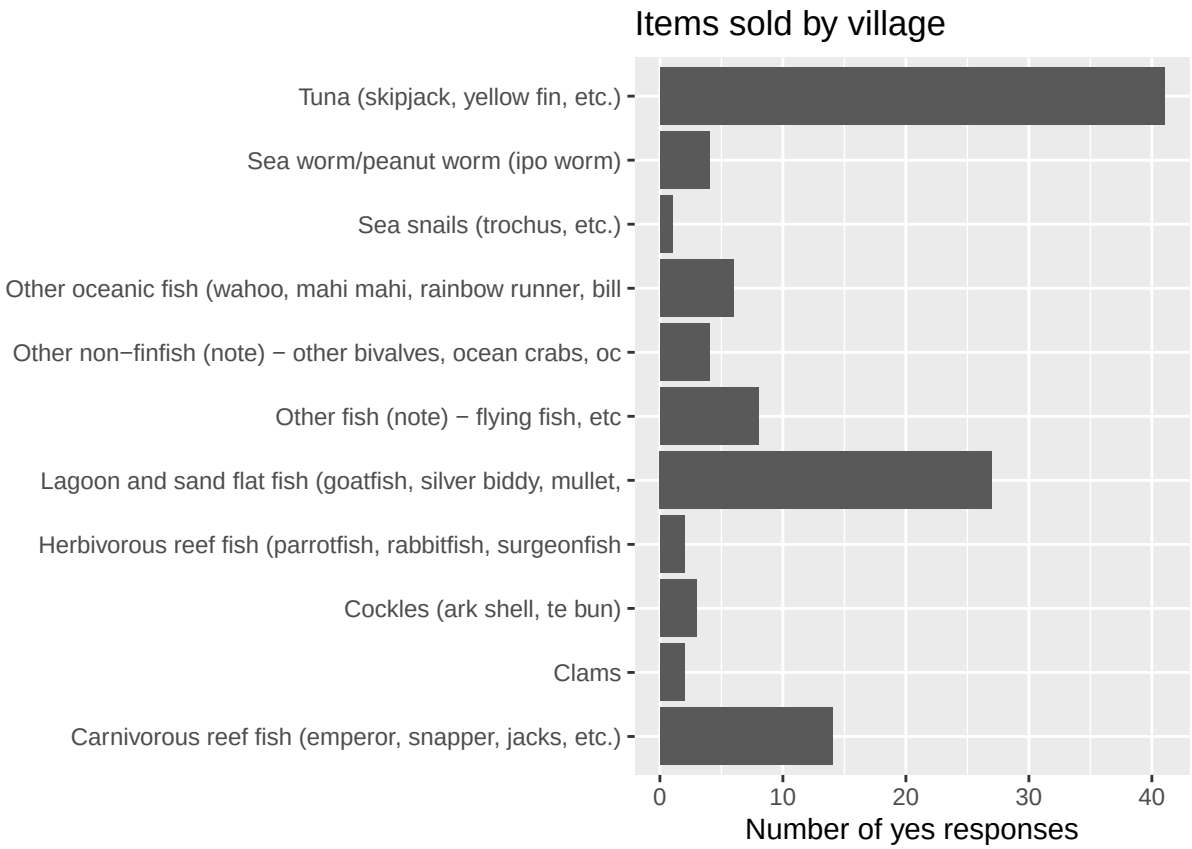


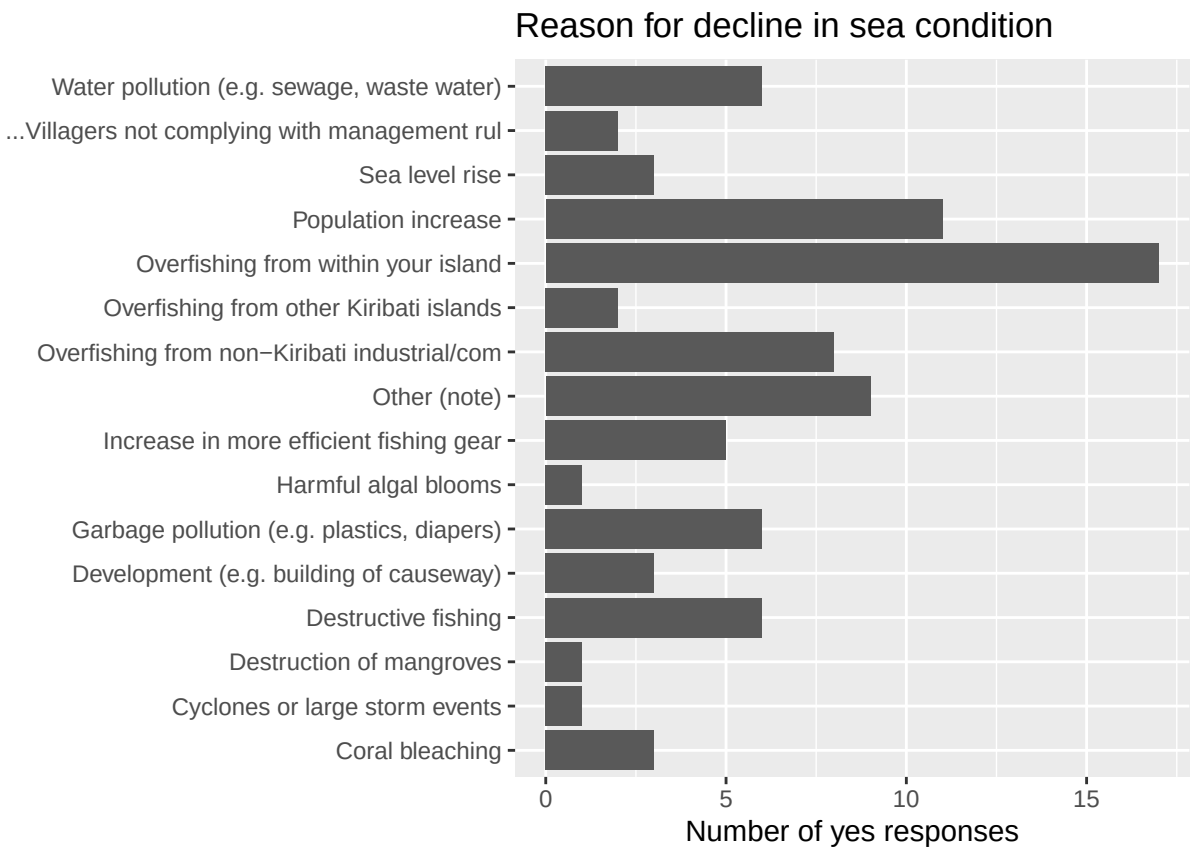



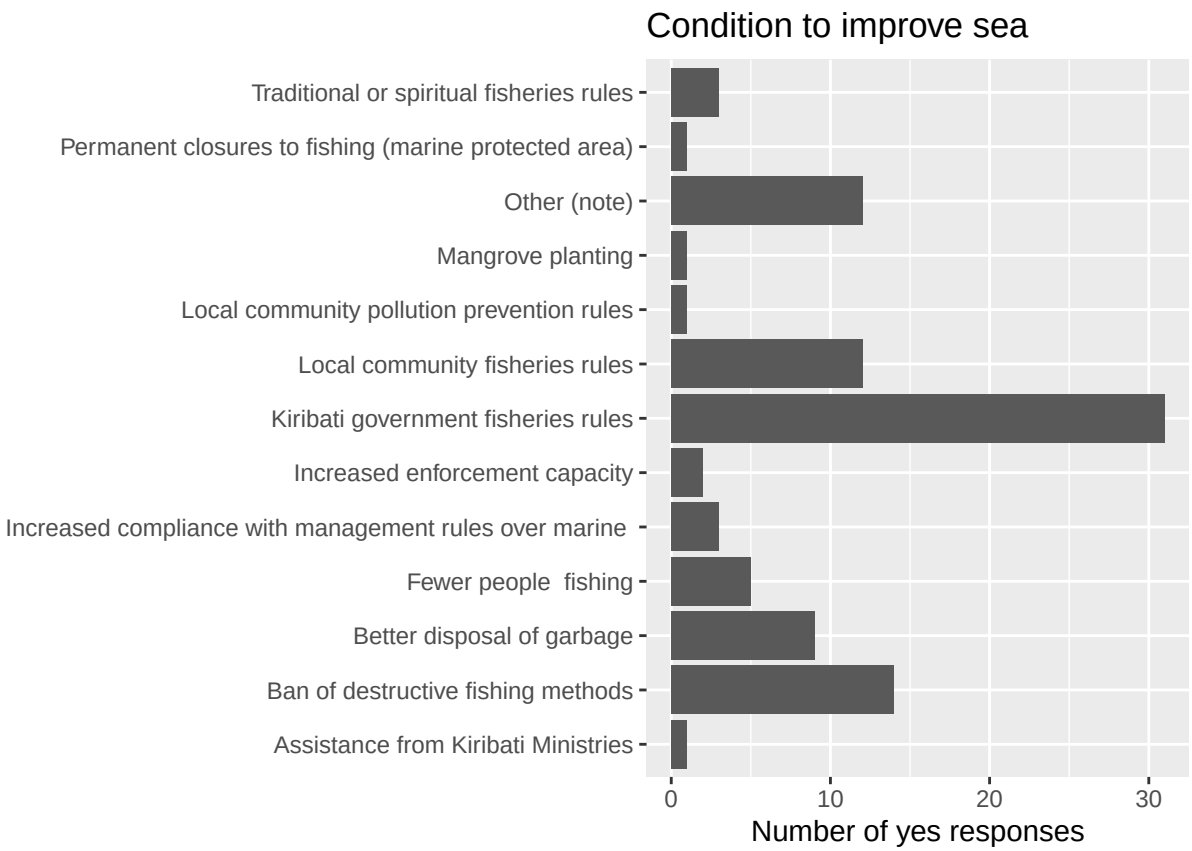

Transport regularly available
Ship
Public transport
Private vehicle
Plane
Other type of transport
Canoe, boat paddle
Canoe, boat outboard motor
0
25
50
75
Number of yes responses

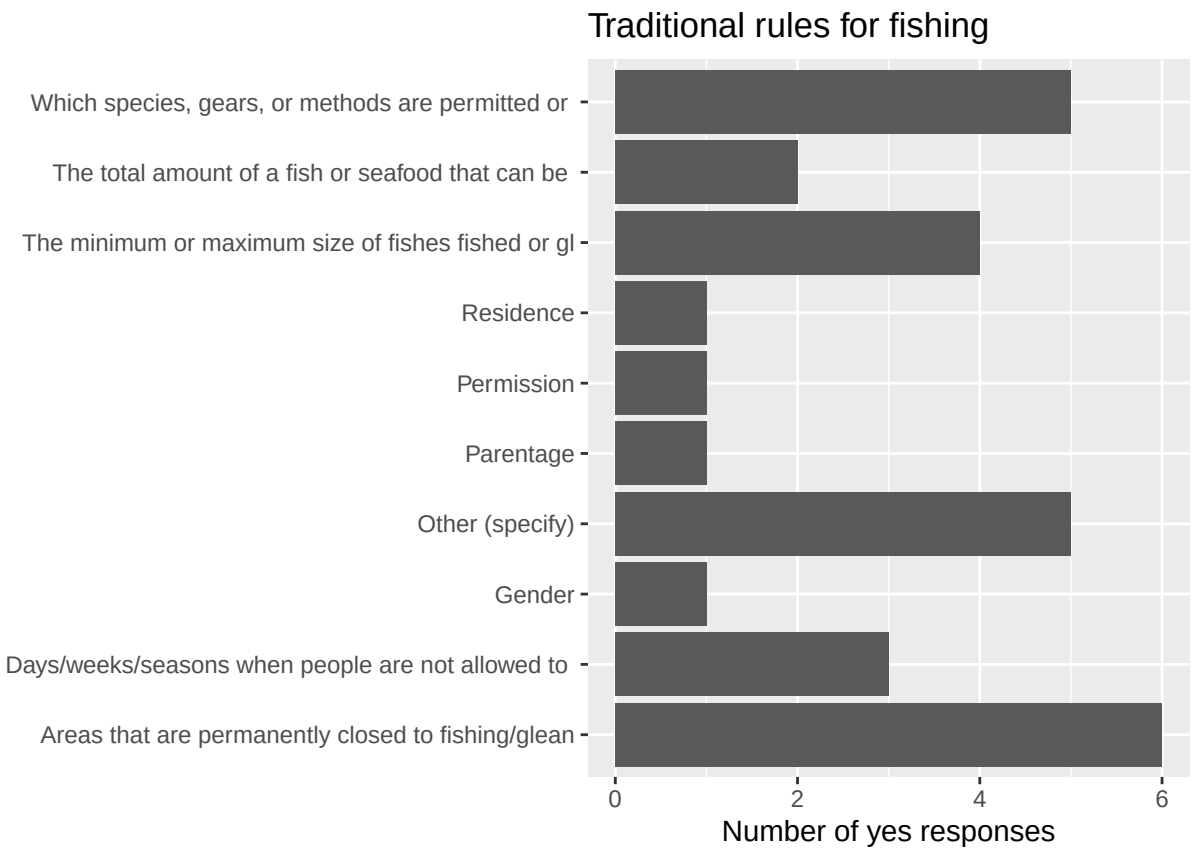

List of fishing assets
Wood canoes
Underwater flashlights
Spearguns
SCUBA diving equipment
Outboard Motors
Other Fishing Equipment (note)
Ice machines
Harpoons/Spears
Freezers (electric or propane)
Fishing Nets (purse)
Fishing Nets (gillnet)
Fishing Lines
Fibreglass boats
FAD (Fish Aggregating Device)
Eskies/portable coolers
Drag Nets
Active Fish Traps
0
25
50
75
100
Number of yes responses

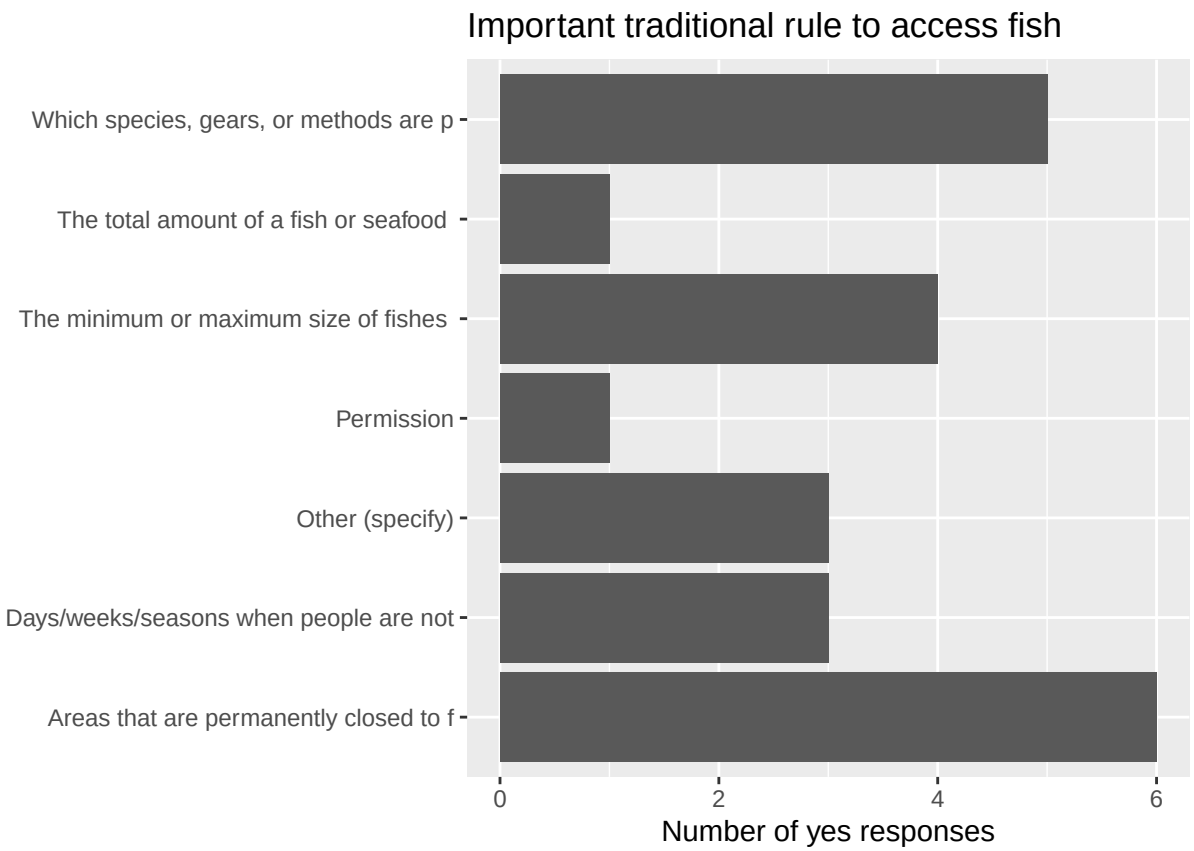

Items consumed by village
Tuna (skipjack, yellow fin, etc.)
Sharks
Other oceanic fish (wahoo, mahi mahi, rainbow runner,
Other non−finfish (note) − other bivalves, ocean crabs
Other fish (note) − flying fish, pond fish, etc
Lagoon and sand flat fish (goatfish, silver biddy, mul
Herbivorous reef fish (parrotfish, rabbitfish, surgeon
Cockles (ark shell, te bun)
Carnivorous reef fish (emperor, snapper, jacks, etc.)
0
10
20
30
Number of yes responses

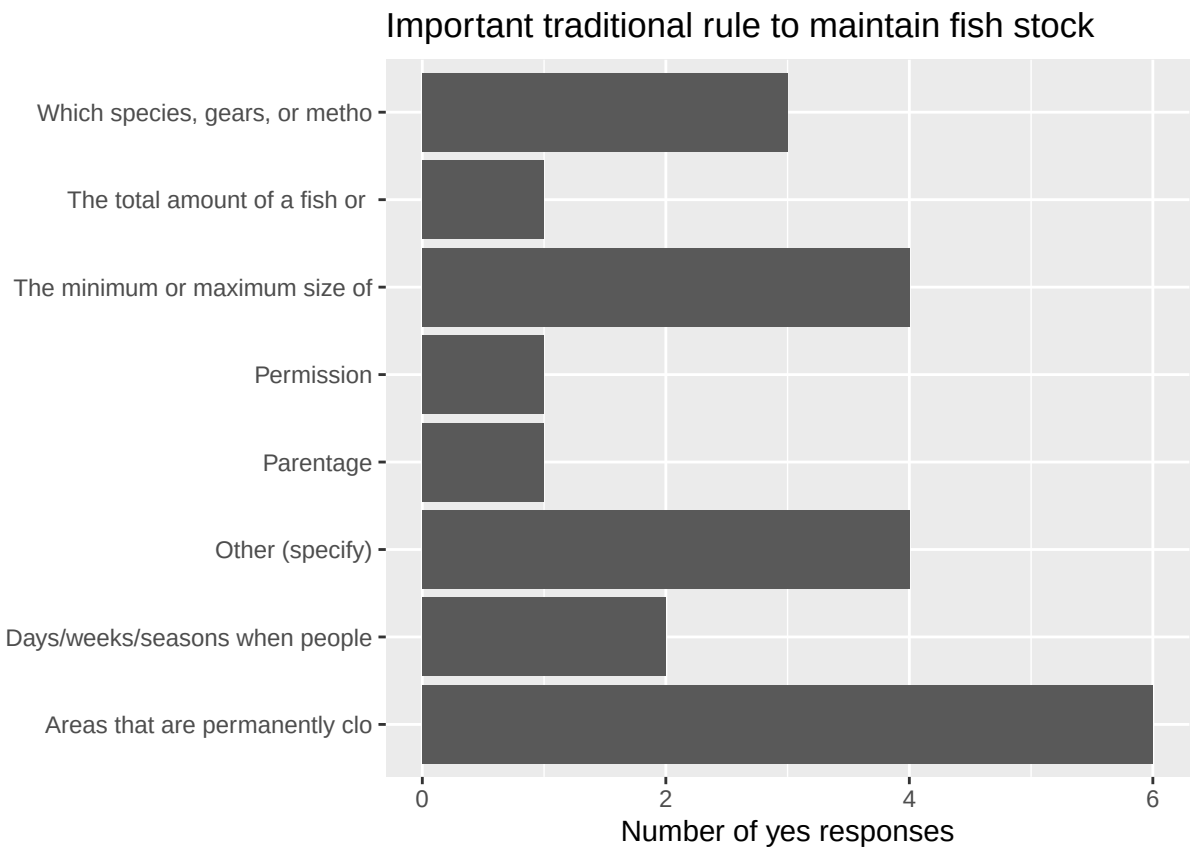

Items sold by village
Tuna (skipjack, yellow fin, etc.)
Sea worm/peanut worm (ipo worm)
Sea snails (trochus, etc.)
Other oceanic fish (wahoo, mahi mahi, rainbow runner, bill
Other non−finfish (note) − other bivalves, ocean crabs, oc
Other fish (note) − flying fish, etc
Lagoon and sand flat fish (goatfish, silver biddy, mullet,
Herbivorous reef fish (parrotfish, rabbitfish, surgeonfish
Cockles (ark shell, te bun)
Clams
Carnivorous reef fish (emperor, snapper, jacks, etc.)
0
10
20
30
40
Number of yes responses

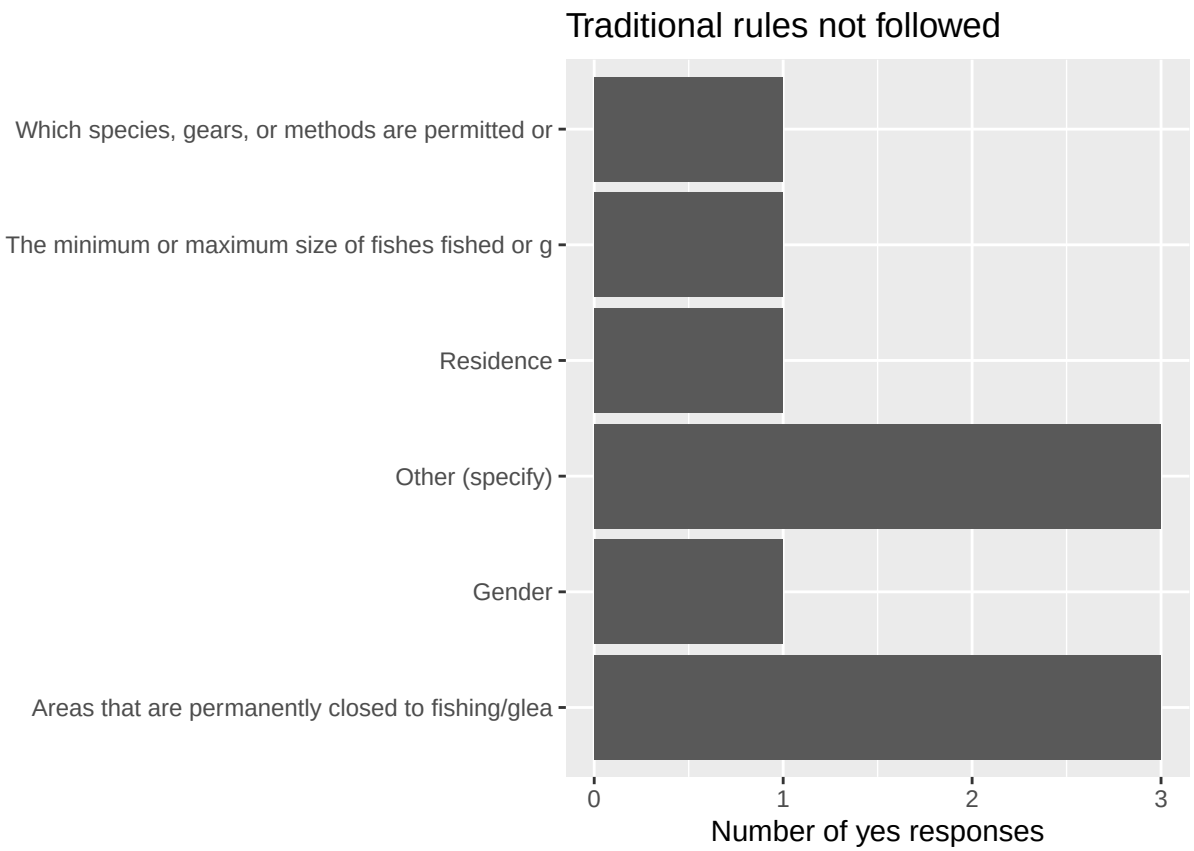

Reason for decline in sea condition
Water pollution (e.g. sewage, waste water)
...Villagers not complying with management rul
Sea level rise
Population increase
Overfishing from within your island
Overfishing from other Kiribati islands
Overfishing from non−Kiribati industrial/com
Other (note)
Increase in more efficient fishing gear
Harmful algal blooms
Garbage pollution (e.g. plastics, diapers)
Development (e.g. building of causeway)
Destructive fishing
Destruction of mangroves
Cyclones or large storm events
Coral bleaching
0
5
10
15
Number of yes responses

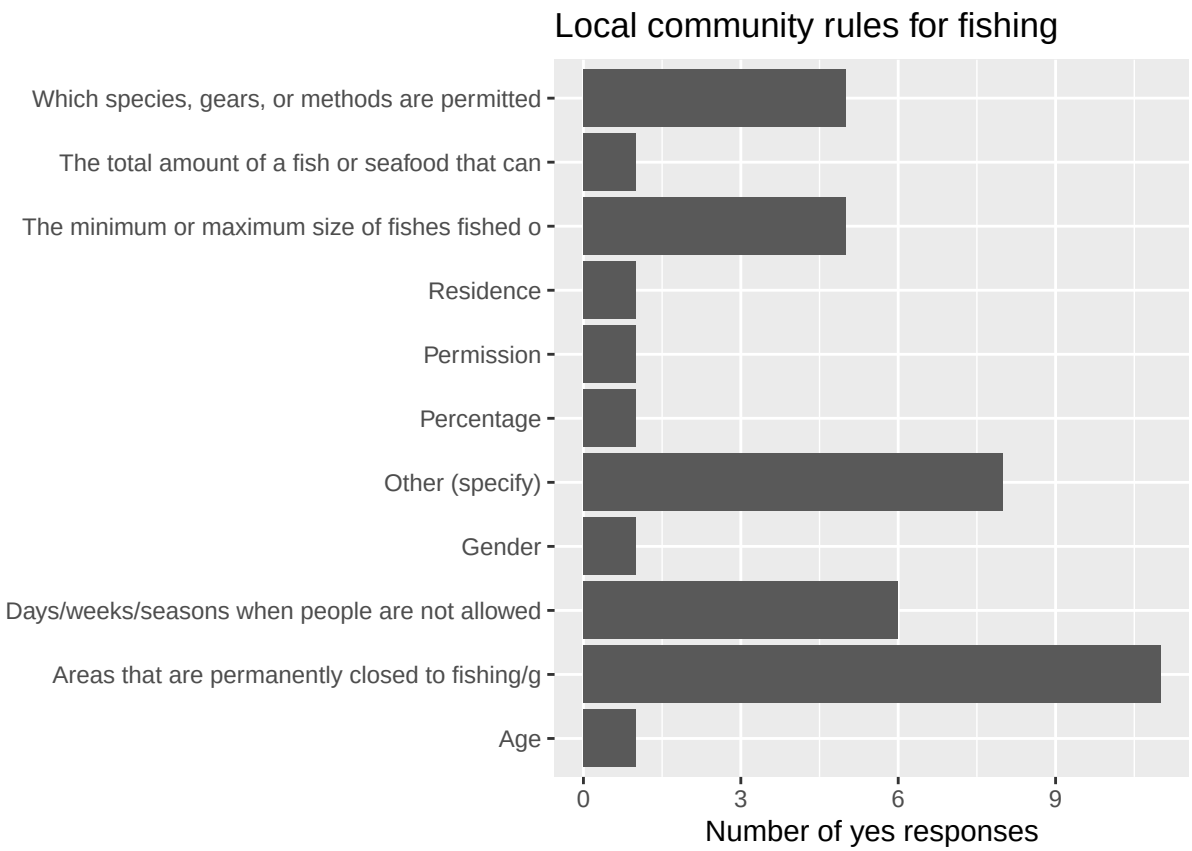

Condition to improve sea
Traditional or spiritual fisheries rules
Permanent closures to fishing (marine protected area)
Other (note)
Mangrove planting
Local community pollution prevention rules
Local community fisheries rules
Kiribati government fisheries rules
Increased enforcement capacity
Increased compliance with management rules over marine
Fewer people fishing
Better disposal of garbage
Ban of destructive fishing methods
Assistance from Kiribati Ministries
0
10
20
30
Number of yes responses

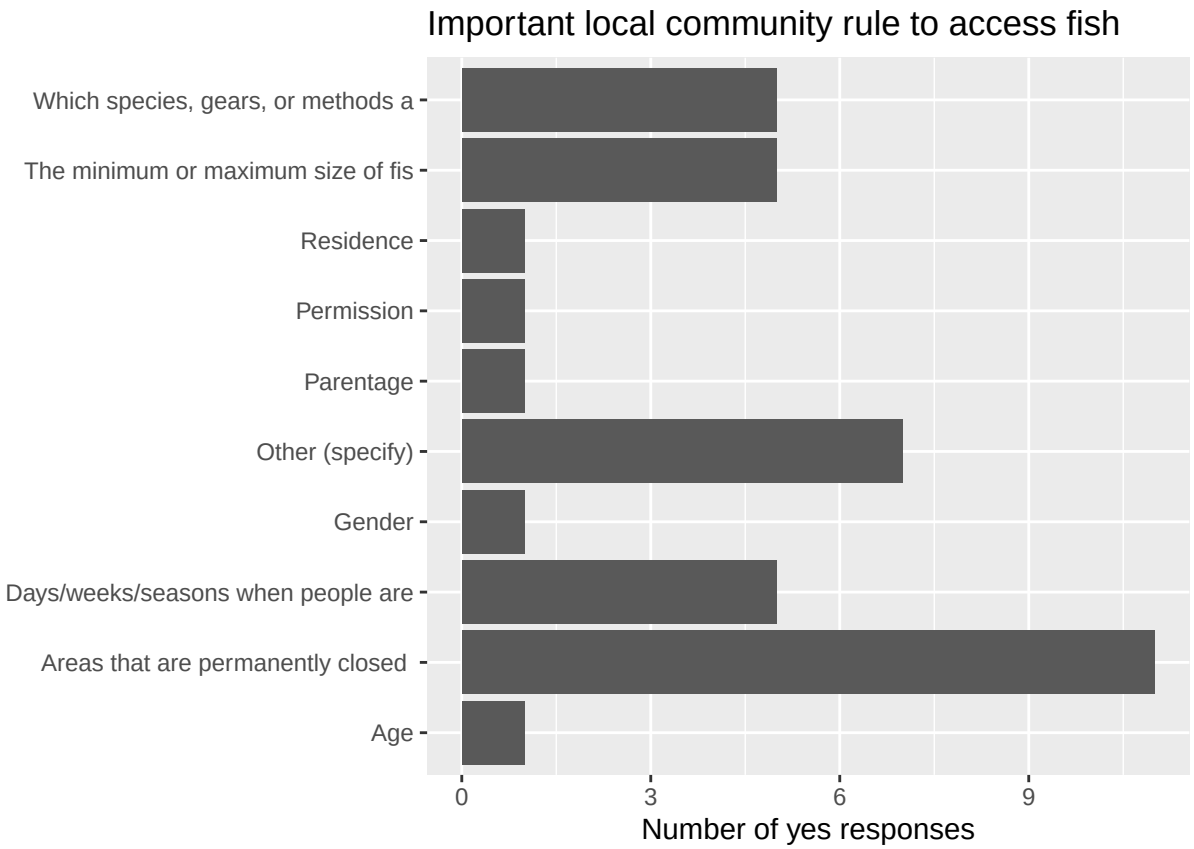

Traditional rules for fishing
Which species, gears, or methods are permitted or
The total amount of a fish or seafood that can be
The minimum or maximum size of fishes fished or gl
Residence
Permission
Parentage
Other (specify)
Gender
Days/weeks/seasons when people are not allowed to
Areas that are permanently closed to fishing/glean
0
2
4
6
Number of yes responses

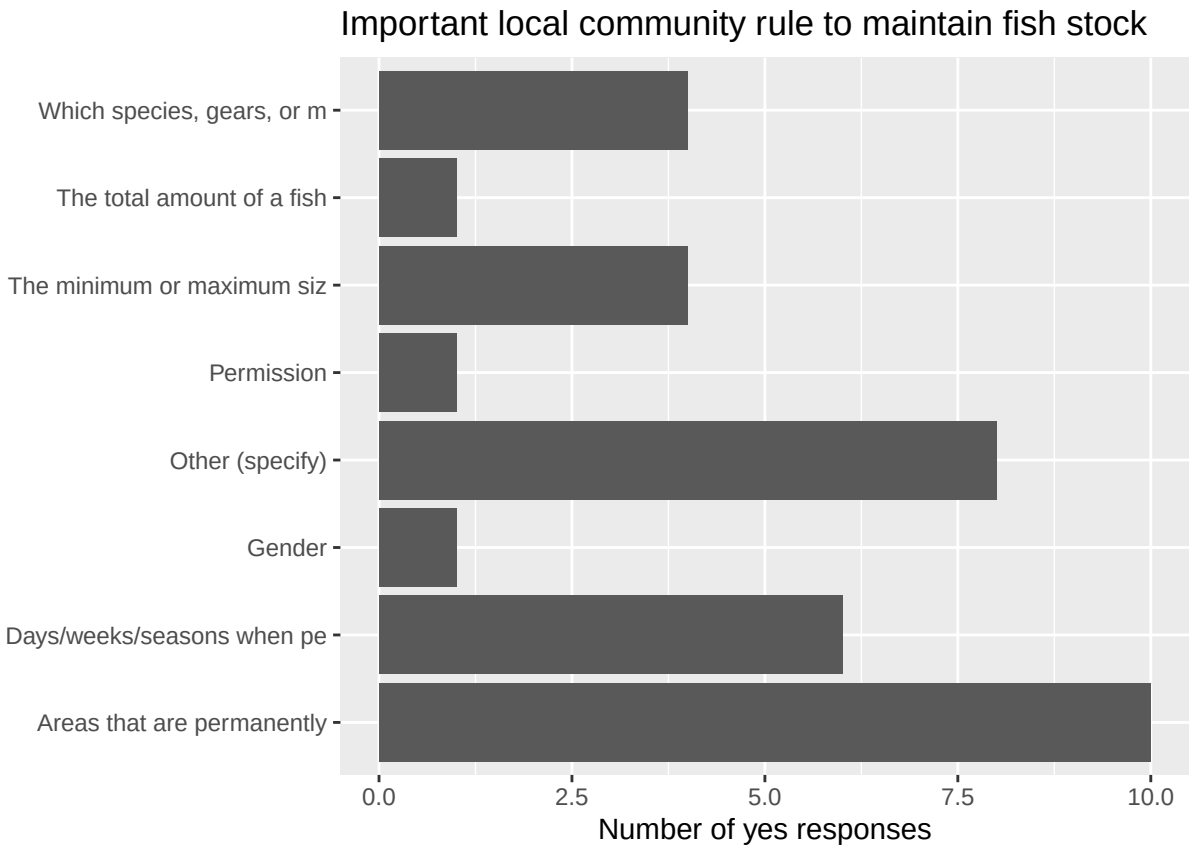

Important traditional rule to access fish
Which species, gears, or methods are p
The total amount of a fish or seafood
The minimum or maximum size of fishes
Permission
Other (specify)
Days/weeks/seasons when people are not
Areas that are permanently closed to f
0
2
4
6
Number of yes responses

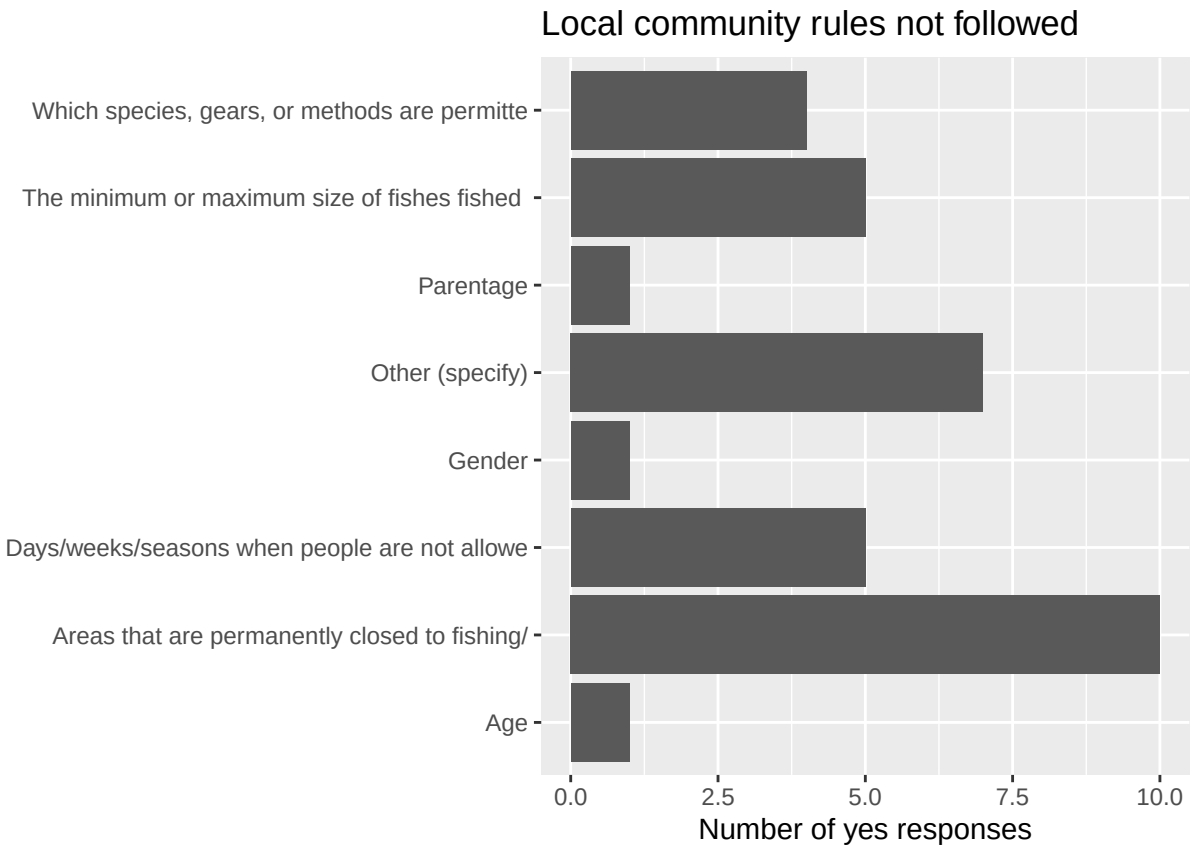

Important traditional rule to maintain fish stock
Which species, gears, or metho
The total amount of a fish or
The minimum or maximum size of
Permission
Parentage
Other (specify)
Days/weeks/seasons when people
Areas that are permanently clo
0
2
4
6
Number of yes responses

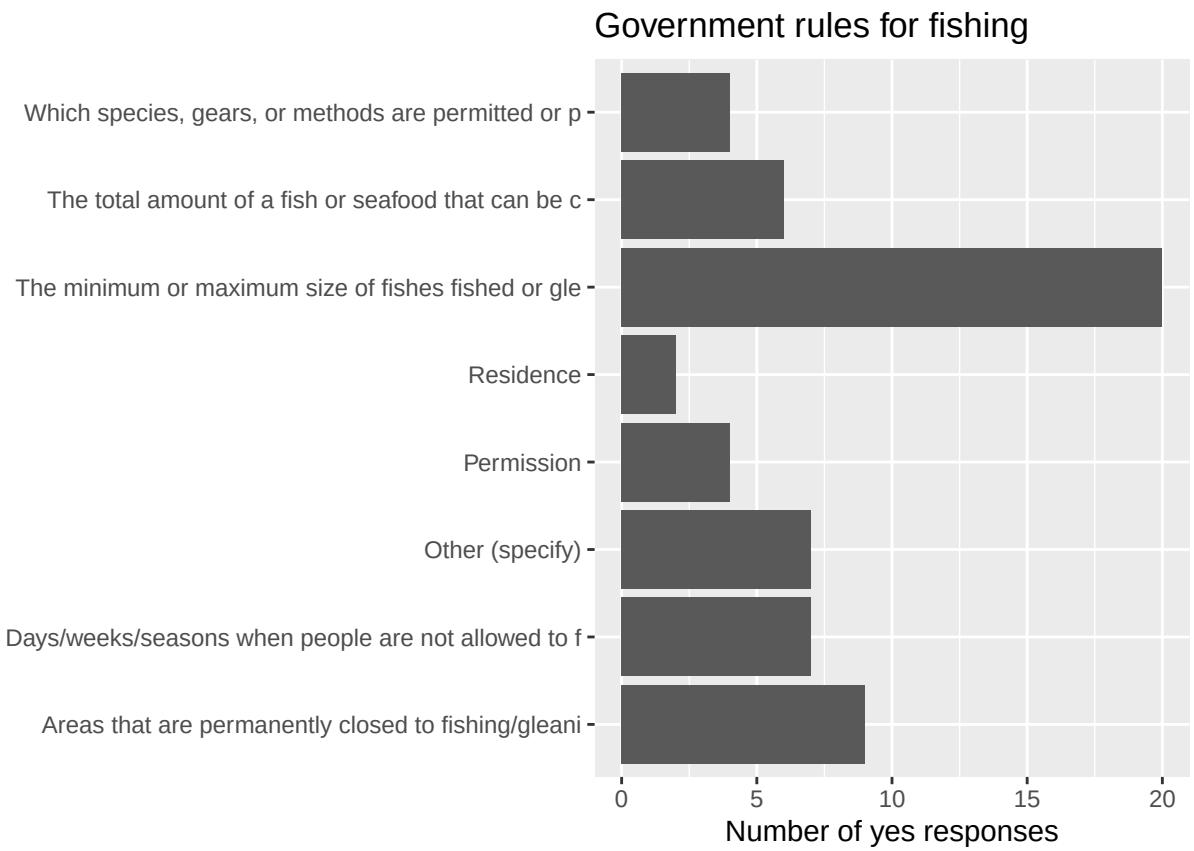

Traditional rules not followed
Which species, gears, or methods are permitted or
The minimum or maximum size of fishes fished or g
Residence
Other (specify)
Gender
Areas that are permanently closed to fishing/glea
0
1
2
3
Number of yes responses

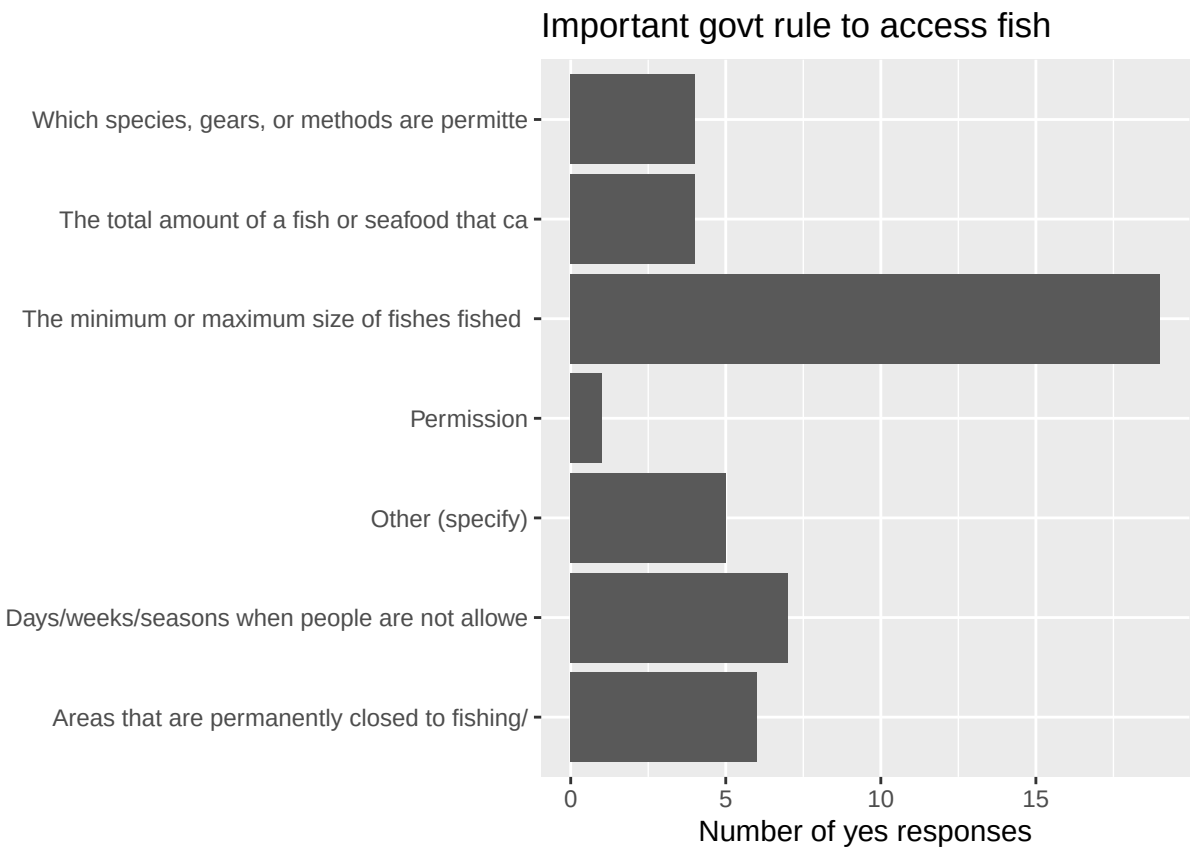

Local community rules for fishing
Which species, gears, or methods are permitted
The total amount of a fish or seafood that can
The minimum or maximum size of fishes fished o
Residence
Permission
Percentage
Other (specify)
Gender
Days/weeks/seasons when people are not allowed
Areas that are permanently closed to fishing/g
Age
0
3
6
9
Number of yes responses

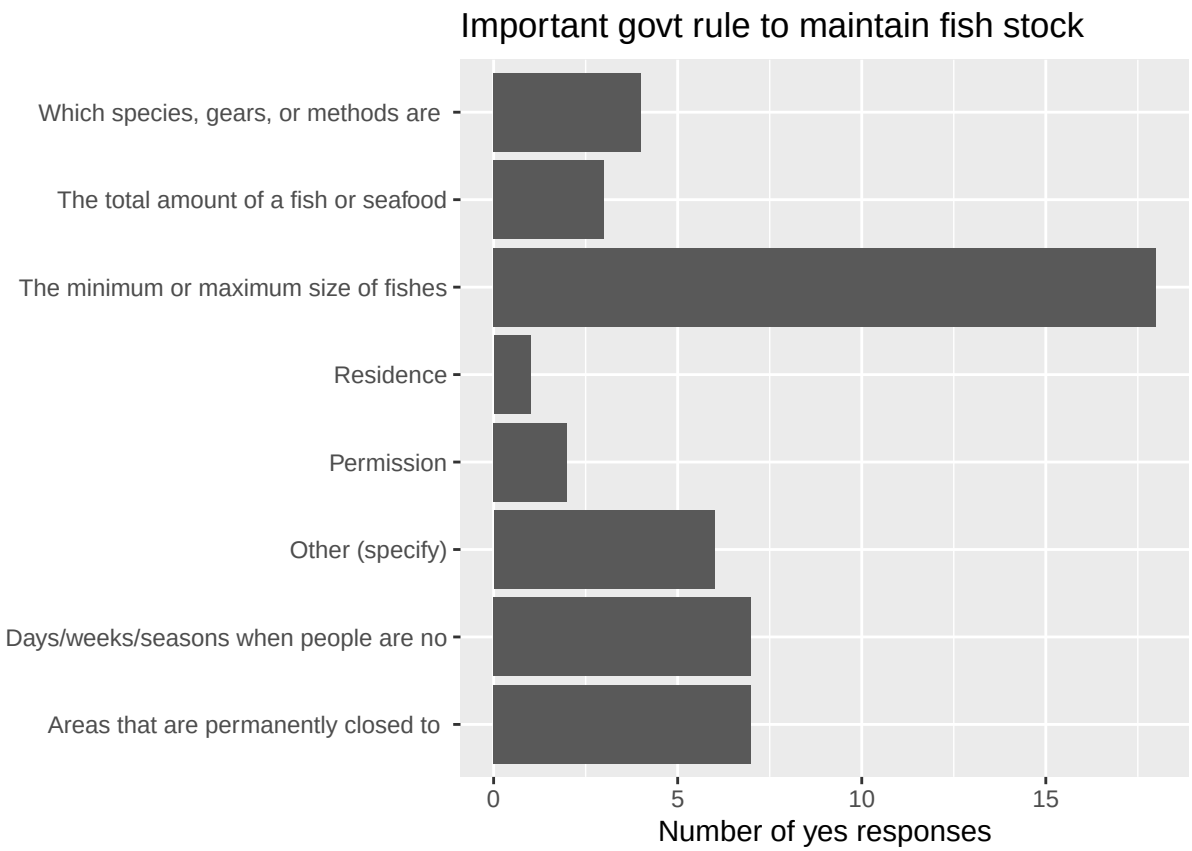

Important local community rule to access fish
Which species, gears, or methods a
The minimum or maximum size of fis
Residence
Permission
Parentage
Other (specify)
Gender
Days/weeks/seasons when people are
Areas that are permanently closed
Age
0
3
6
9
Number of yes responses

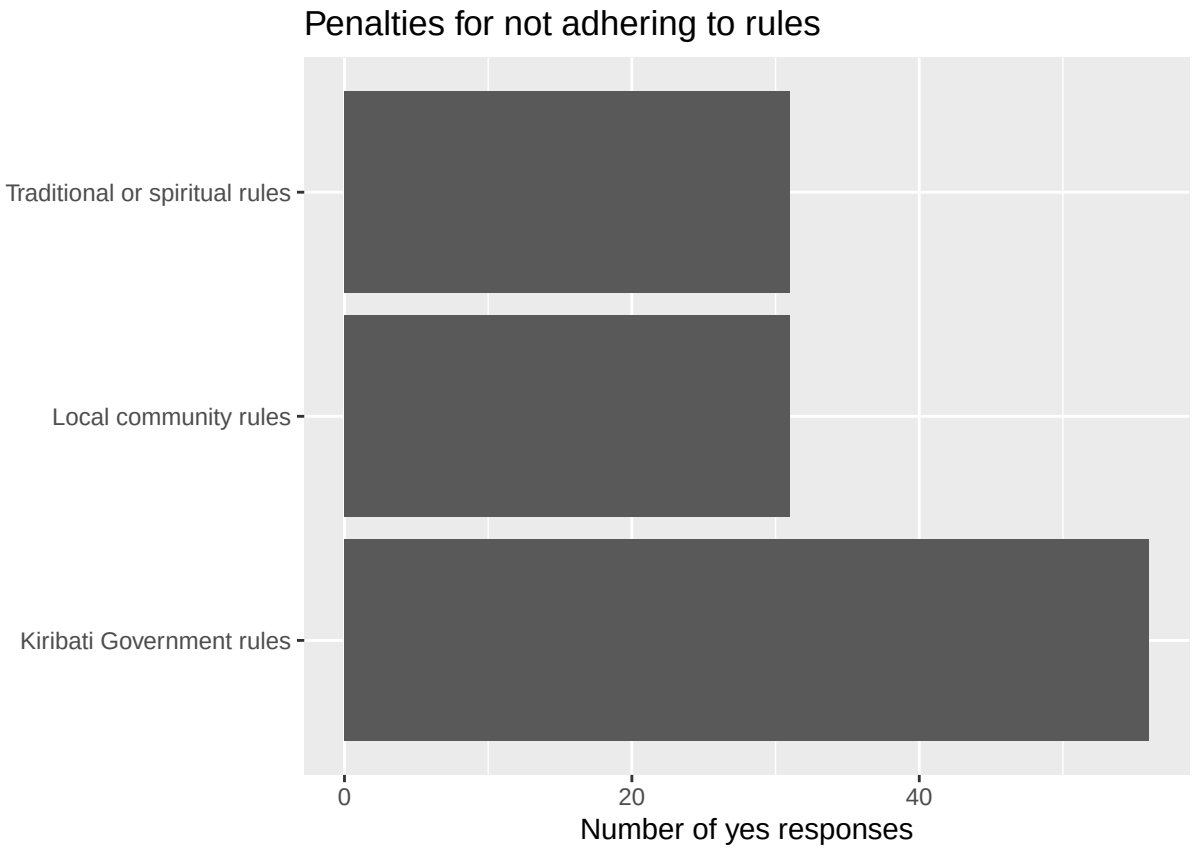

Important local community rule to maintain fish stock
Which species, gears, or m
The total amount of a fish
The minimum or maximum siz
Permission
Other (specify)
Gender
Days/weeks/seasons when pe
Areas that are permanently
0.0
2.5
5.0
7.5
10.0
Number of yes responses

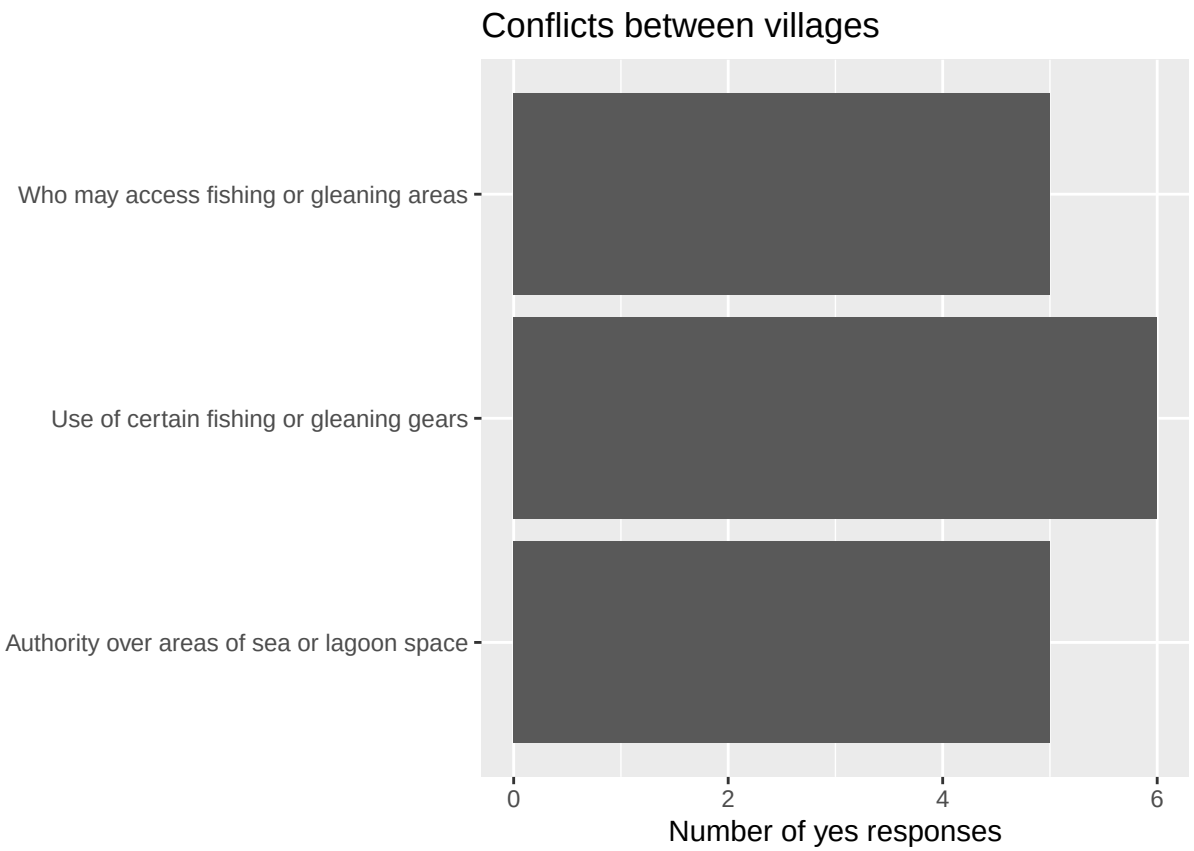

Local community rules not followed
Which species, gears, or methods are permitte
The minimum or maximum size of fishes fished
Parentage
Other (specify)
Gender
Days/weeks/seasons when people are not allowe
Areas that are permanently closed to fishing/
Age
0.0
2.5
5.0
7.5
10.0
Number of yes responses

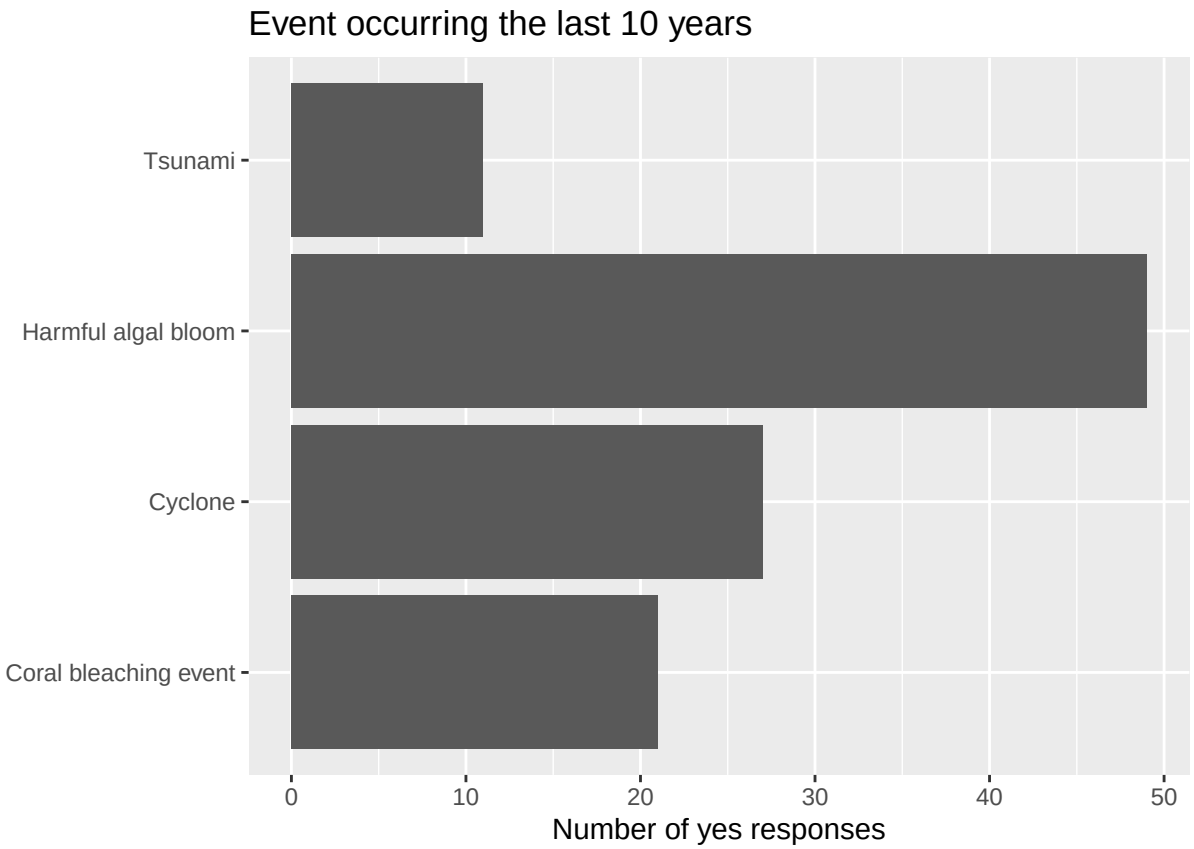

Government rules for fishing
Which species, gears, or methods are permitted or p
The total amount of a fish or seafood that can be c
The minimum or maximum size of fishes fished or gle
Residence
Permission
Other (specify)
Days/weeks/seasons when people are not allowed to f
Areas that are permanently closed to fishing/gleani
0
5
10
15
20
Number of yes responses

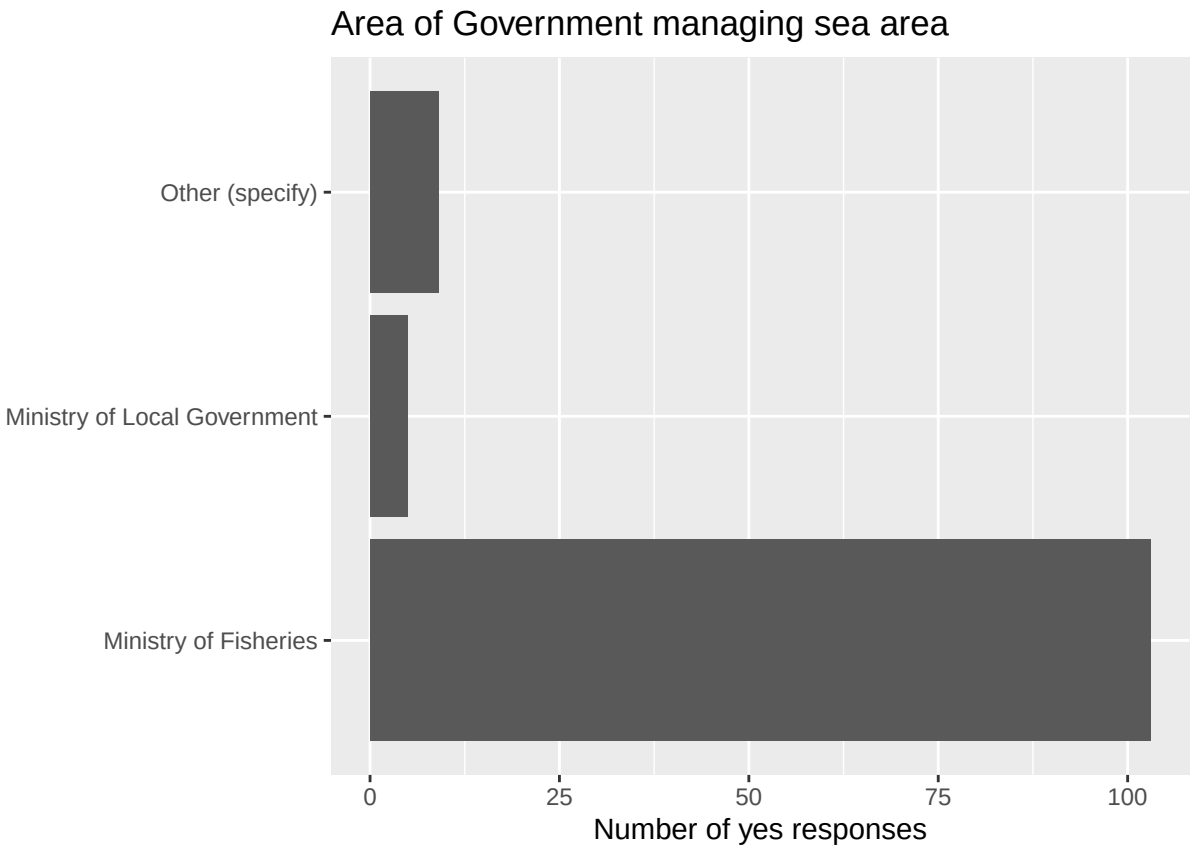

Important govt rule to access fish
Which species, gears, or methods are permitte
The total amount of a fish or seafood that ca
The minimum or maximum size of fishes fished
Permission
Other (specify)
Days/weeks/seasons when people are not allowe
Areas that are permanently closed to fishing/
0
5
10
15
Number of yes responses

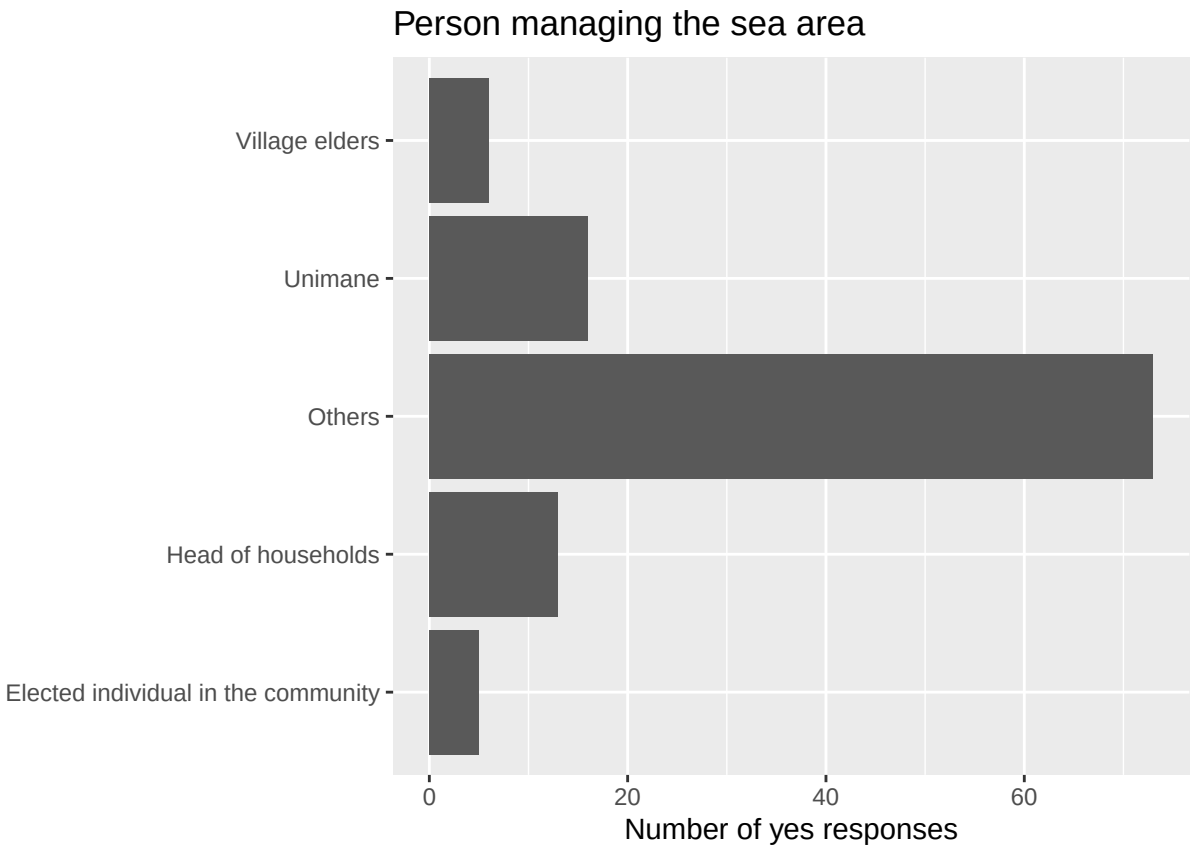

Important govt rule to maintain fish stock
Which species, gears, or methods are
The total amount of a fish or seafood
The minimum or maximum size of fishes
Residence
Permission
Other (specify)
Days/weeks/seasons when people are no
Areas that are permanently closed to
0
5
10
15
Number of yes responses

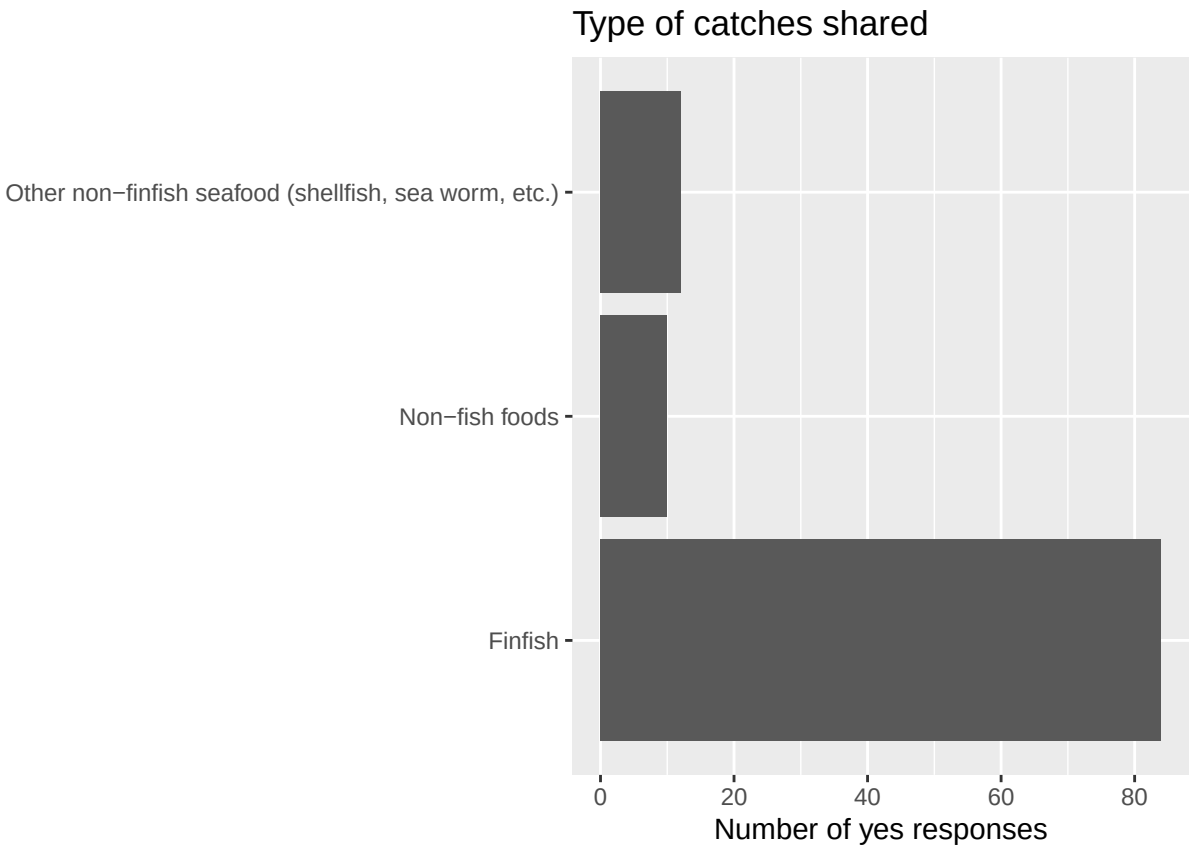

Penalties for not adhering to rules
Traditional or spiritual rules
Local community rules
Kiribati Government rules
0
20
40
Number of yes responses

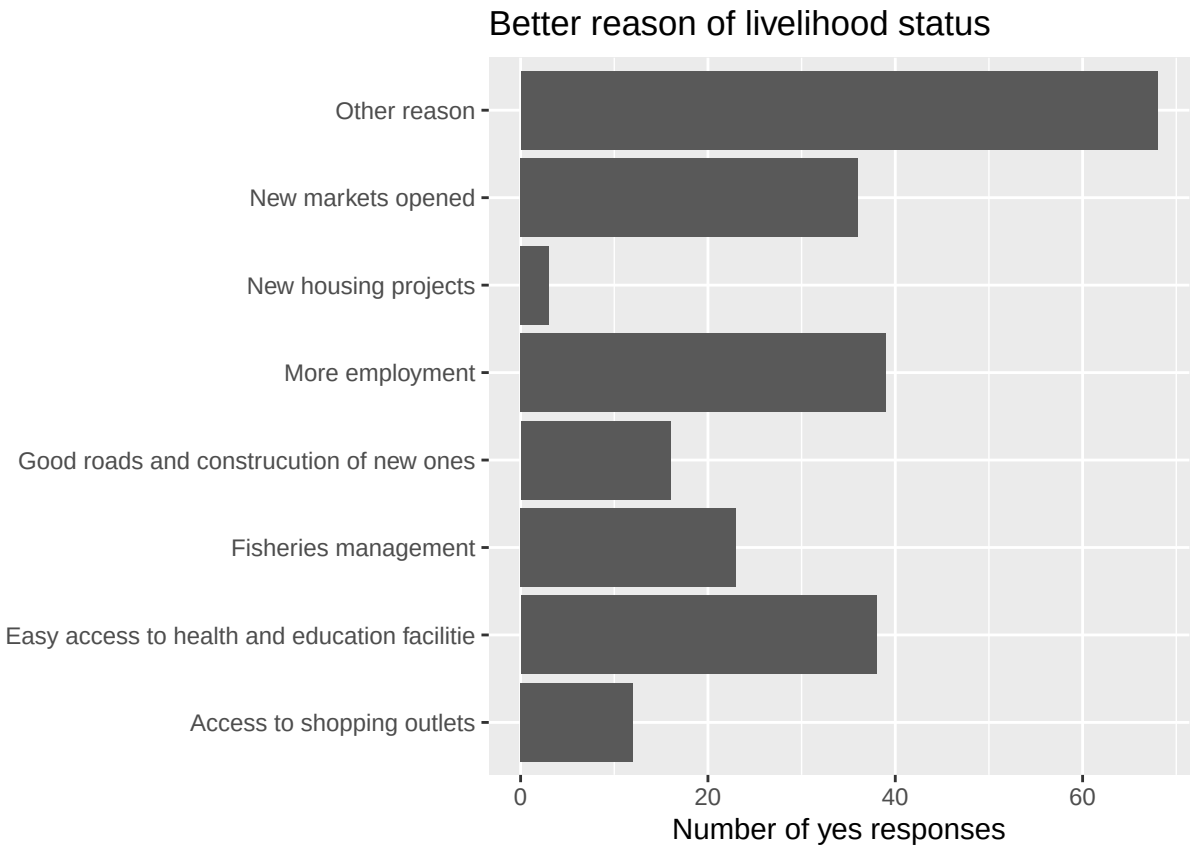

Conflicts between villages
Who may access fishing or gleaning areas
Use of certain fishing or gleaning gears
Authority over areas of sea or lagoon space
0
2
4
6
Number of yes responses

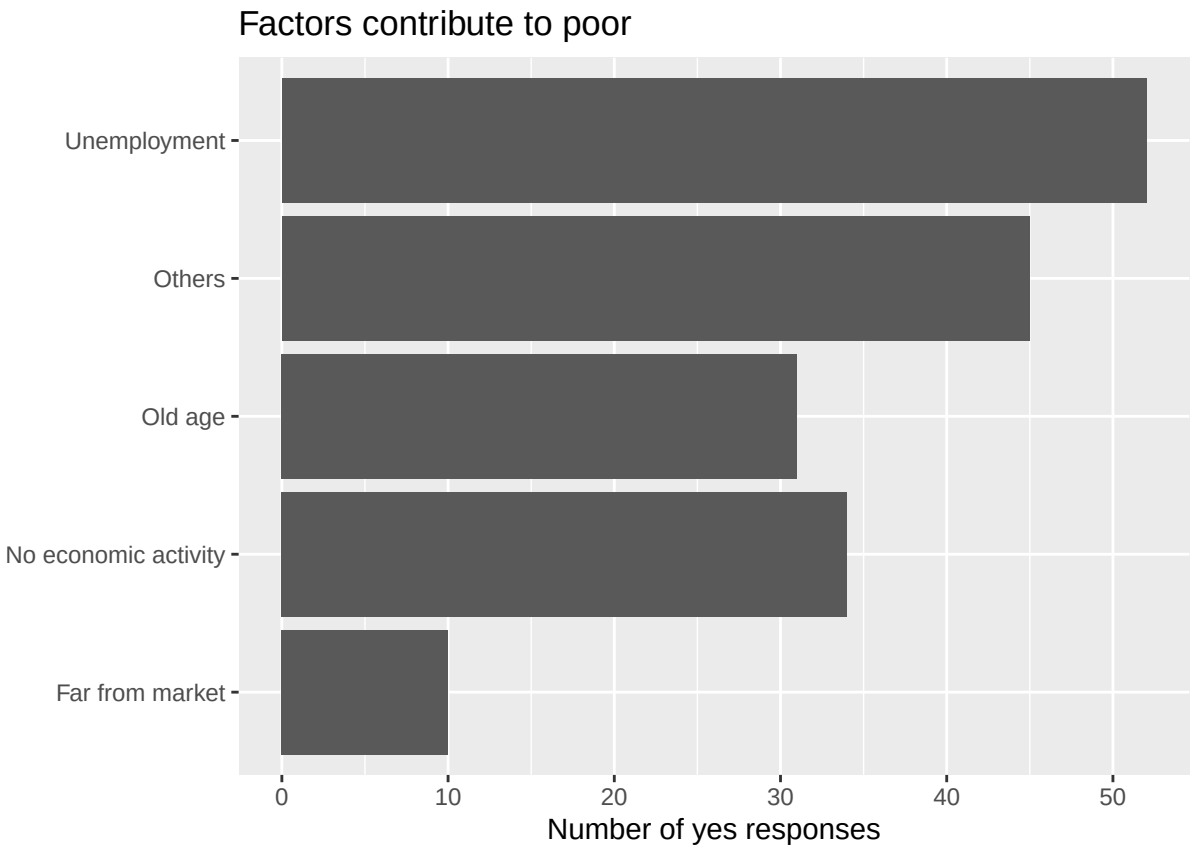

Event occurring the last 10 years
Tsunami
Harmful algal bloom
Cyclone
Coral bleaching event
0
10
20
30
40
50
Number of yes responses

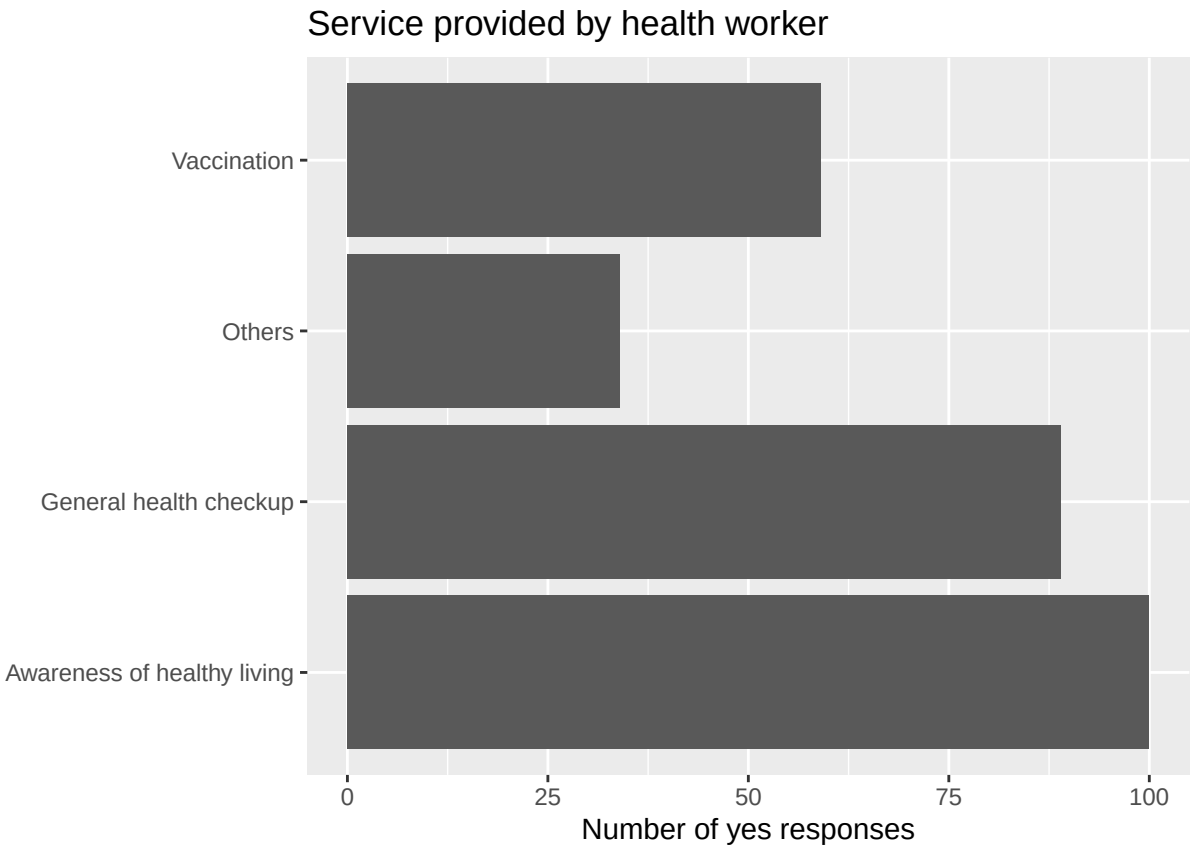

Area of Government managing sea area
Other (specify)
Ministry of Local Government
Ministry of Fisheries
0
25
50
75
100
Number of yes responses

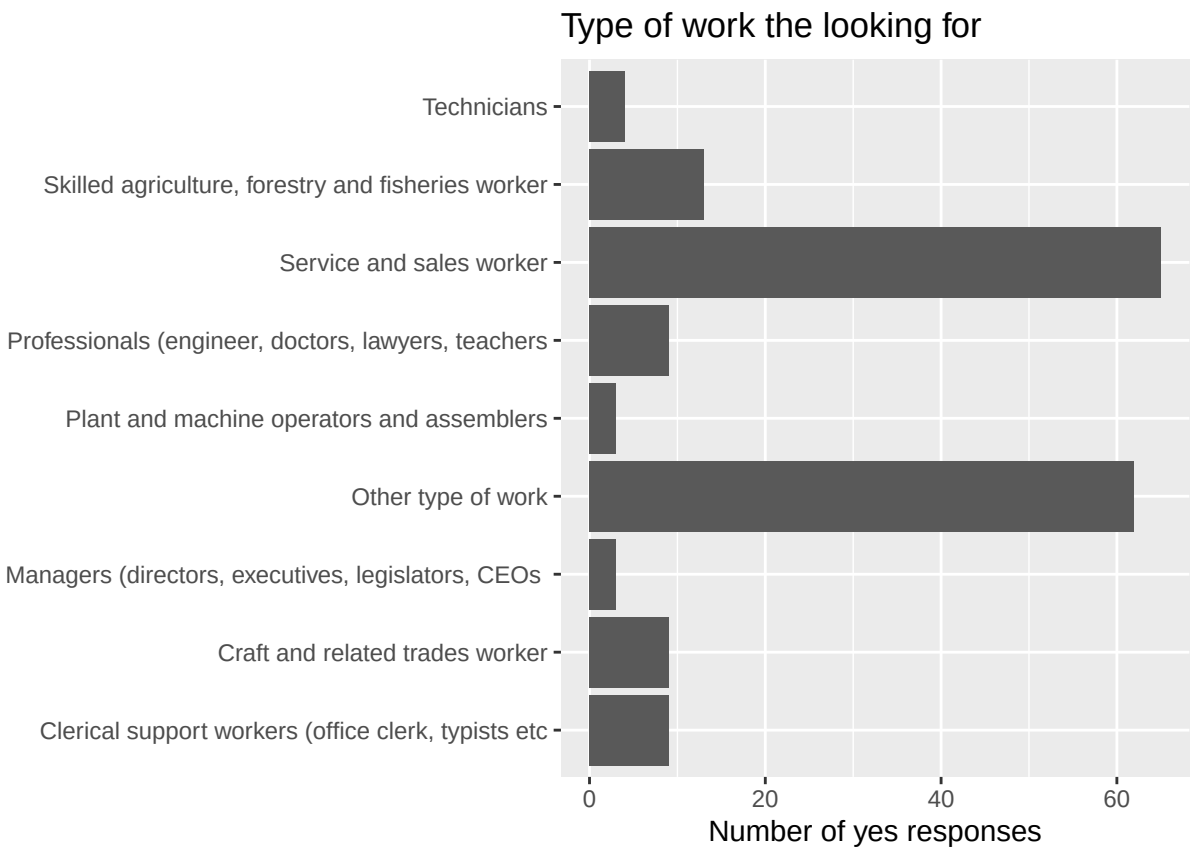

Person managing the sea area
Village elders
Unimane
Others
Head of households
Elected individual in the community
0
20
40
60
Number of yes responses

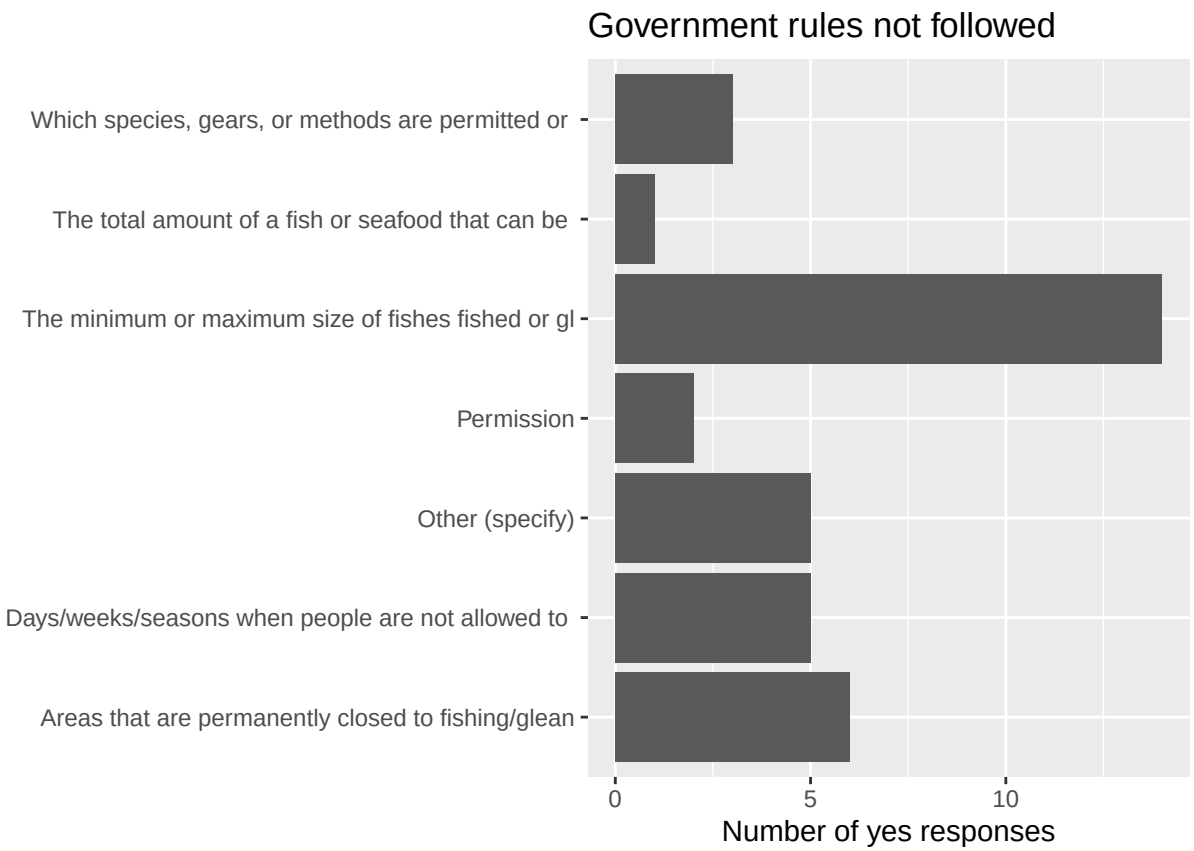

Type of catches shared
Other non−finfish seafood (shellfish, sea worm, etc.)
Non−fish foods
Finfish
0
20
40
60
80
Number of yes responses

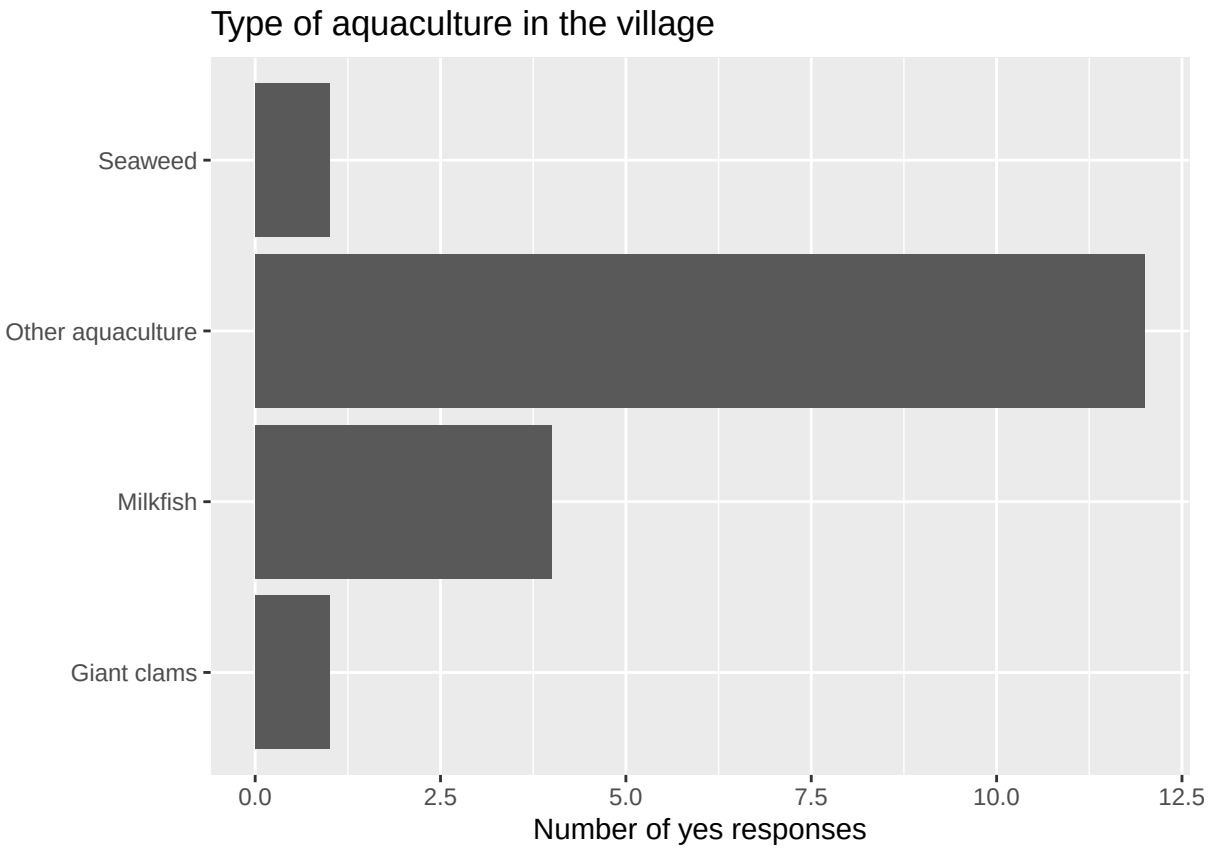

Better reason of livelihood status
Other reason
New markets opened
New housing projects
More employment
Good roads and construcution of new ones
Fisheries management
Easy access to health and education facilitie
Access to shopping outlets
0
20
40
60
Number of yes responses

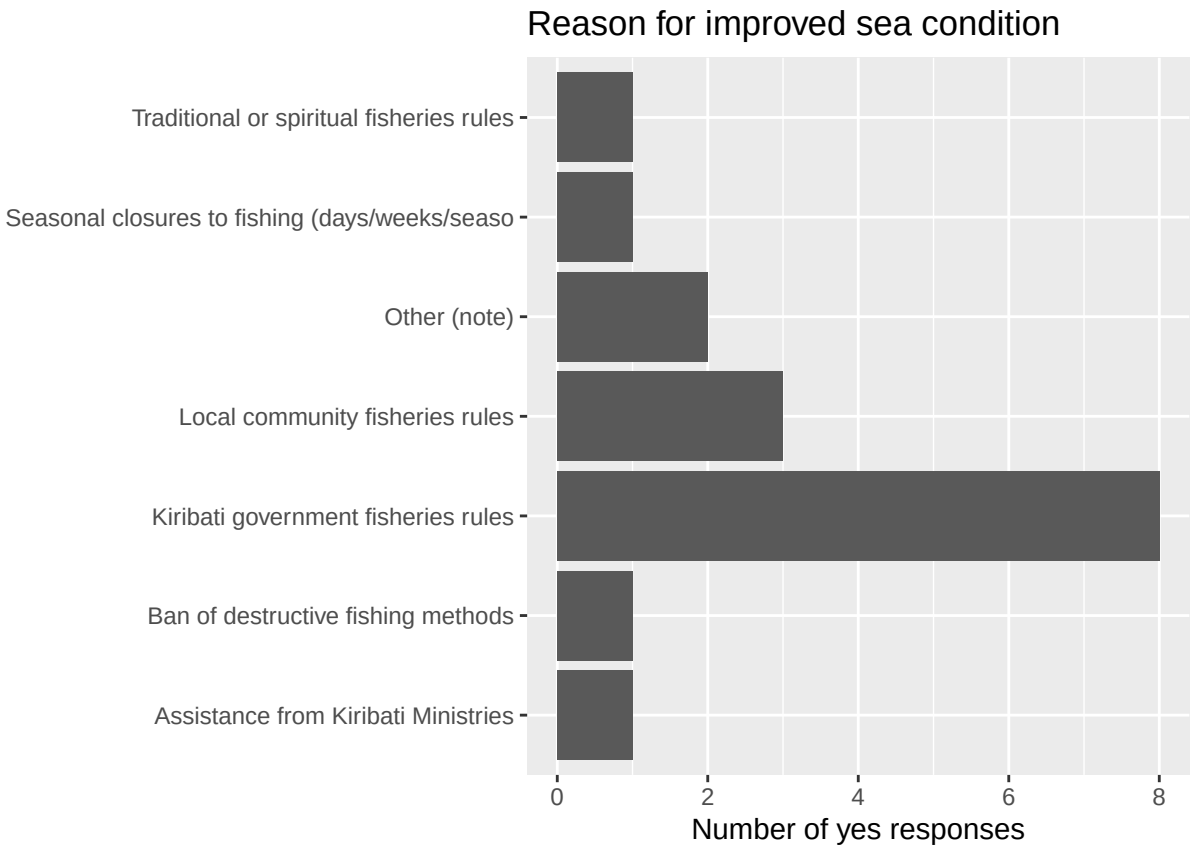

Factors contribute to poor
Unemployment
Others
Old age
No economic activity
Far from market
0
10
20
30
40
50
Number of yes responses

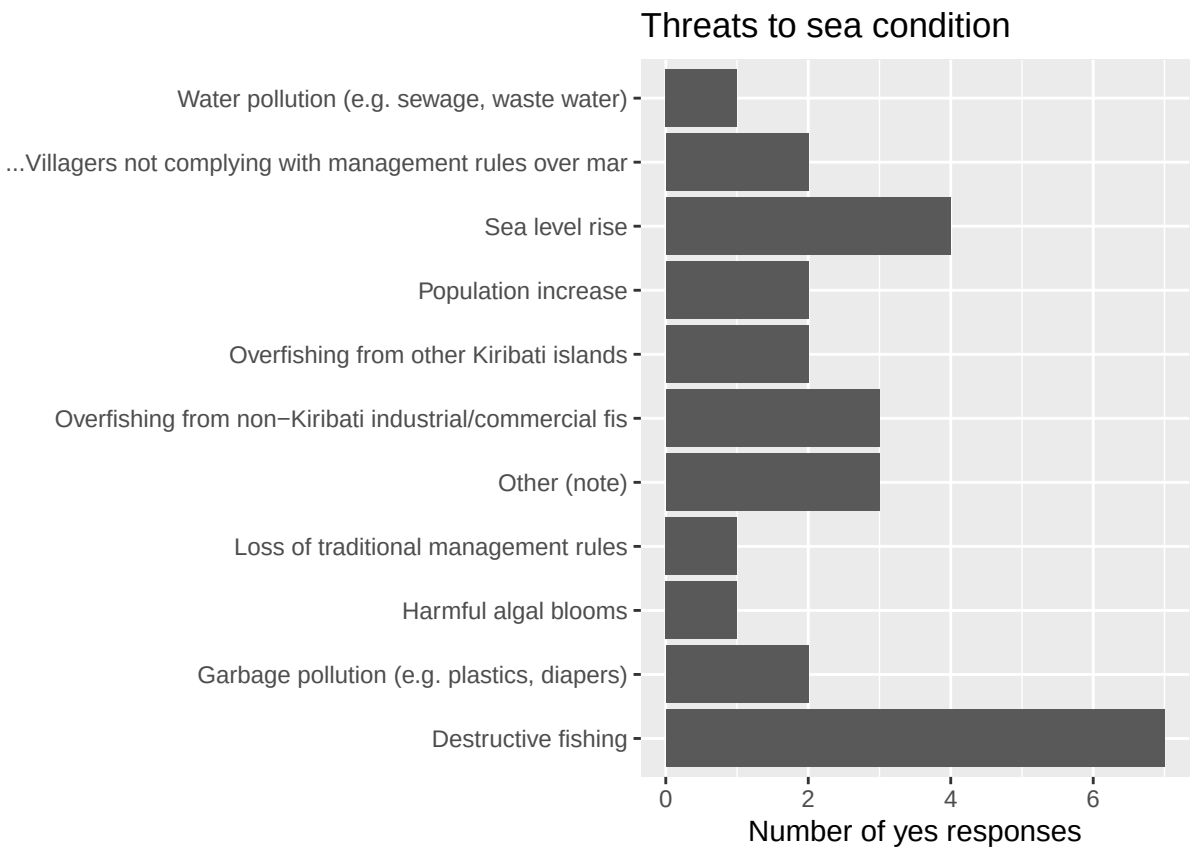

Service provided by health worker
Vaccination
Others
General health checkup
Awareness of healthy living
0
25
50
75
100
Number of yes responses

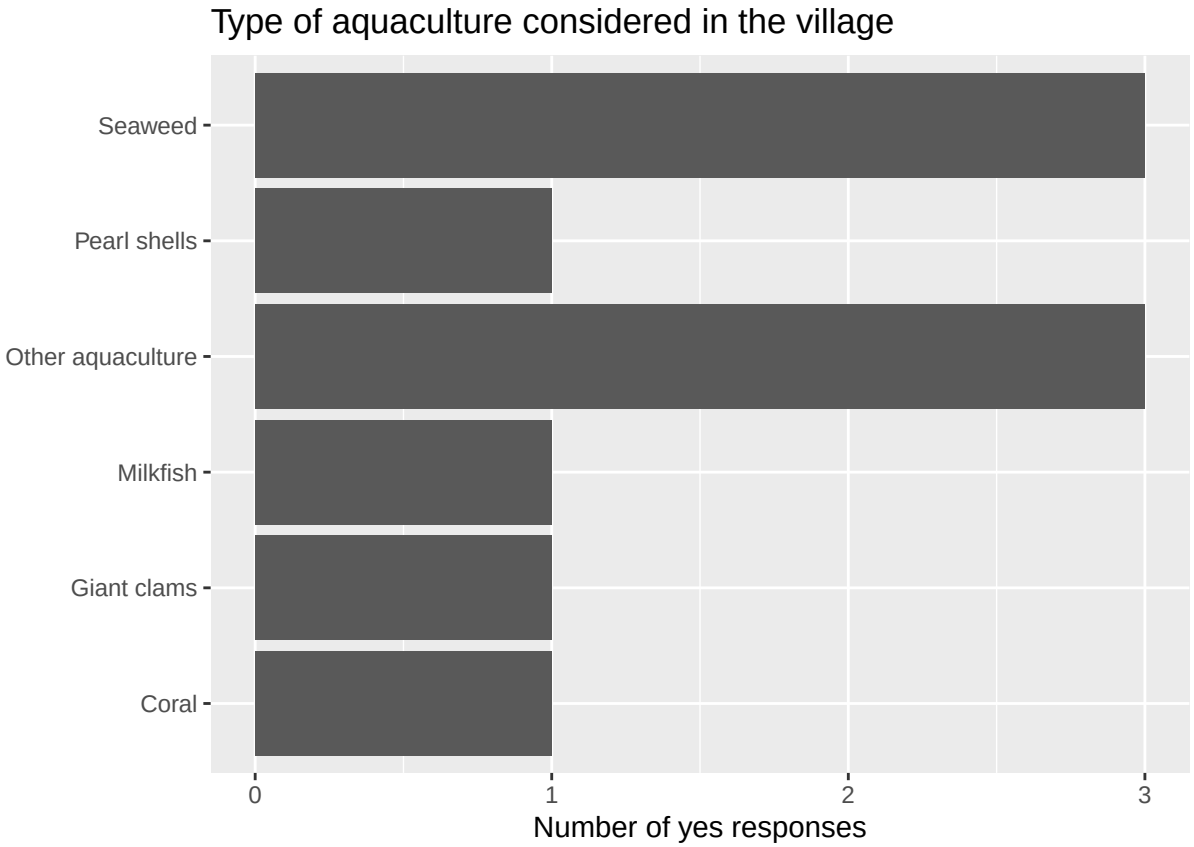

Type of work the looking for
Technicians
Skilled agriculture, forestry and fisheries worker
Service and sales worker
Professionals (engineer, doctors, lawyers, teachers
Plant and machine operators and assemblers
Other type of work
Managers (directors, executives, legislators, CEOs
Craft and related trades worker
Clerical support workers (office clerk, typists etc
0
20
40
60
Number of yes responses

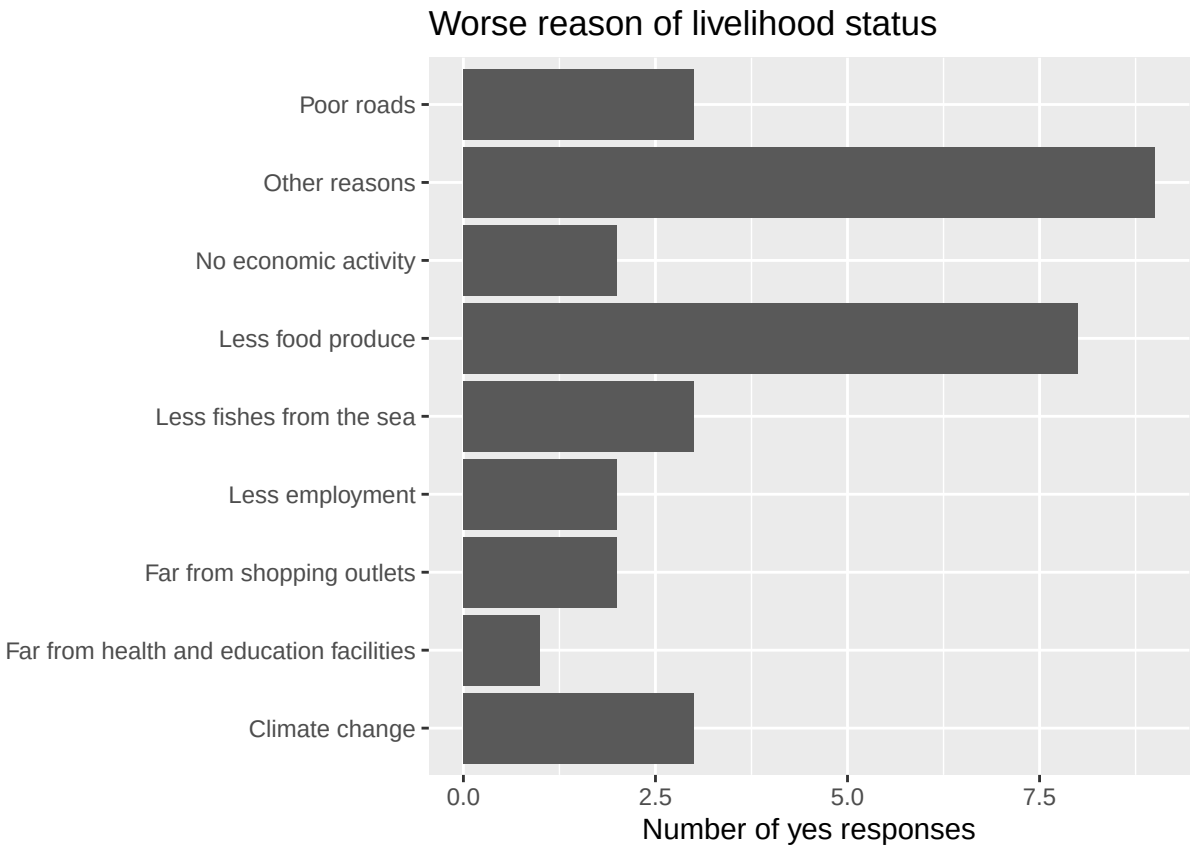

Government rules not followed
Which species, gears, or methods are permitted or
The total amount of a fish or seafood that can be
The minimum or maximum size of fishes fished or gl
Permission
Other (specify)
Days/weeks/seasons when people are not allowed to
Areas that are permanently closed to fishing/glean
0
5
10
Number of yes responses


Type of aquaculture in the village
Seaweed
Other aquaculture
Milkfish
Giant clams
0.0
2.5
5.0
7.5
10.0
12.5
Number of yes responses


Reason for improved sea condition
Traditional or spiritual fisheries rules
Seasonal closures to fishing (days/weeks/seaso
Other (note)
Local community fisheries rules
Kiribati government fisheries rules
Ban of destructive fishing methods
Assistance from Kiribati Ministries
0
2
4
6
8
Number of yes responses

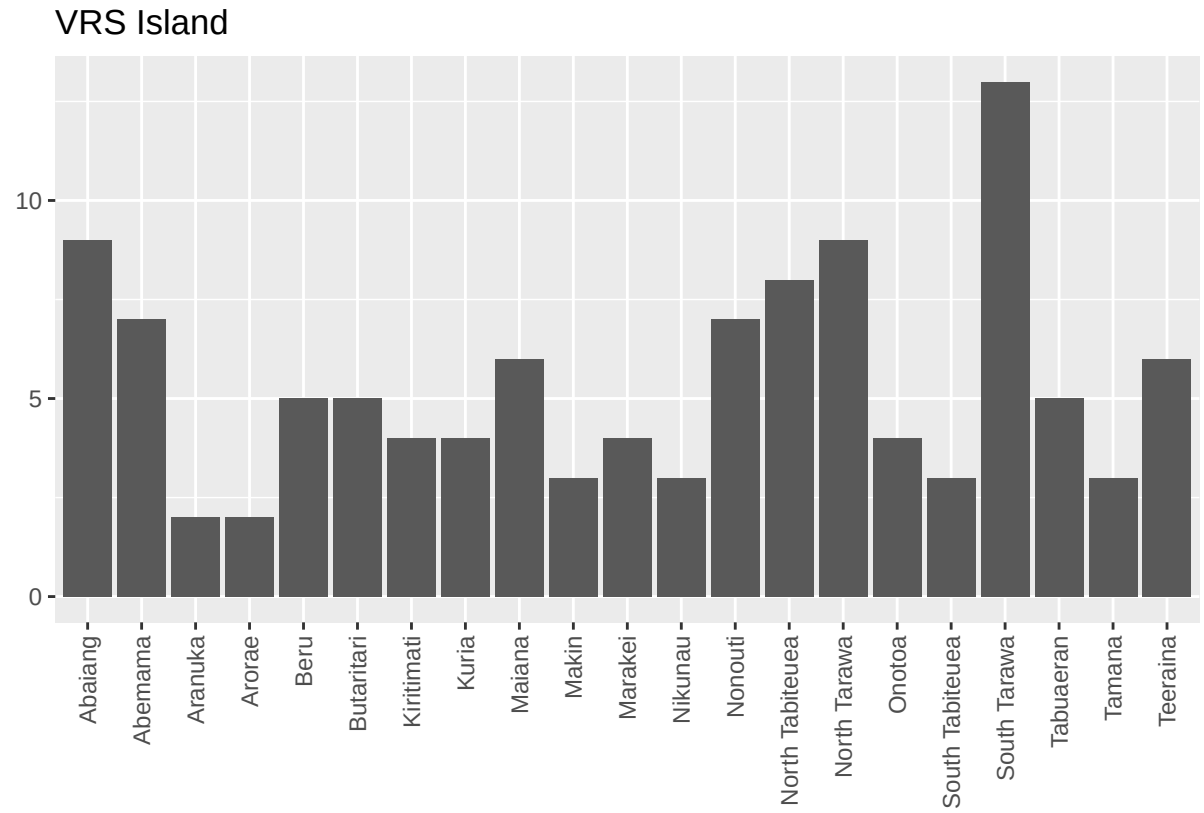

Threats to sea condition
Water pollution (e.g. sewage, waste water)
...Villagers not complying with management rules over mar
Sea level rise
Population increase
Overfishing from other Kiribati islands
Overfishing from non−Kiribati industrial/commercial fis
Other (note)
Loss of traditional management rules
Harmful algal blooms
Garbage pollution (e.g. plastics, diapers)
Destructive fishing
0
2
4
6
Number of yes responses

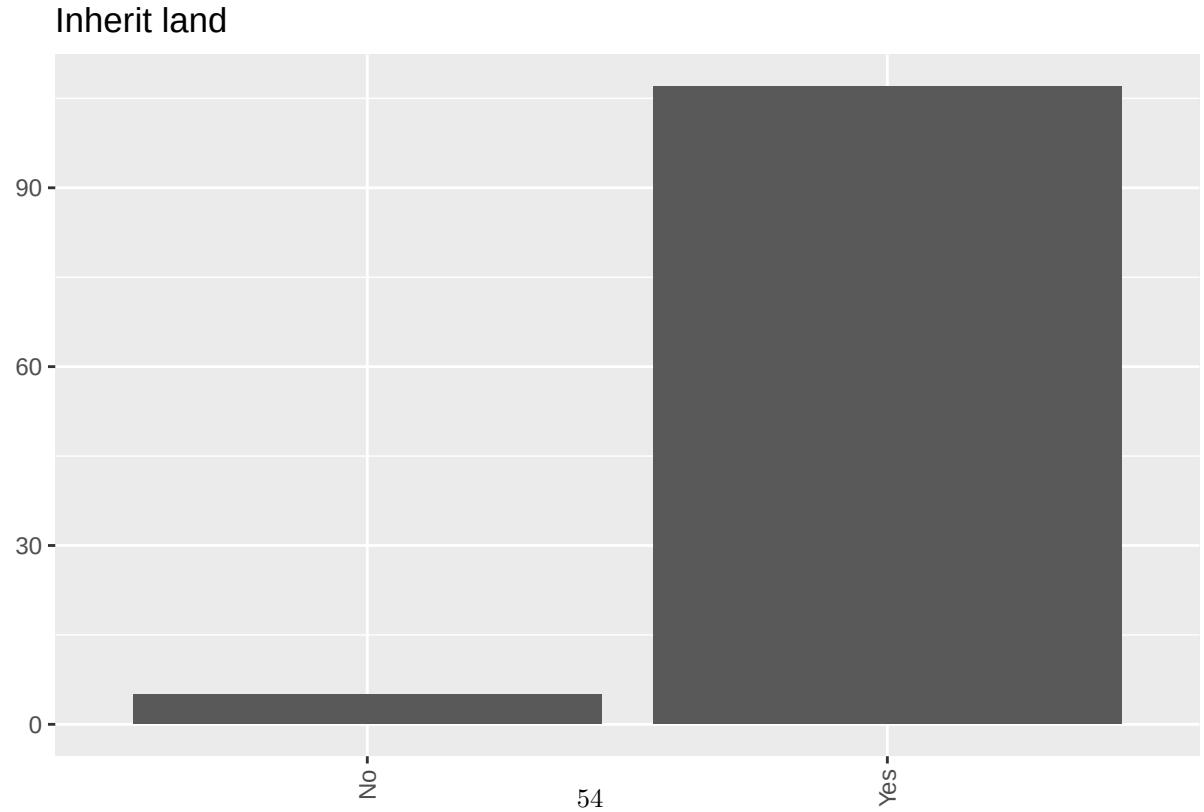

Type of aquaculture considered in the village
Seaweed
Pearl shells
Other aquaculture
Milkfish
Giant clams
Coral
0
1
2
3
Number of yes responses

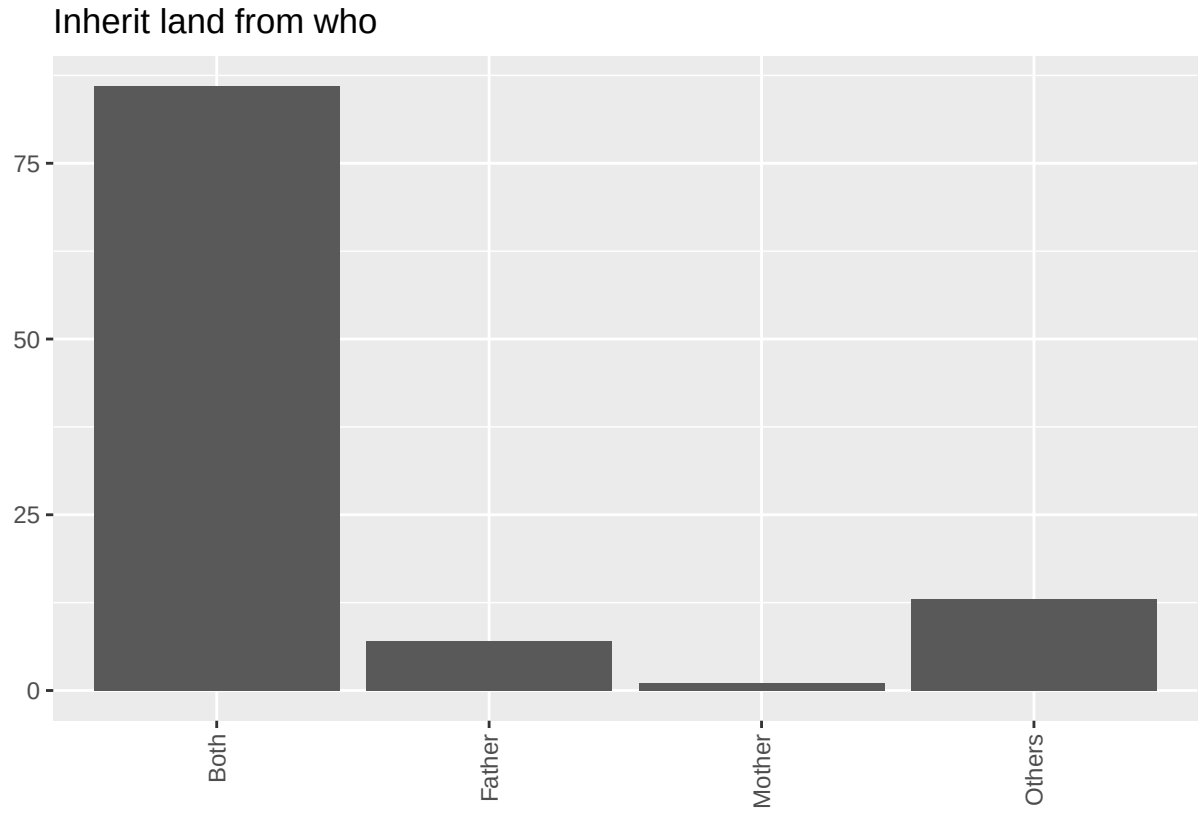

Worse reason of livelihood status
Poor roads
Other reasons
No economic activity
Less food produce
Less fishes from the sea
Less employment
Far from shopping outlets
Far from health and education facilities
Climate change
0.0
2.5
5.0
7.5
Number of yes responses

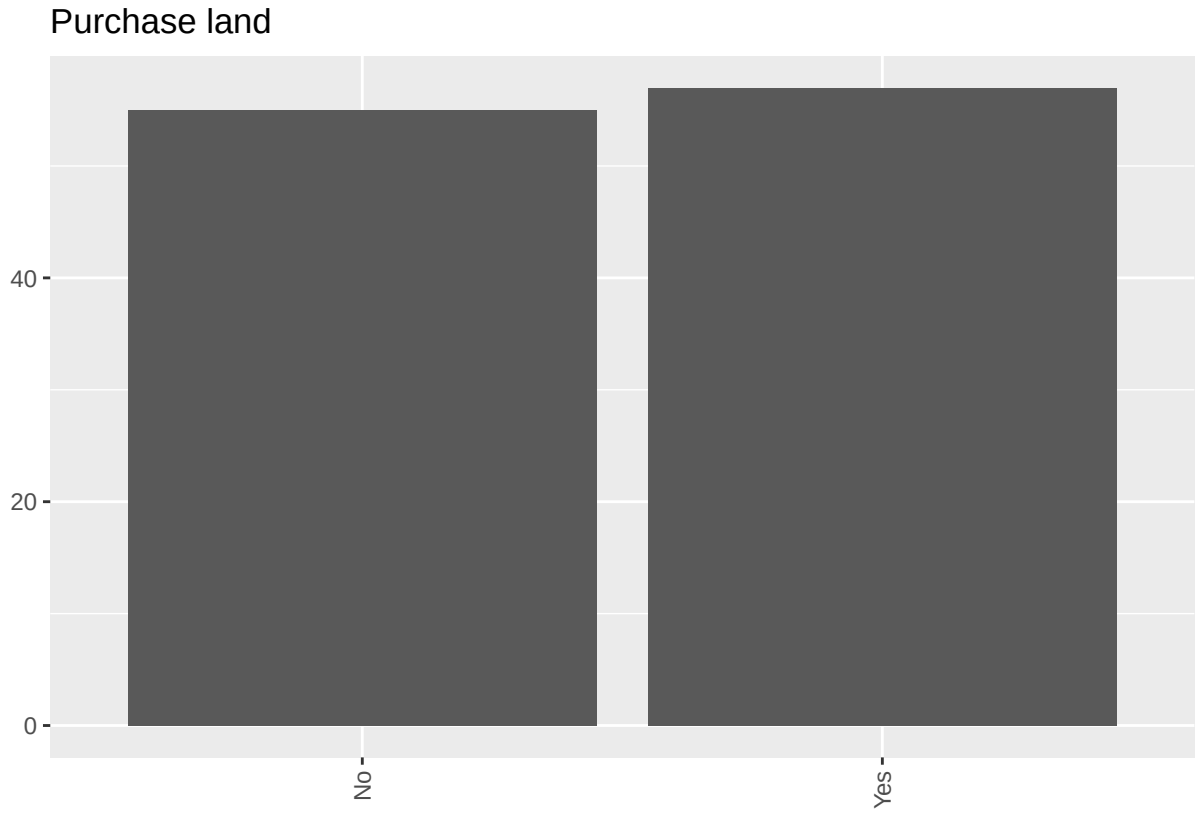
## VRS continued...

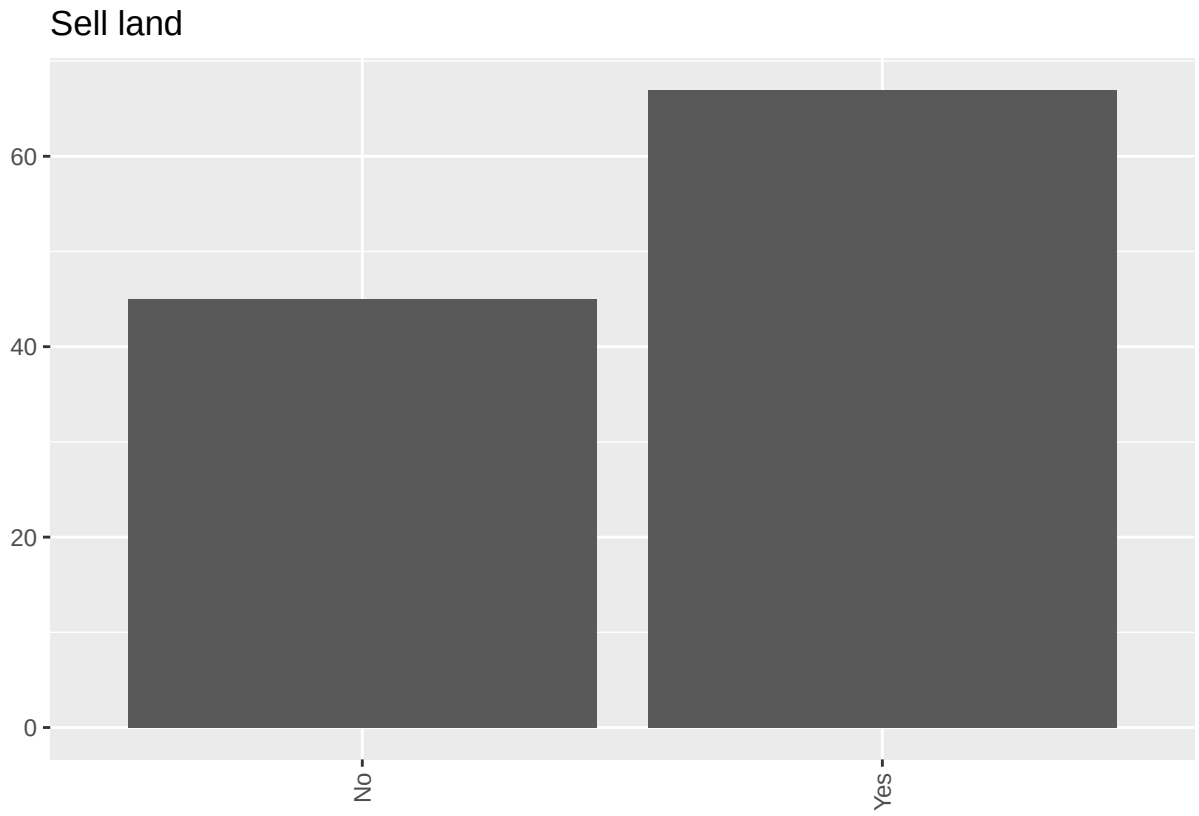
***Single response questions***

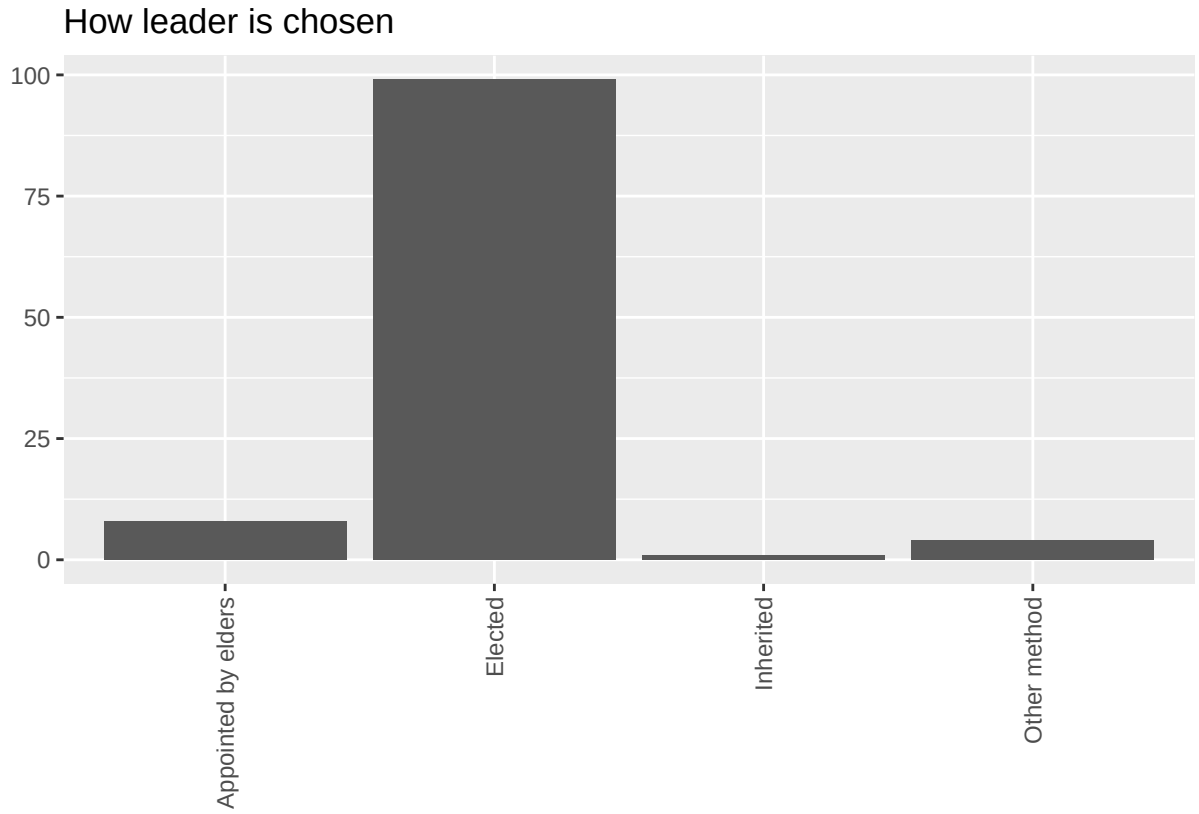


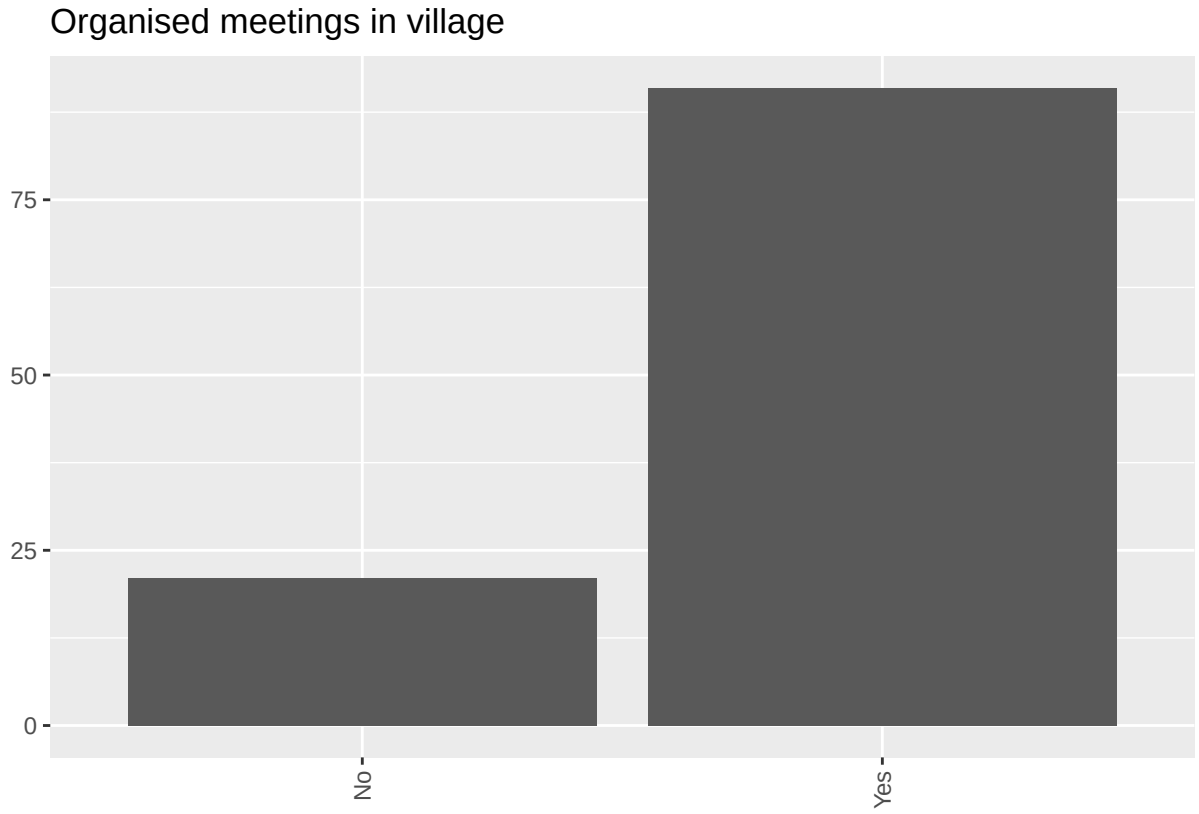



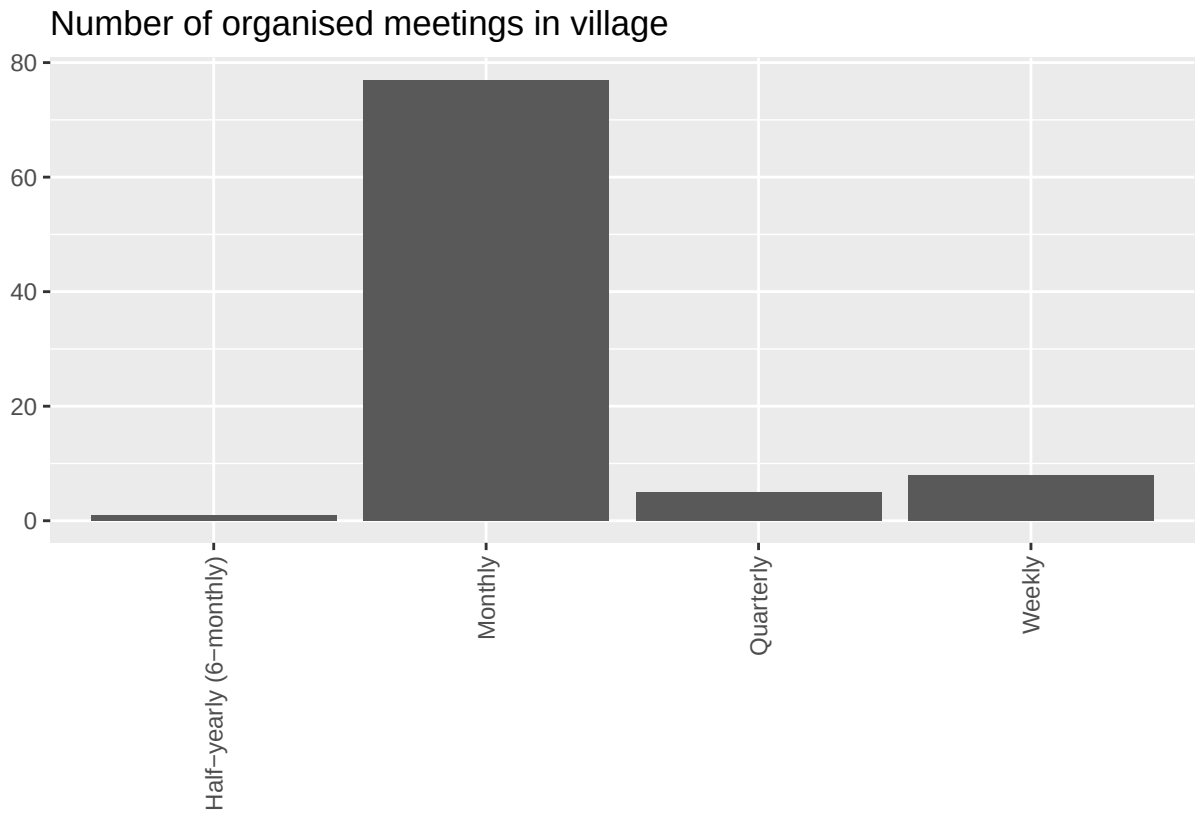

Inherit land from who
75
50
25
0
Both
Father
Mother
Others

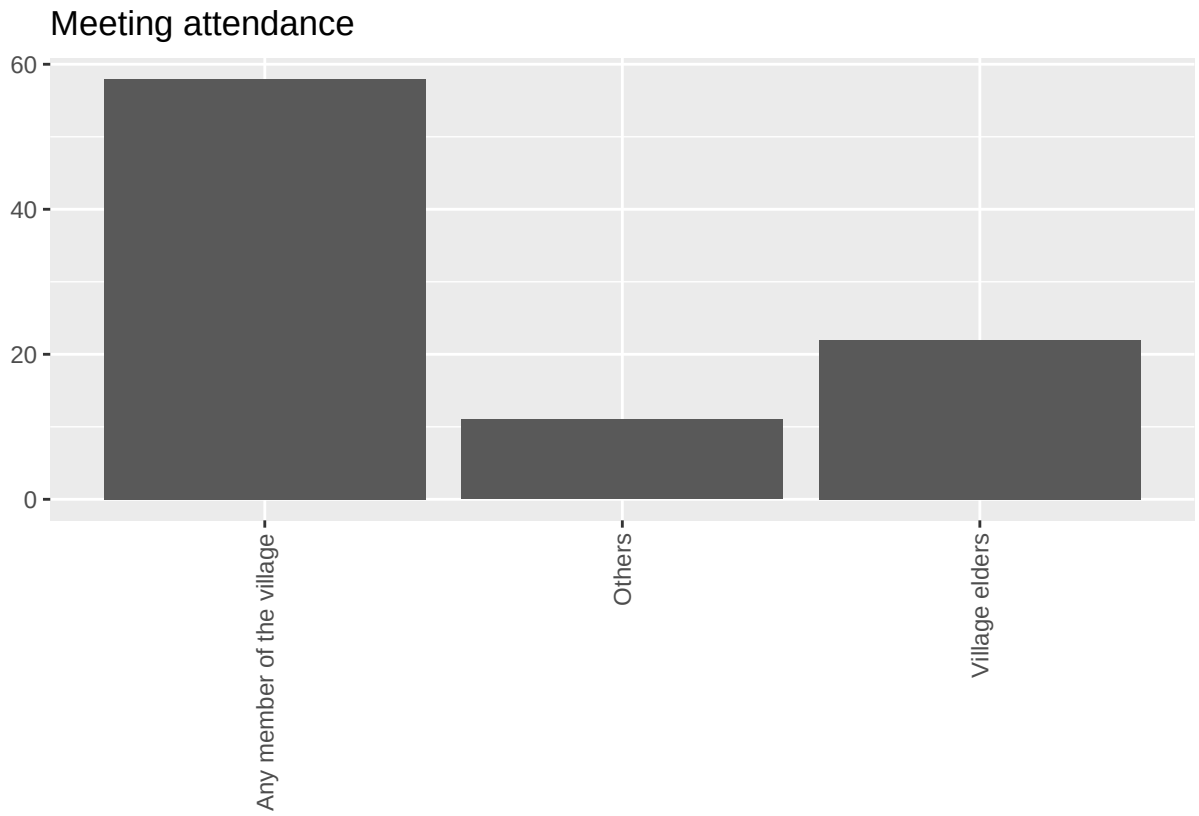

Purchase land
40
20
0
No
Yes

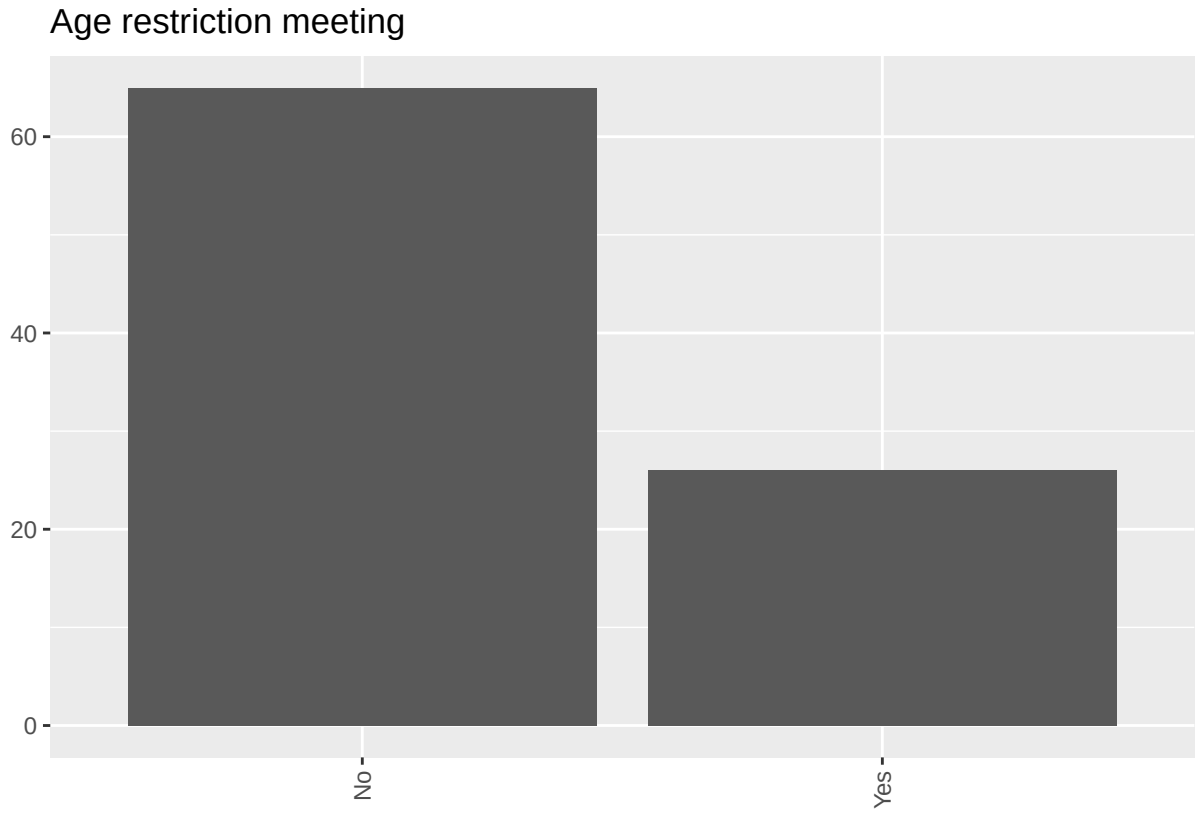

Sell land
60
40
20
0
No
Yes

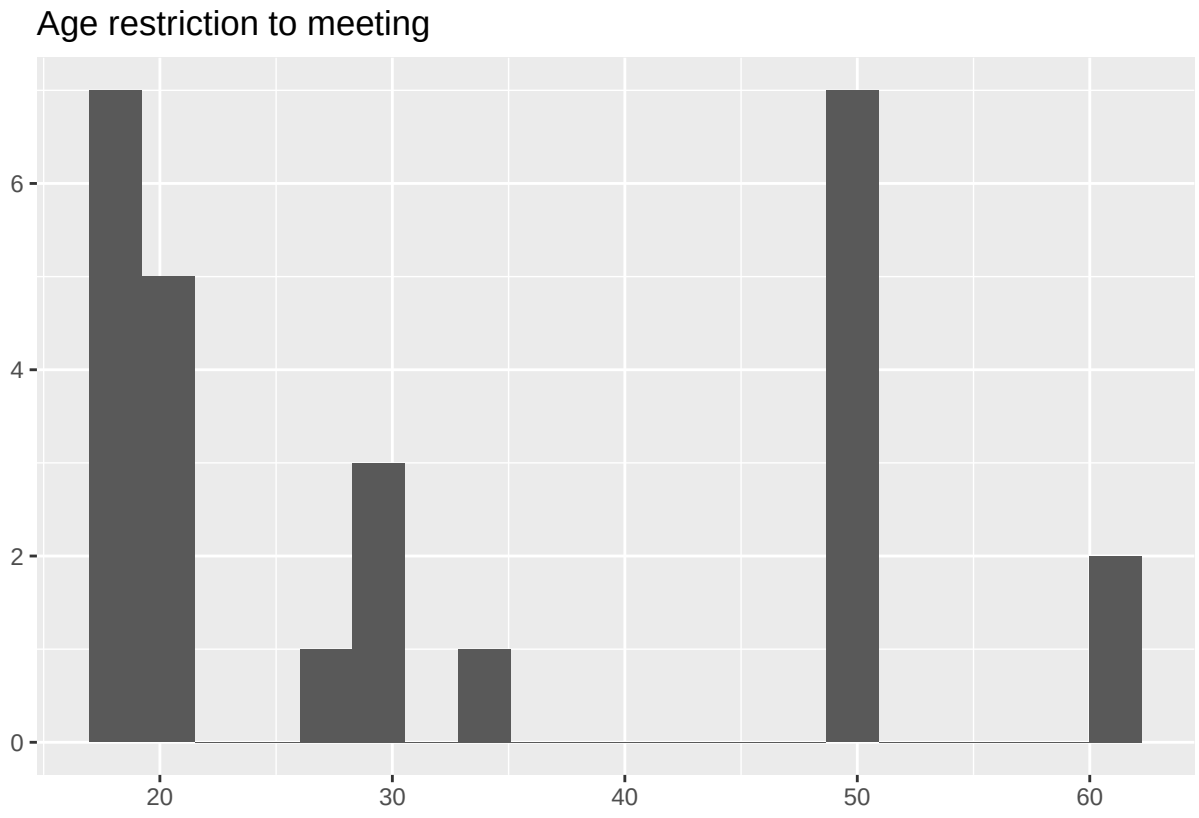

How leader is chosen
100
75
50
25
0
Appointed by elders
Elected
Inherited
Other method

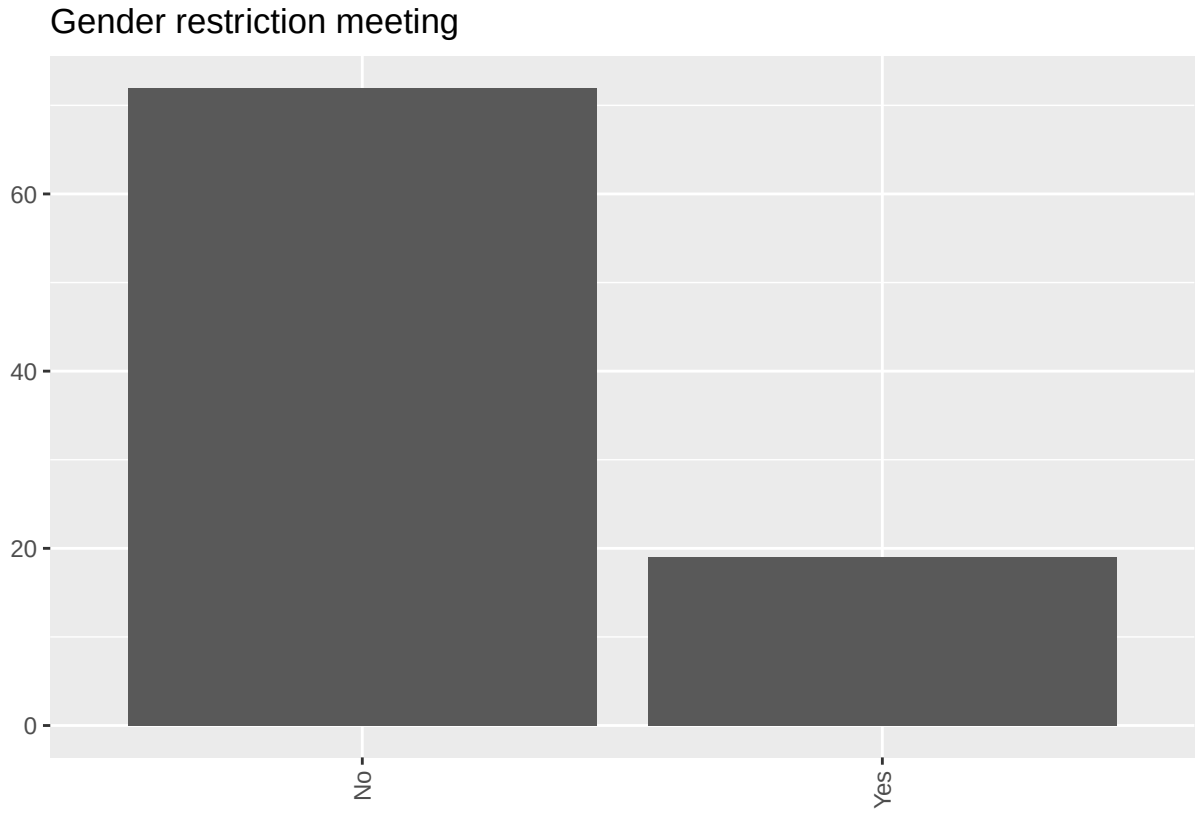

Organised meetings in village
75
50
25
0
No
Yes

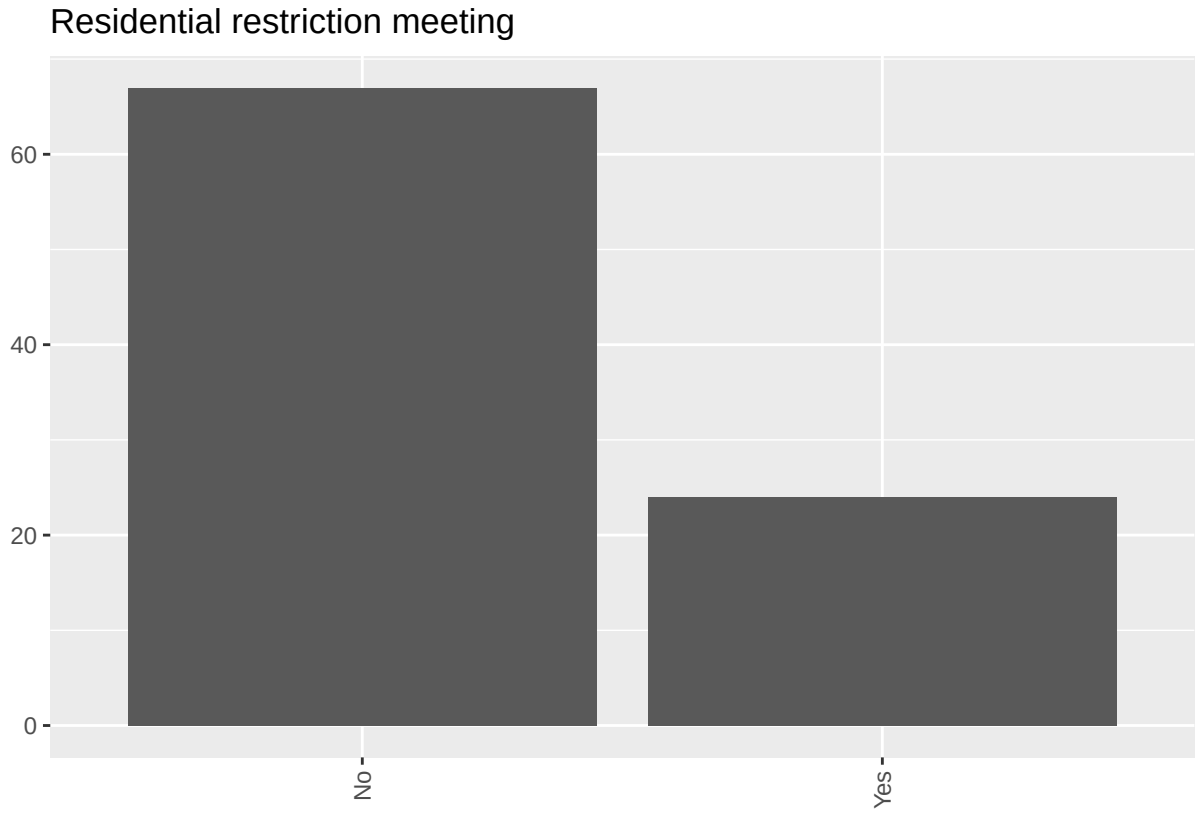

Number of organised meetings in village
80
60
40
20
0
Half−yearly (6−monthly)
Monthly
Quarterly
Weekly

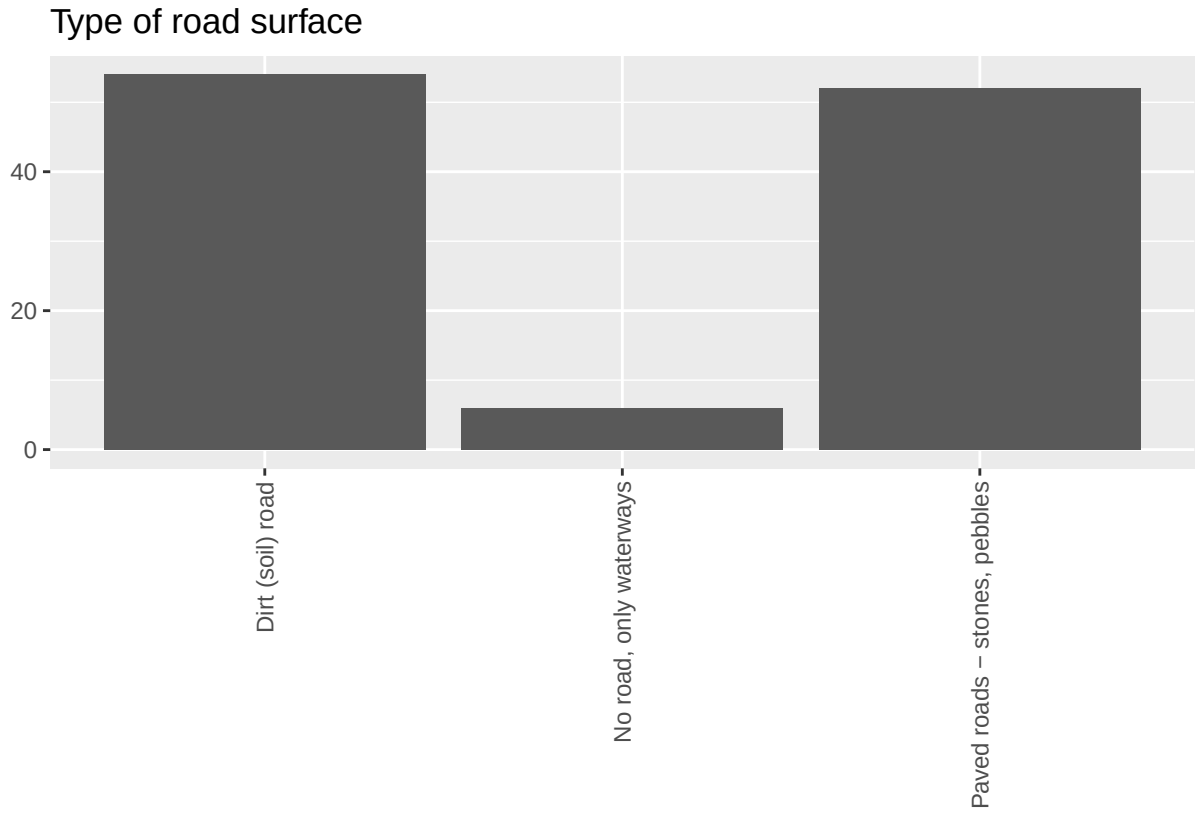

Meeting attendance
60
40
20
0
Any member of the village
Others
Village elders

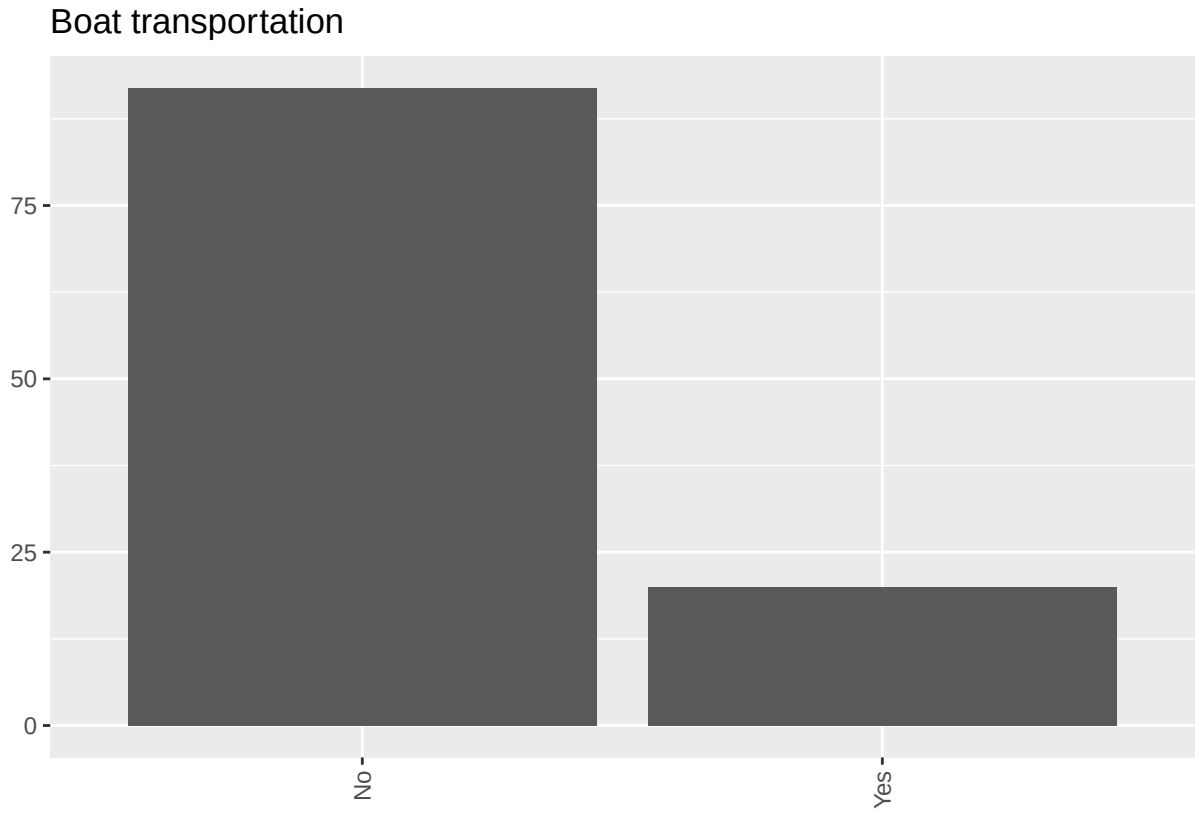

Age restriction meeting
60
40
20
0
No
Yes

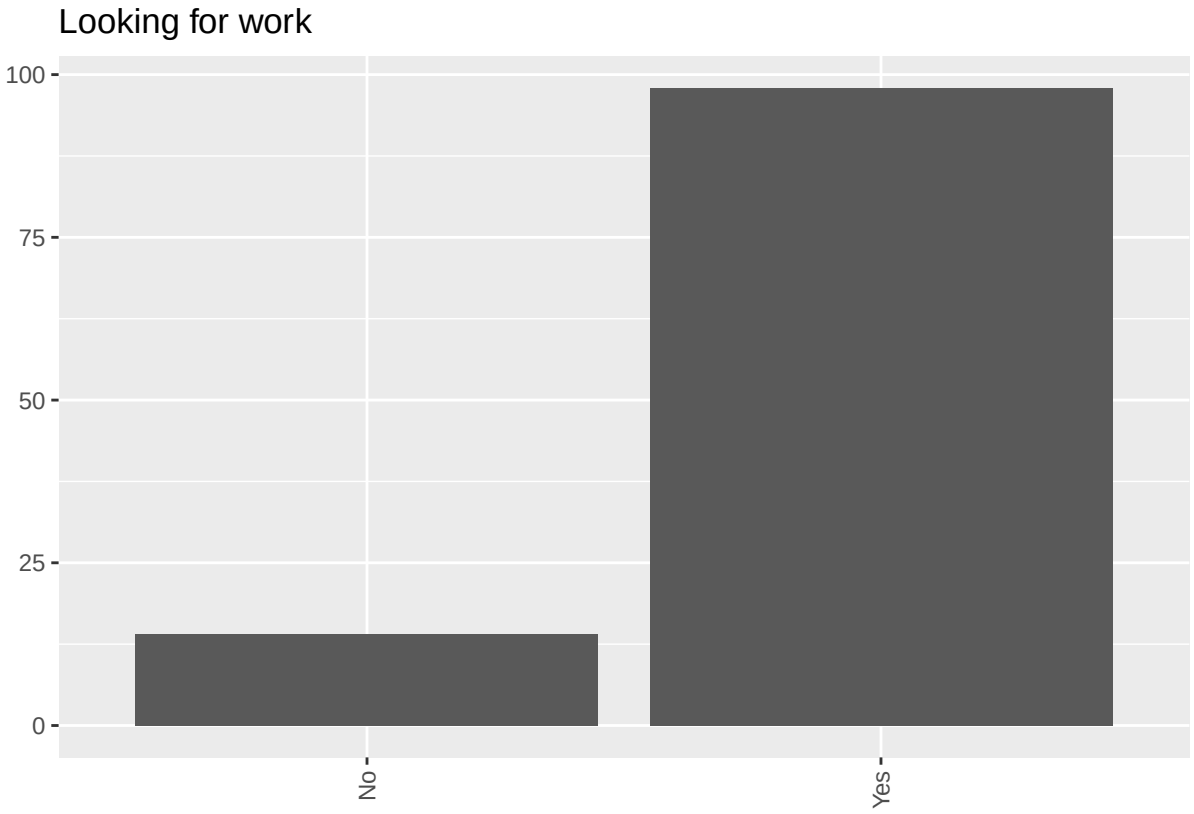

Age restriction to meeting
6
4
2
0
20
30
40
50
60

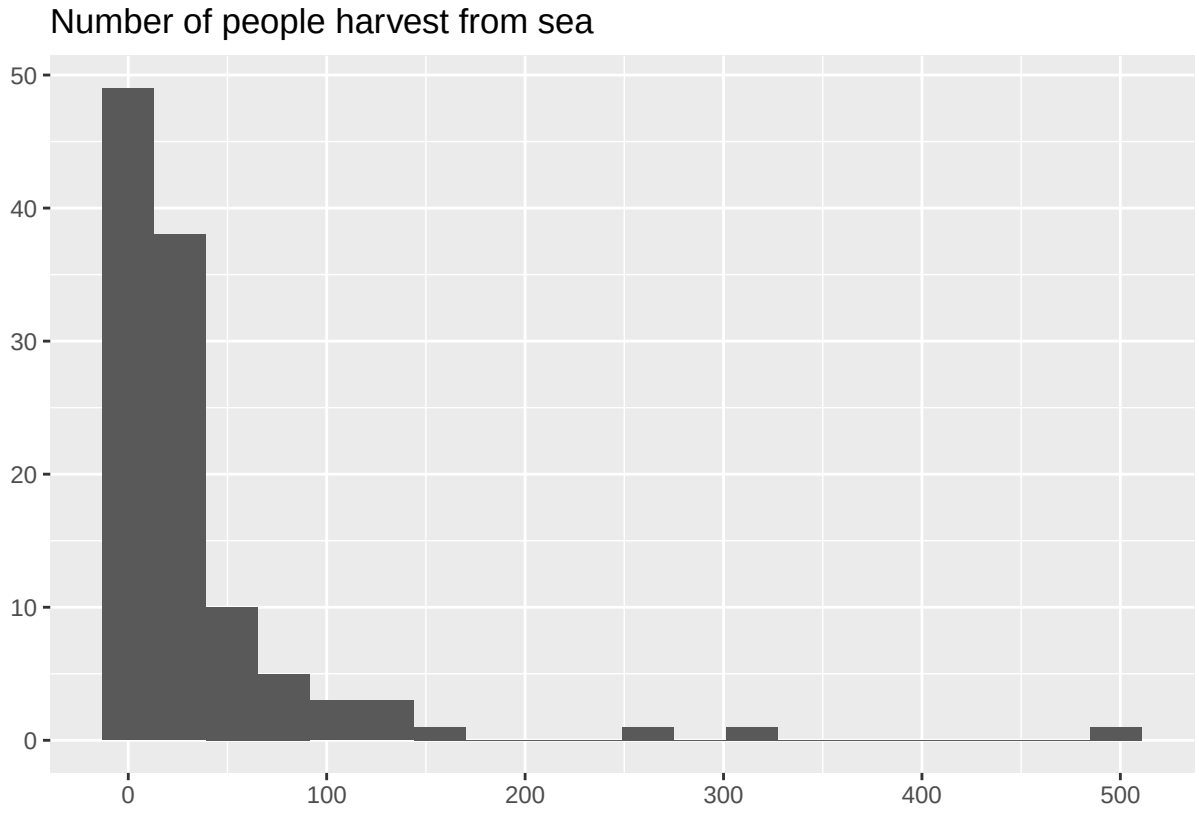

Gender restriction meeting
60
40
20
0
No
Yes


Residential restriction meeting
60
40
20
0
No
Yes

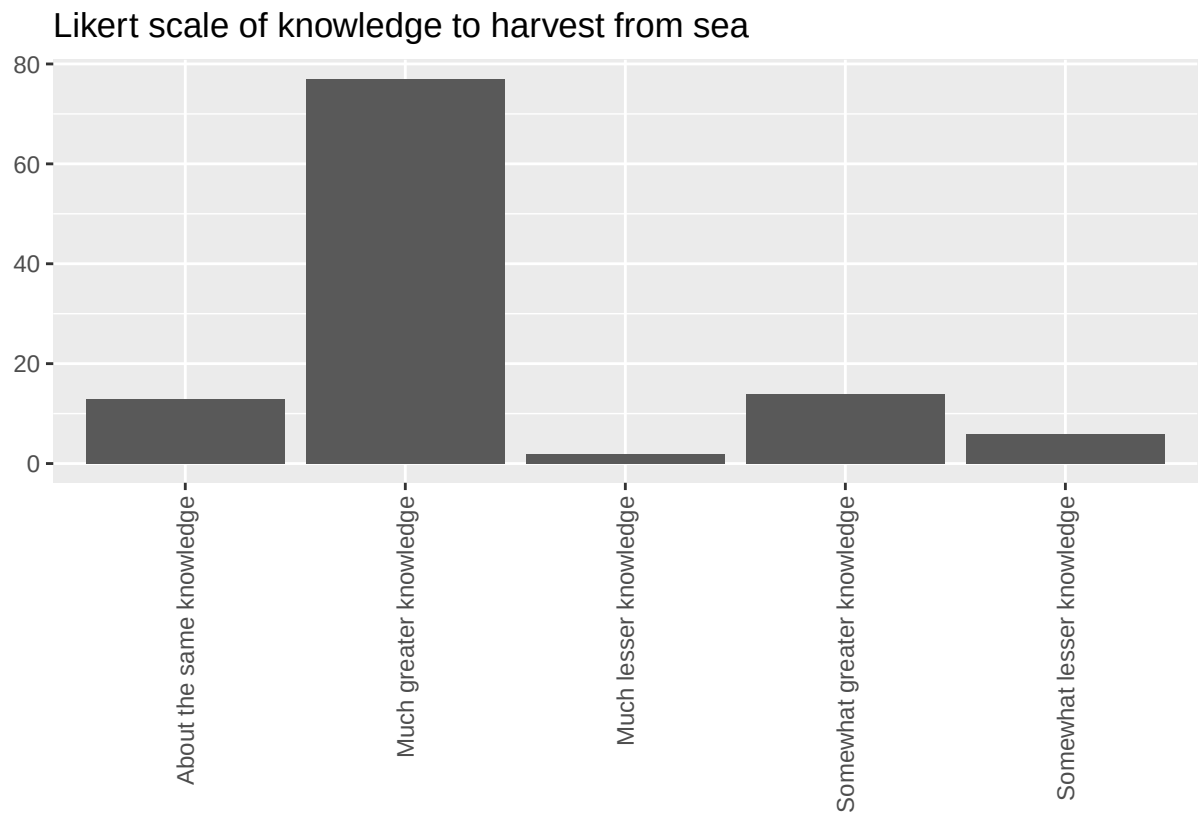

Type of road surface
40
20
0
Dirt (soil) road
No road, only waterways
Paved roads – stones, pebbles

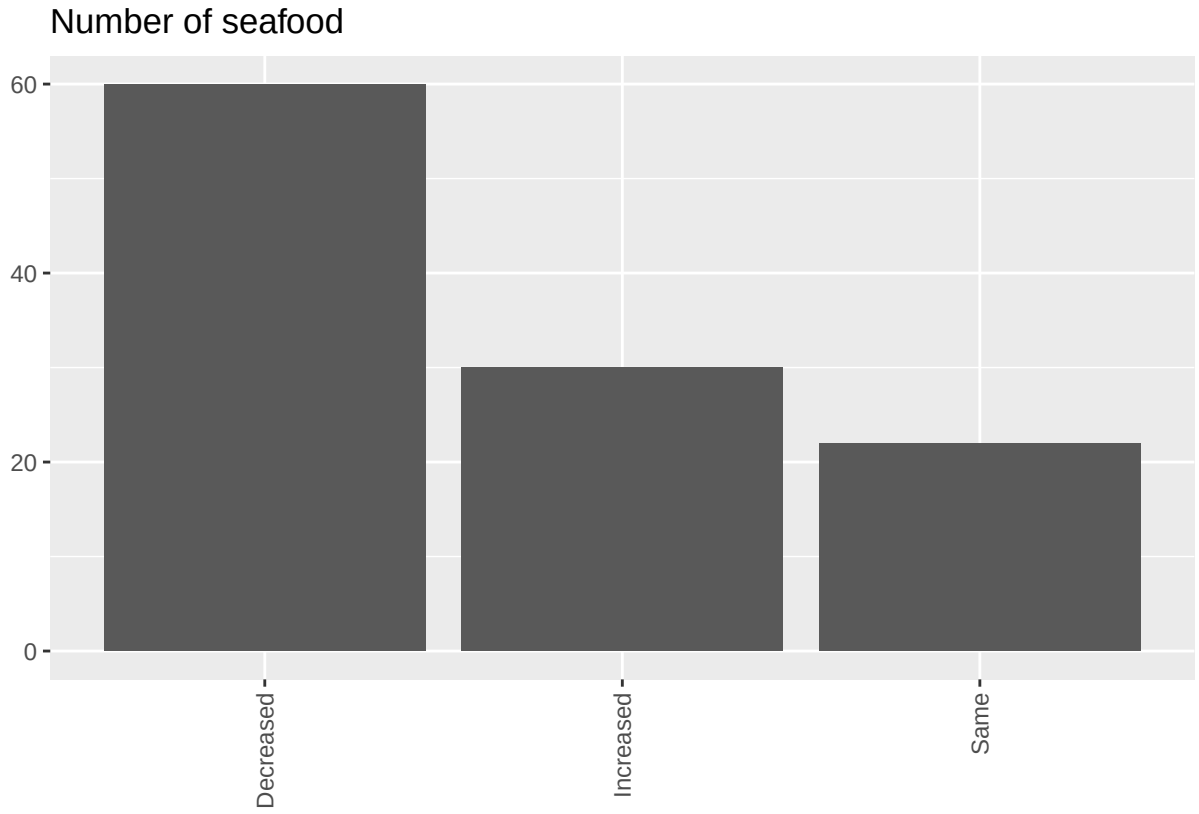

Boat transportation
75
50
25
0
No
Yes

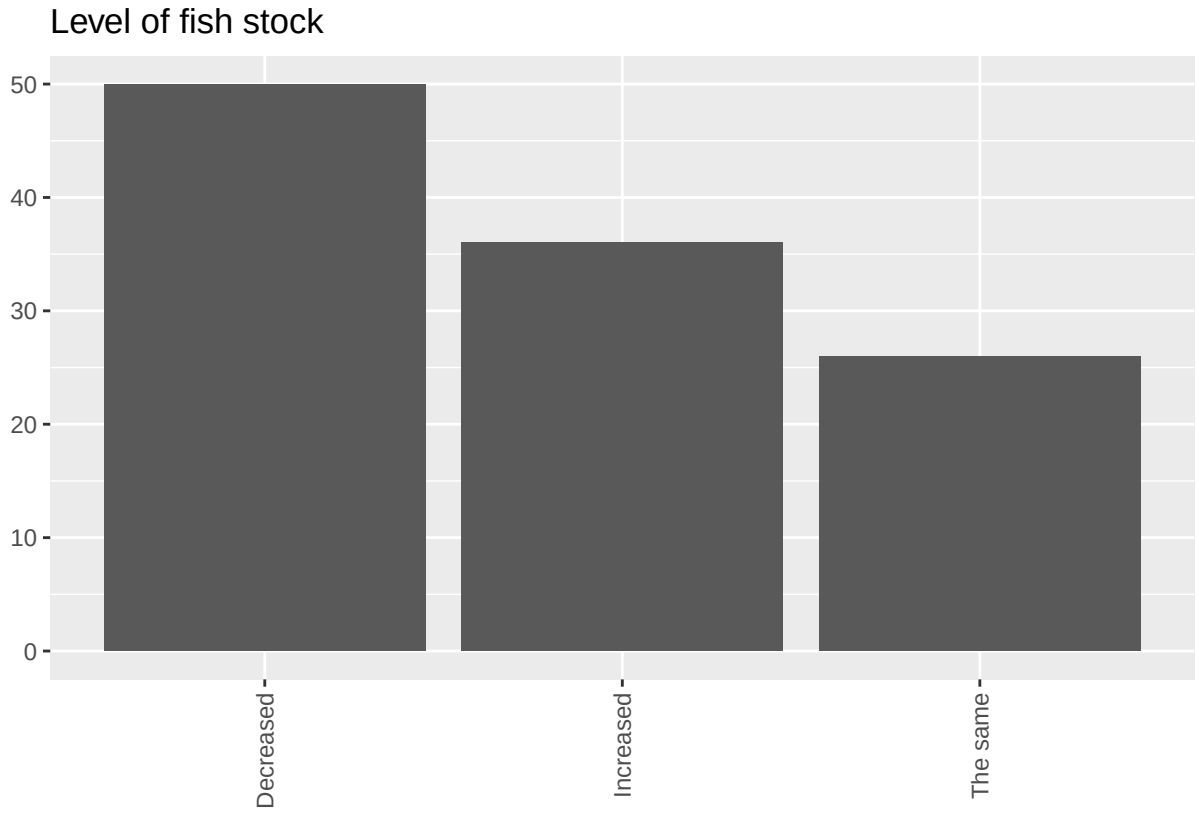

Looking for work
100
75
50
25
0
No
Yes

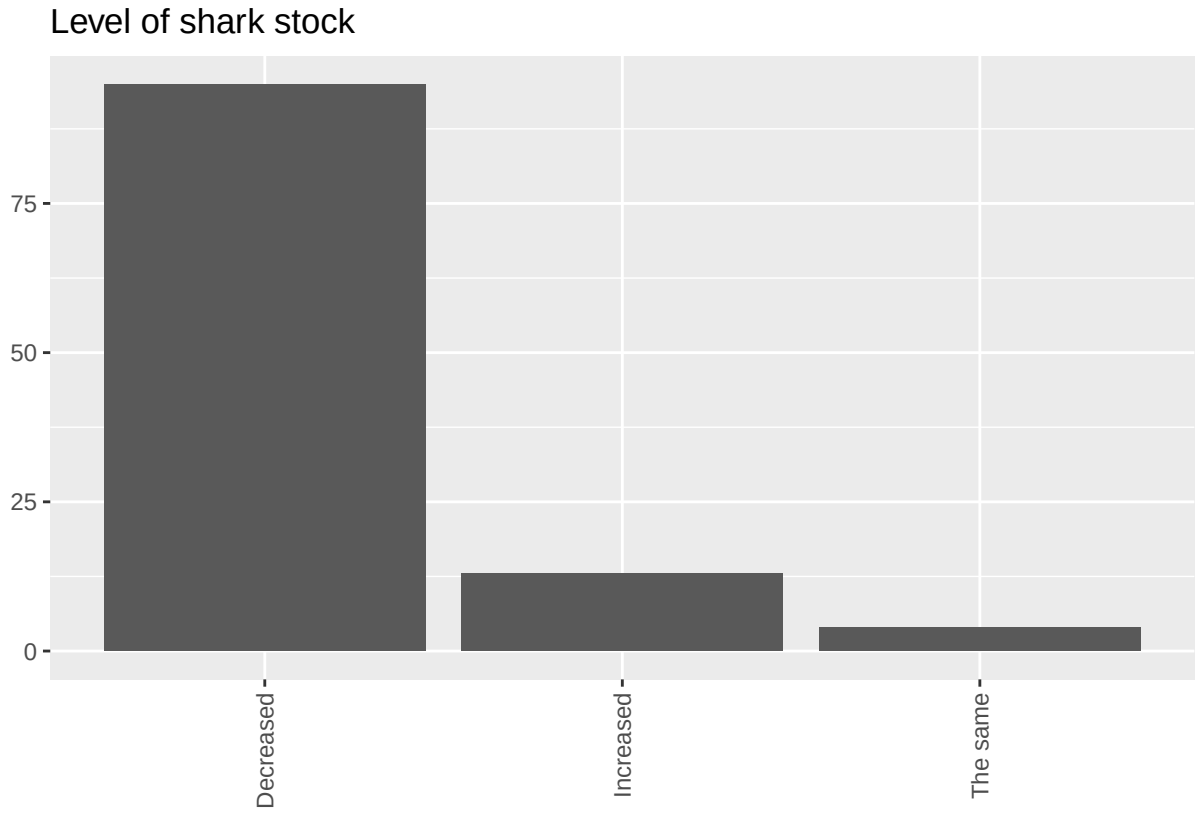

Number of people harvest from sea
50
40
30
20
10
0
0
100
200
300
400
500

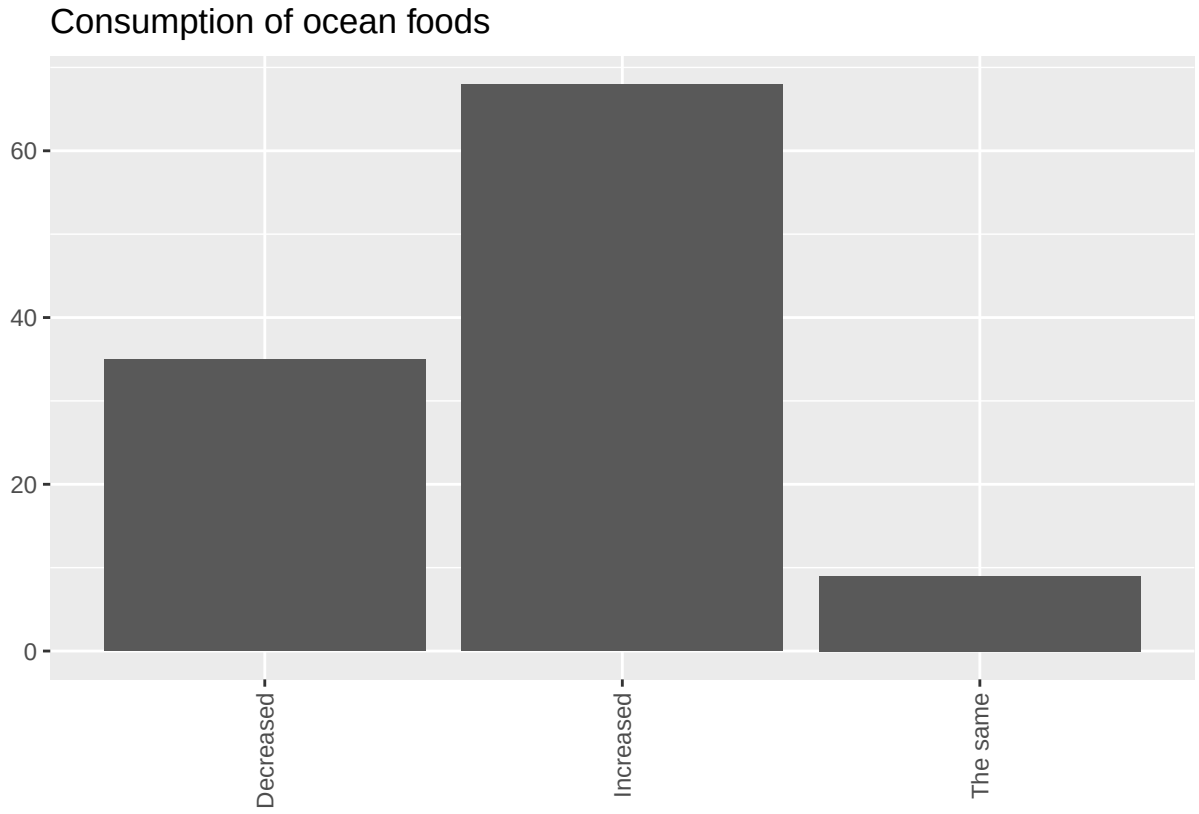

Number of women harvesting from sea (zeroes removed; n = 40)
30
20
10
0
0
25
50
75
100

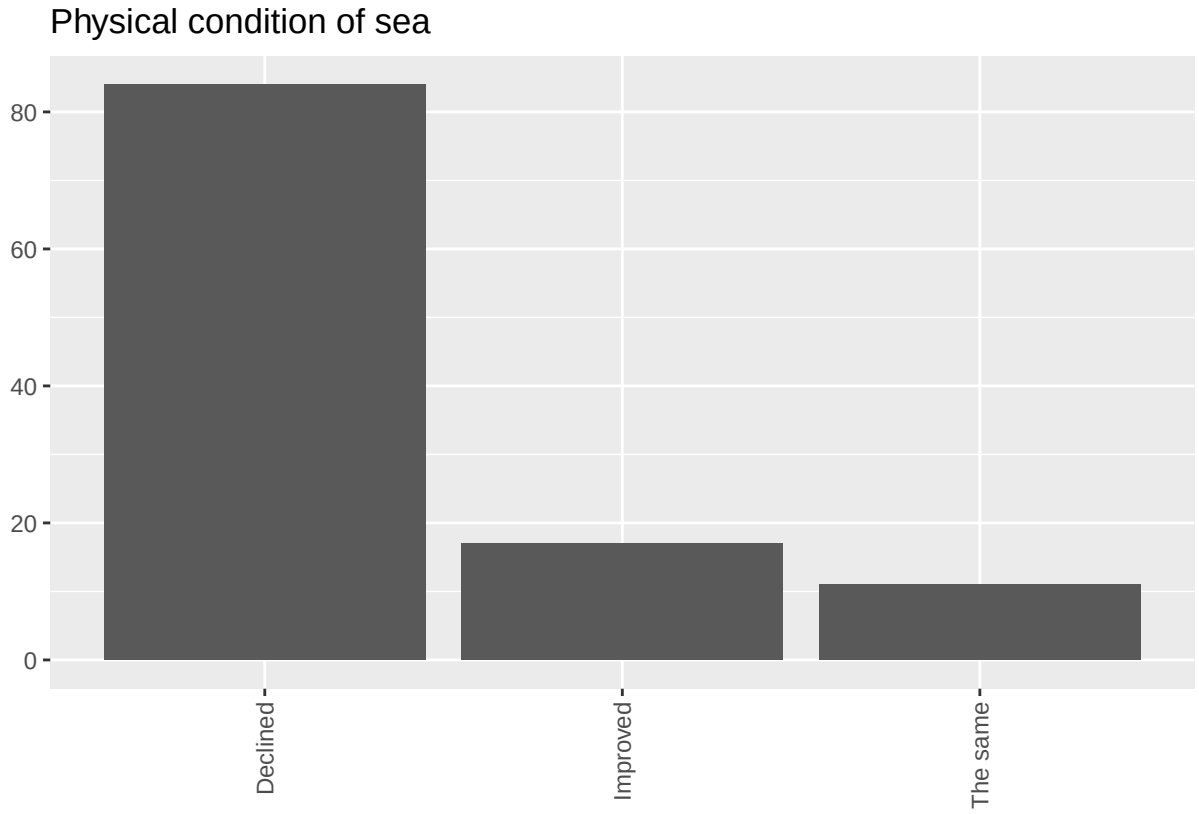

Likert scale of knowledge to harvest from sea
80
60
40
20
0
About the same knowledge
Much greater knowledge
Much lesser knowledge
Somewhat greater knowledge
Somewhat lesser knowledge

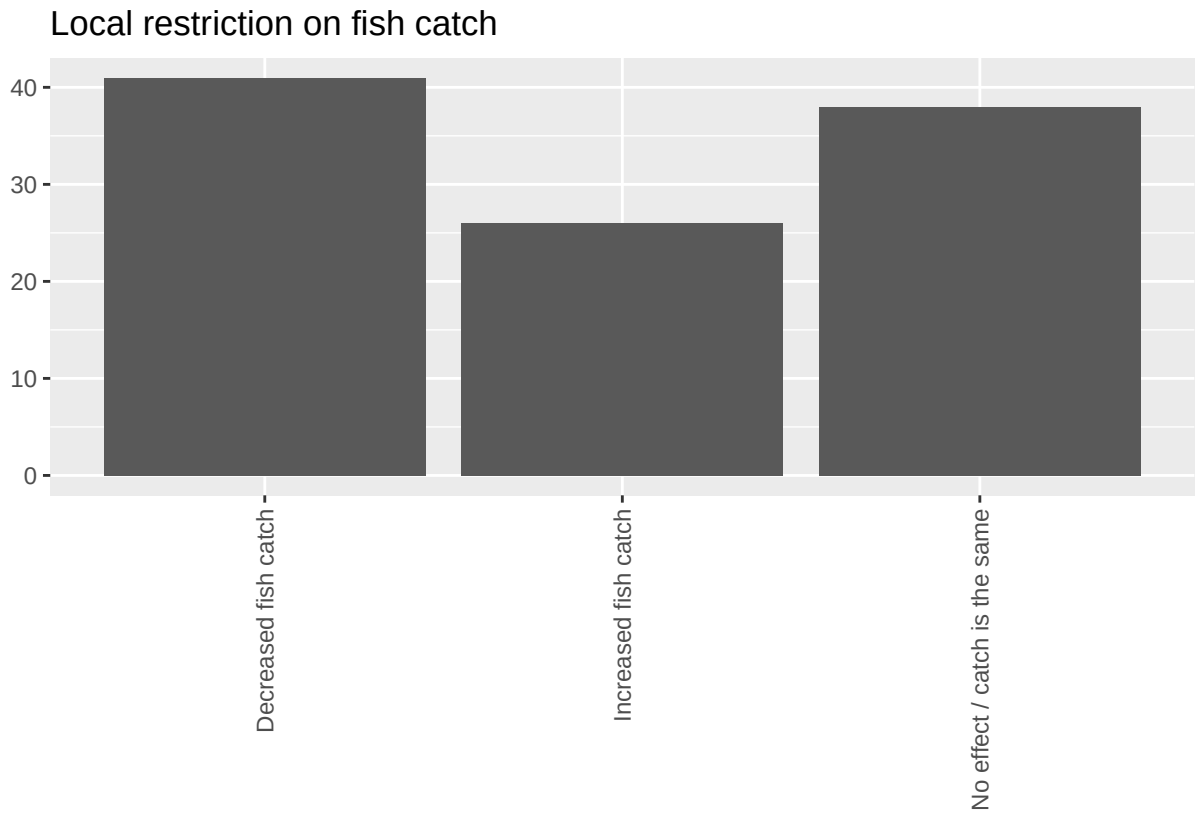

Number of seafood
60
40
20
0
Decreased
Increased
Same

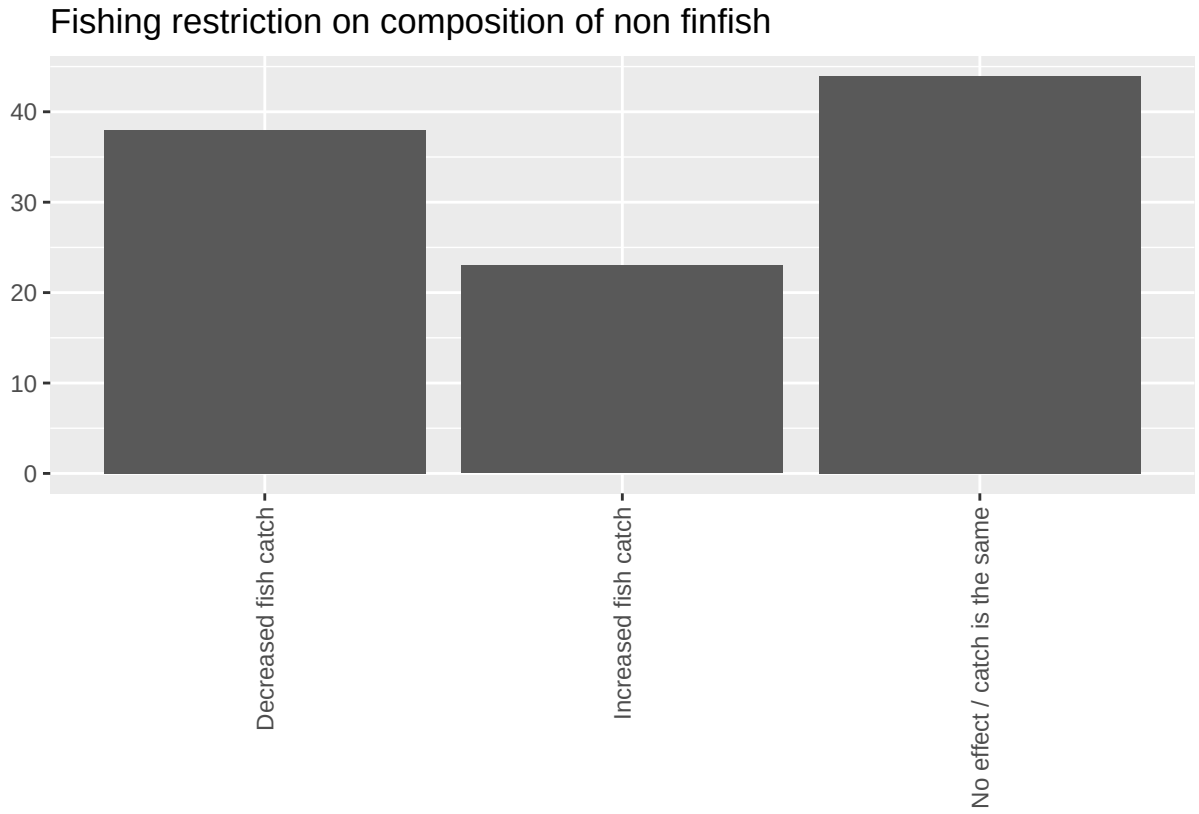

Level of fish stock
50
40
30
20
10
0
Decreased
Increased
The same

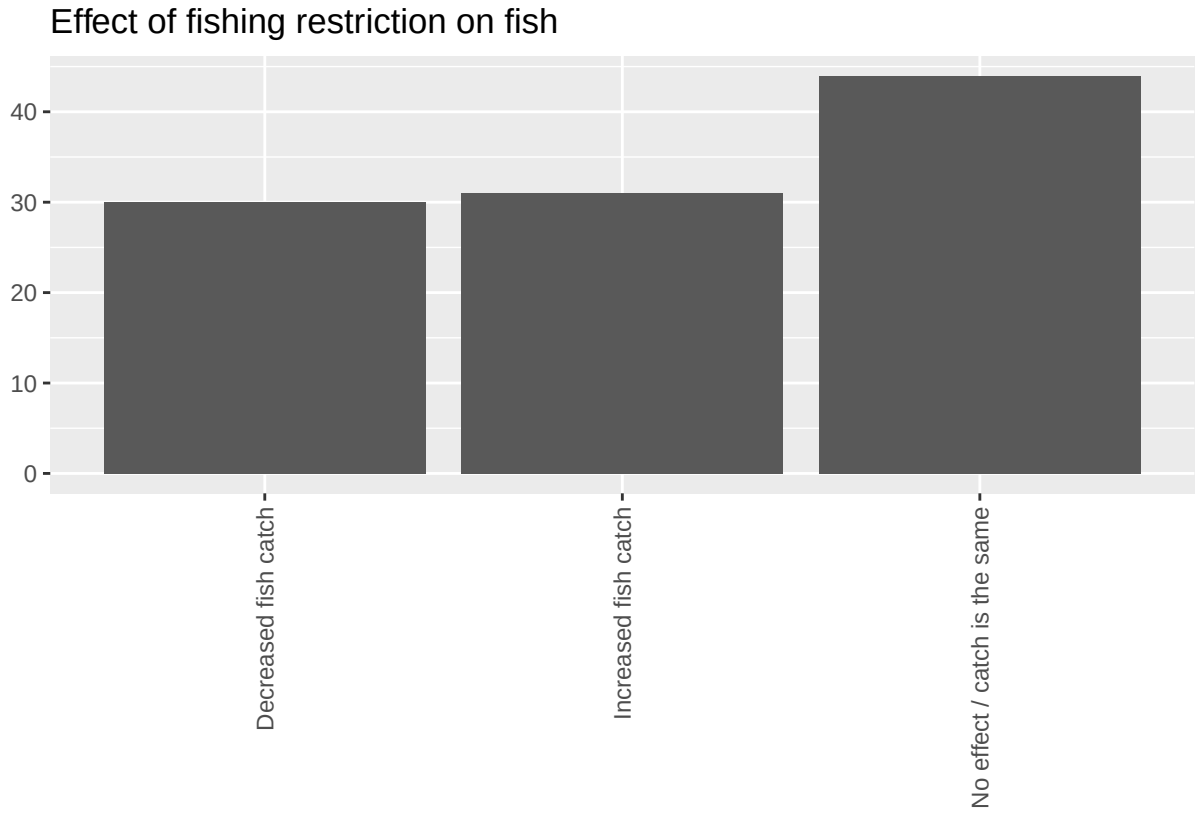

Level of shark stock
75
50
25
0
Decreased
Increased
The same

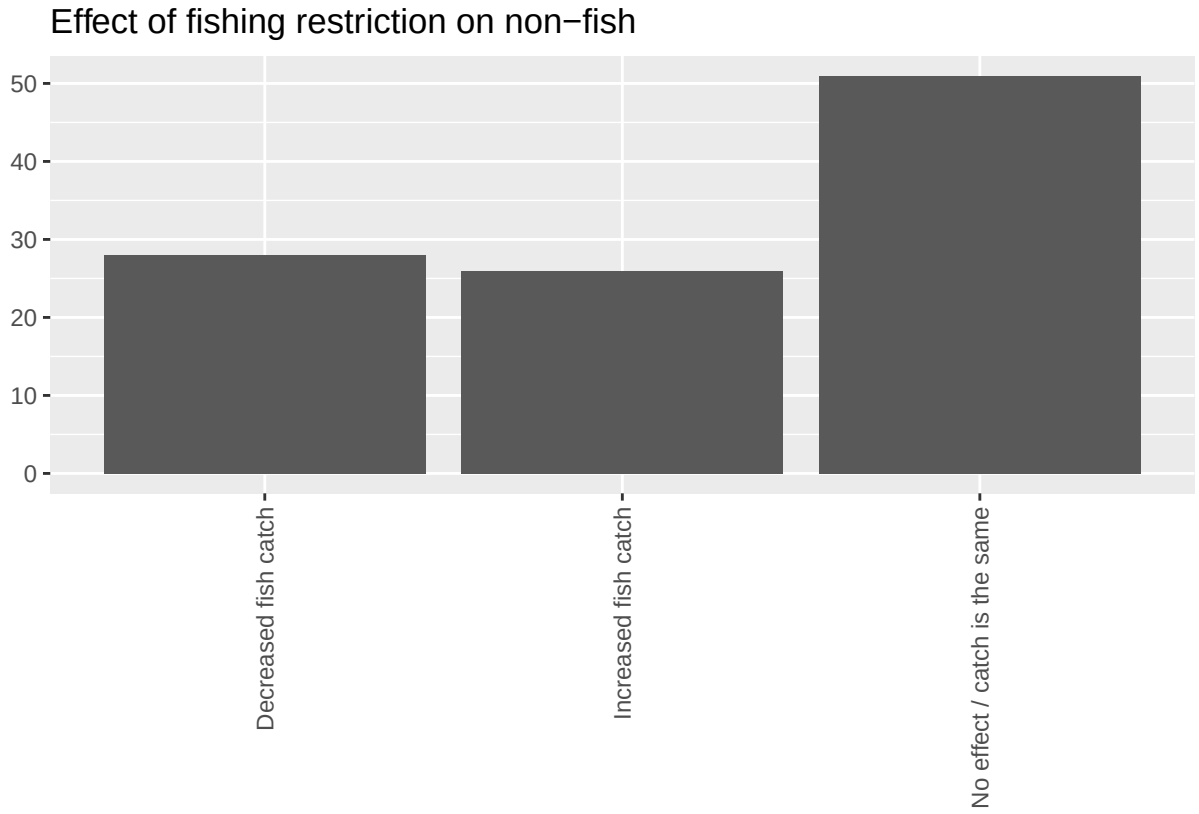

Consumption of ocean foods
60
40
20
0
Decreased
Increased
The same

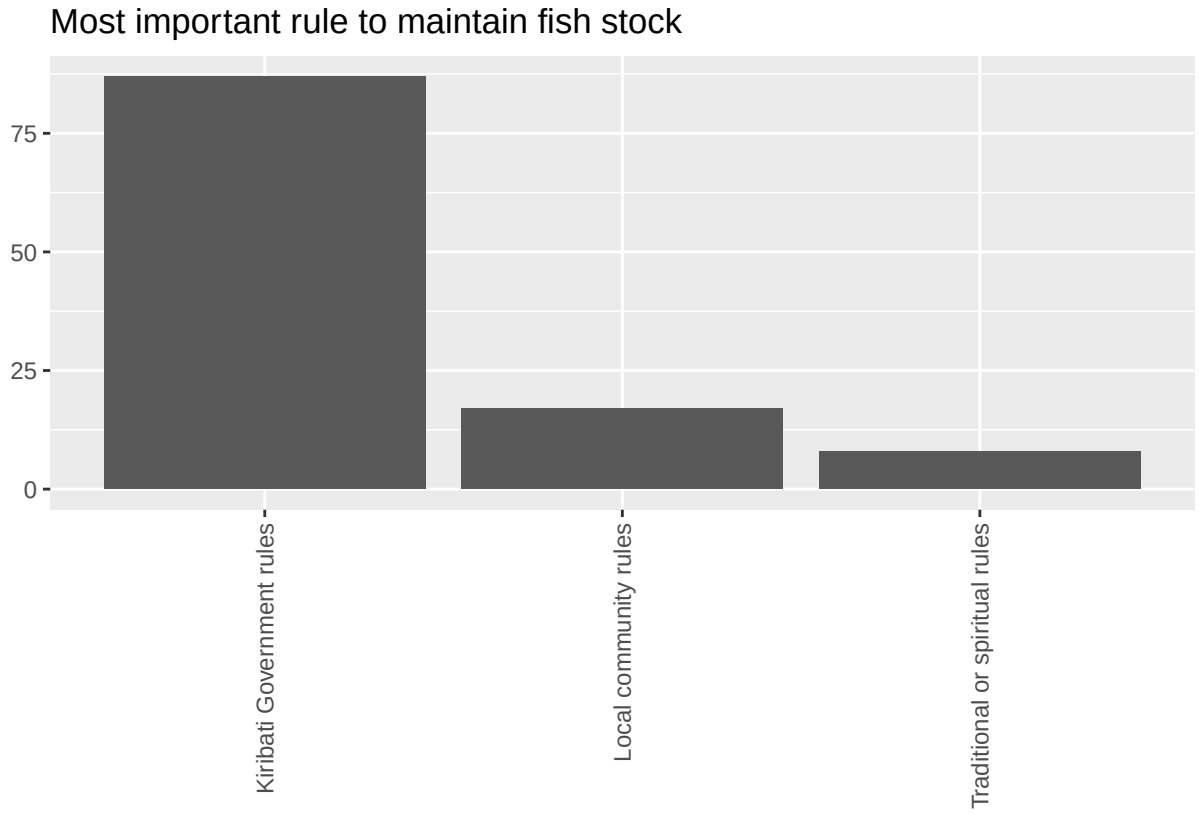

Physical condition of sea
80
60
40
20
0
Declined
Improved
The same

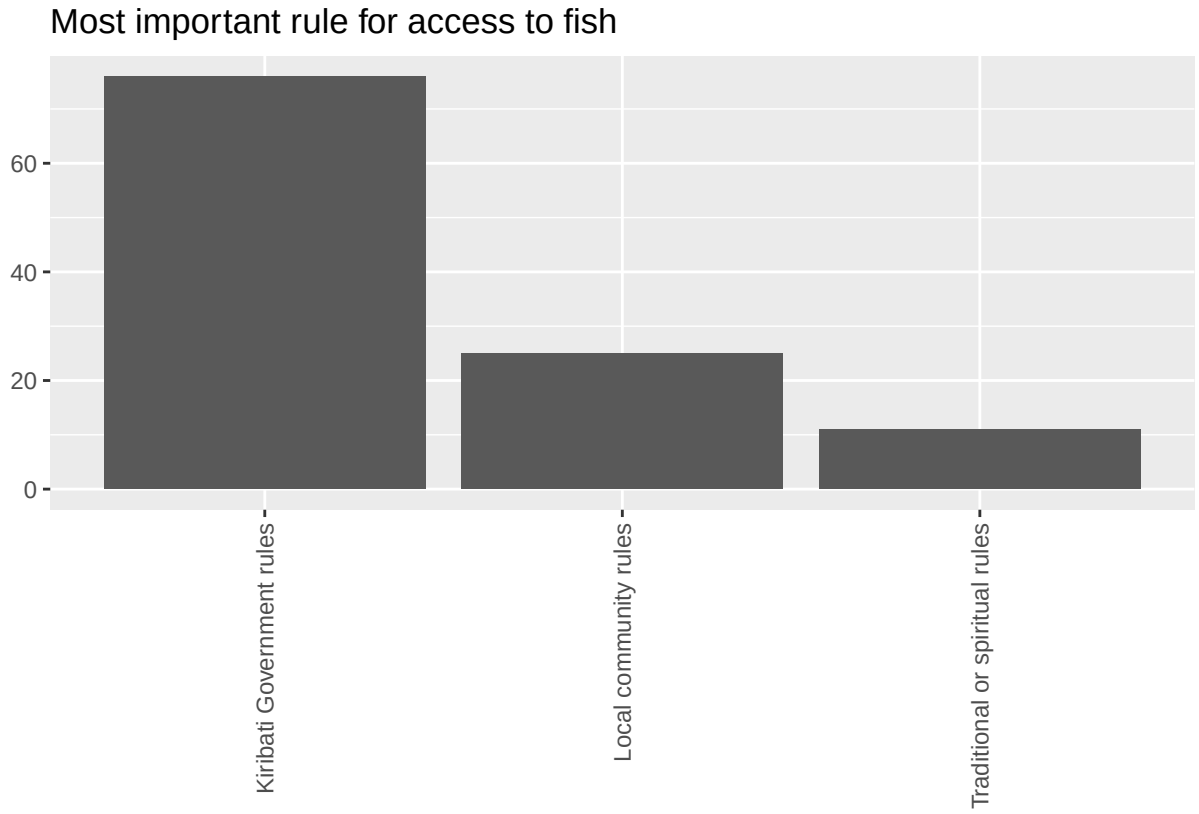

Local restriction on fish catch
40
30
20
10
0
Decreased fish catch
Increased fish catch
No effect / catch is the same

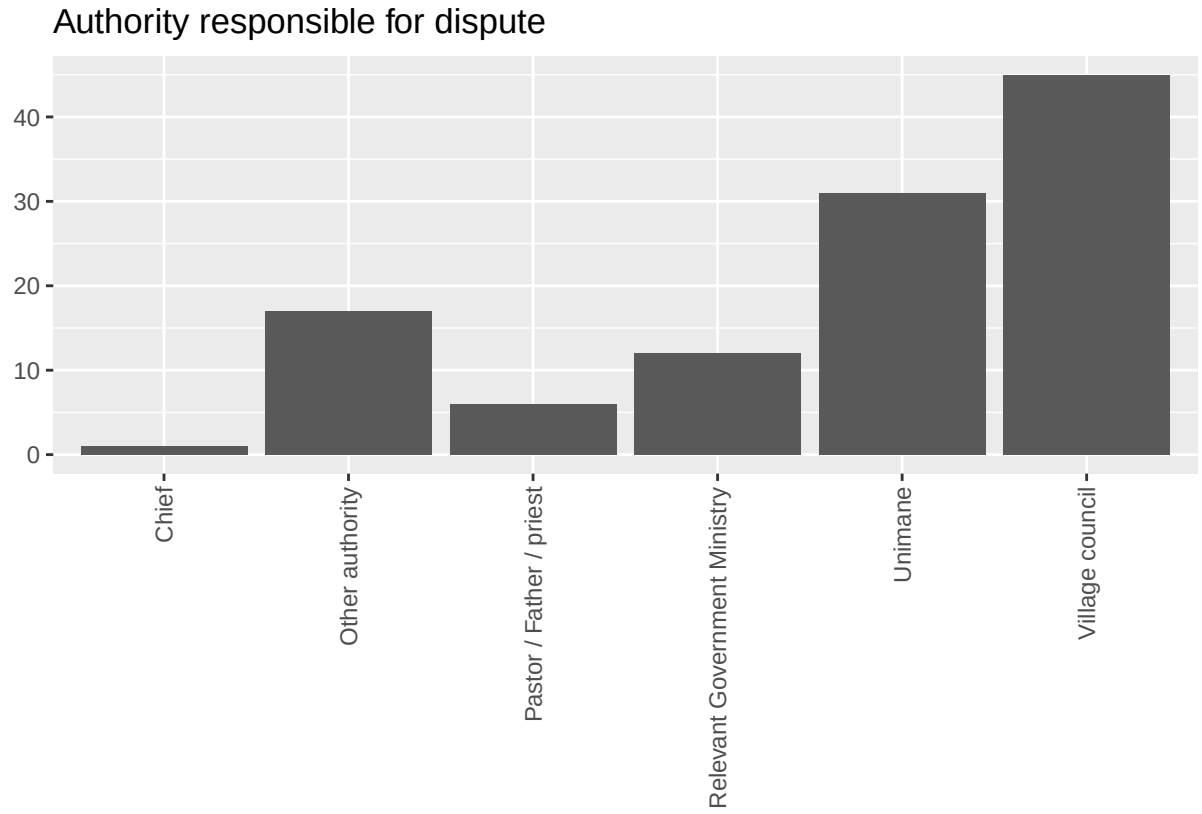

Fishing restriction on composition of non finfish
40
30
20
10
0
Decreased fish catch
Increased fish catch
No effect / catch is the same

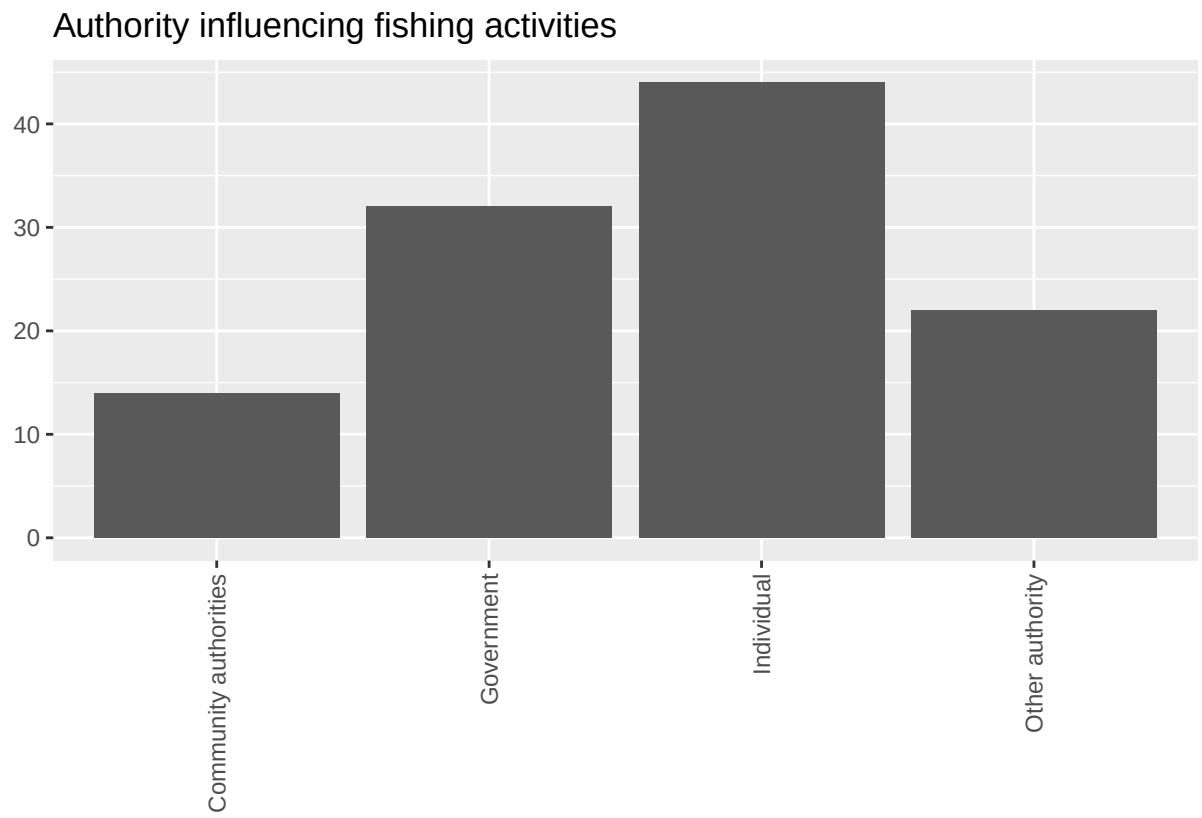

Effect of fishing restriction on fish
40
30
20
10
0
Decreased fish catch
Increased fish catch
No effect / catch is the same

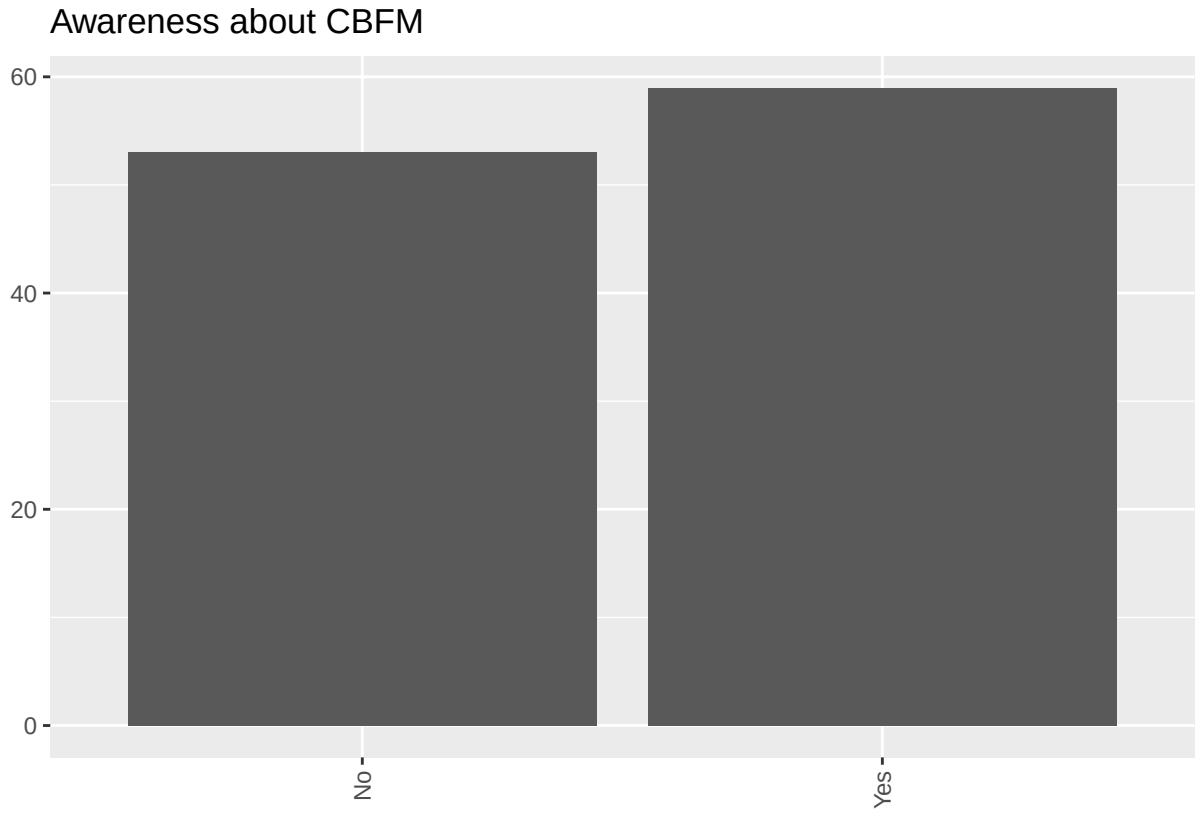

Effect of fishing restriction on non−fish
50
40
30
20
10
0
Decreased fish catch
Increased fish catch
No effect / catch is the same

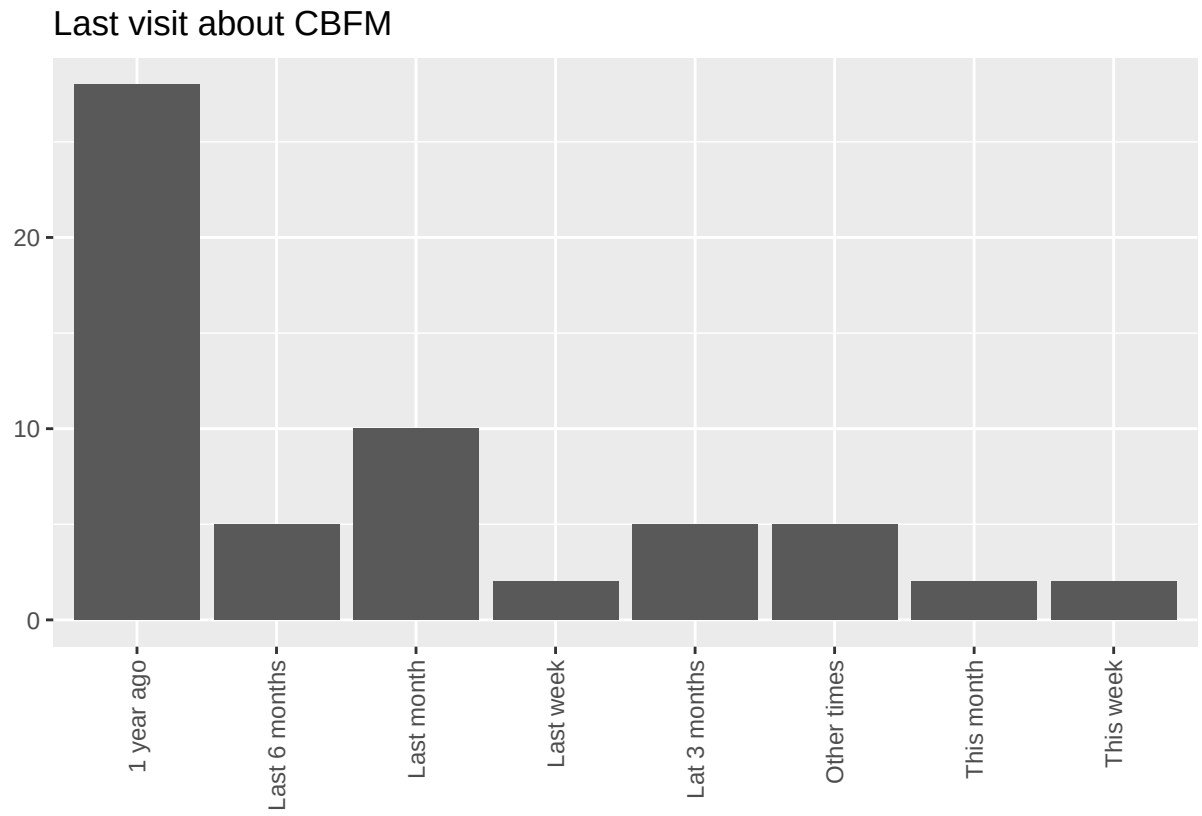

Most important rule to maintain fish stock
75
50
25
0
Kiribati Government rules
Local community rules
Traditional or spiritual rules

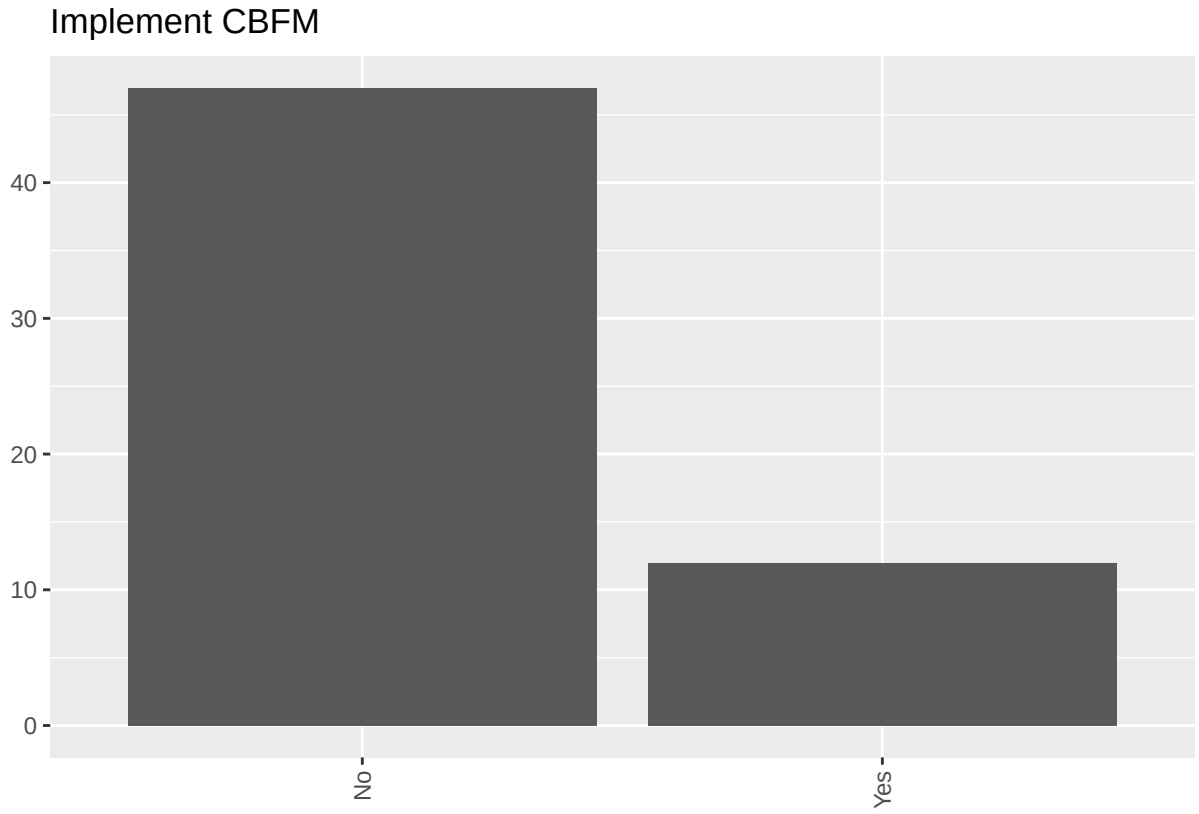

Most important rule for access to fish
60
40
20
0
Kiribati Government rules
Local community rules
Traditional or spiritual rules

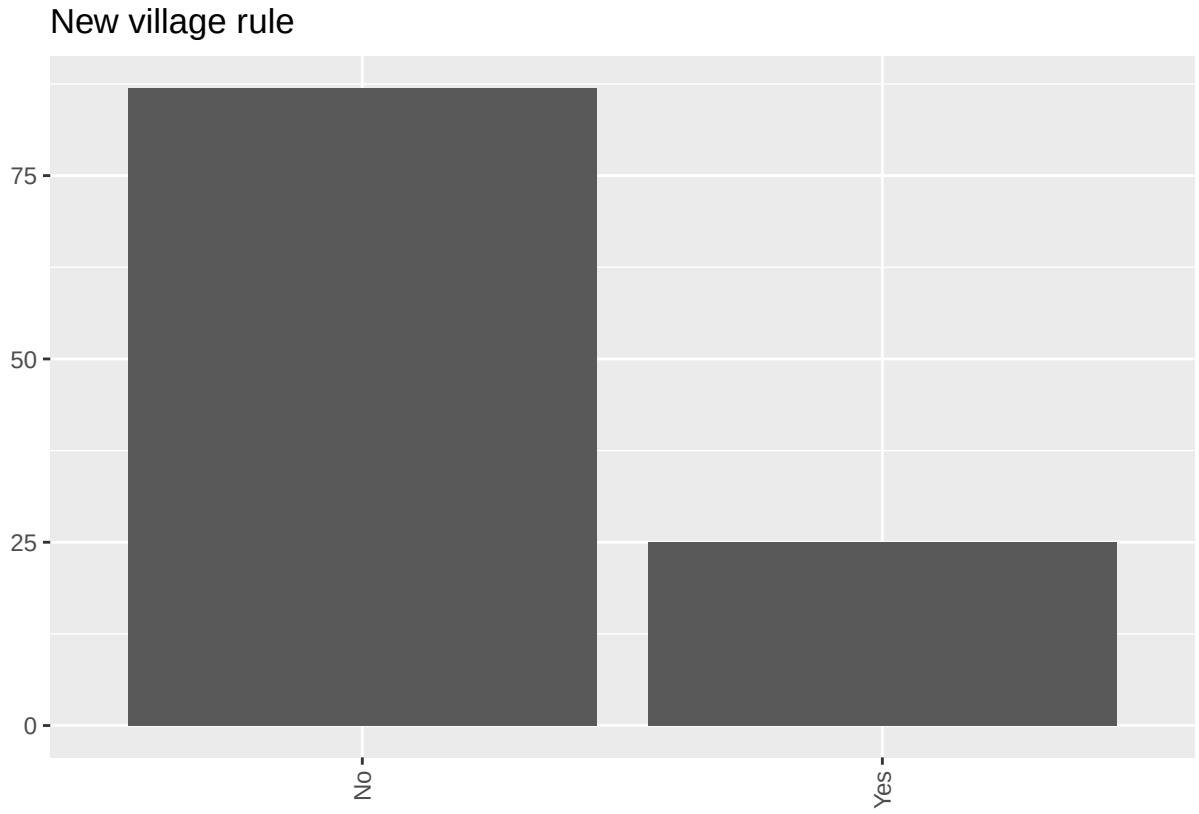

Authority responsible for dispute
40
30
20
10
0
Chief
Other authority
Pastor / Father / priest
Relevant Government Ministry
Unimane
Village council

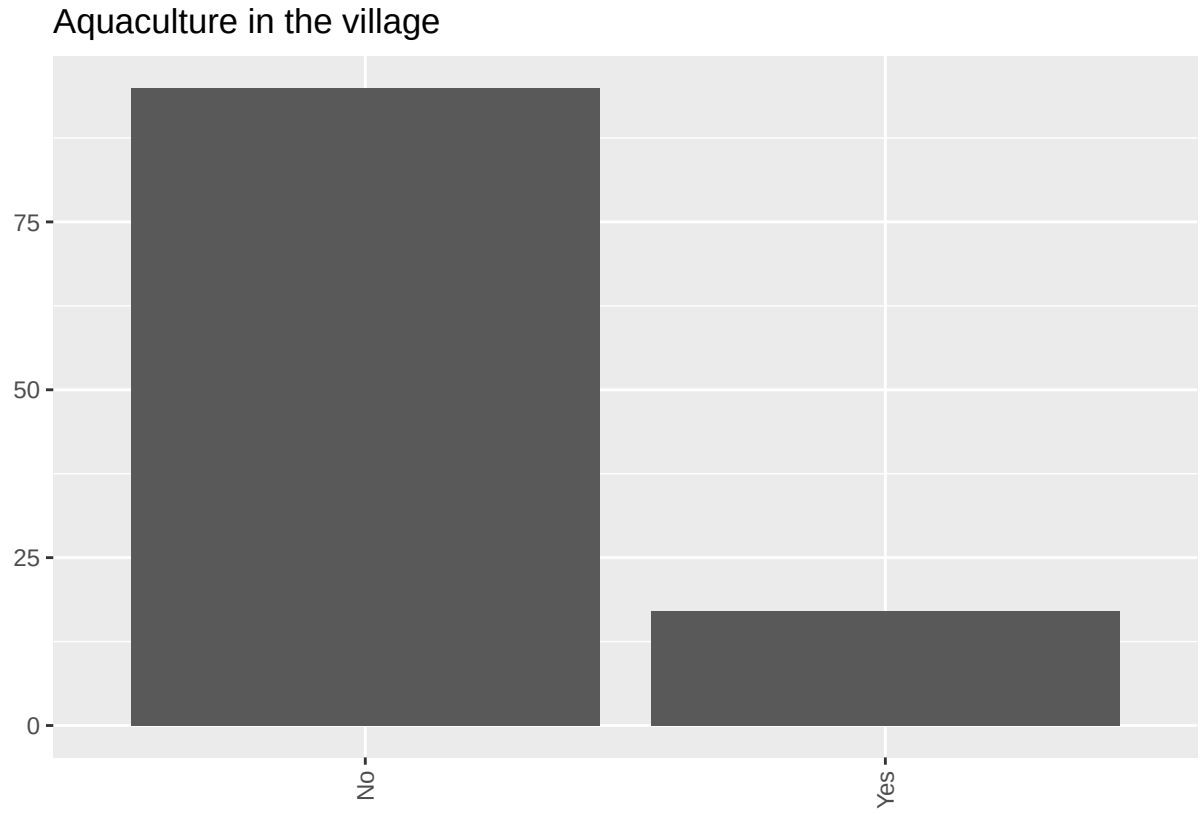

Authority influencing fishing activities
40
30
20
10
0
Community authorities
Government
Individual
Other authority

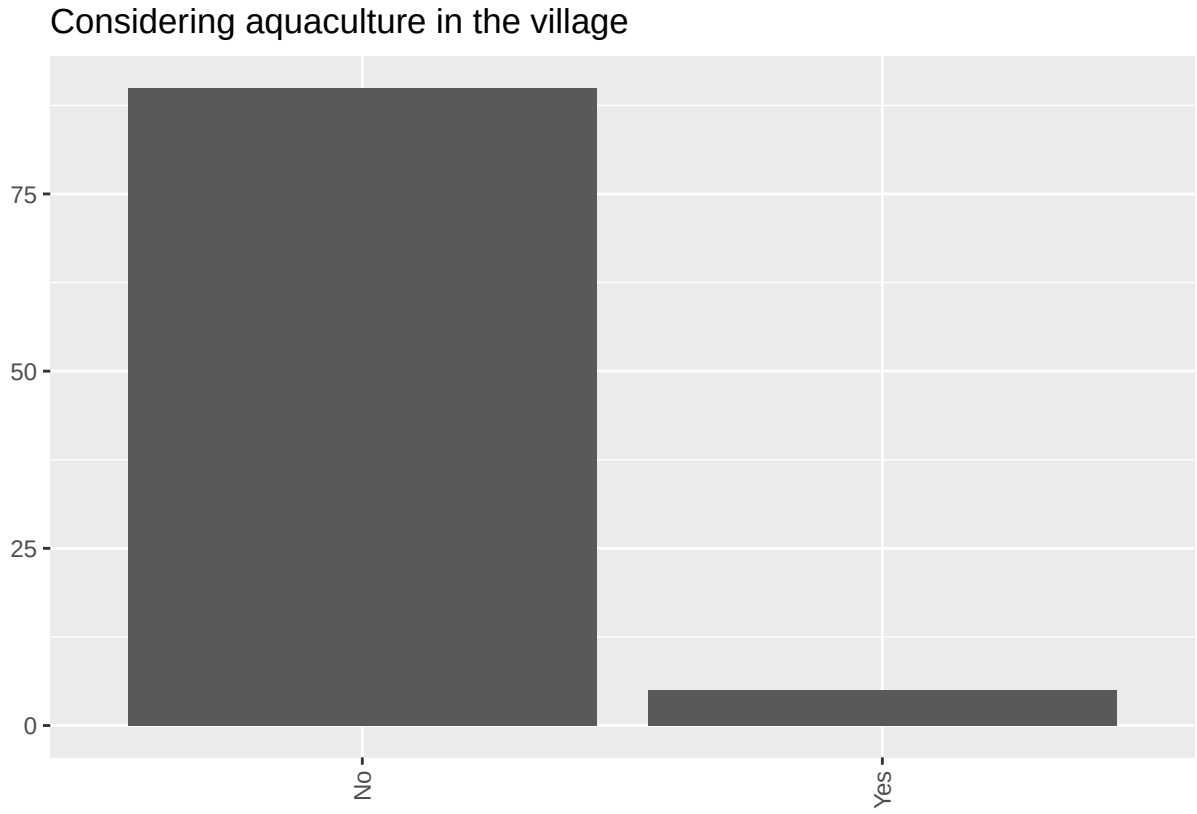

Awareness about CBFM
60
40
20
0
No
Yes

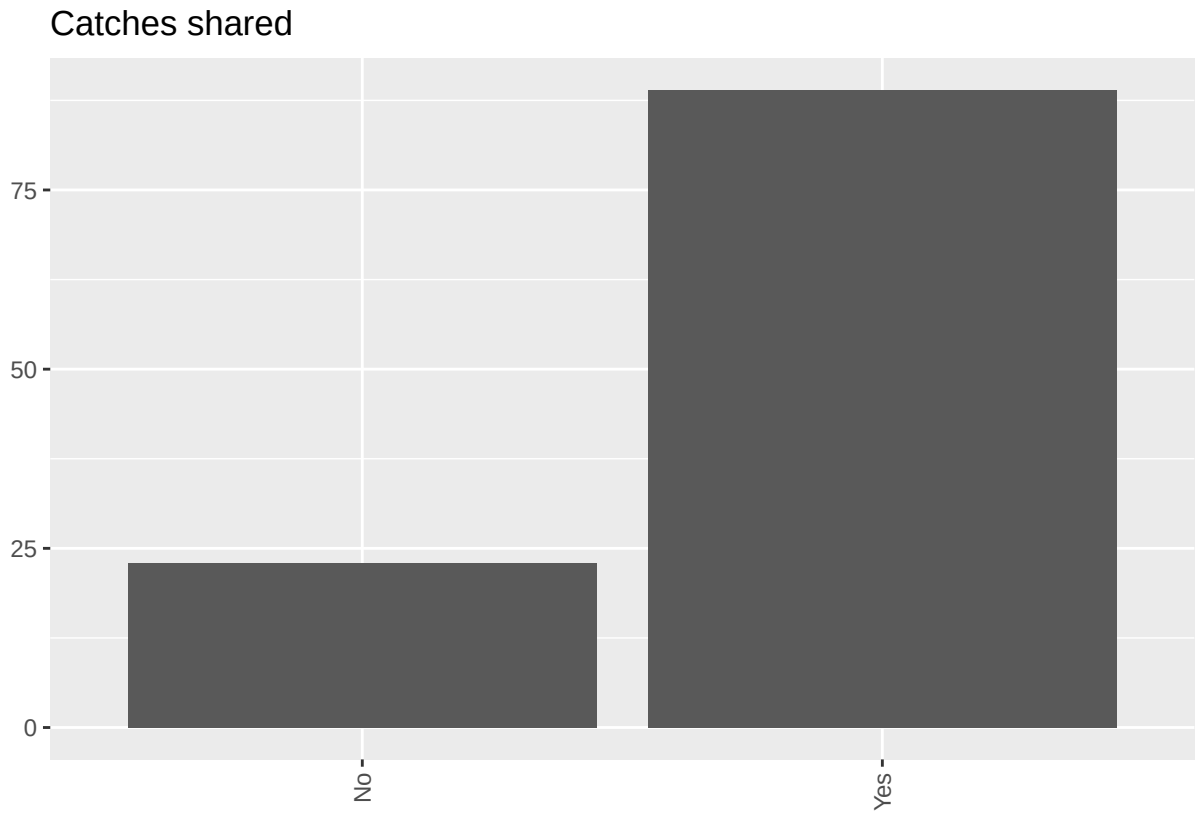

Last visit about CBFM
20
10
0
1 year ago
Last 6 months
Last month
Last week
Lat 3 months
Other times
This month
This week

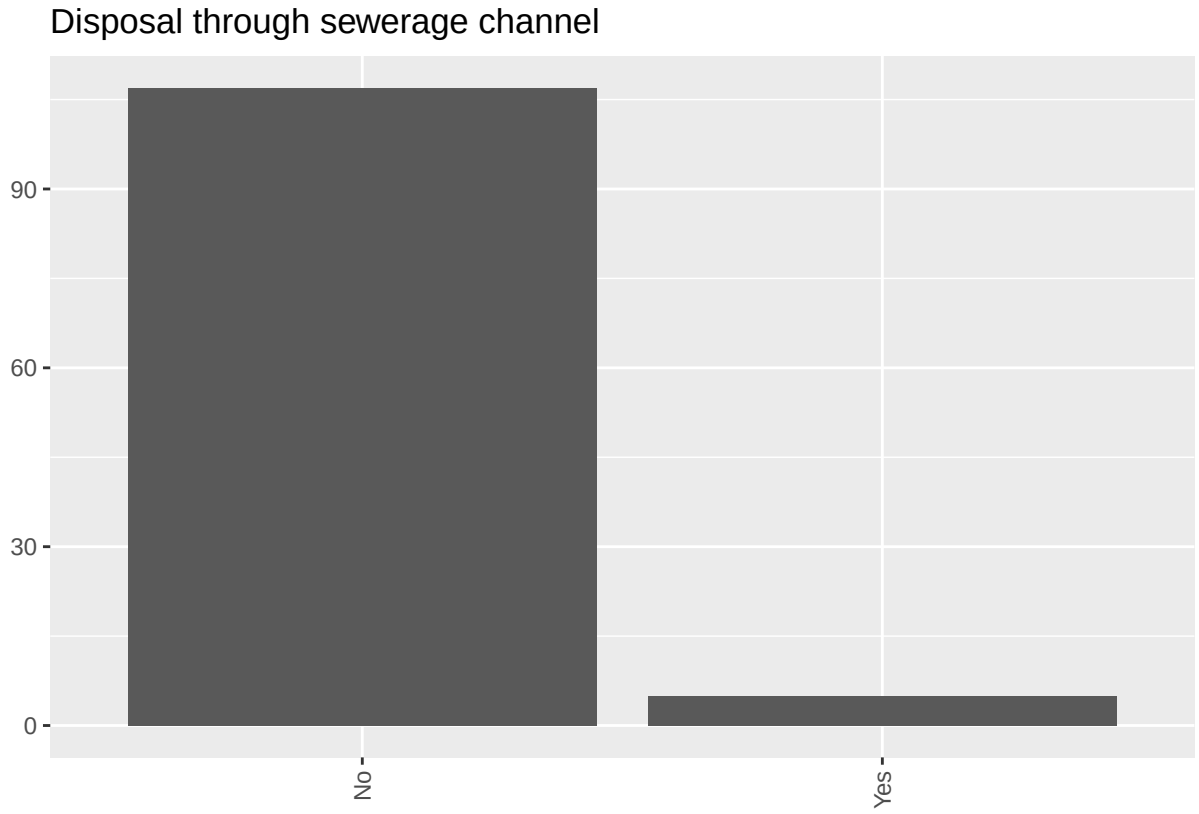

Implement CBFM
40
30
20
10
0
No
Yes

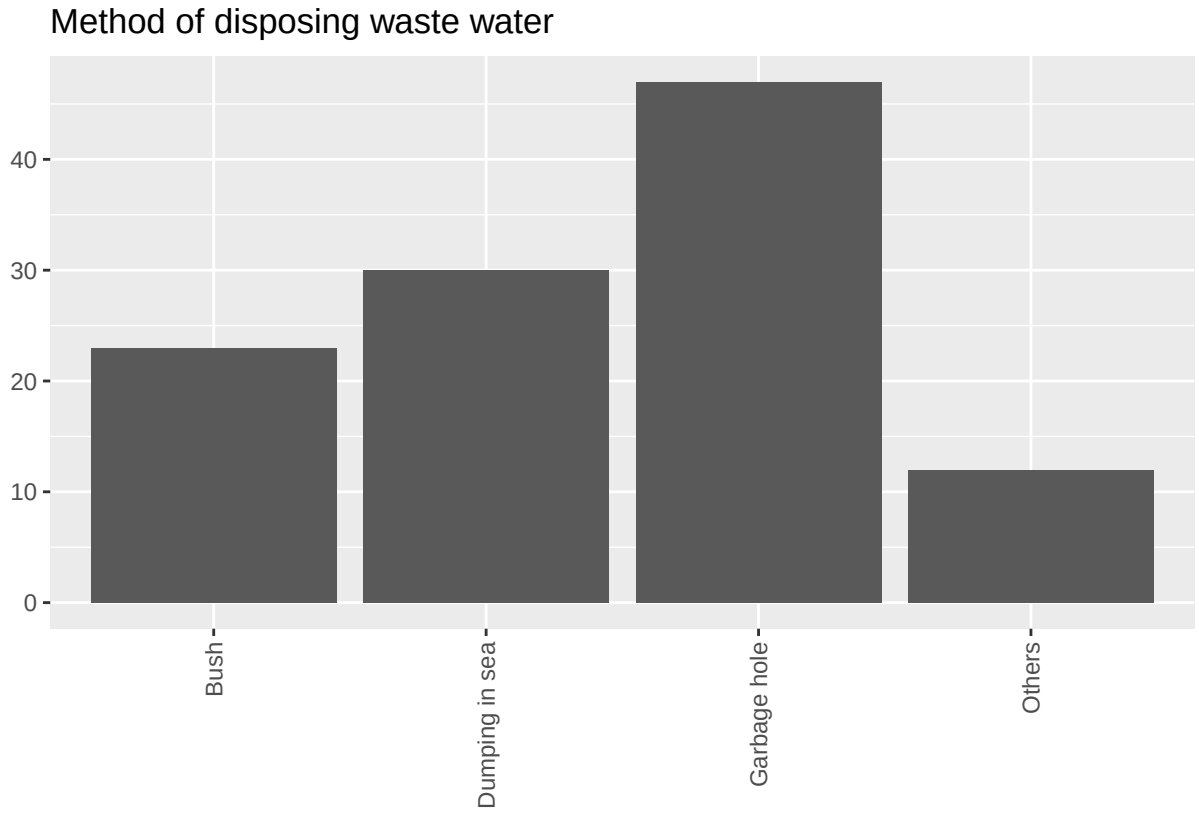

New village rule
75
50
25
0
No
Yes

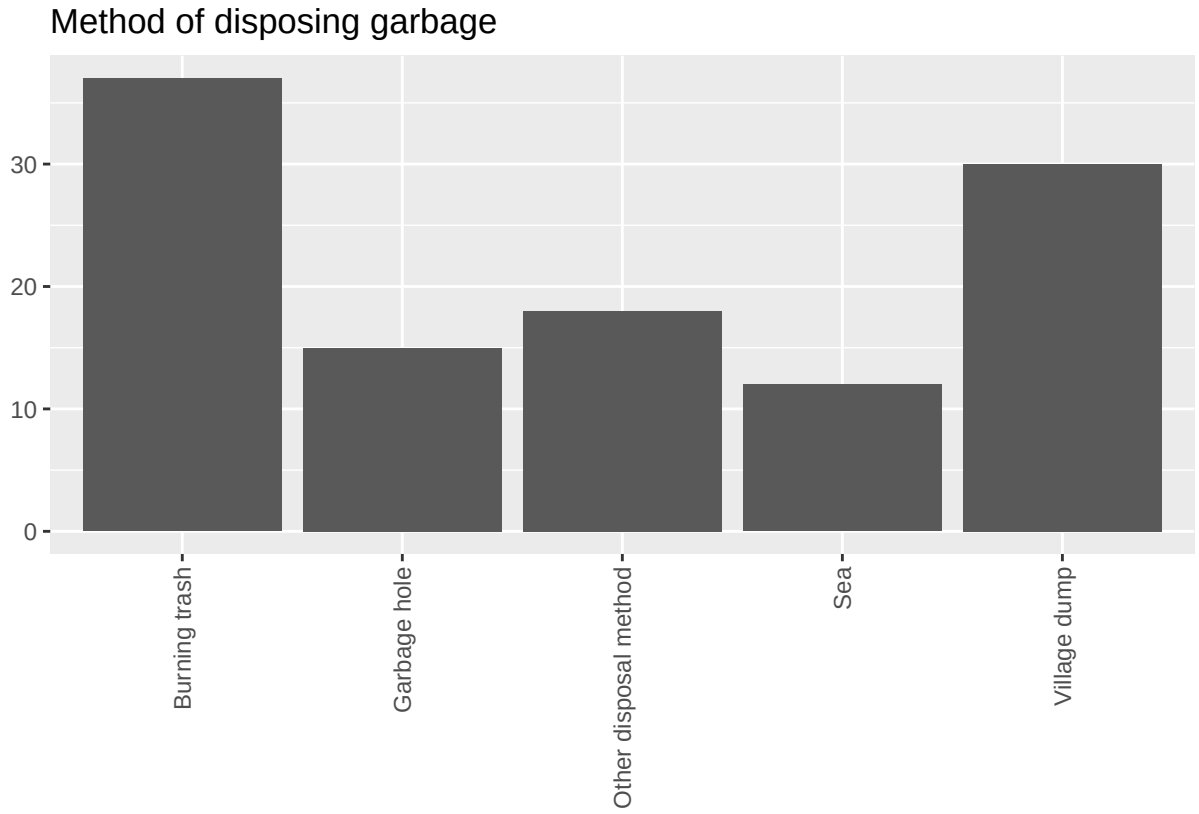

Aquaculture in the village
75
50
25
0
No
Yes

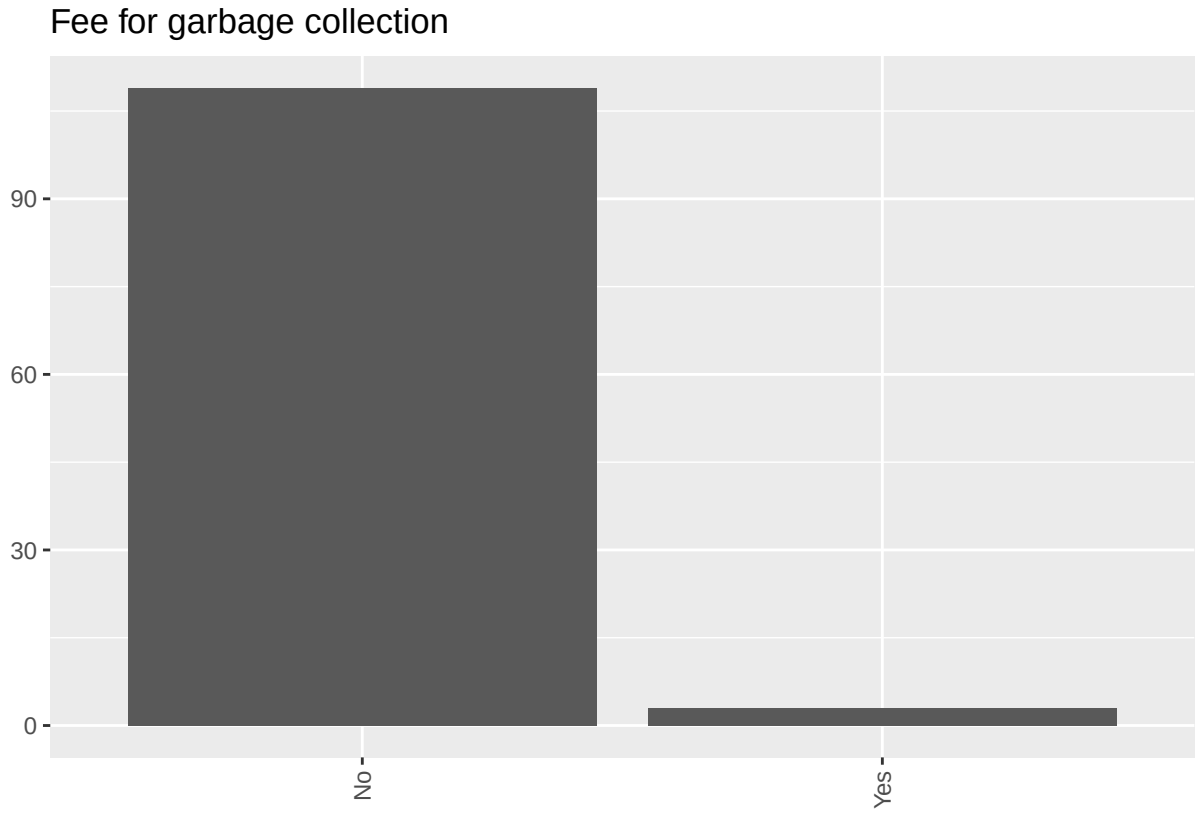

Considering aquaculture in the village
75
50
25
0
No
Yes

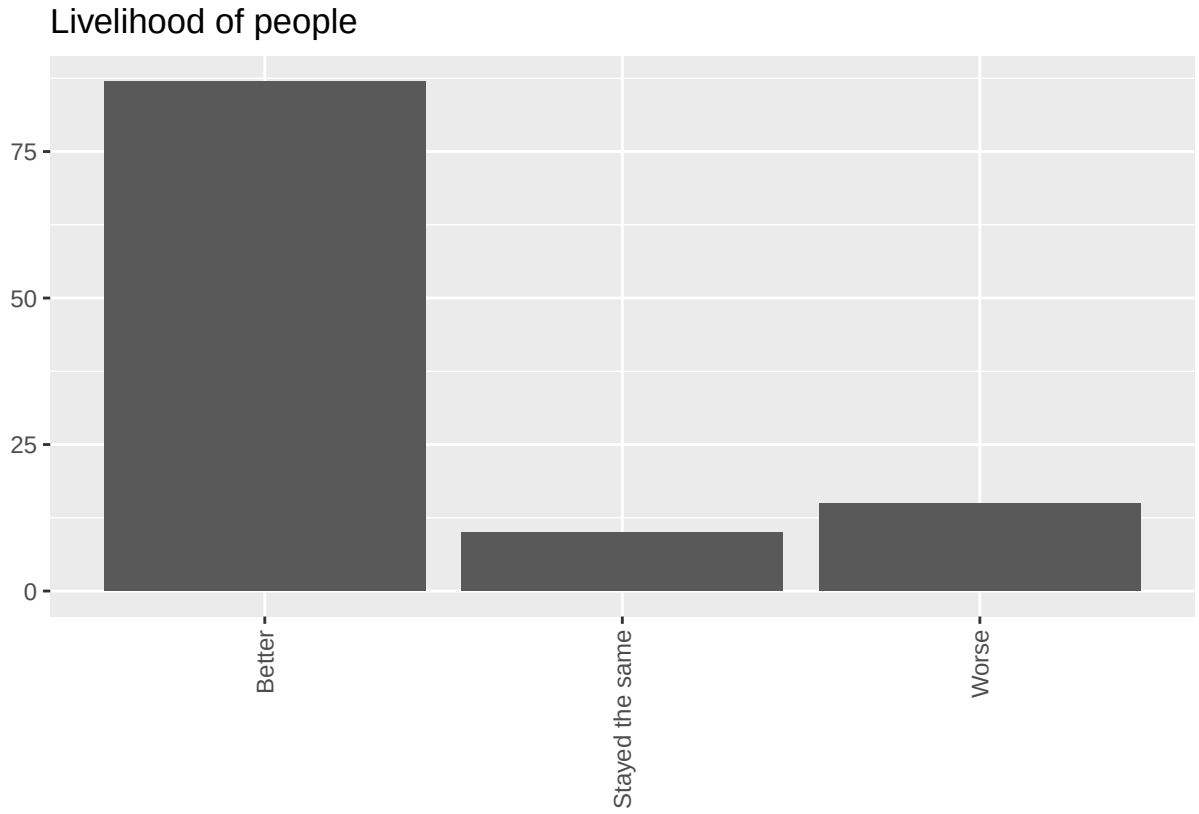

Catches shared
75
50
25
0
No
Yes

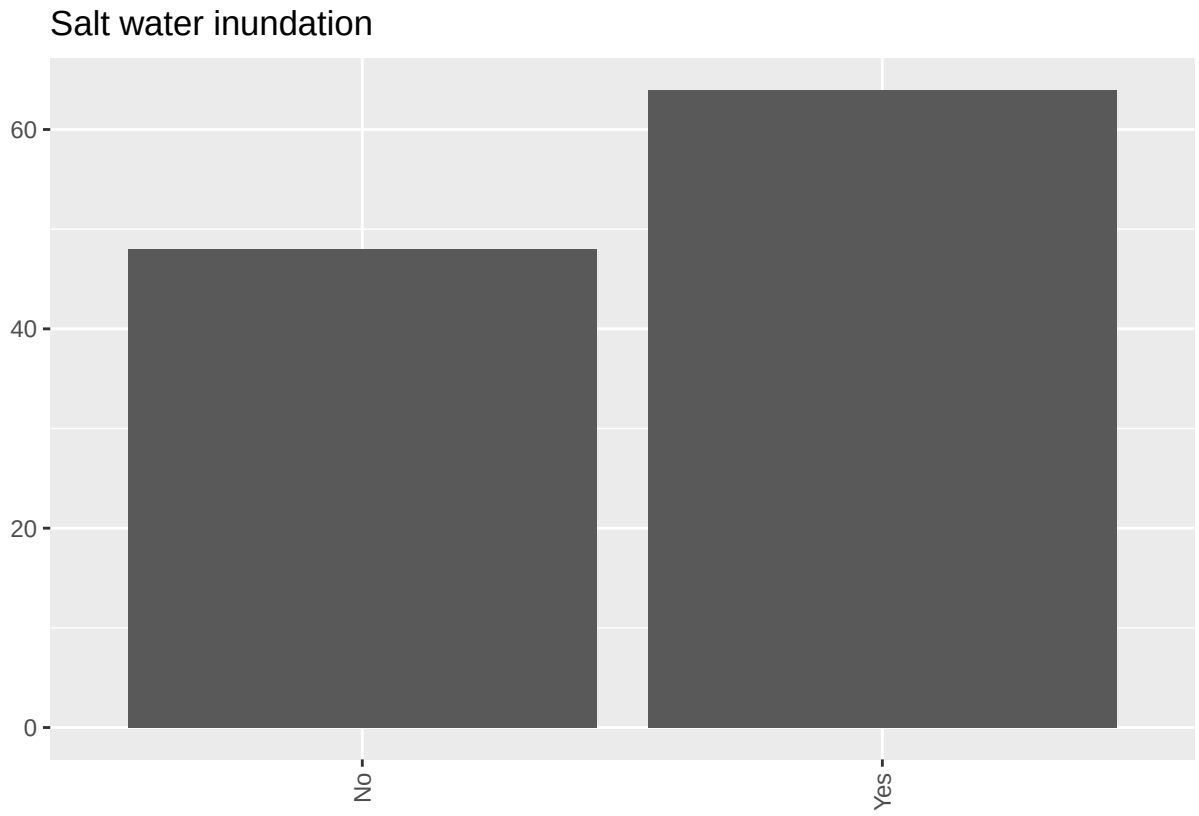

Disposal through sewerage channel
90
60
30
0
No
Yes

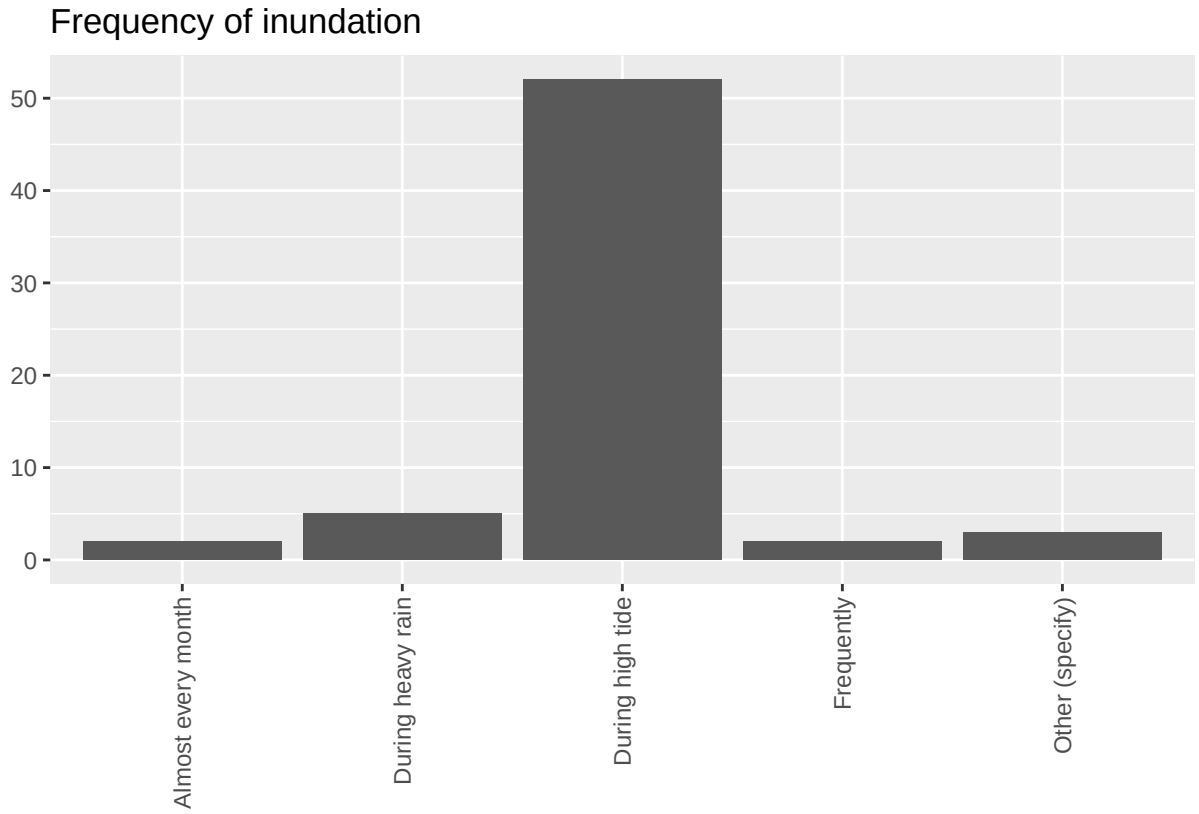

Method of disposing waste water
40
30
20
10
0
Bush
Dumping in sea
Garbage hole
Others

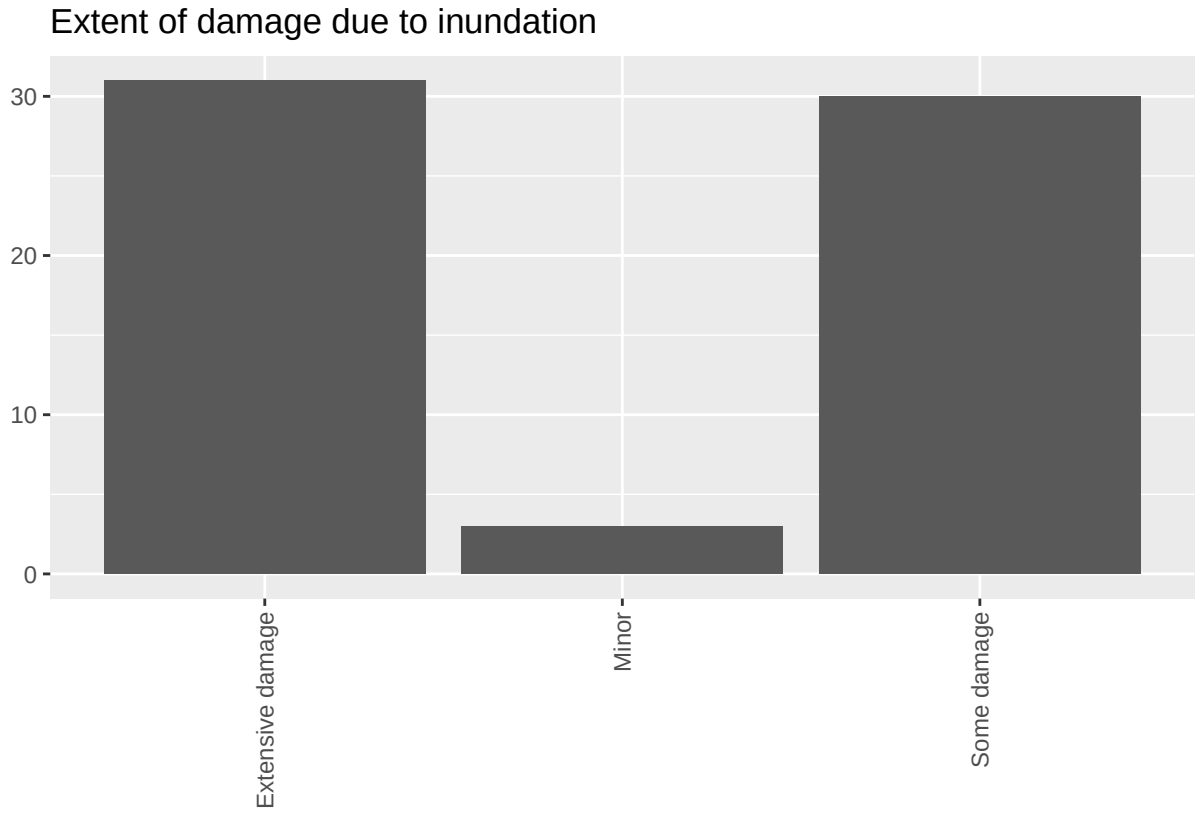

Method of disposing garbage
30
20
10
0
Burning trash
Garbage hole
Other disposal method
Sea
Village dump

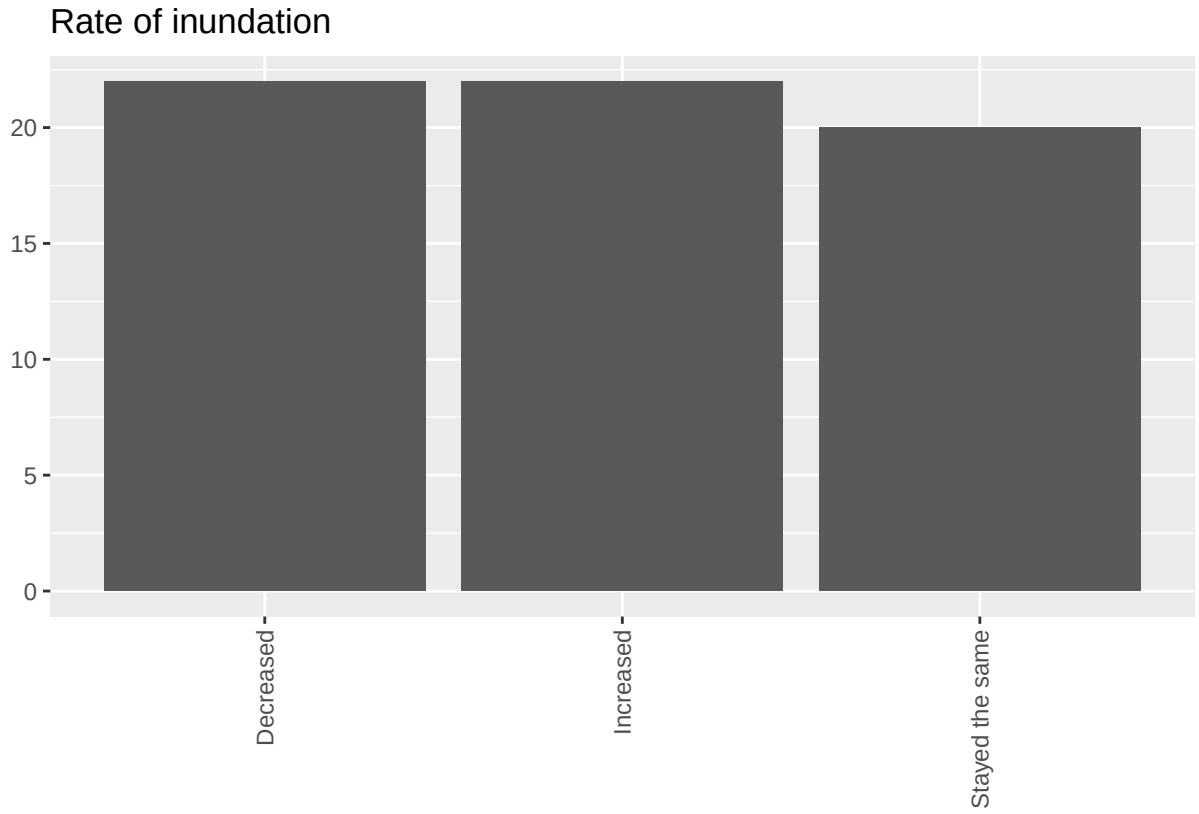

Fee for garbage collection
90
60
30
0
No
Yes

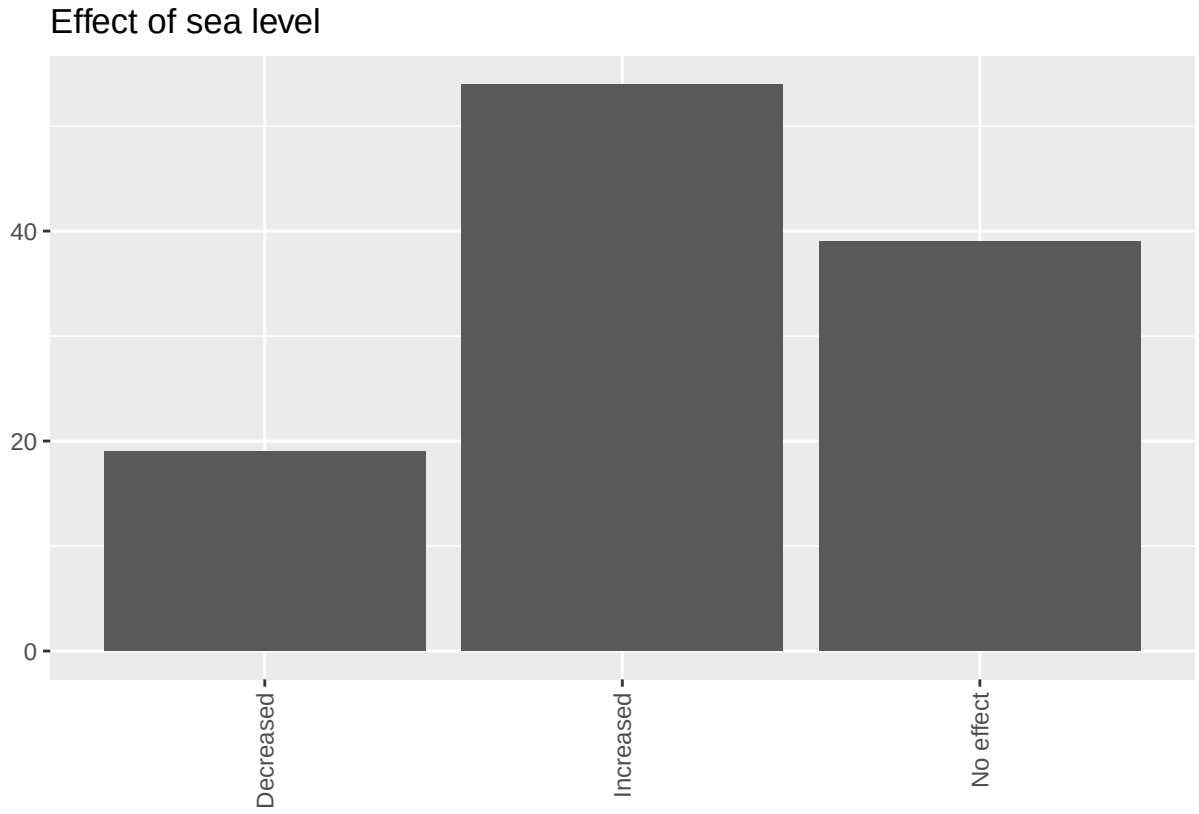

Livelihood of people
75
50
25
0
Better
Stayed the same
Worse

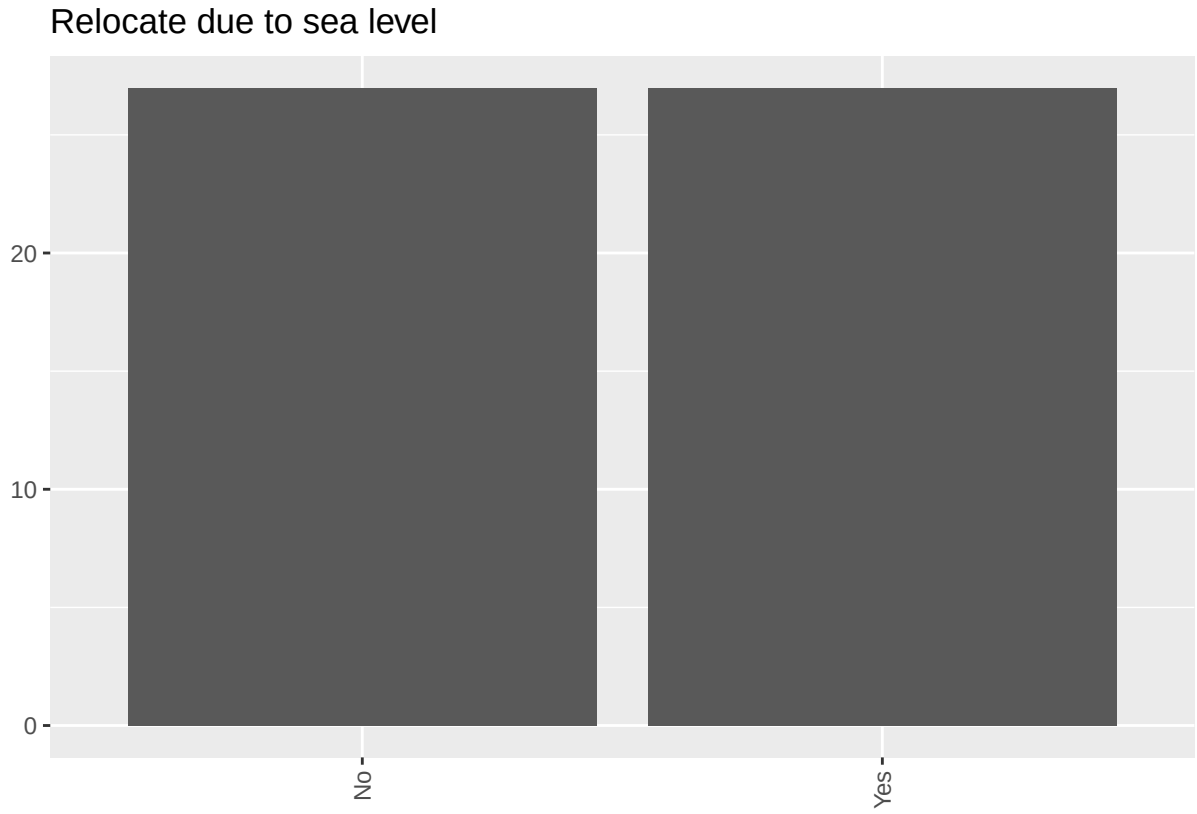

Salt water inundation
60
40
20
0
No
Yes

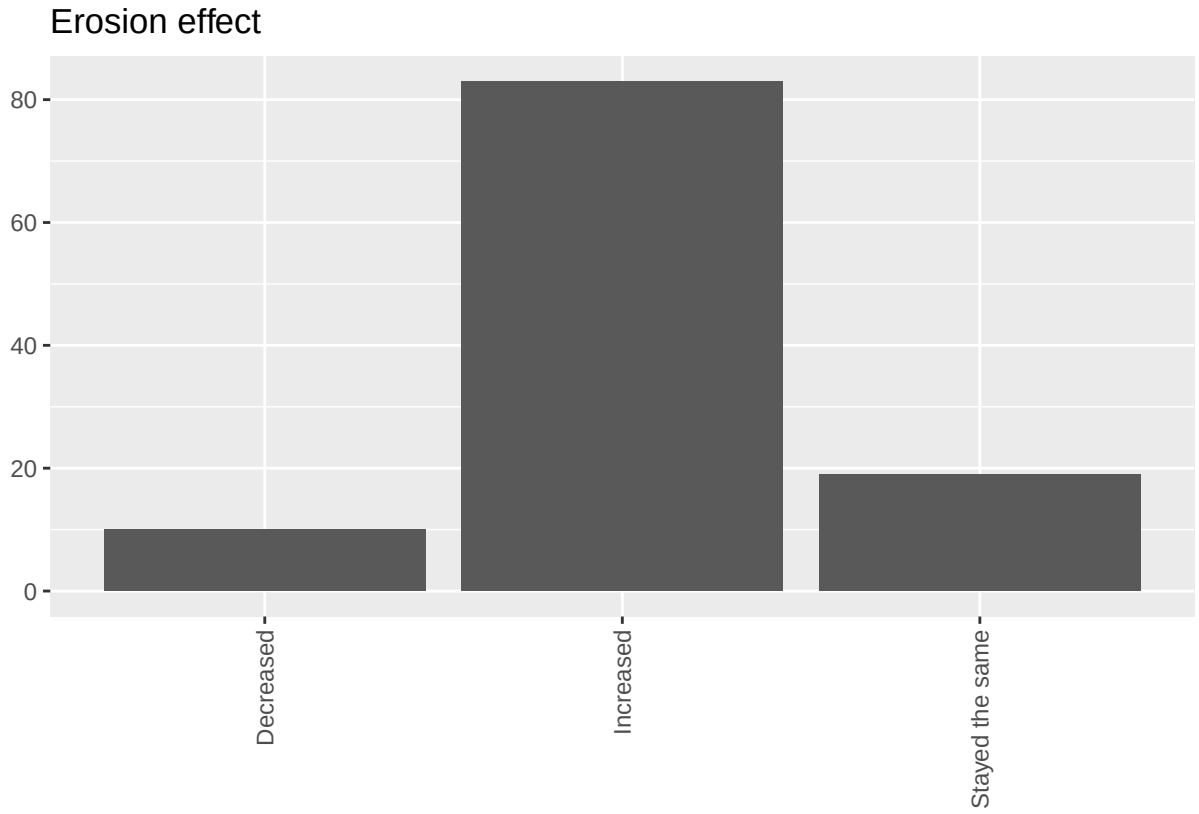

Frequency of inundation
50
40
30
20
10
0
Almost every month
During heavy rain
During high tide
Frequently
Other (specify)

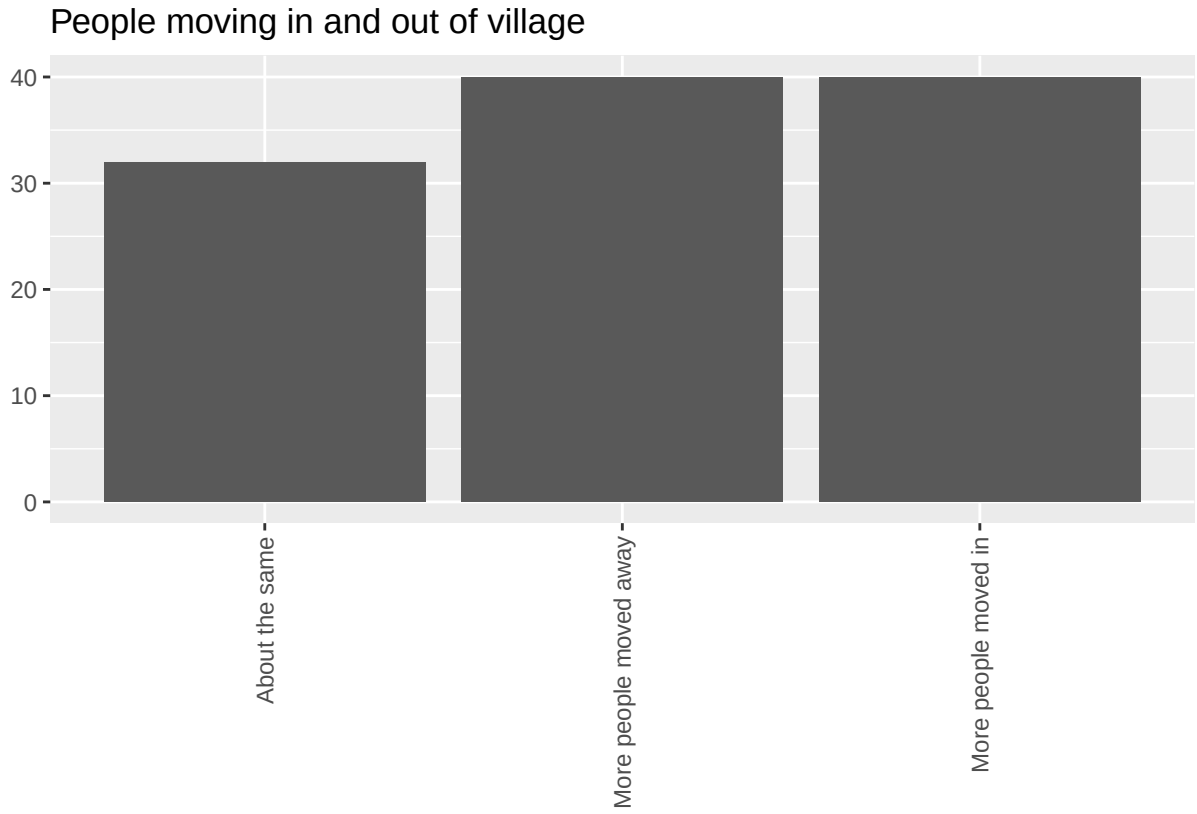

Extent of damage due to inundation
30
20
10
0
Extensive damage
Minor
Some damage

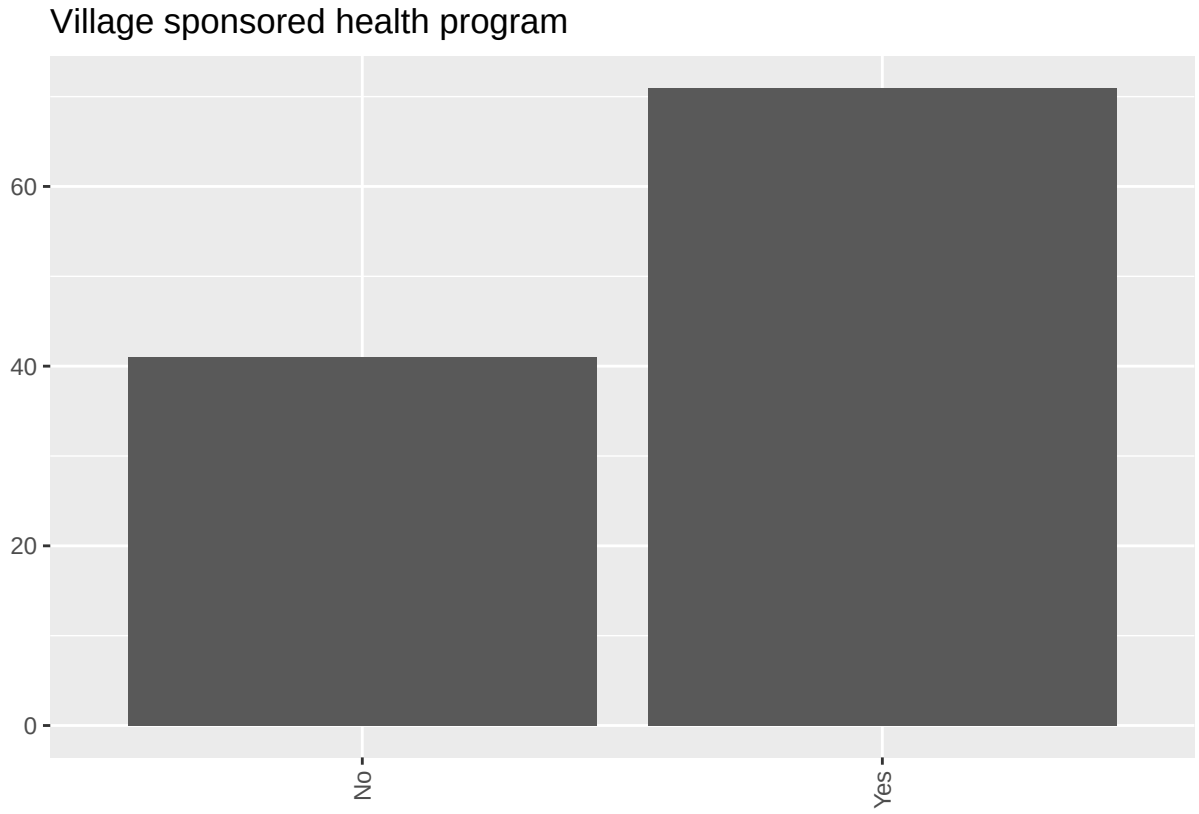

Rate of inundation
20
15
10
5
0
Decreased
Increased
Stayed the same


Effect of sea level
40
20
0
Decreased
Increased
No effect

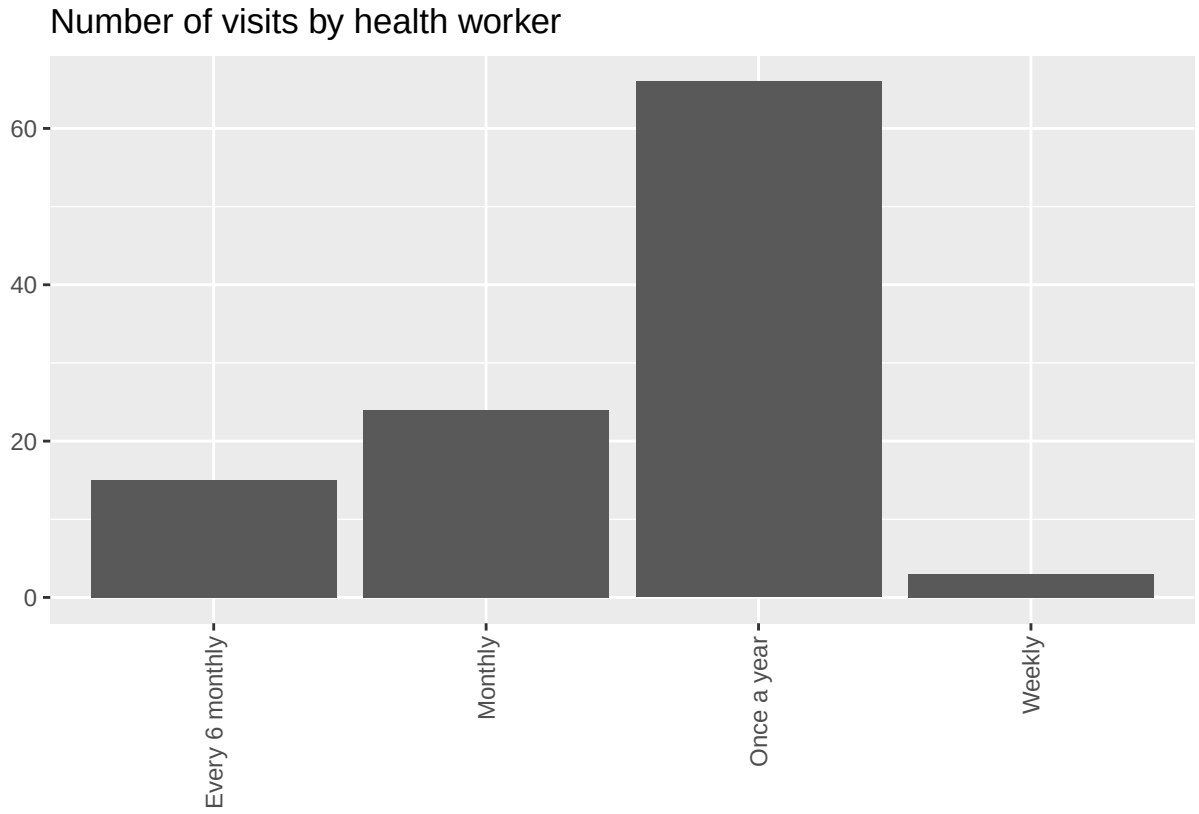

Relocate due to sea level
20
10
0
No
Yes

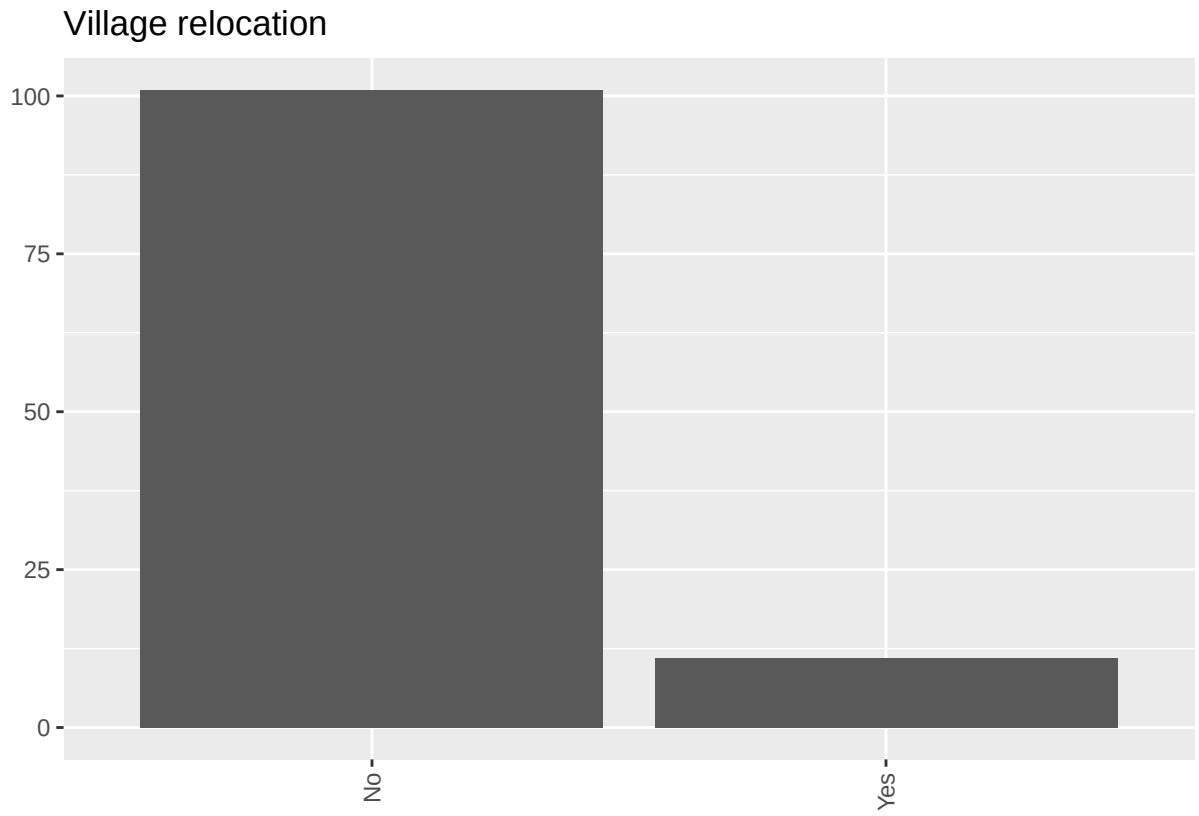

Erosion effect
80
60
40
20
0
Decreased
Increased
Stayed the same

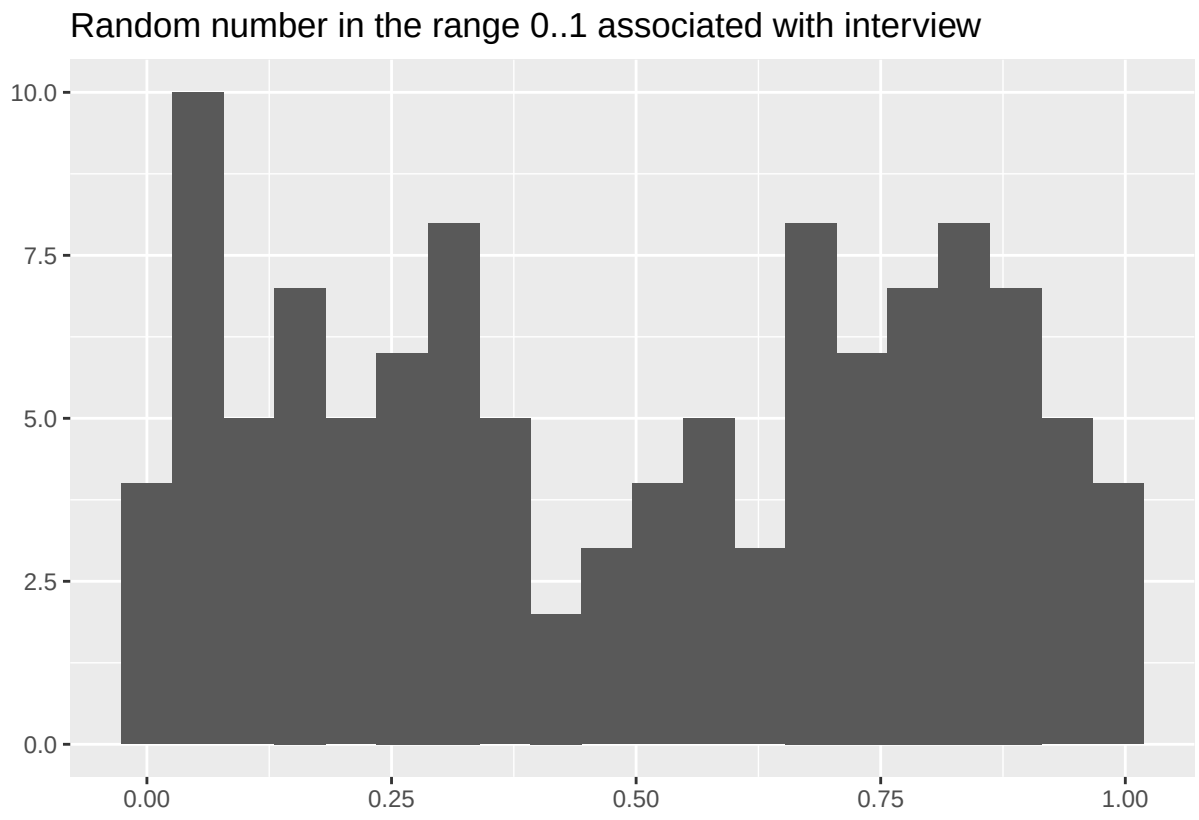

People moving in and out of village
40
30
20
10
0
About the same
More people moved away
More people moved in

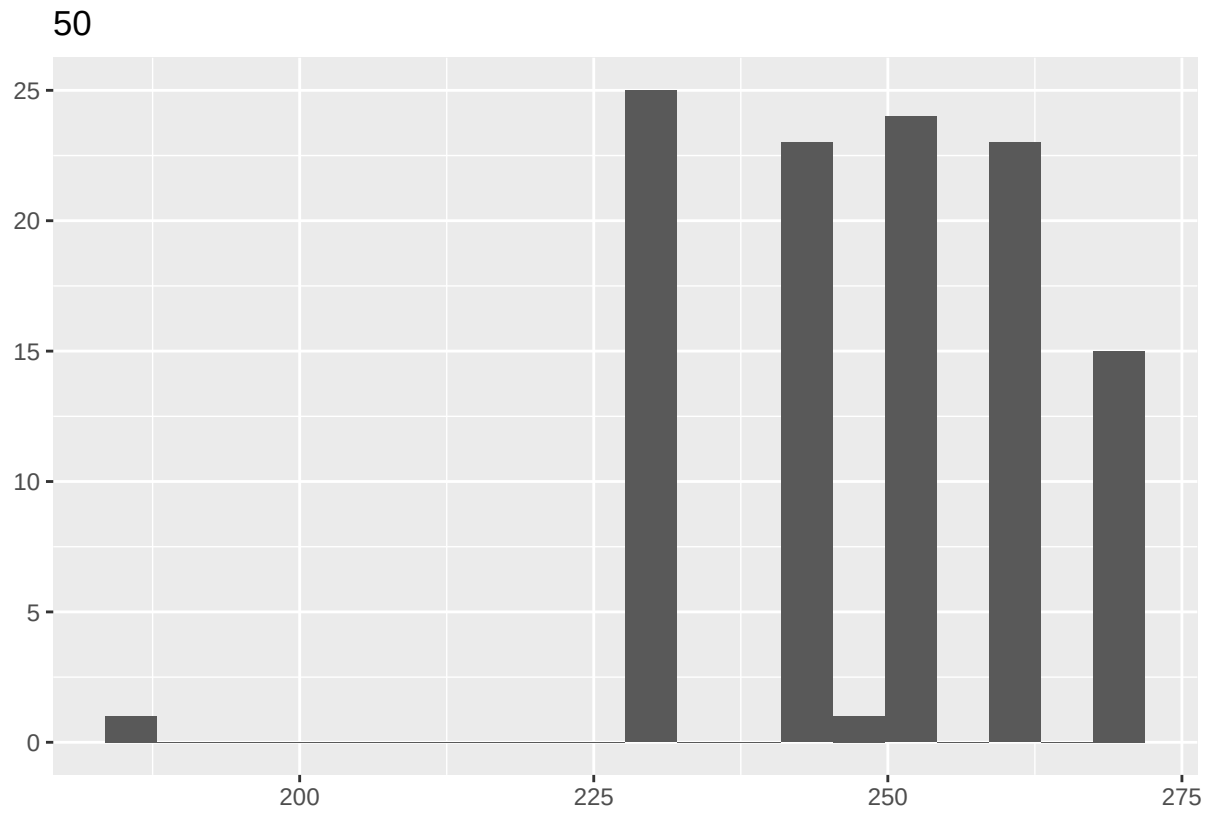

Village sponsored health program
60
40
20
0
No
Yes

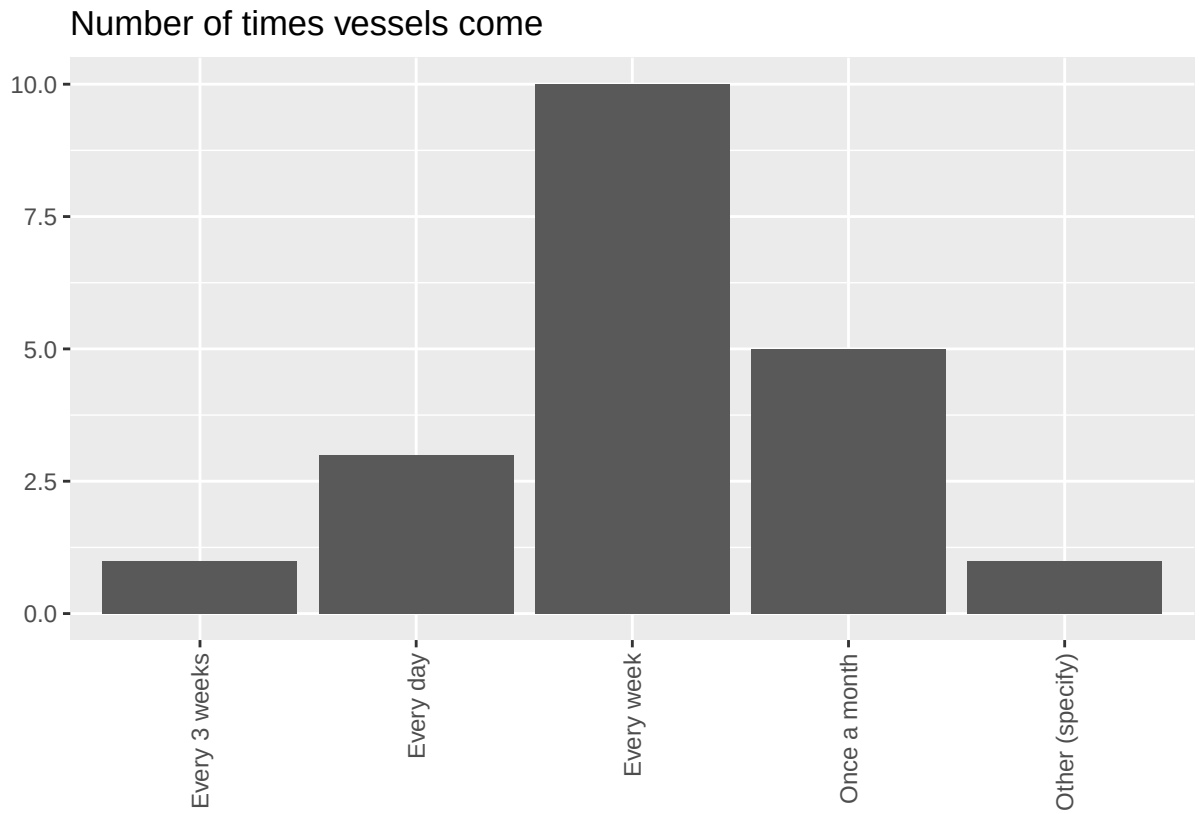

Health worker visiting village
90
60
30
0
No
Yes

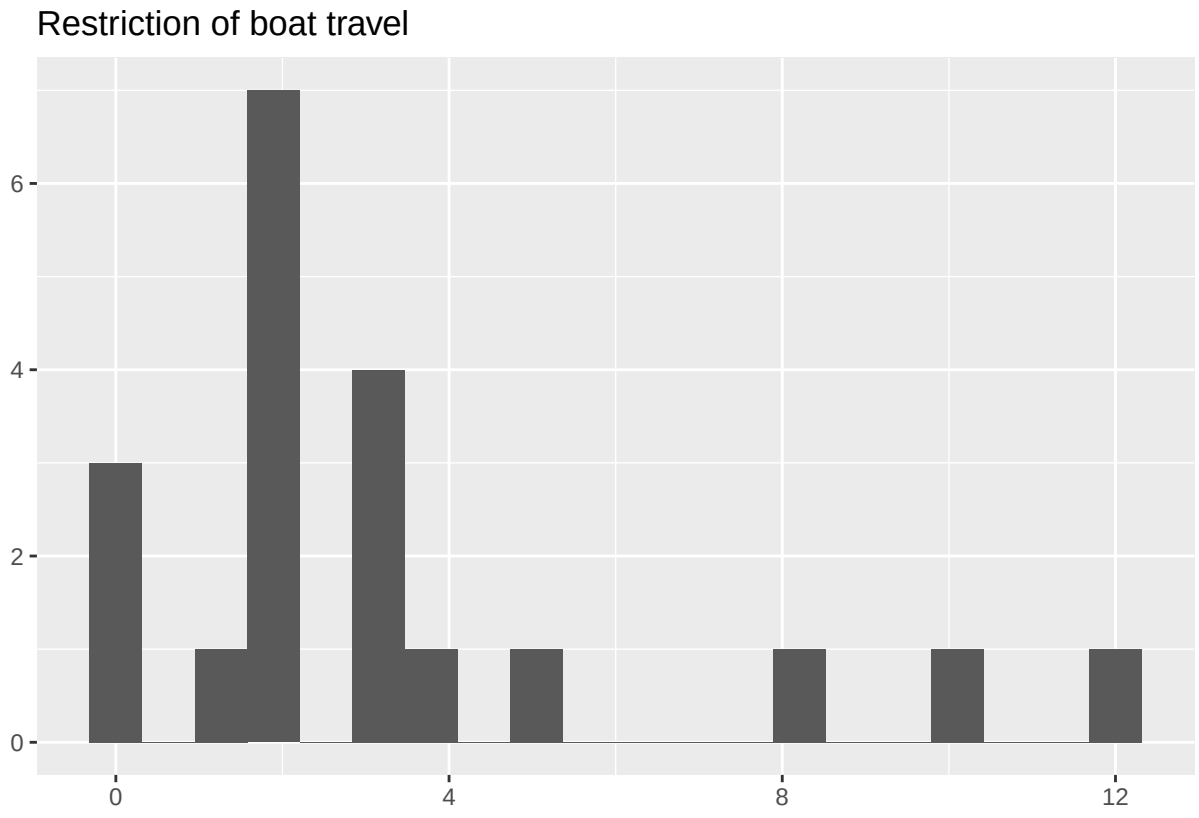

Number of visits by health worker
60
40
20
0
Every 6 monthly
Monthly
Once a year
Weekly

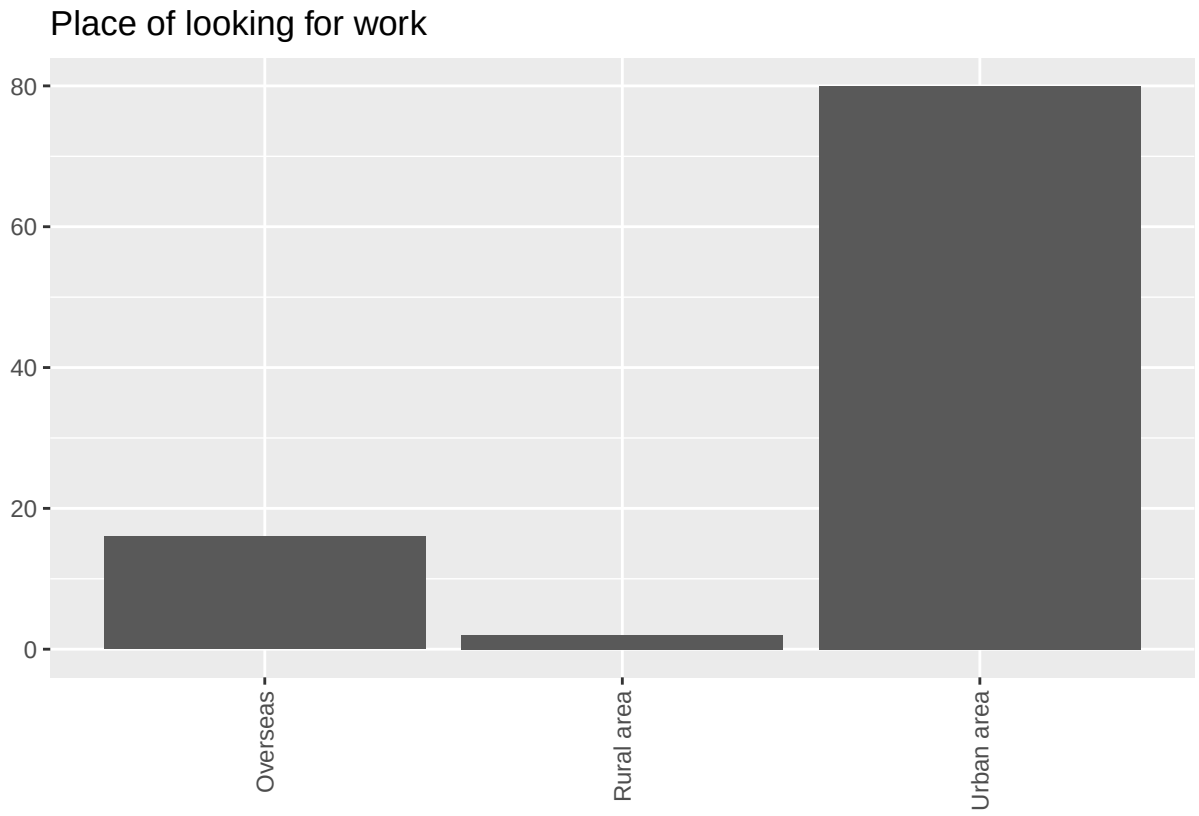

Village relocation
100
75
50
25
0
No
Yes

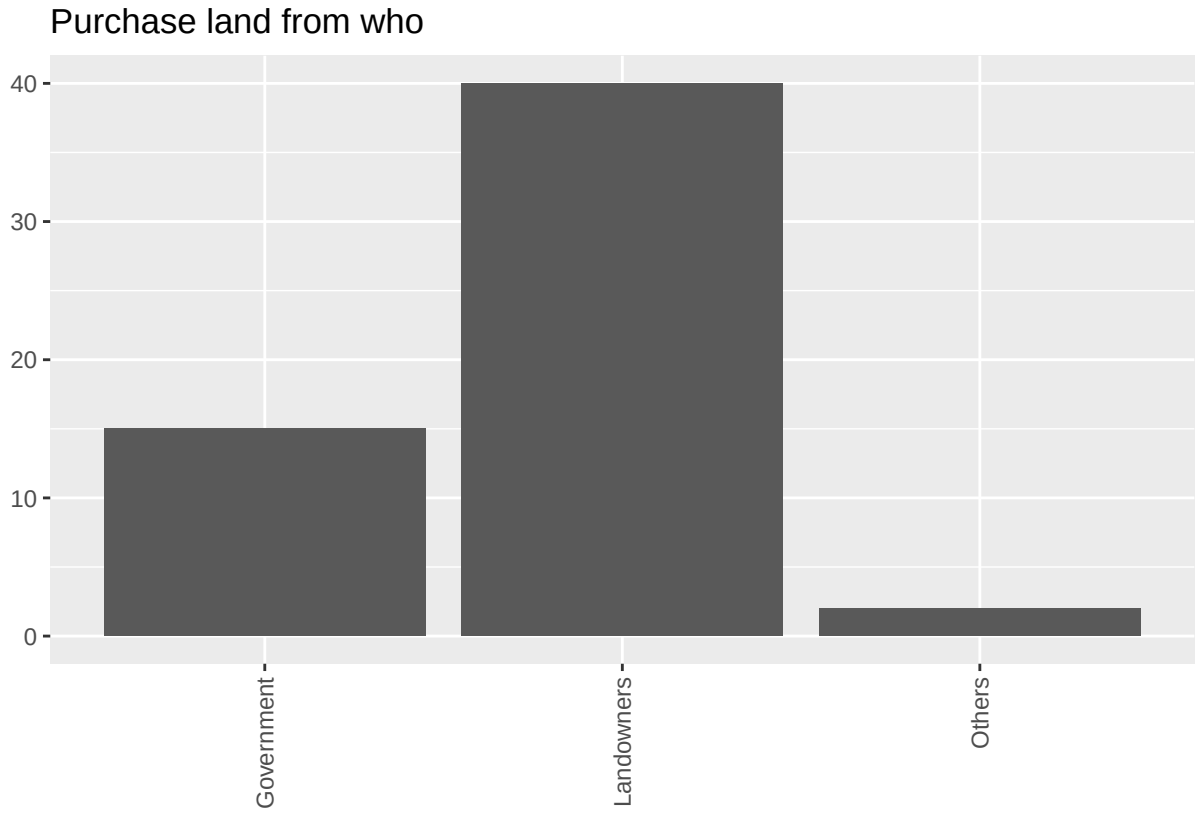

Random number in the range 0..1 associated with interview
10.0
7.5
5.0
2.5
0.0
0.00
0.25
0.50
0.75
1.00

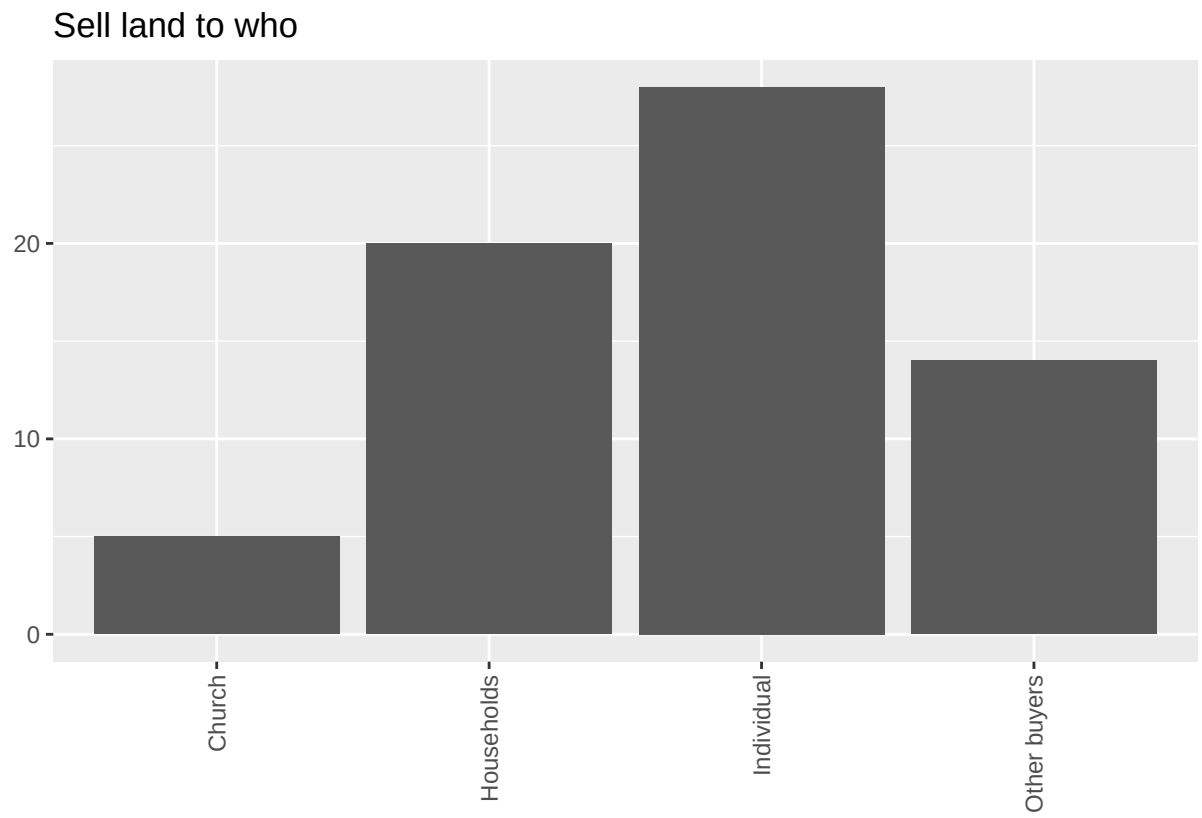

50
25
20
15
10
5
0
200
225
250
275

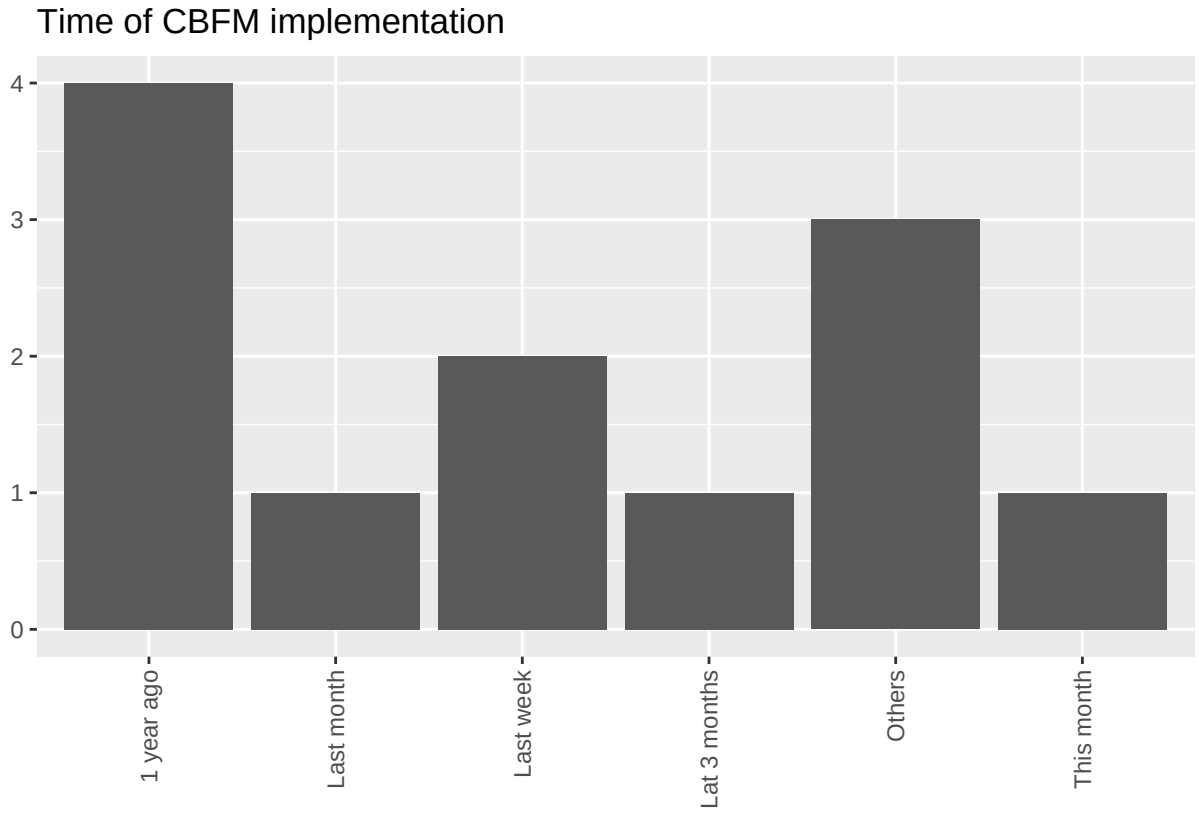

Number of times vessels come
10.0
7.5
5.0
2.5
0.0
Every 3 weeks
Every day
Every week
Once a month
Other (specify)

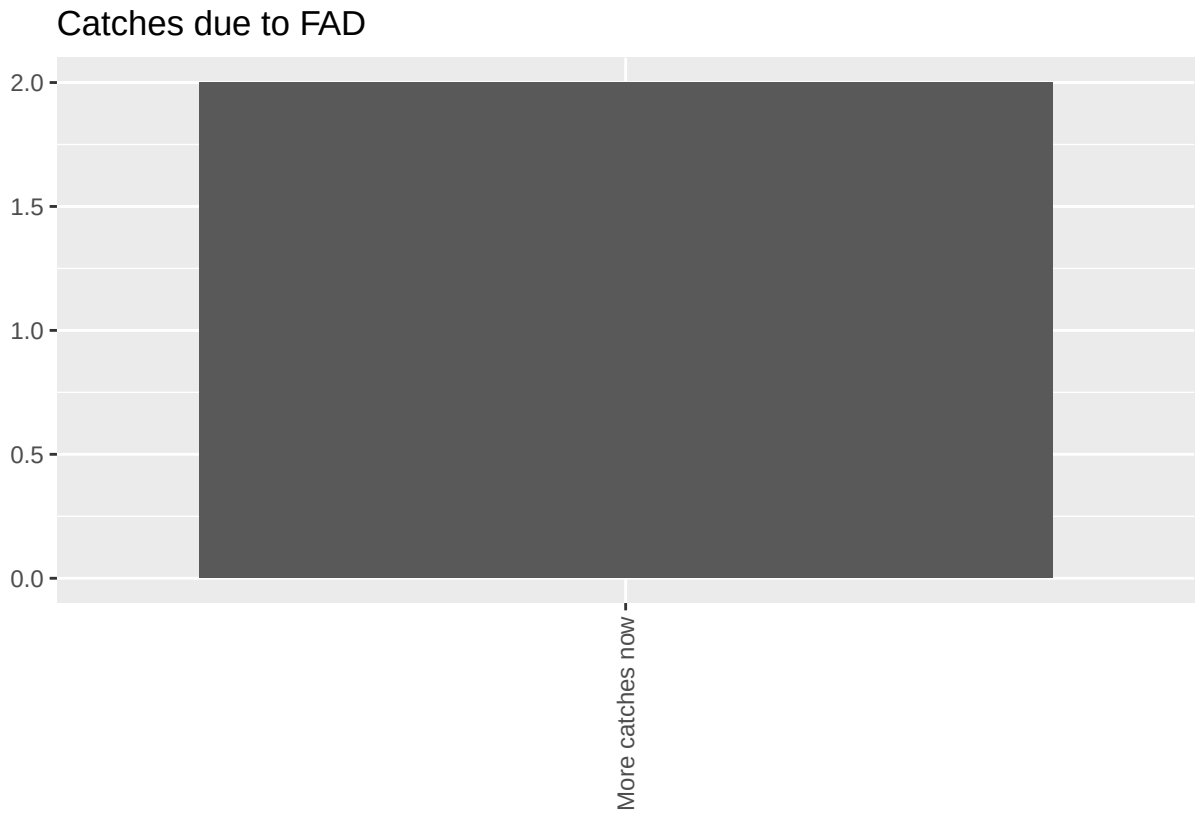

Restriction of boat travel
6
4
2
0
0
4
8
12

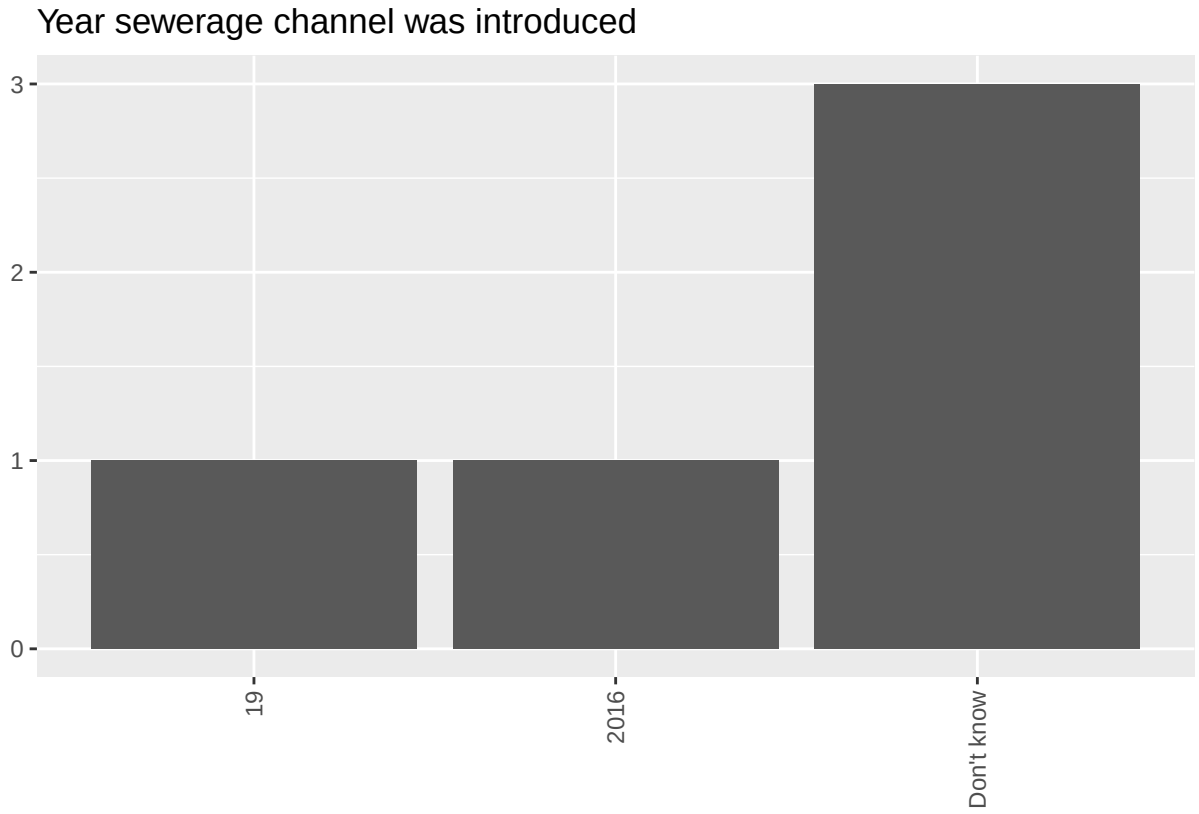

Place of looking for work
80
60
40
20
0
Overseas
Rural area
Urban area

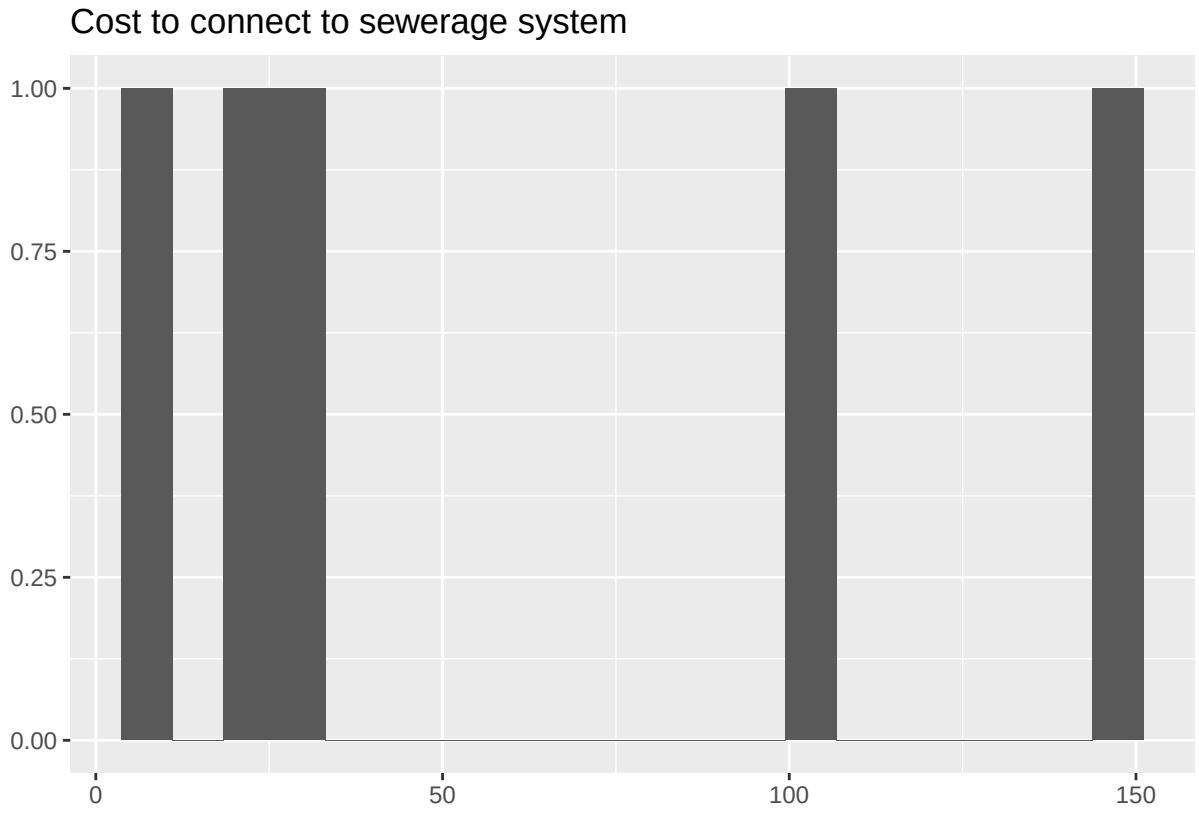

Purchase land from who
40
30
20
10
0
Government
Landowners
Others

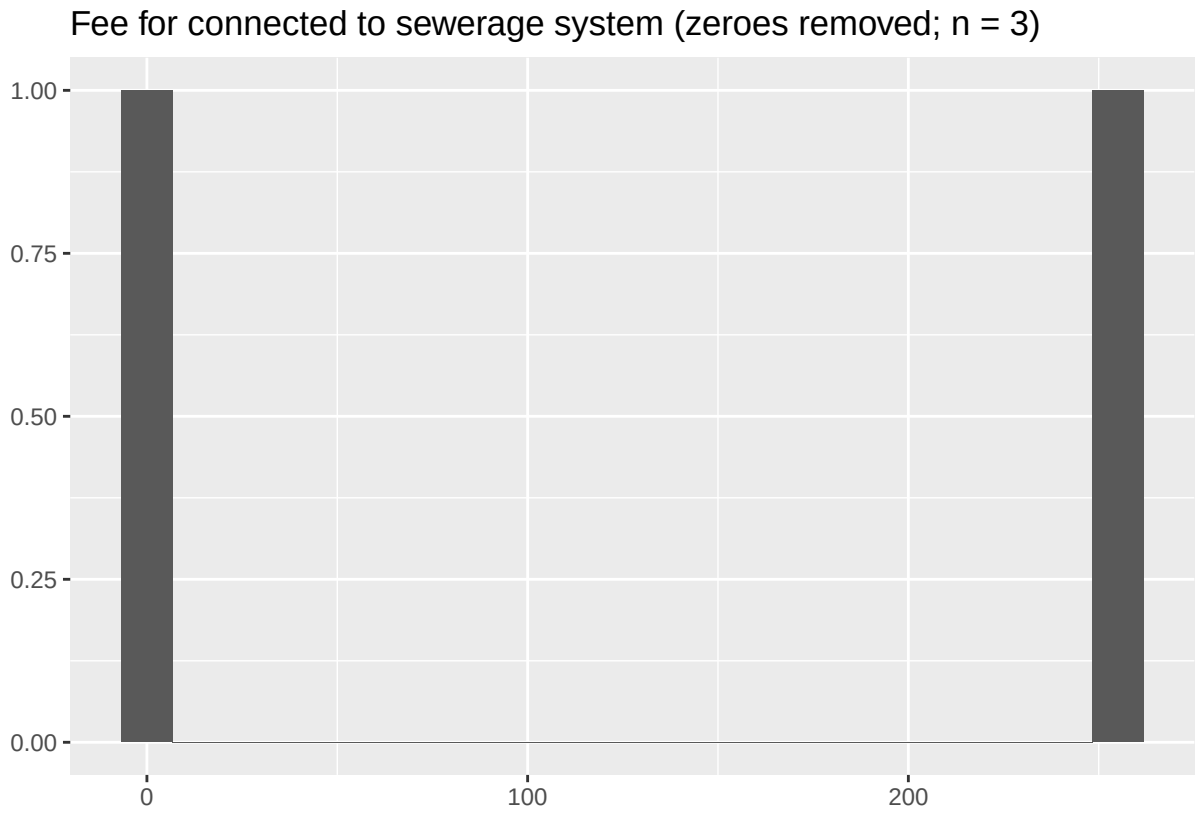

Sell land to who
20
10
0
Church
Households
Individual
Other buyers

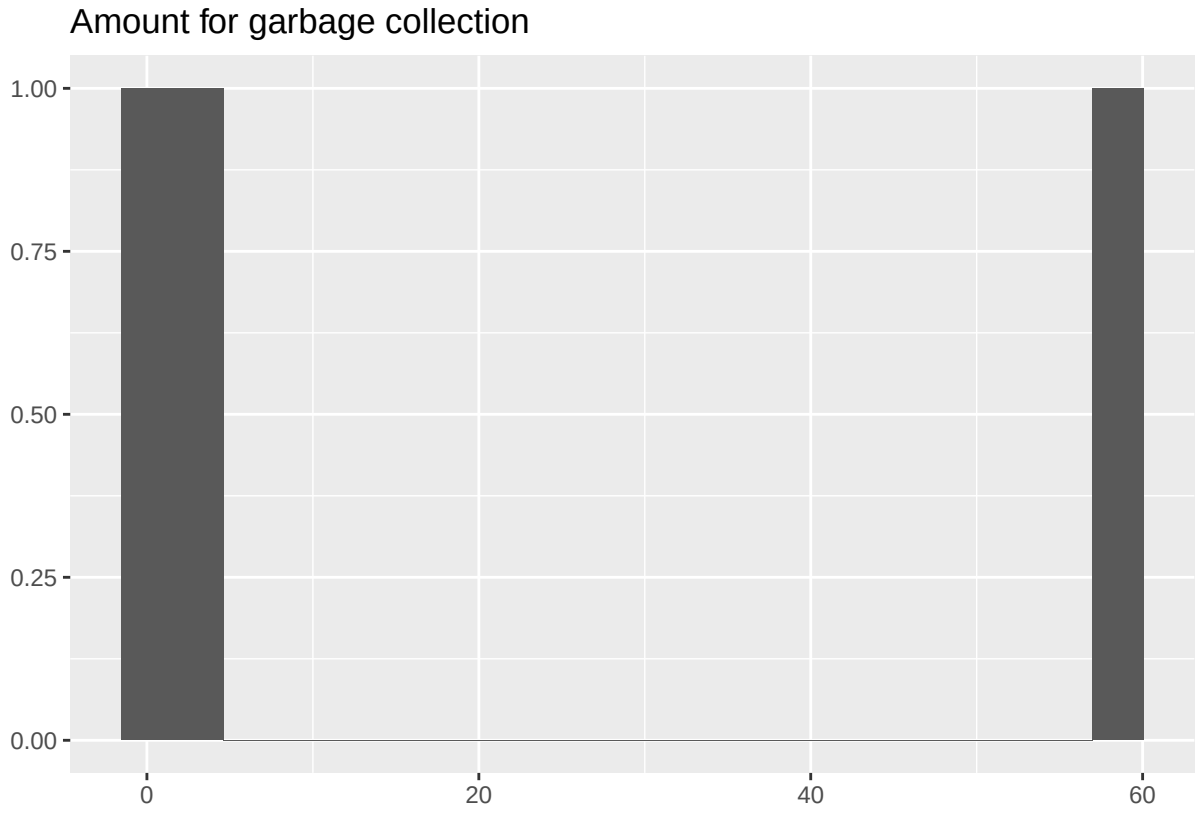

Time of CBFM implementation
4
3
2
1
0
1 year ago
Last month
Last week
Lat 3 months
Others
This month


Catches due to FAD
2.0
1.5
1.0
0.5
0.0
More catches now


Year sewerage channel was introduced
3
2
1
0
19
2016
Don't know


Cost to connect to sewerage system
1.00
0.75
0.50
0.25
0.00
0
50
100
150

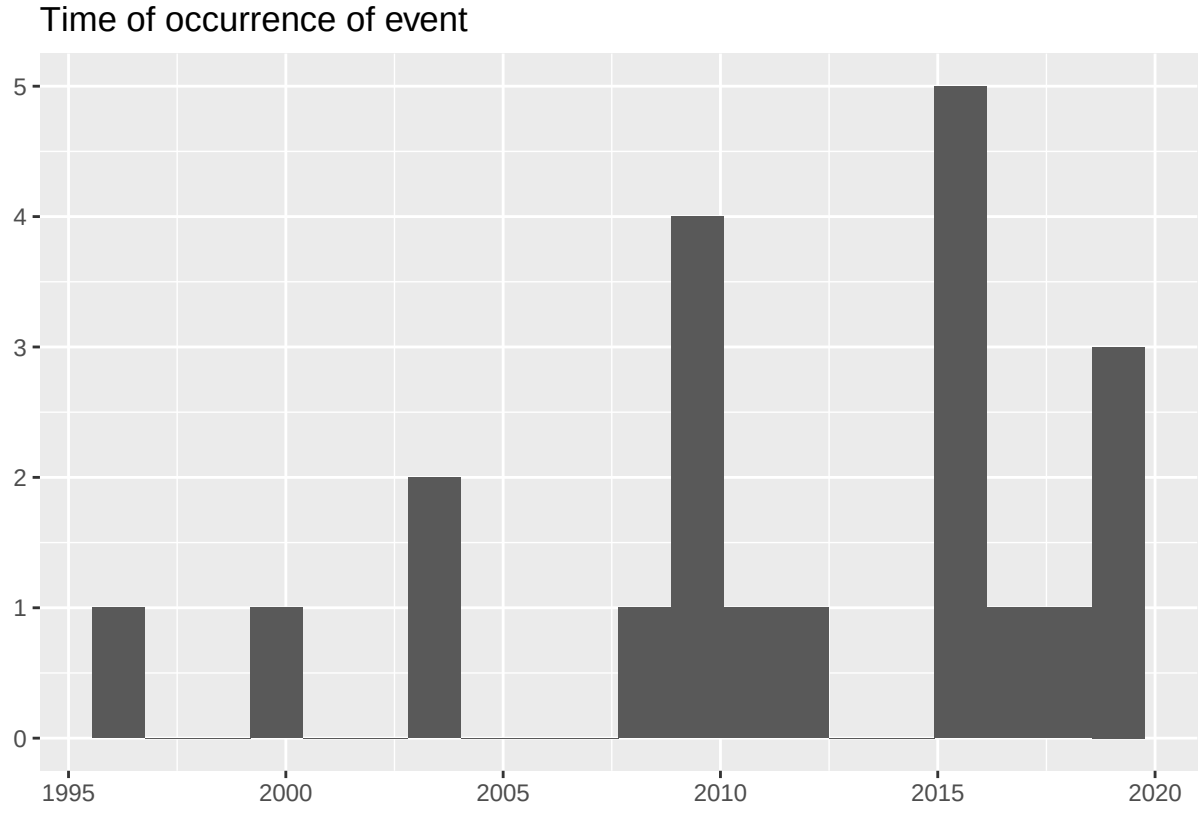

Fee for connected to sewerage system (zeroes removed; n = 3)
1.00
0.75
0.50
0.25
0.00
0
100
200

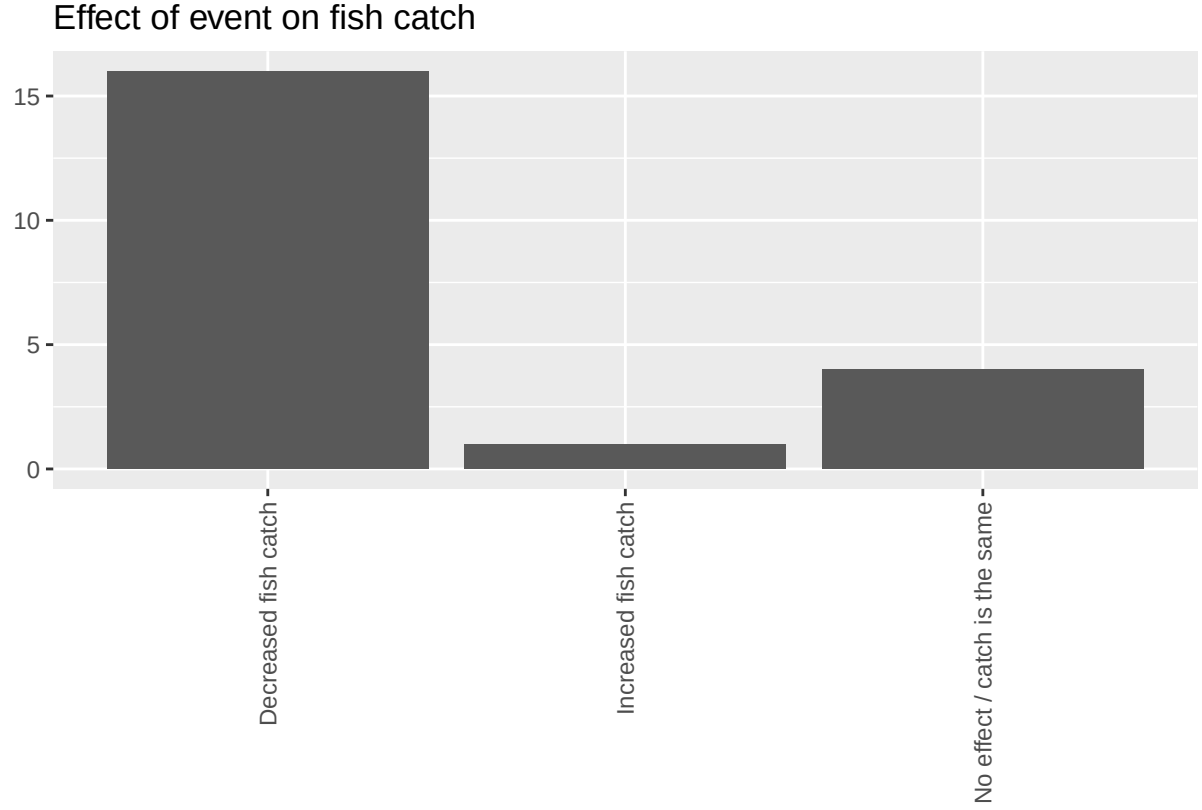


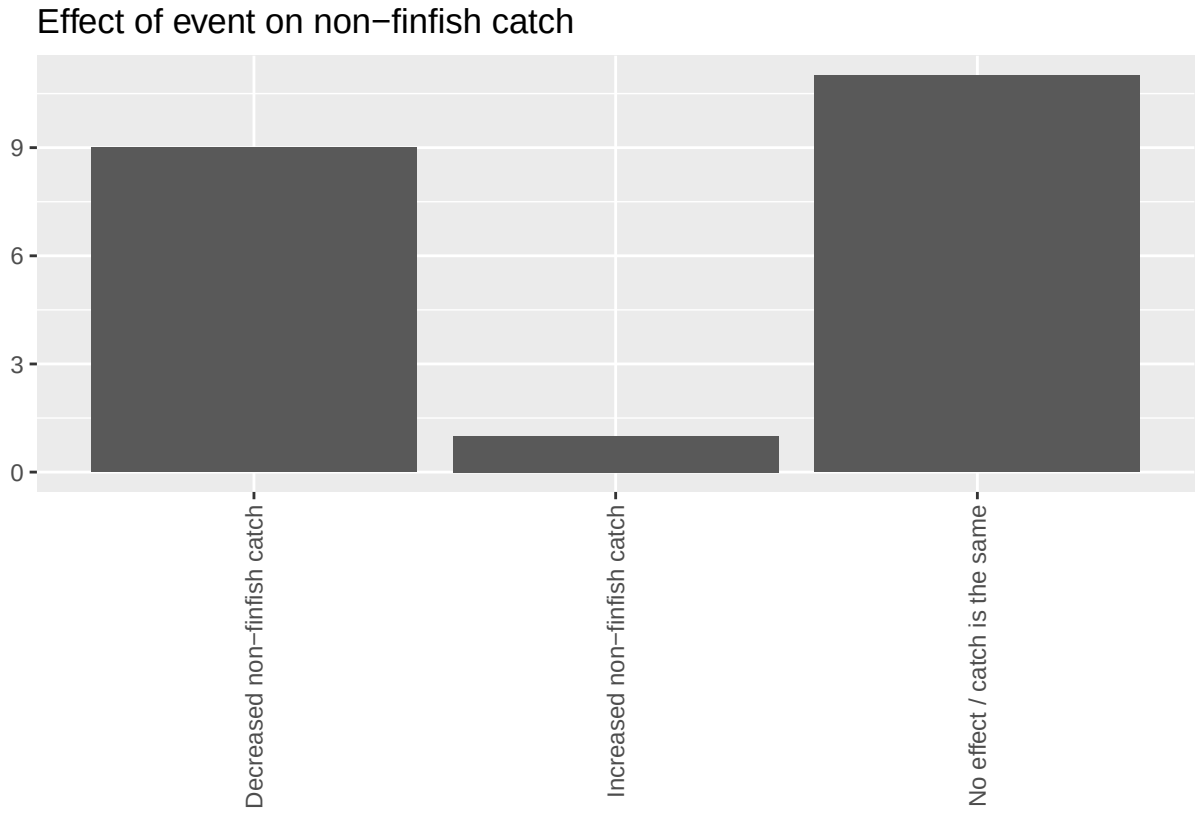

### Event Roster Data: List of events

```
## # A tibble: 4 x 1
##   event_roster__id
##   <chr>
## 1 Coral bleaching event
## 2 Cyclone
## 3 Harmful algal bloom
## 4 Tsunami
```

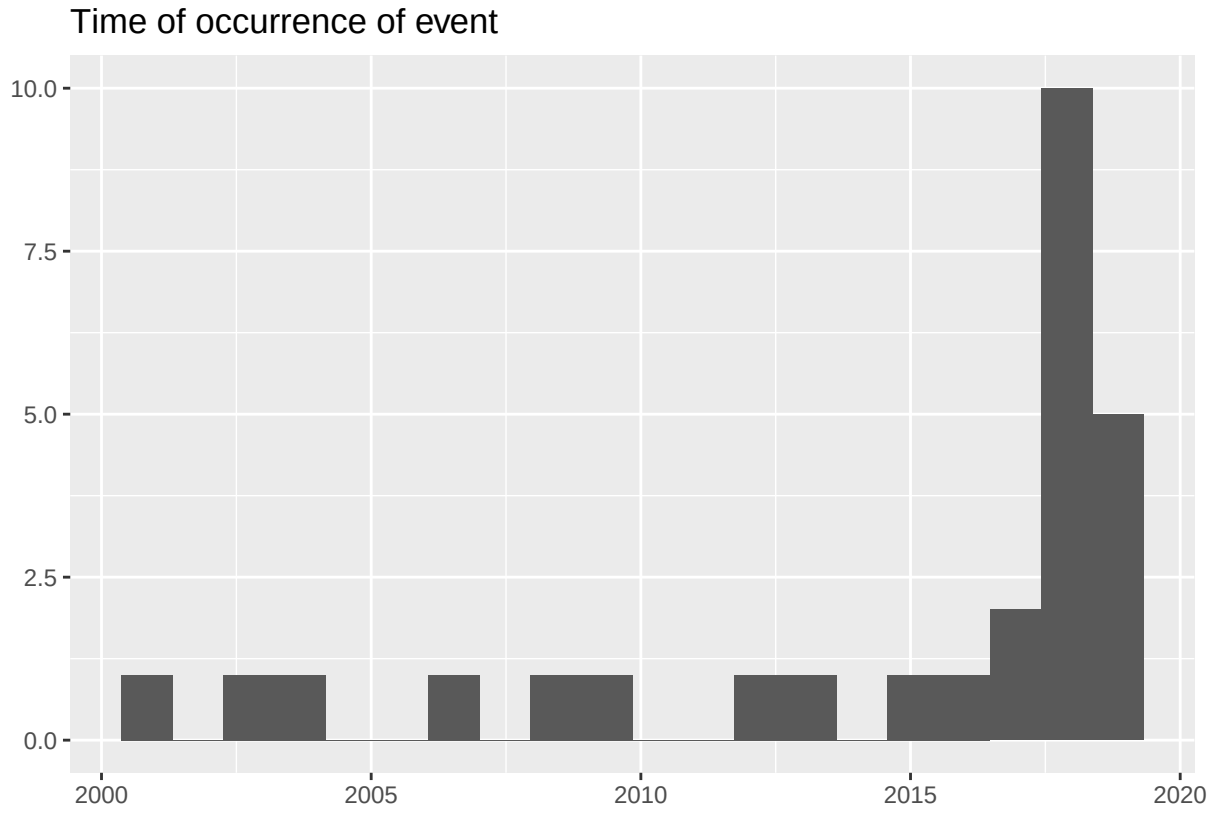
***Event: Coral bleaching***

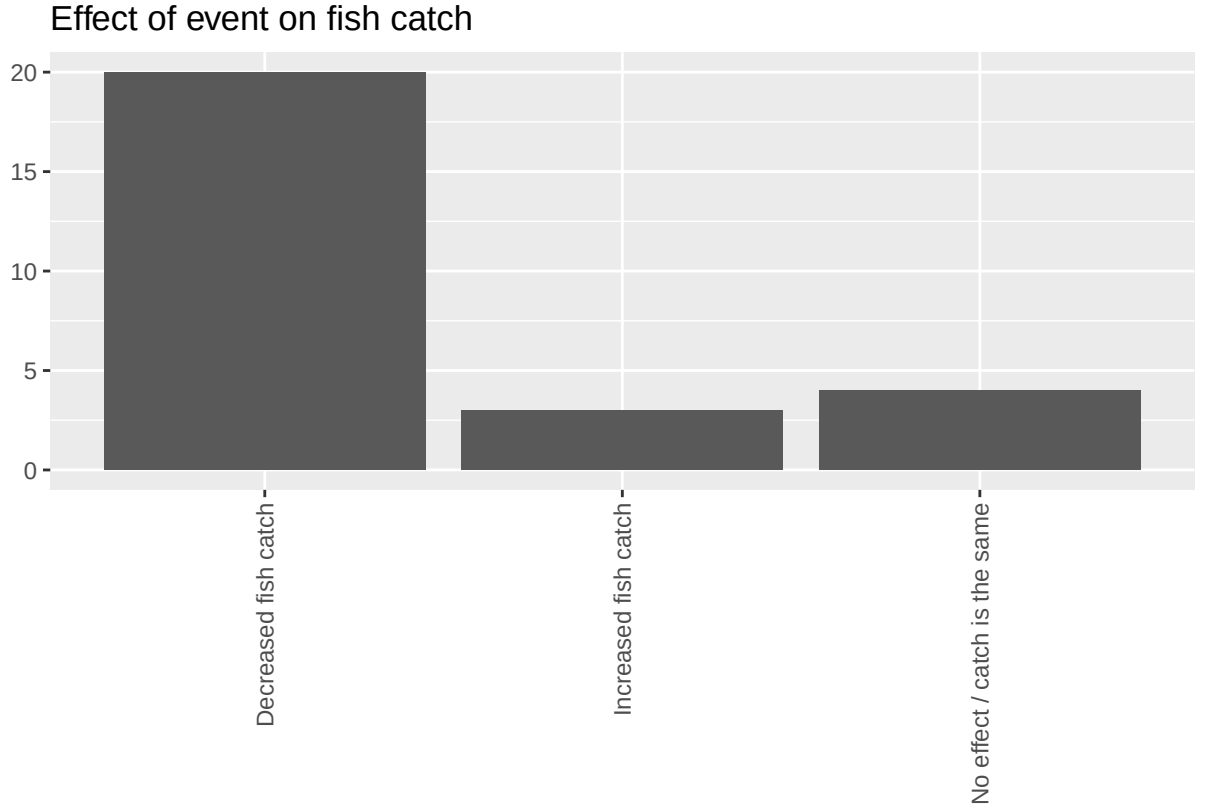


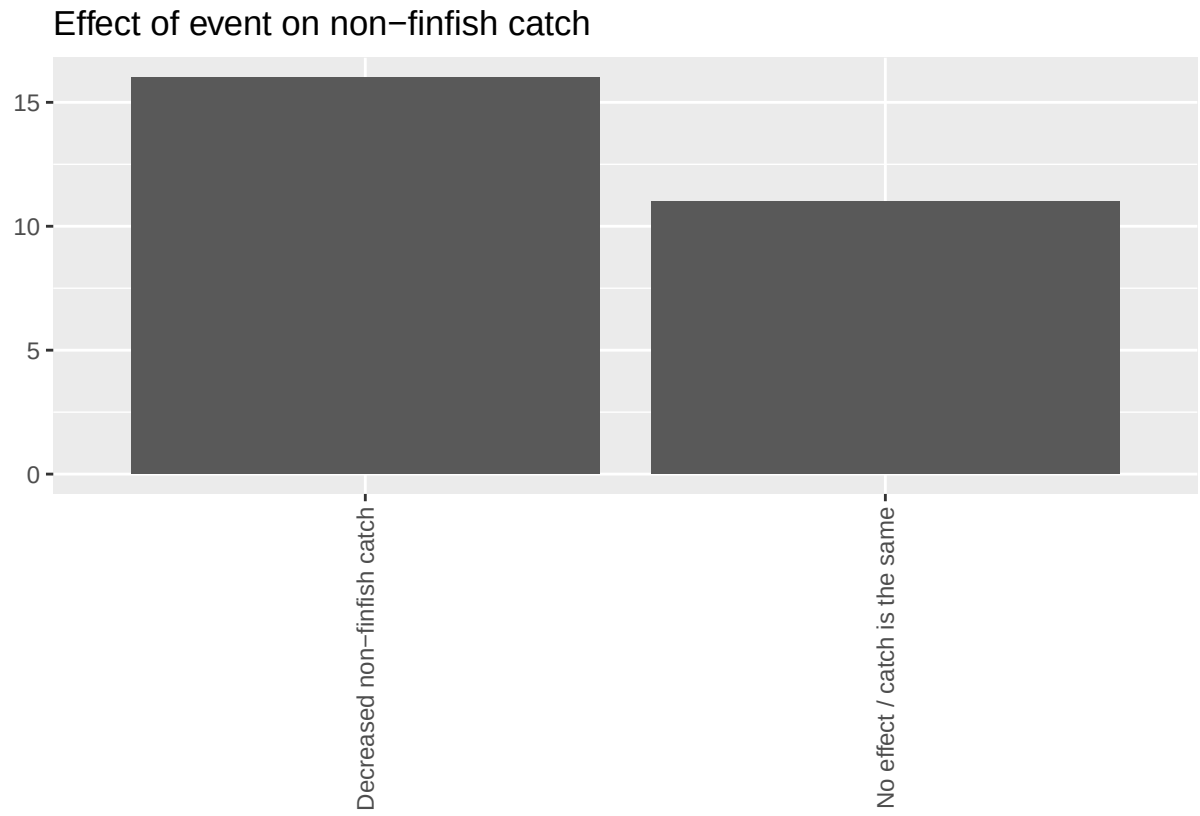




Effect of event on non−finfish catch
9
6
3
0
Decreased non−finfish catch
Increased non−finfish catch
No effect / catch is the same

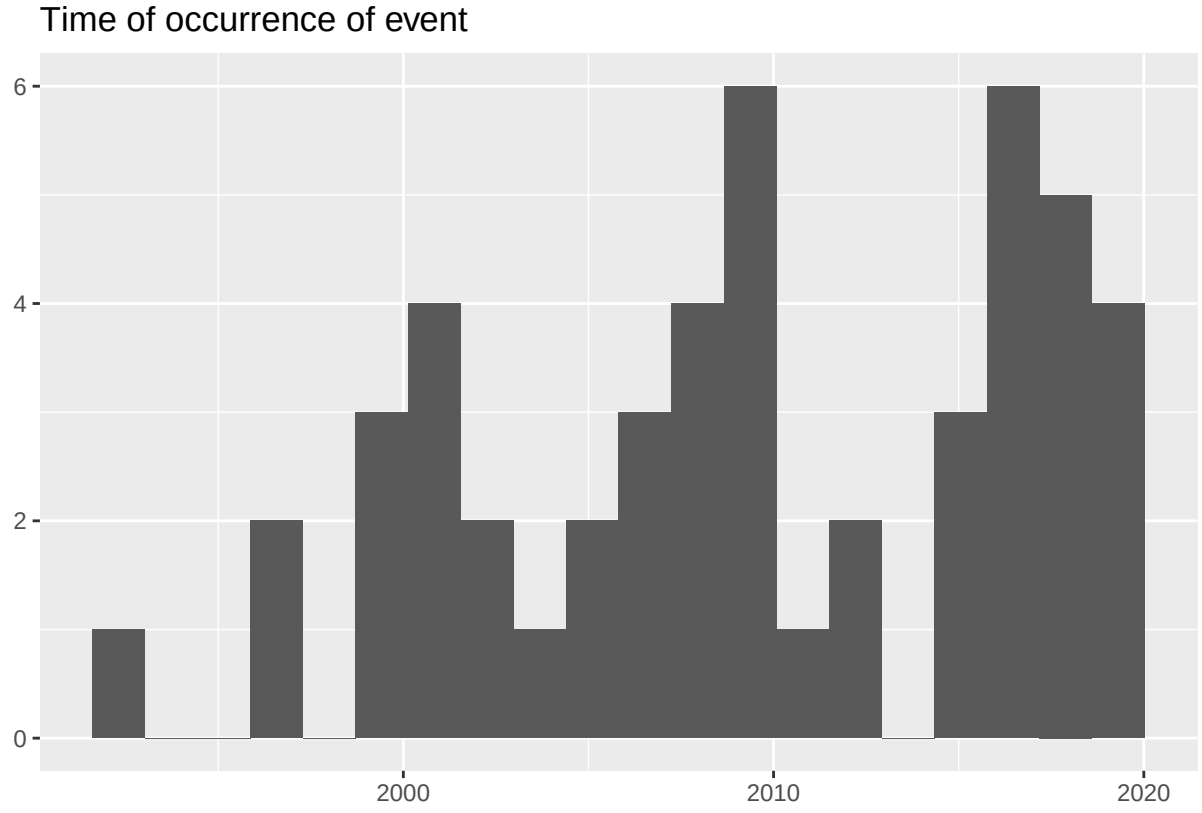
***Event: Cyclone***

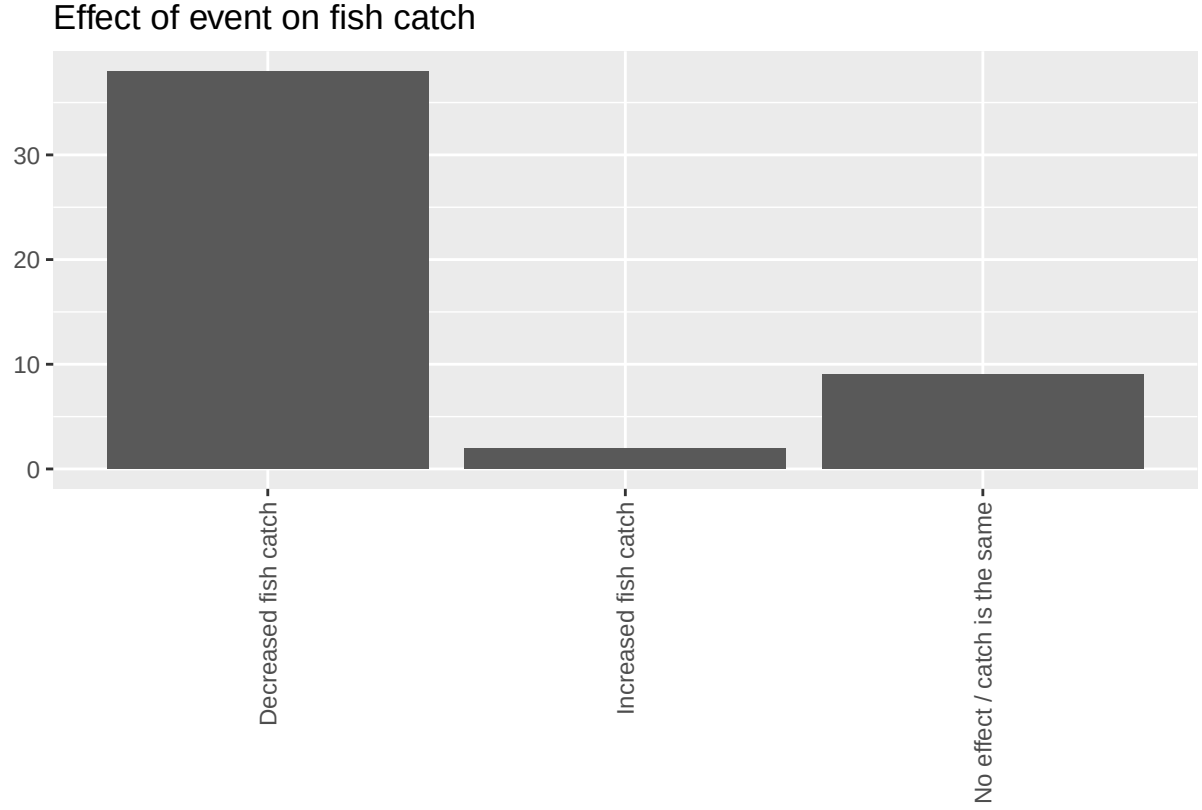


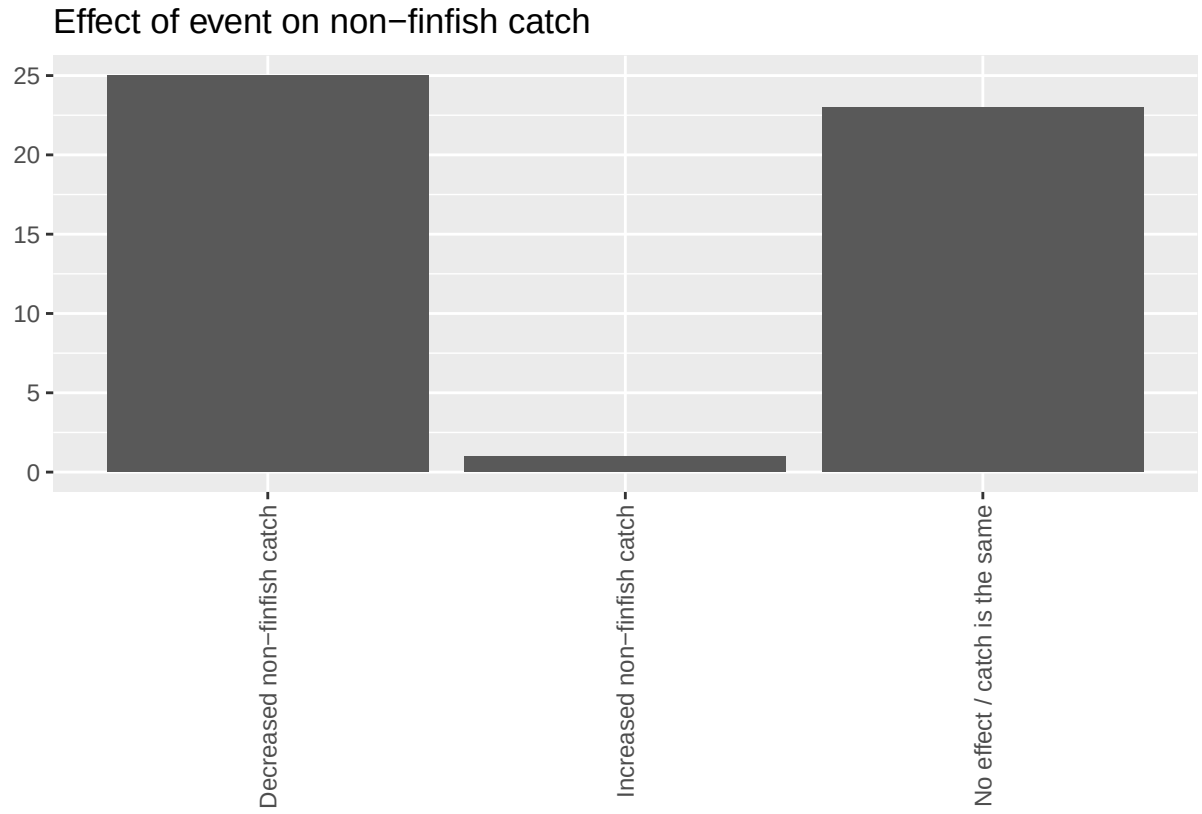




Effect of event on non−finfish catch
15
10
5
0
Decreased non−finfish catch
No effect / catch is the same

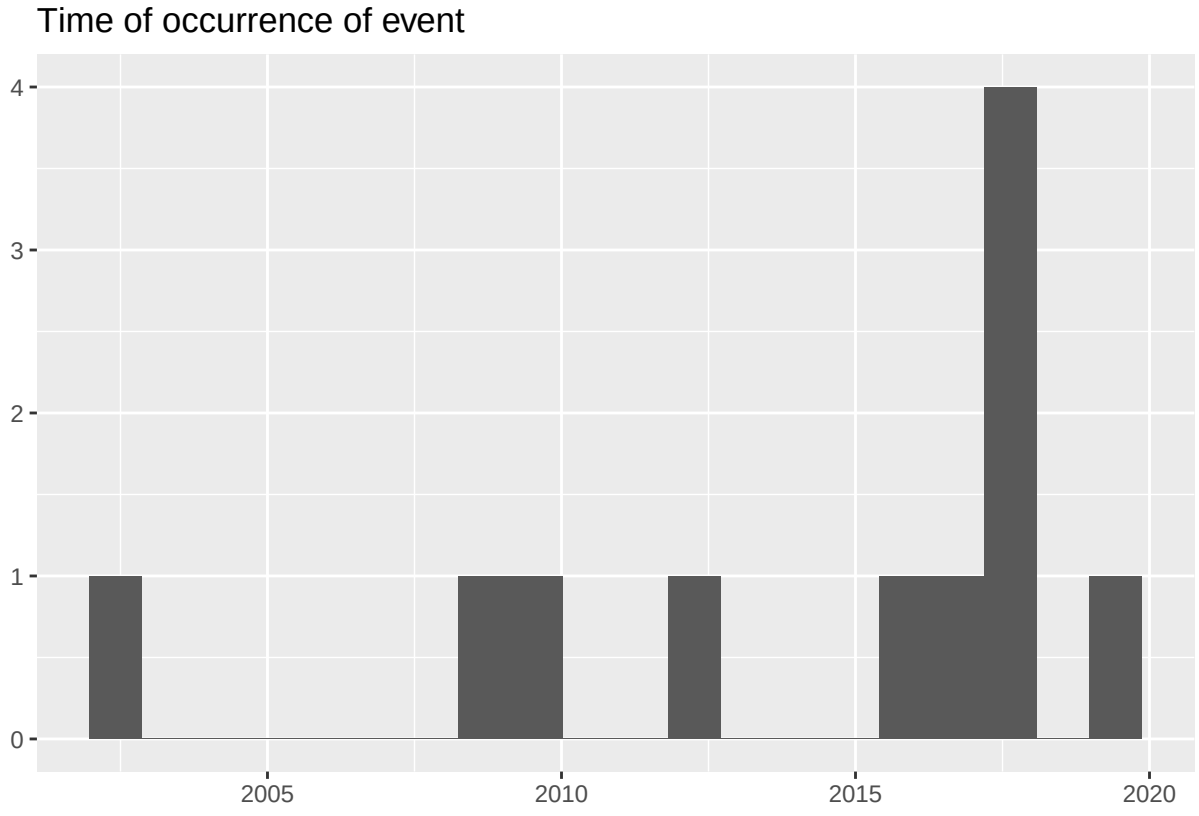
***Event: Harmful algal bloom***

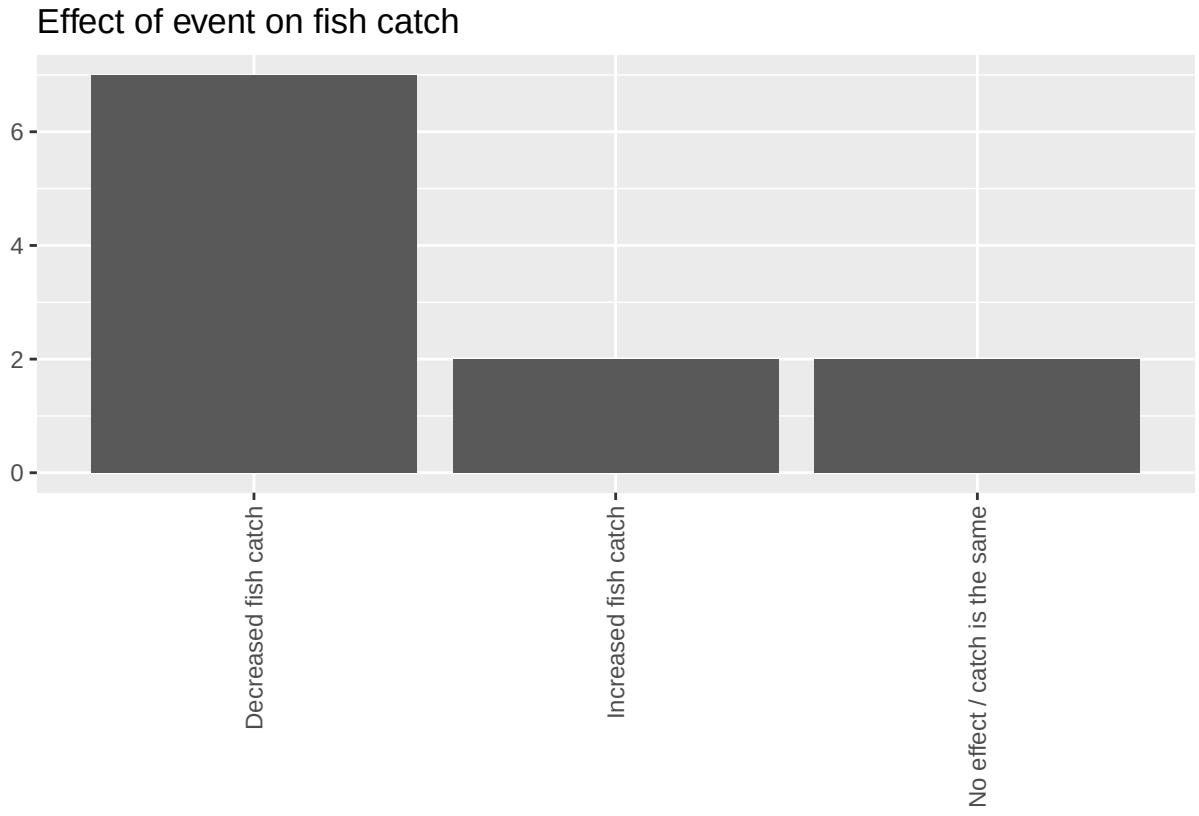


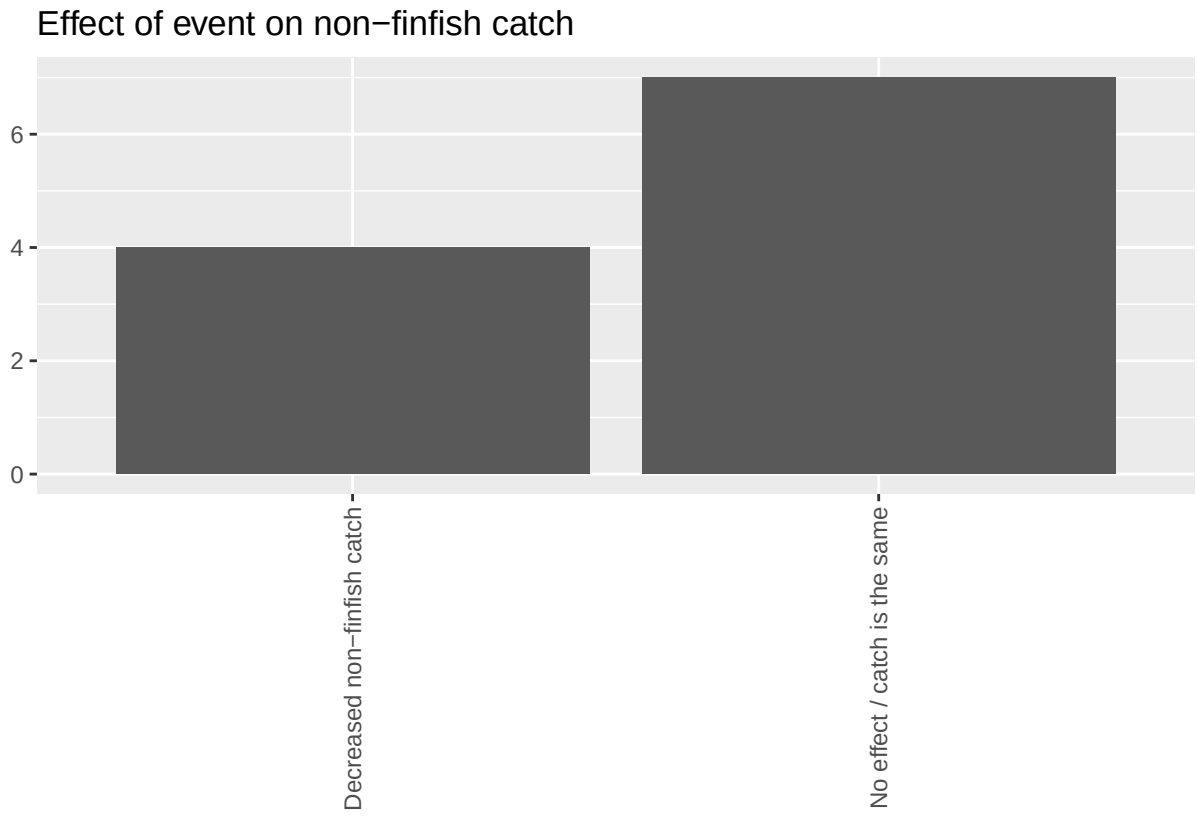




Effect of event on non−finfish catch
25
20
15
10
5
0
Decreased non−finfish catch
Increased non−finfish catch
No effect / catch is the same

***Event: Tsunami***



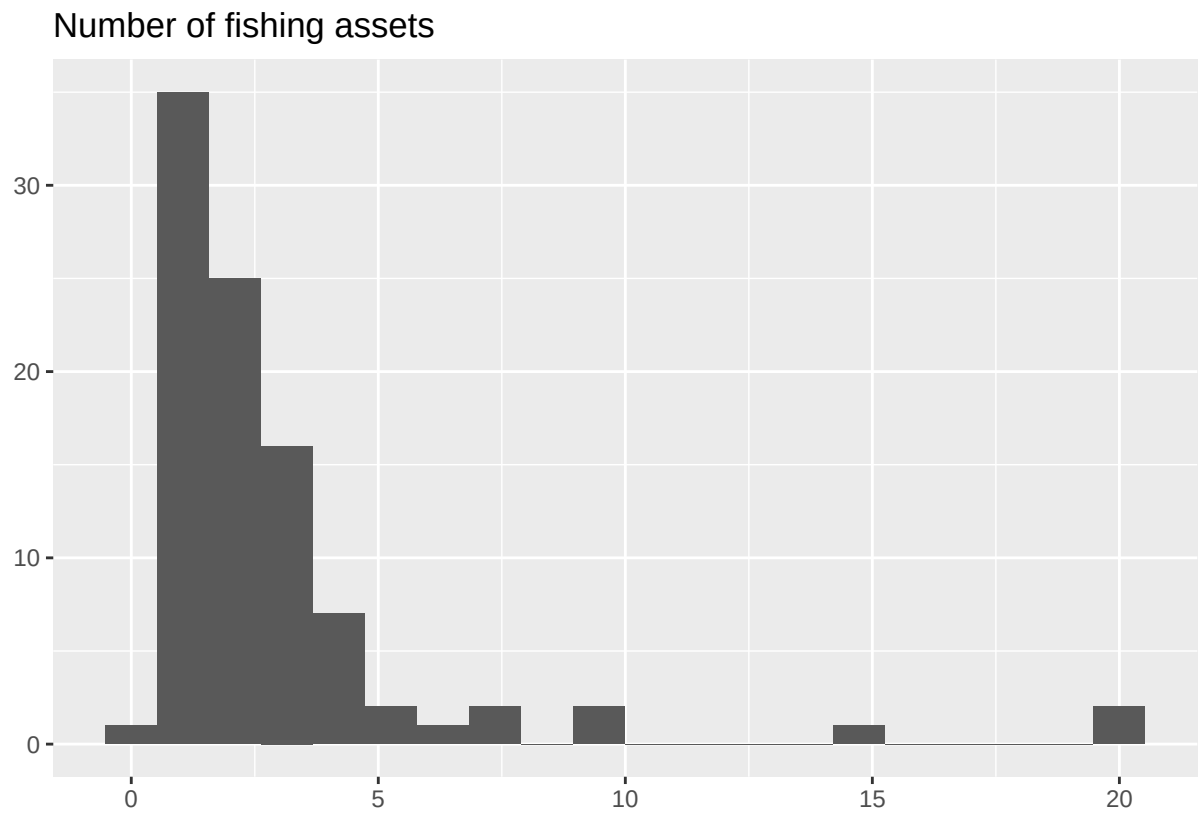



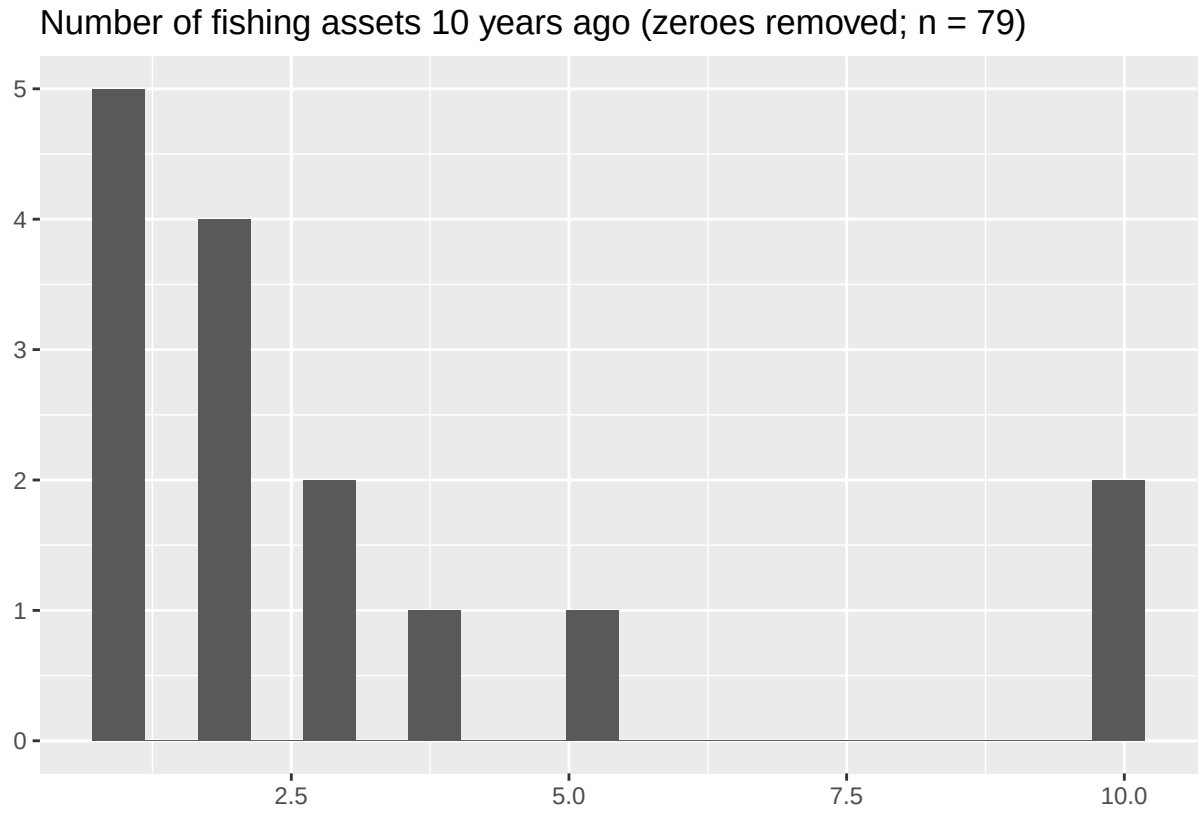



### Fish Roster Data: List of fish assets

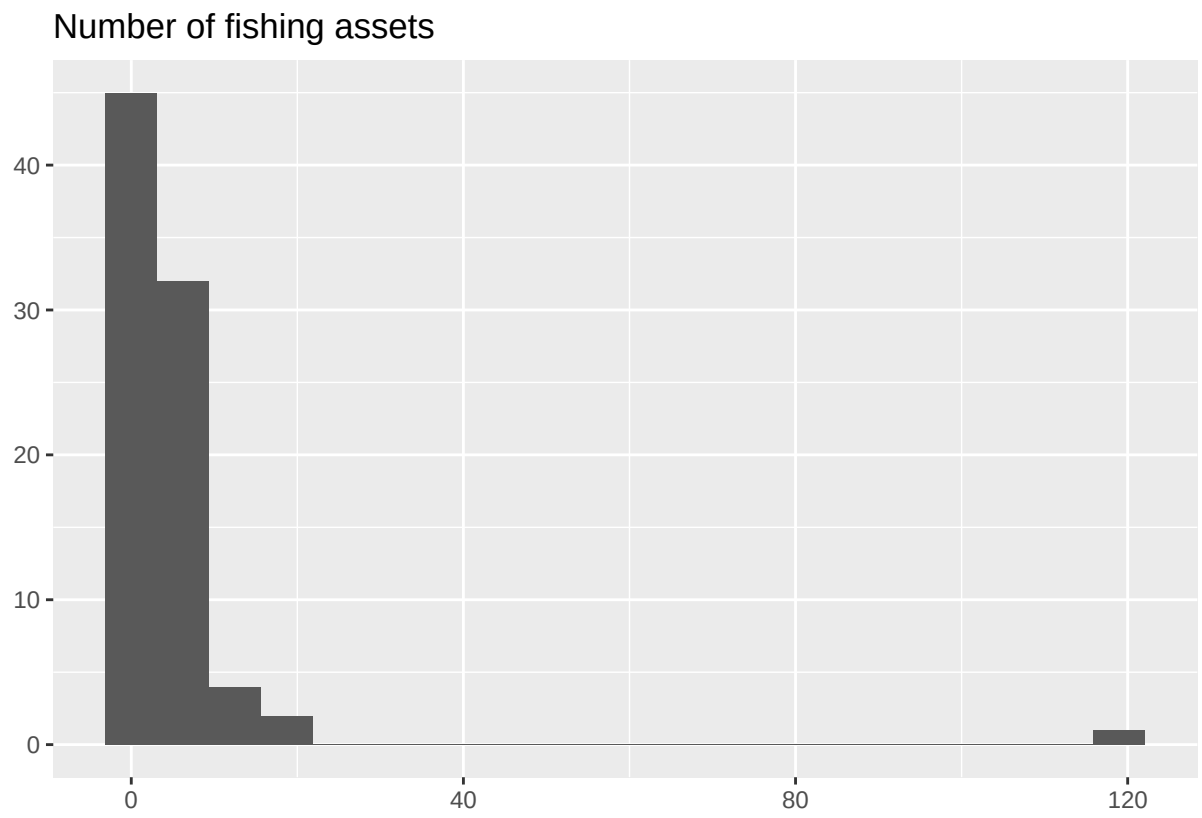
```
## # A tibble: 17 x 1
##    fish_asset_roster__id
##    <chr>
##  1 Fibreglass boats
##  2 Outboard Motors
##  3 Fishing Nets (gillnet)
##  4 Spearguns
##  5 Fishing Lines
##  6 Active Fish Traps
##  7 Underwater flashlights
##  8 Wood canoes
##  9 Eskies/portable coolers
## 10 SCUBA diving equipment
## 11 Freezers (electric or propane)
## 12 Ice machines
## 13 Fishing Nets (purse)
## 14 Drag Nets
## 15 Harpoons/Spears
## 16 Other Fishing Equipment (note)
## 17 FAD (Fish Aggregating Device)
```

***Asset: Fibreglass boats***



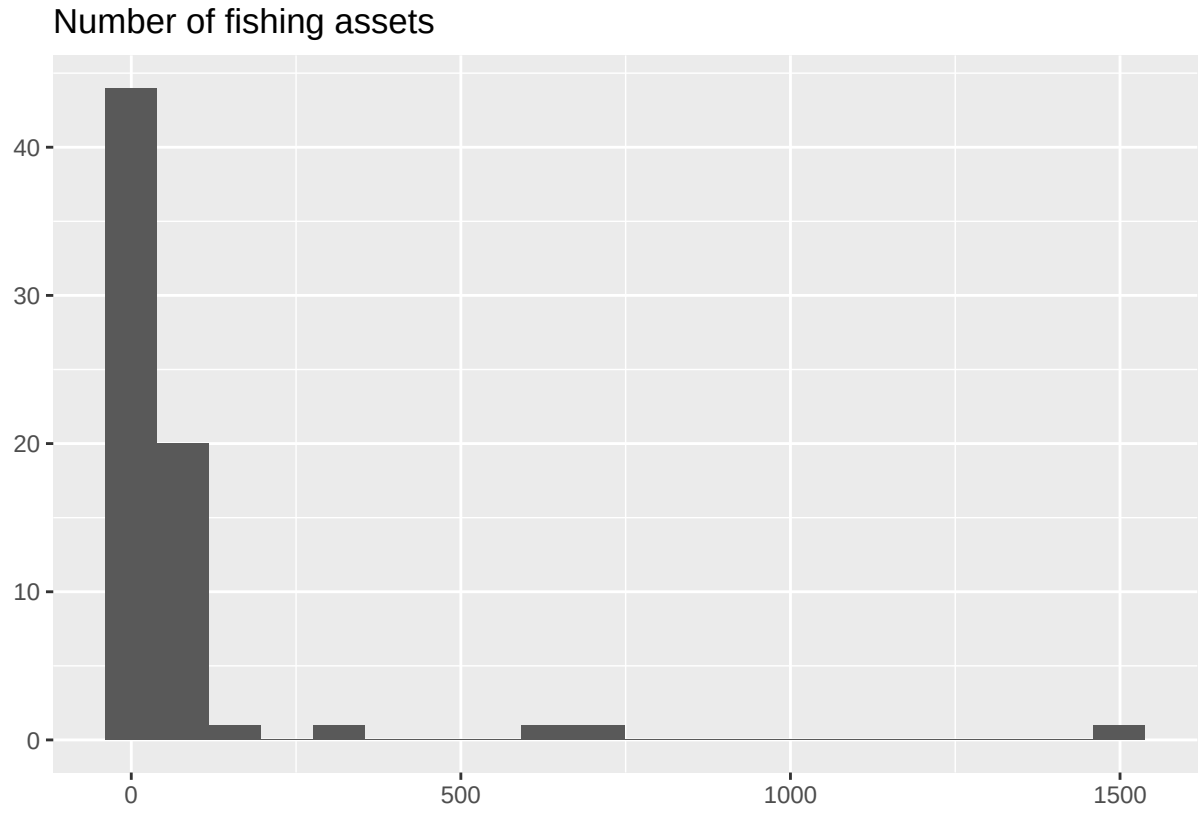



## *Asset: Outboard Motors*

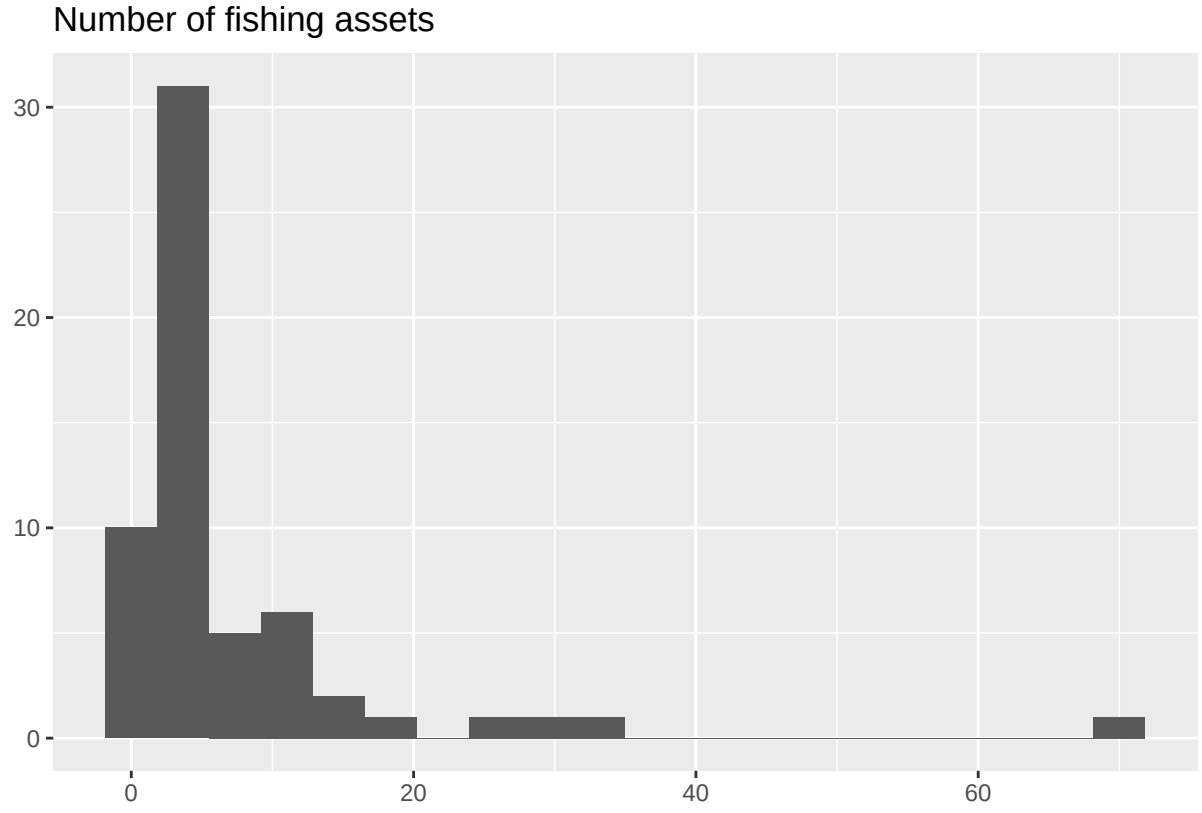


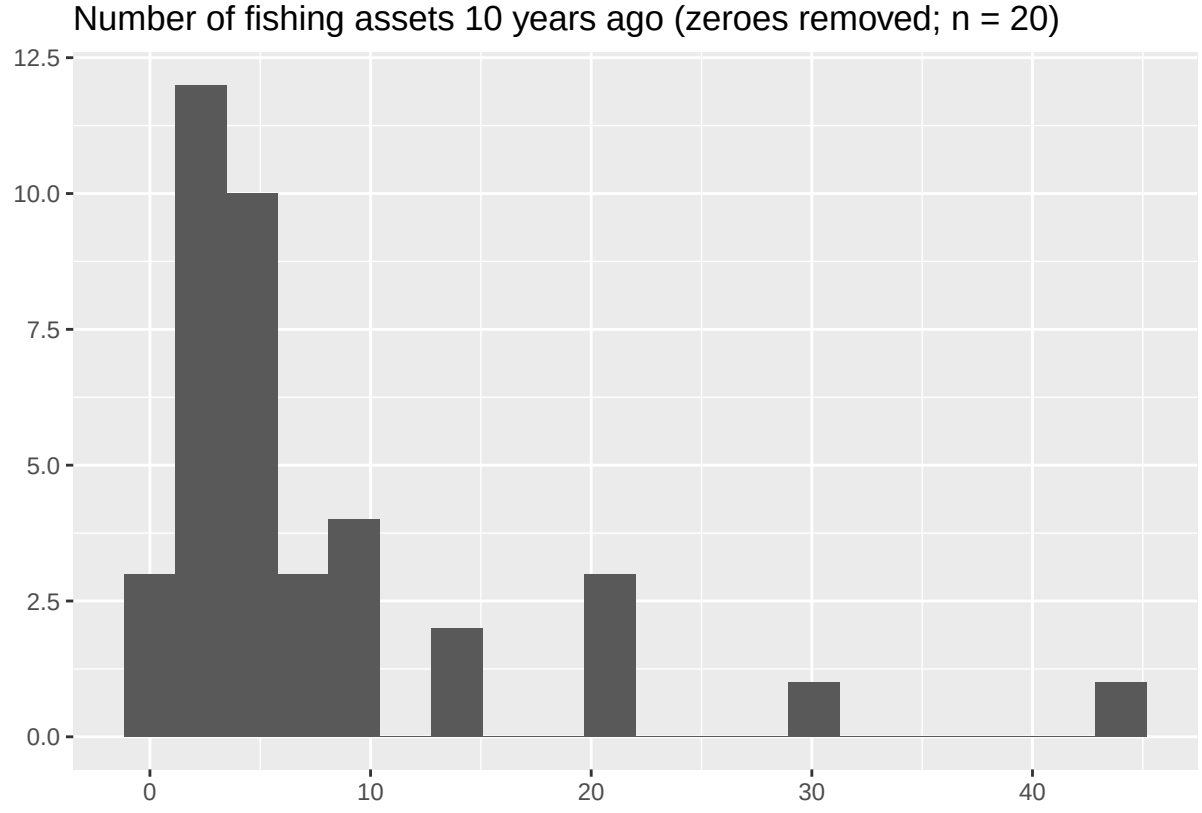

Number of fishing assets 10 years ago (zeroes removed; n = 35)
20
15
10
5
0
0
5
10
15
20

***Asset: Fishing Nets (gillnet)***

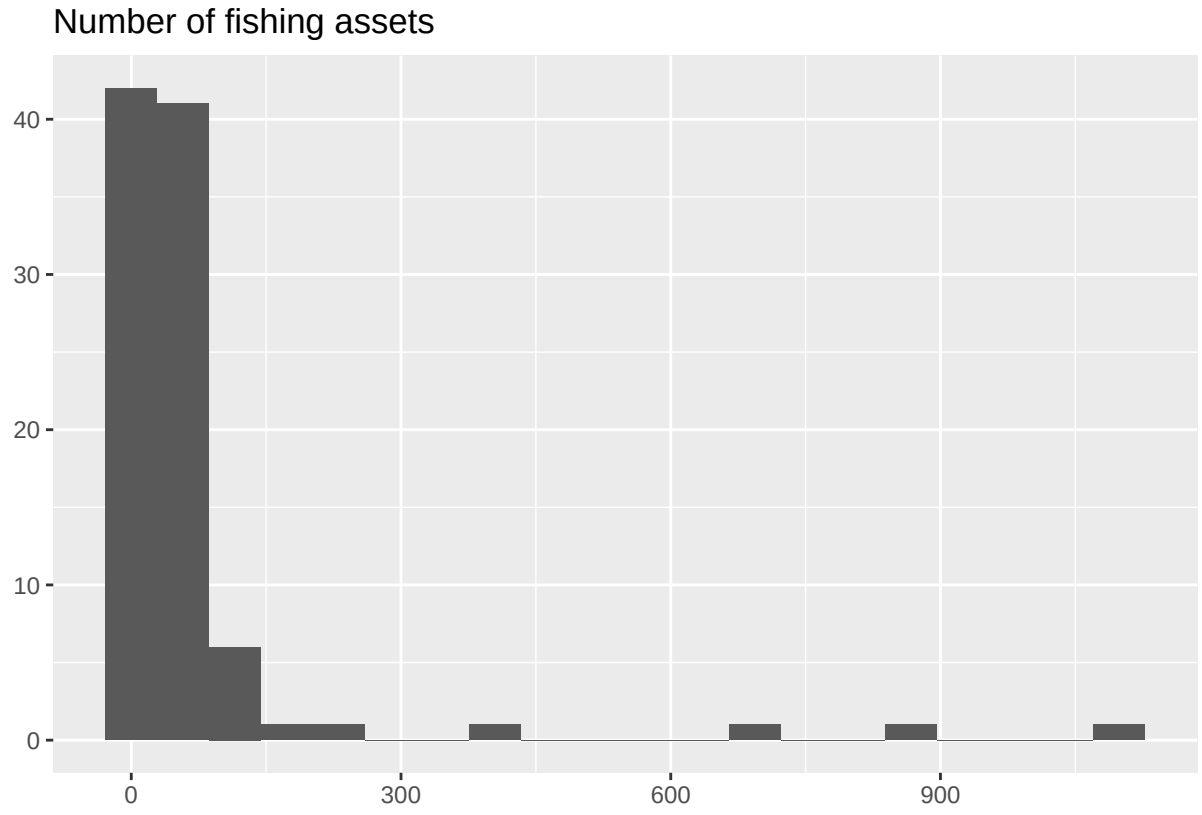


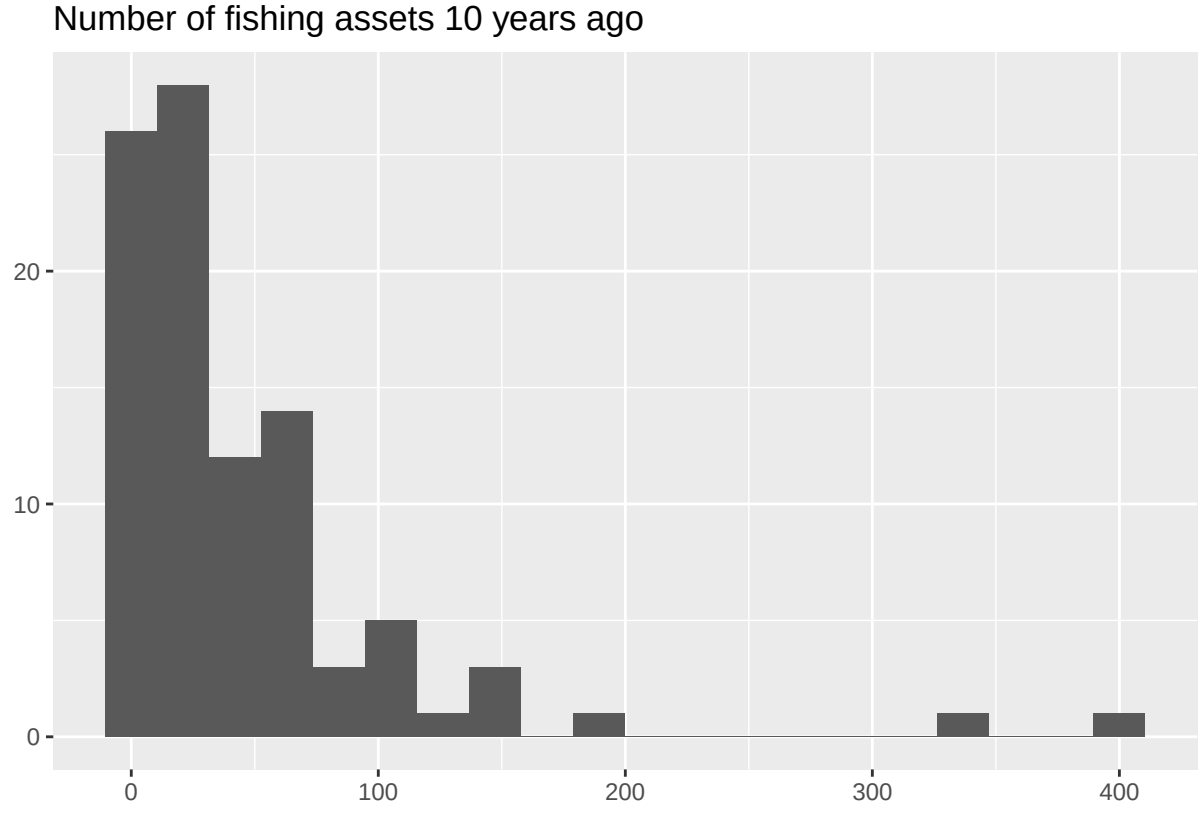

***Asset: Spearguns***



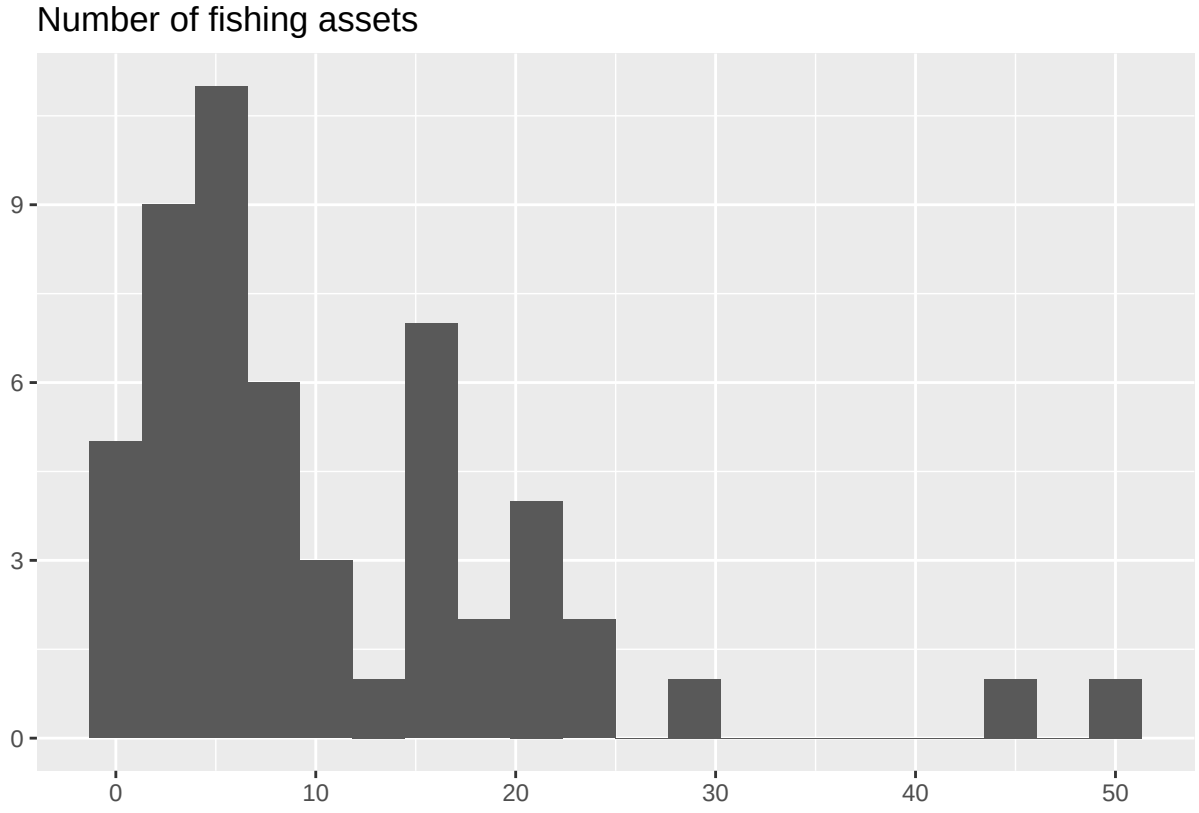



***Asset: Fishing Lines***

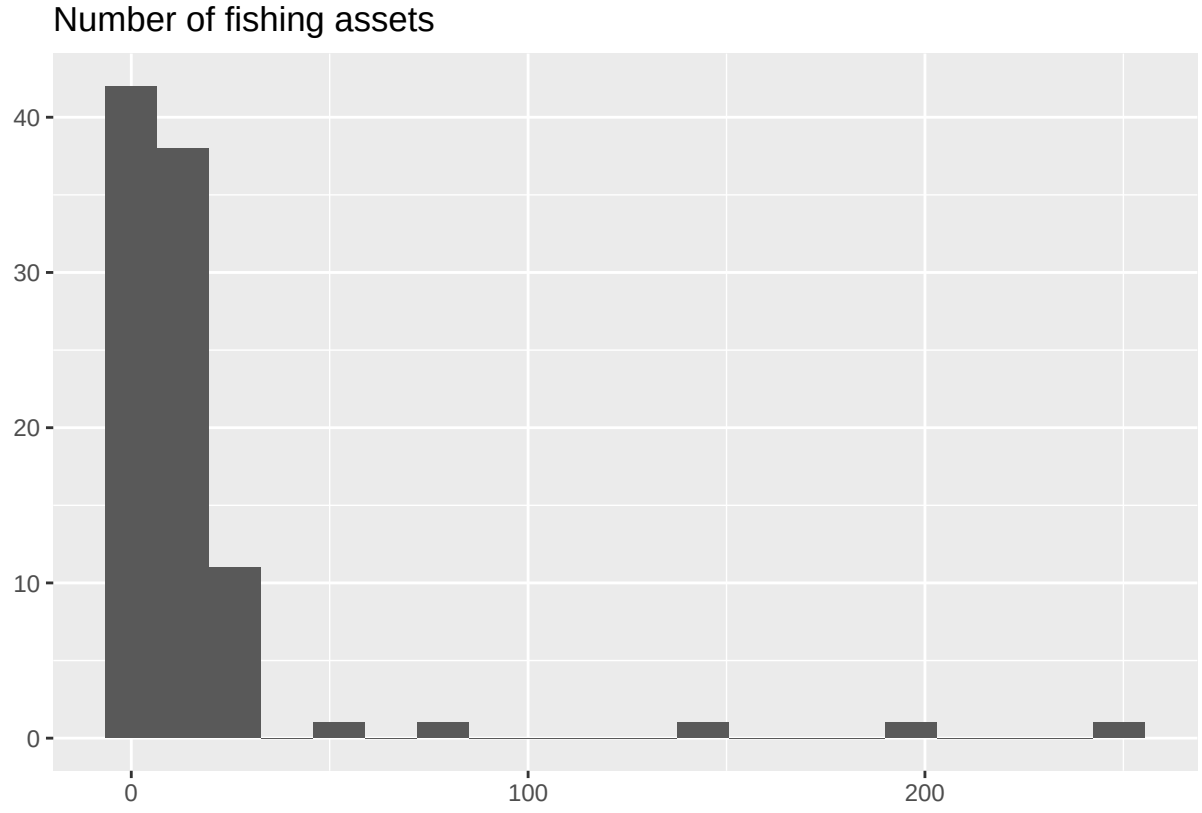


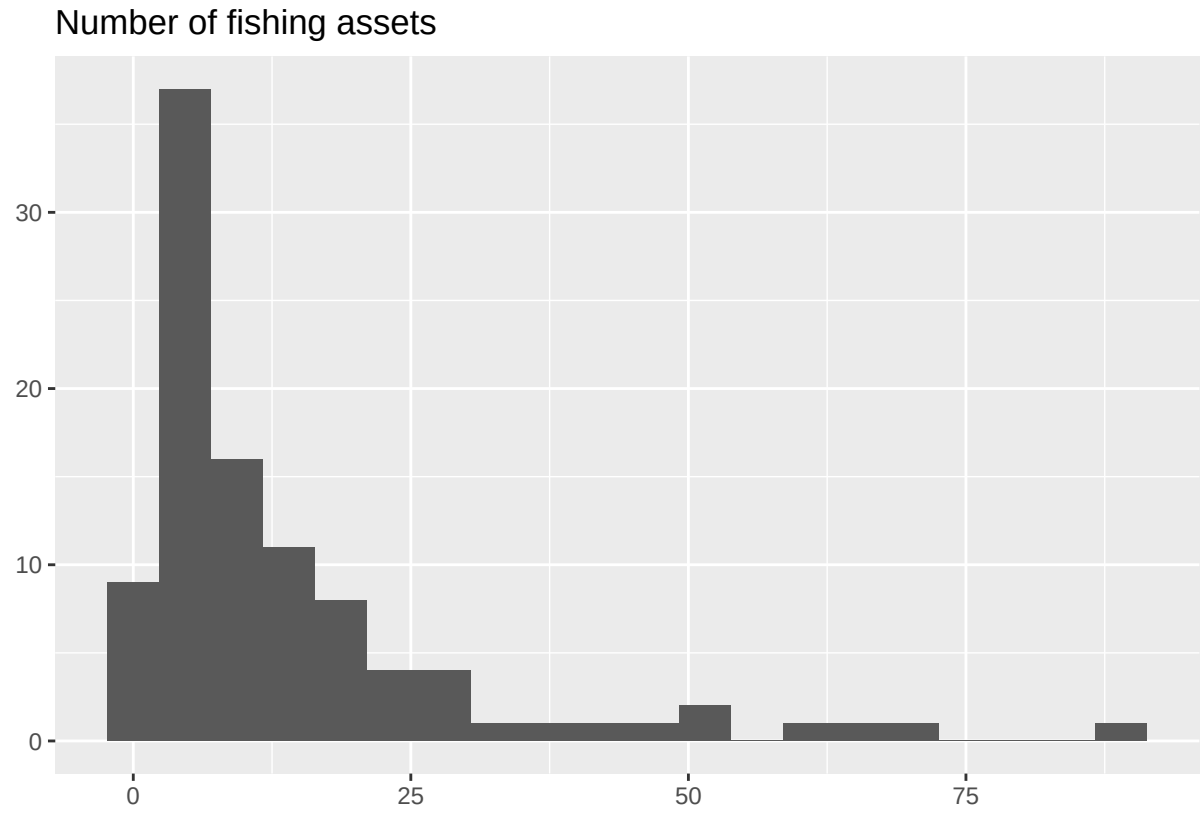
***Asset: Active Fish Traps***

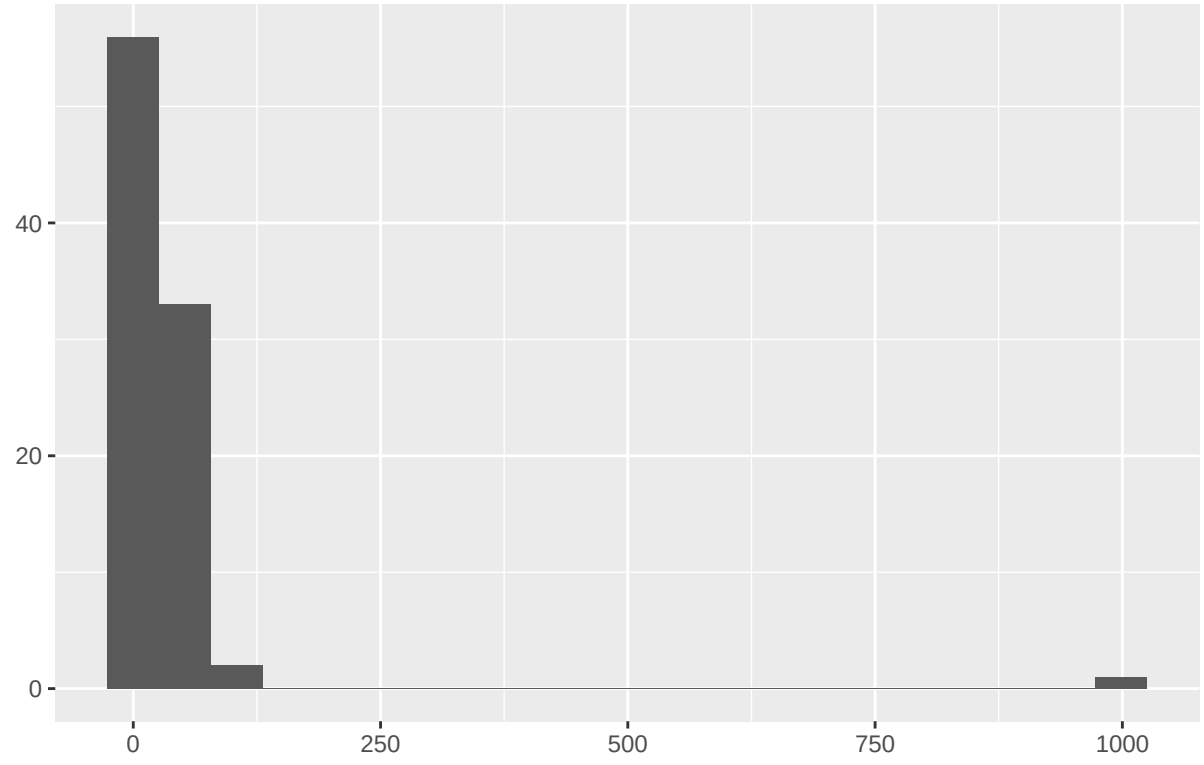



***Asset: Underwater flashlights***

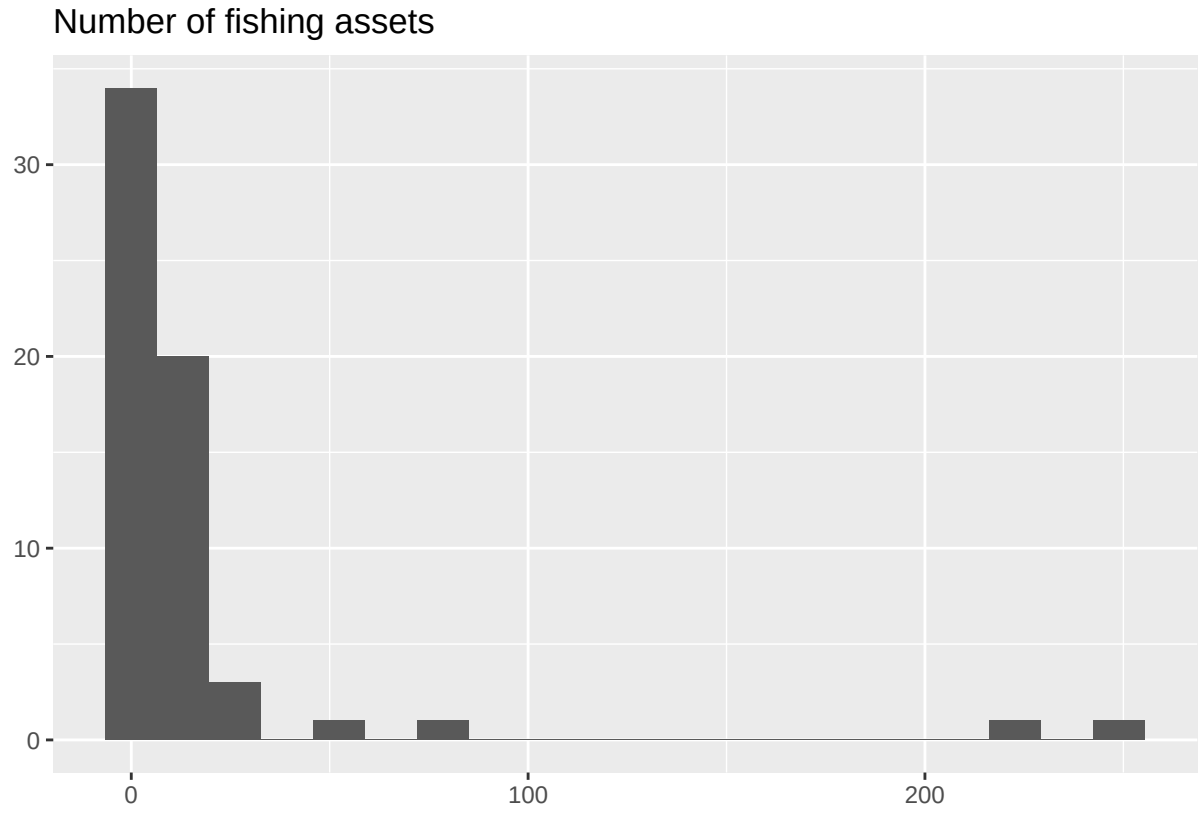


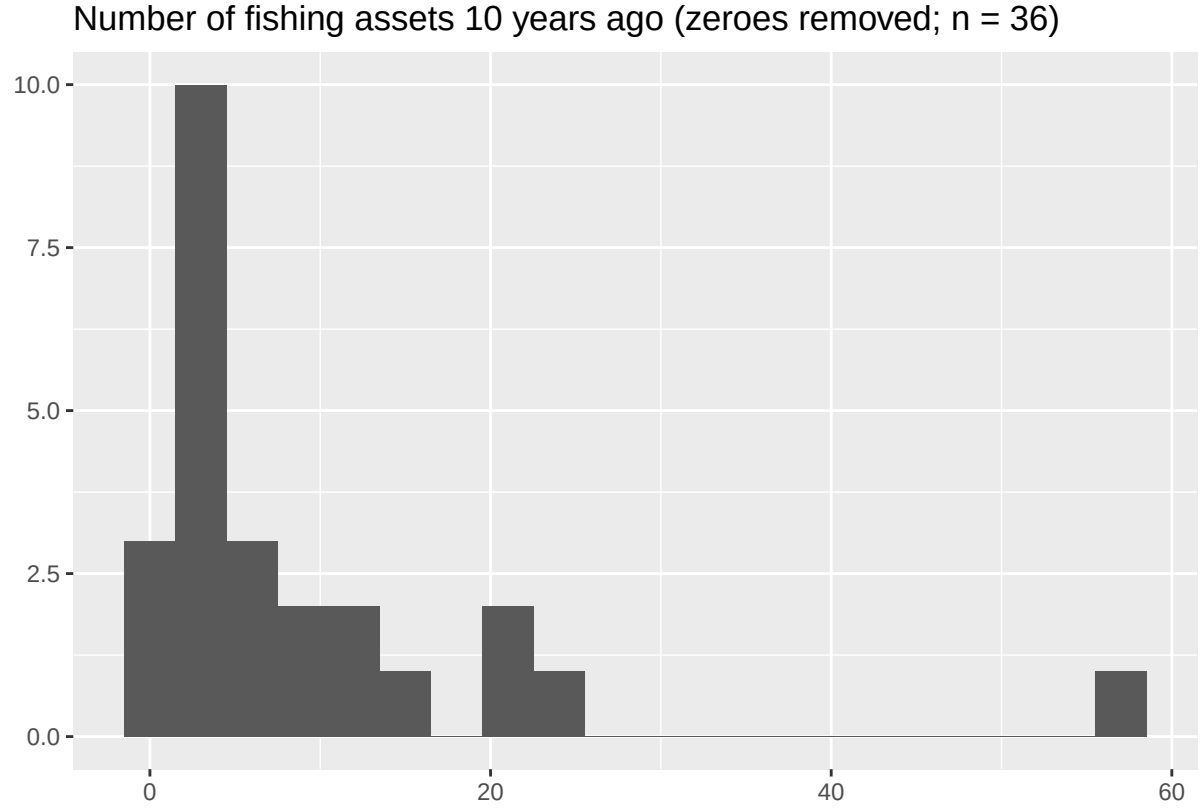

***Asset: Wood canoes***



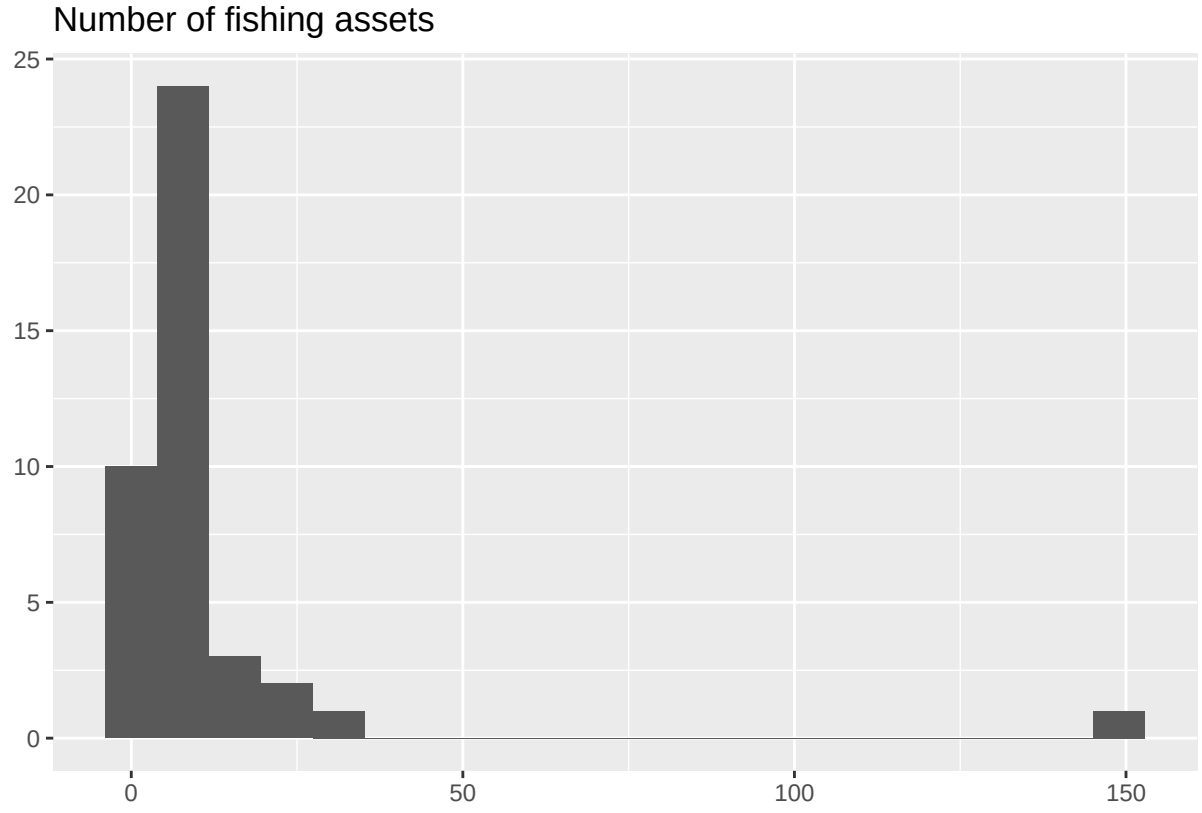



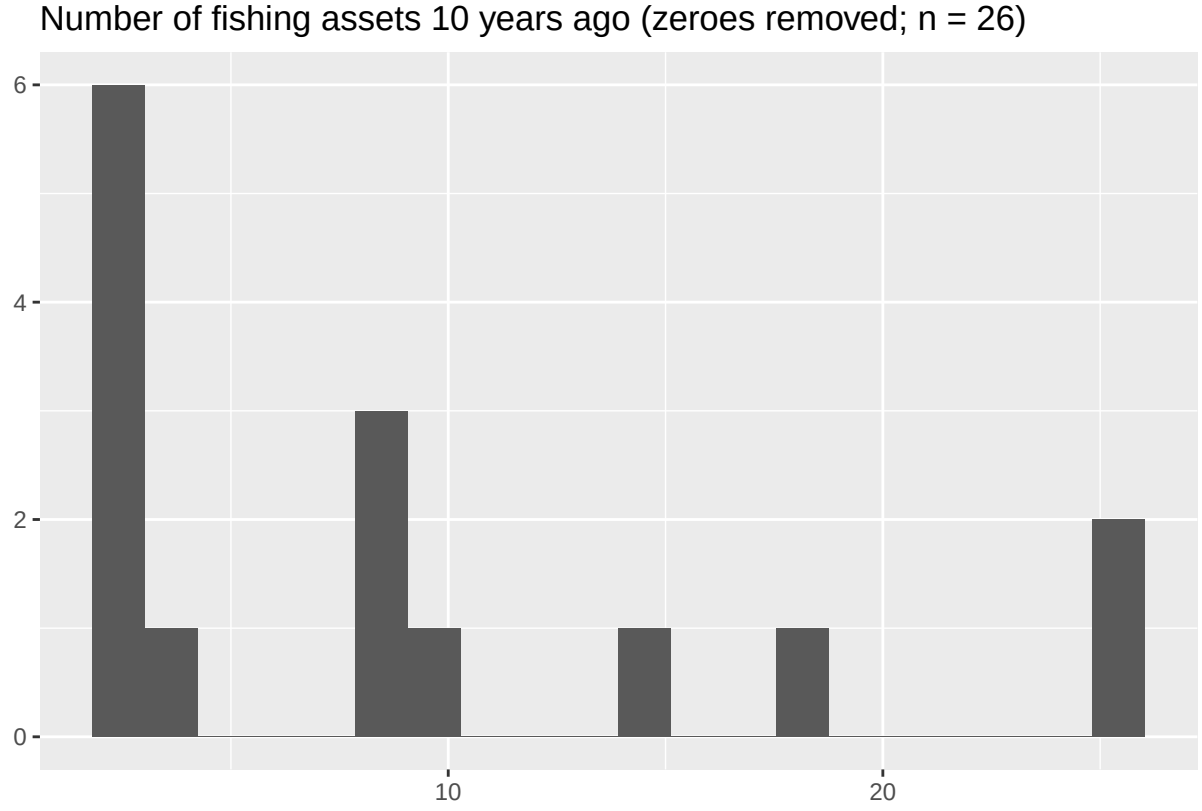
***Asset: Eskies/portable coolers***



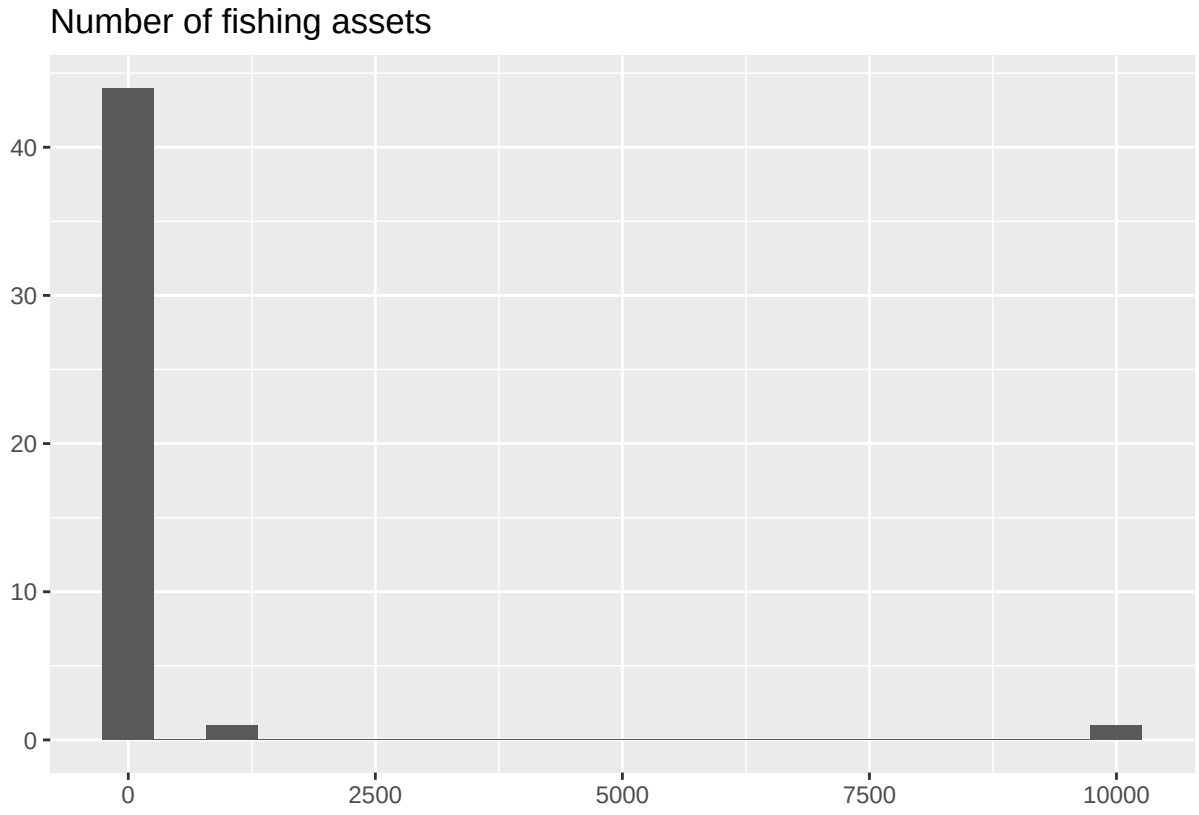



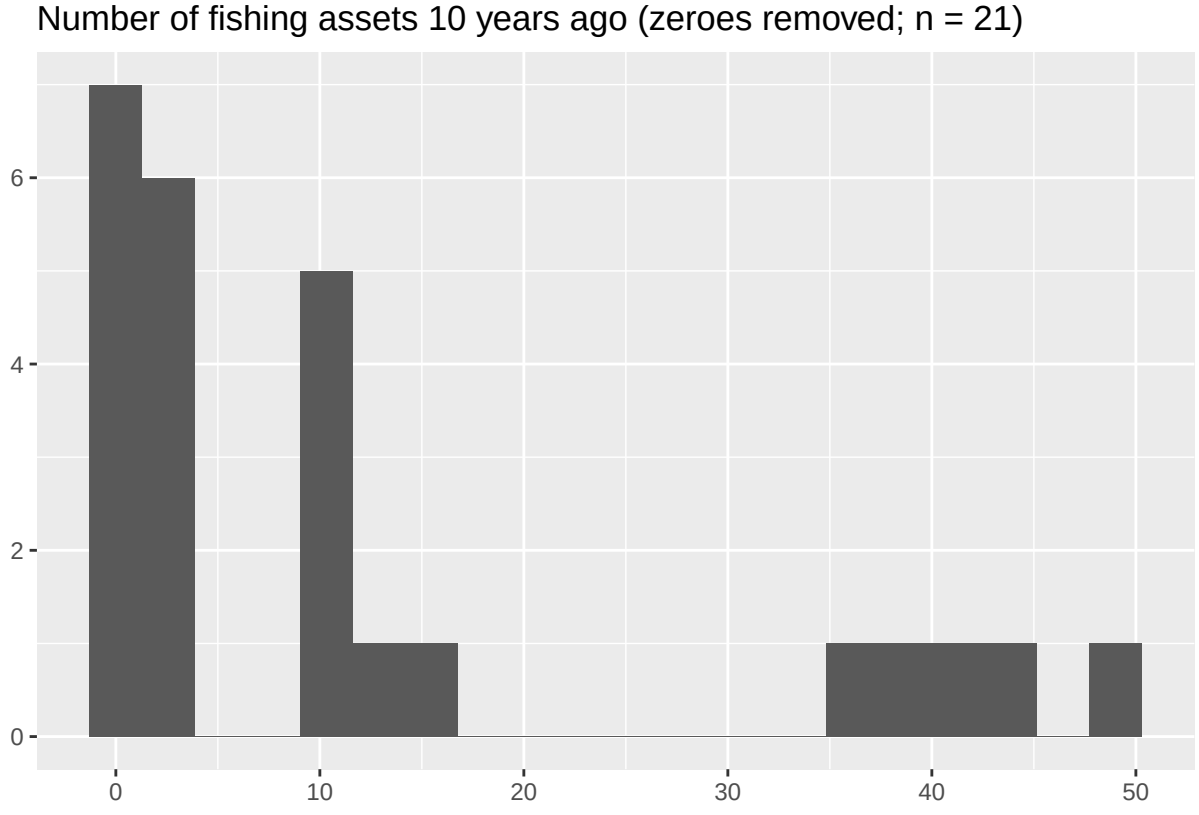
***Asset: SCUBA diving equipment***



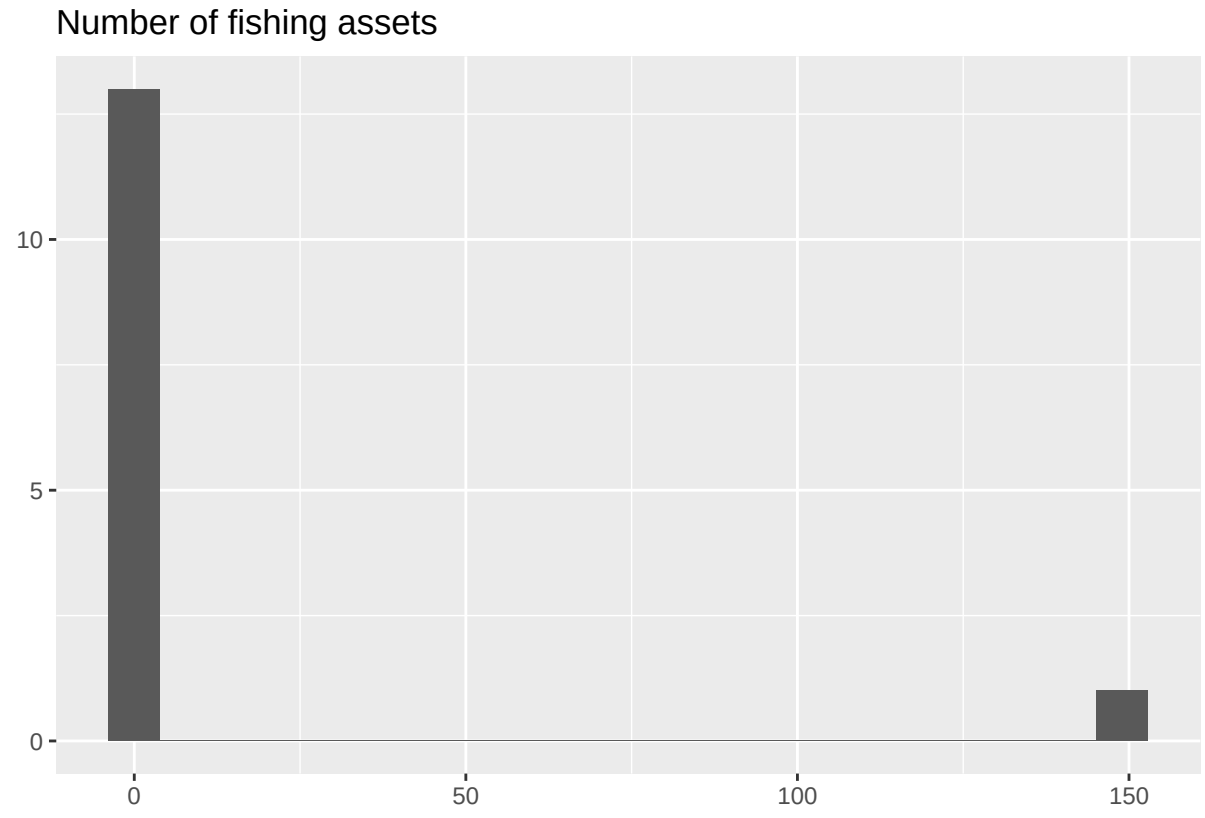



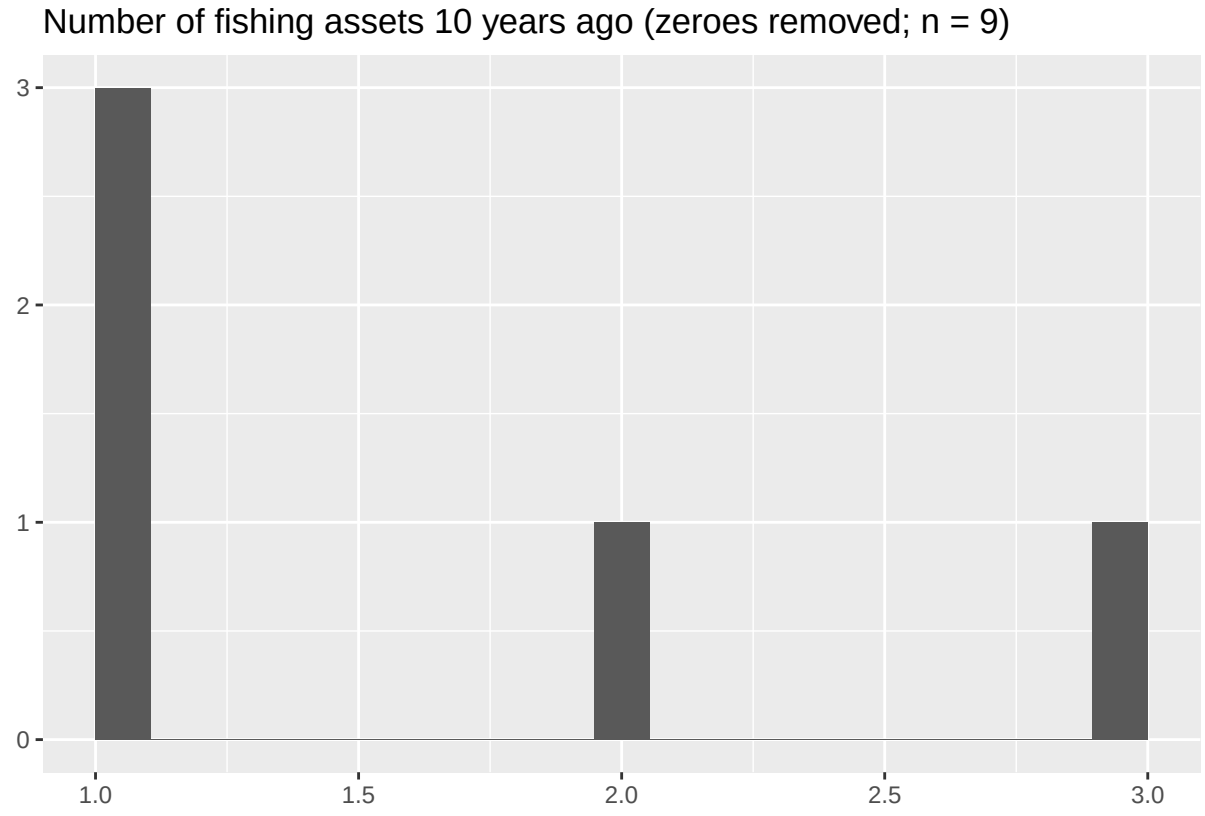
***Asset: Freezers (electric or propane)***



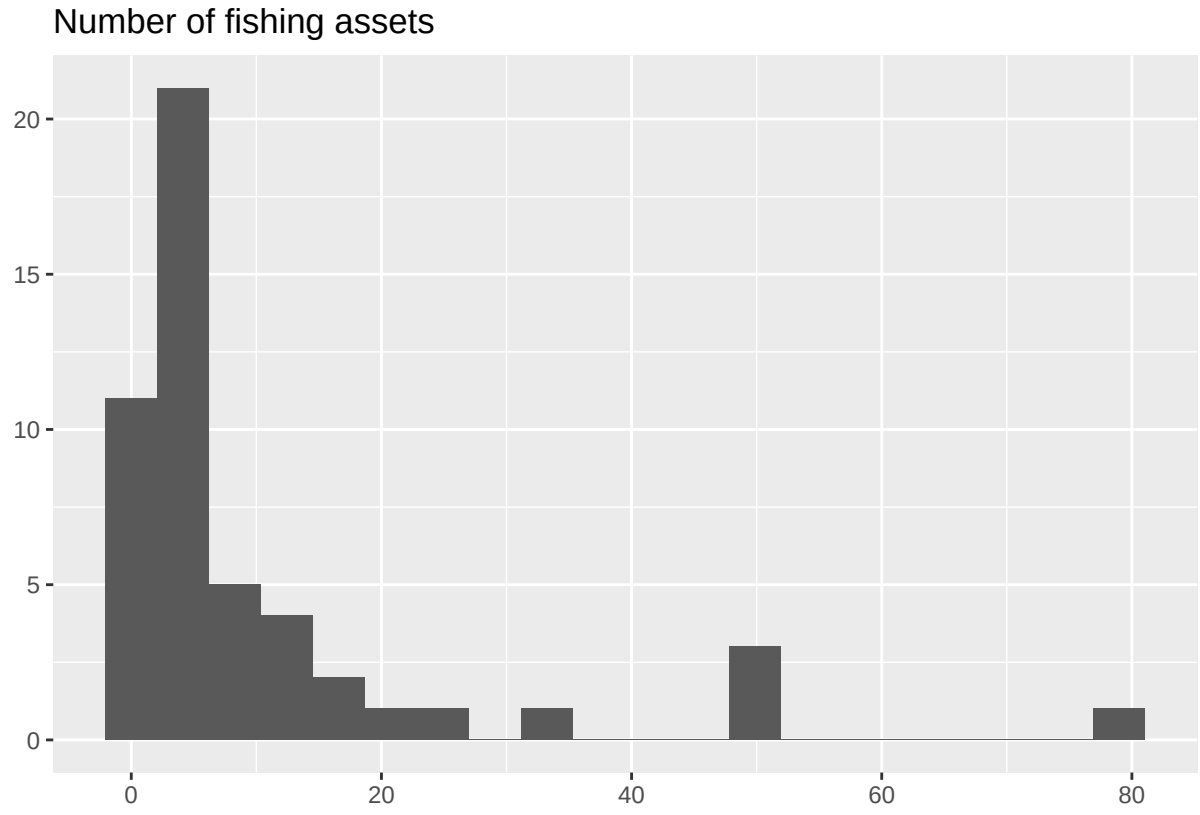



***Asset: Ice machines***

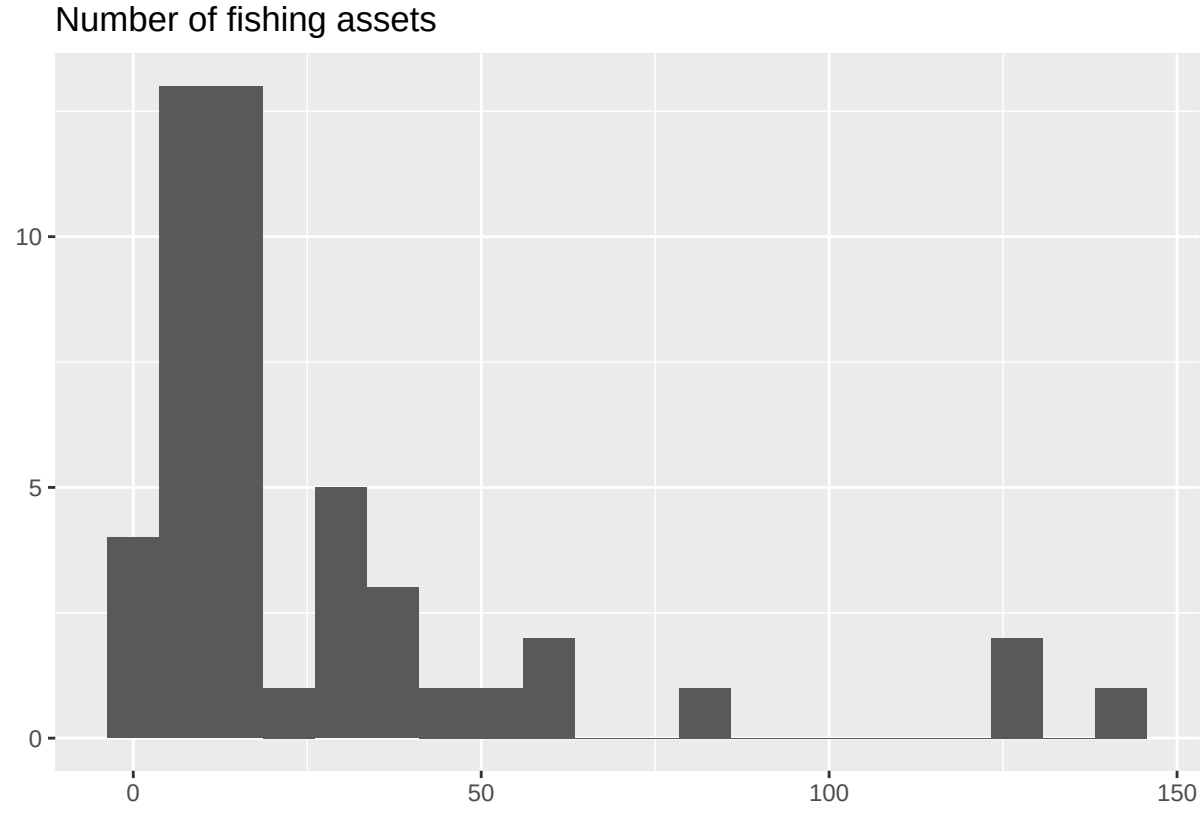


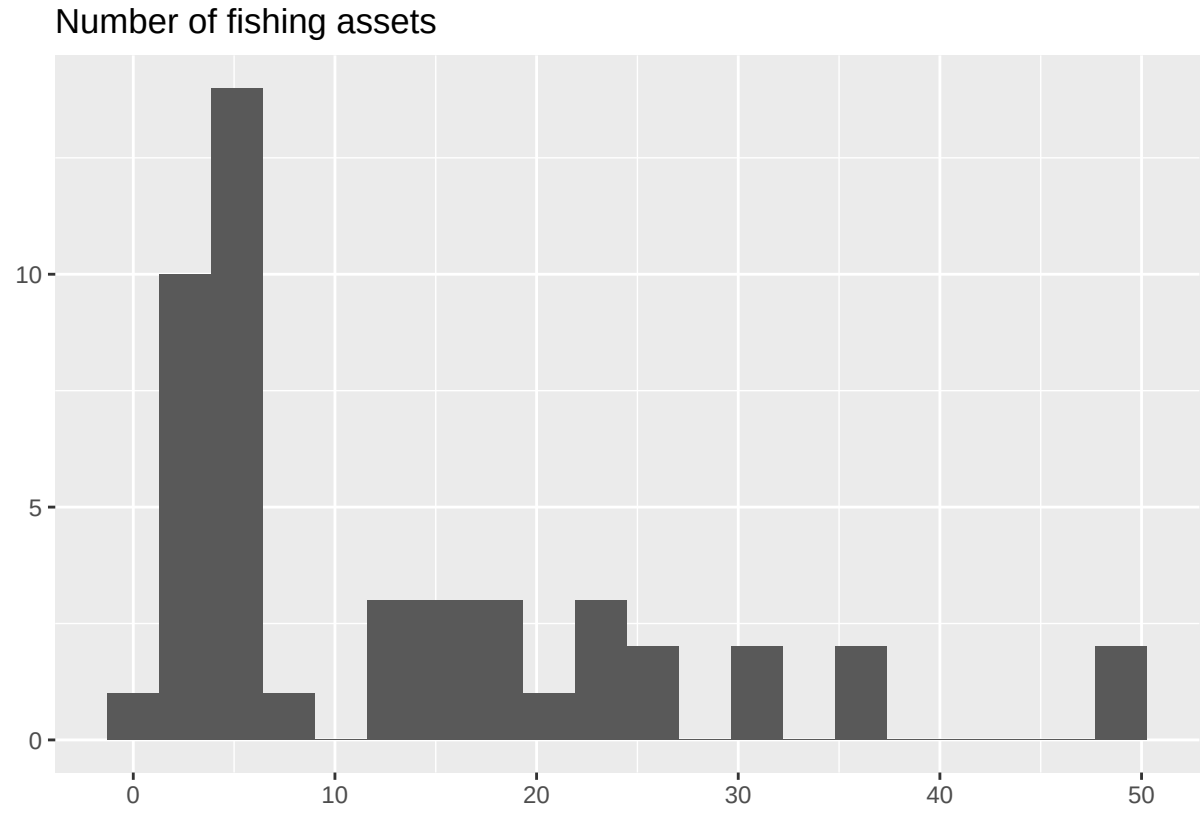
***Asset: Fishing Nets (purse)***

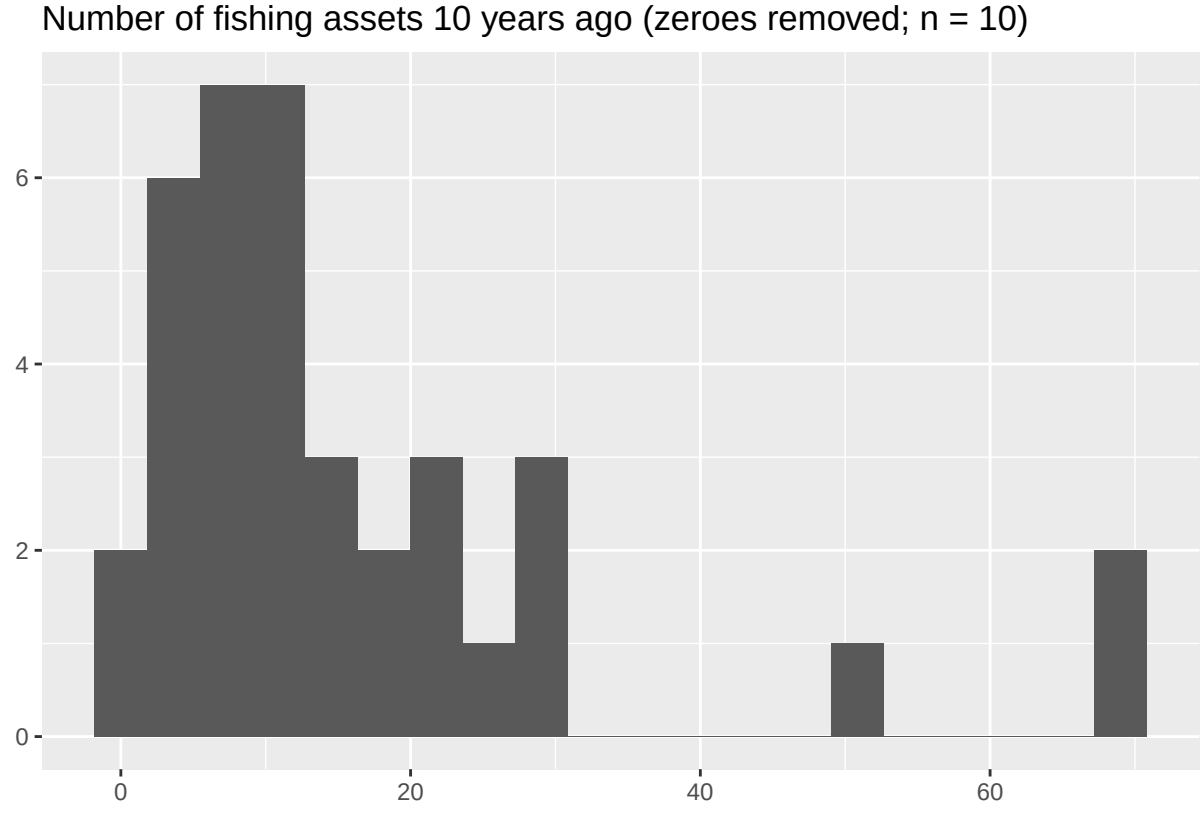



***Asset: Drag Nets***

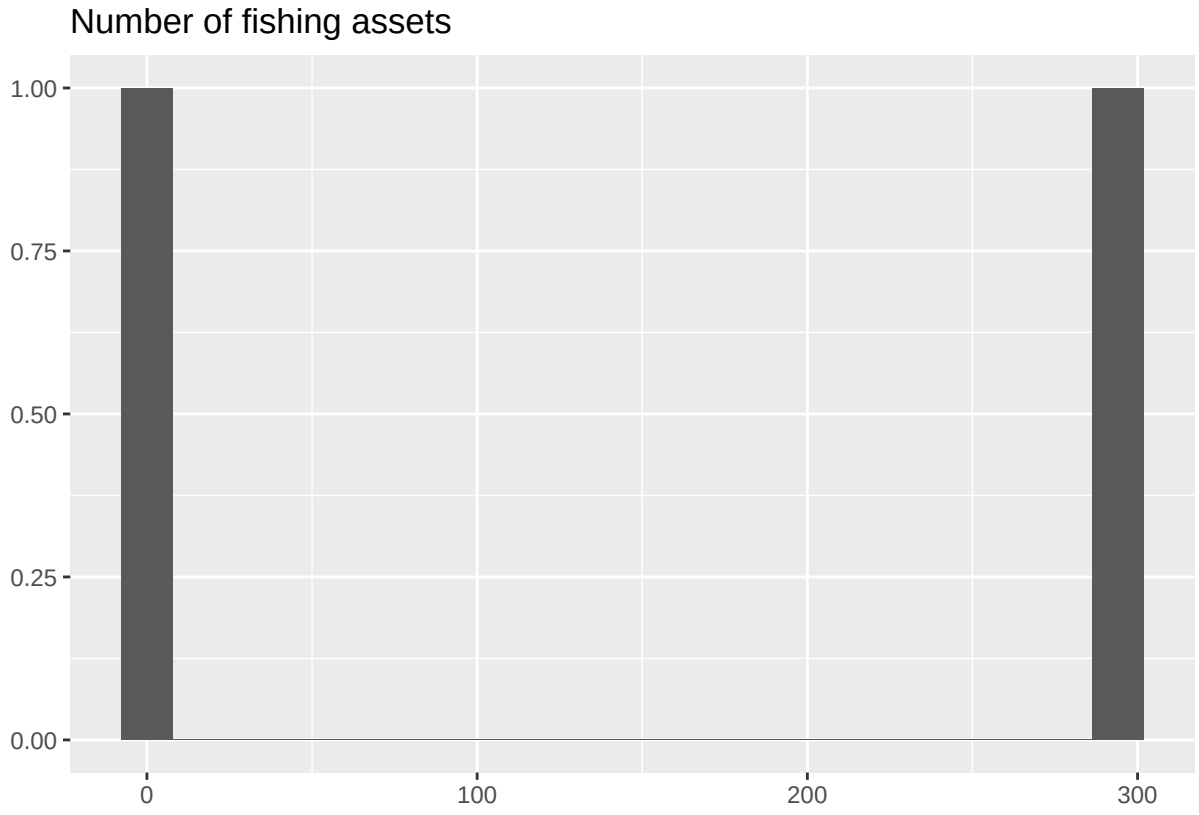



***Asset: Harpoons/Spears***

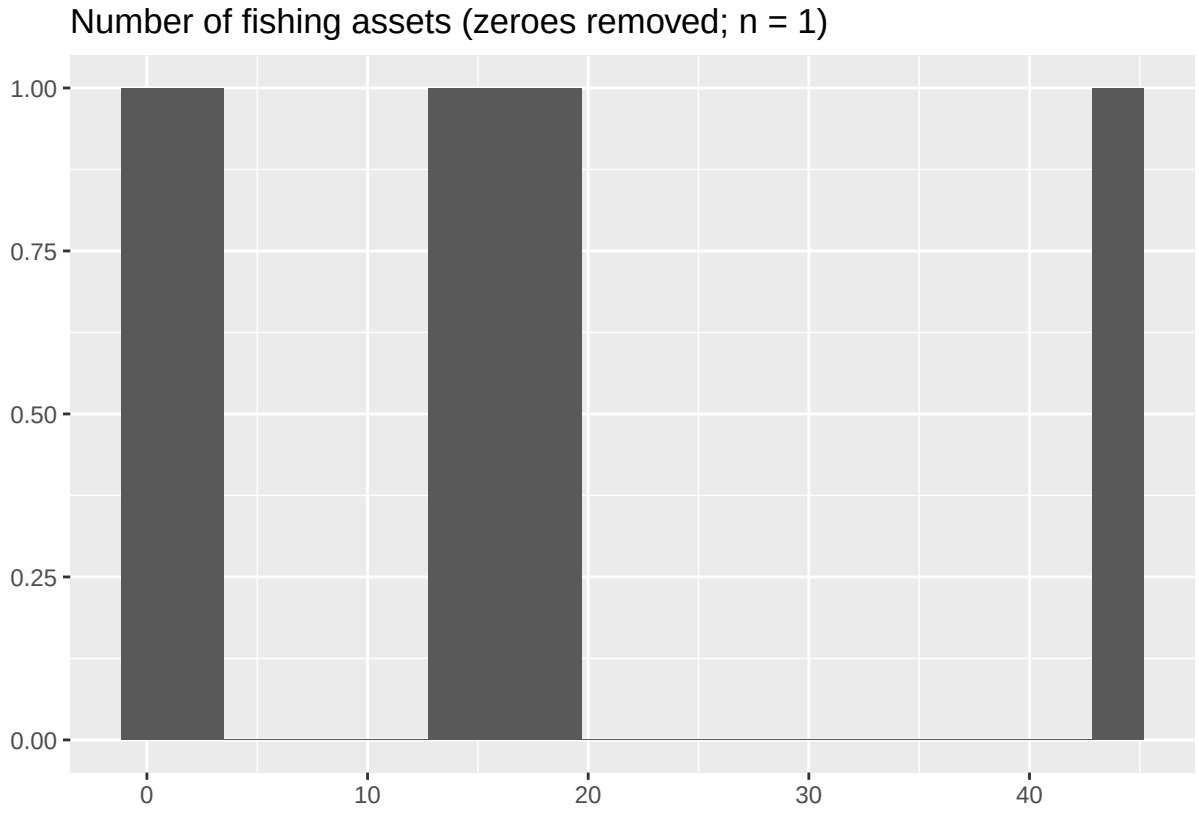


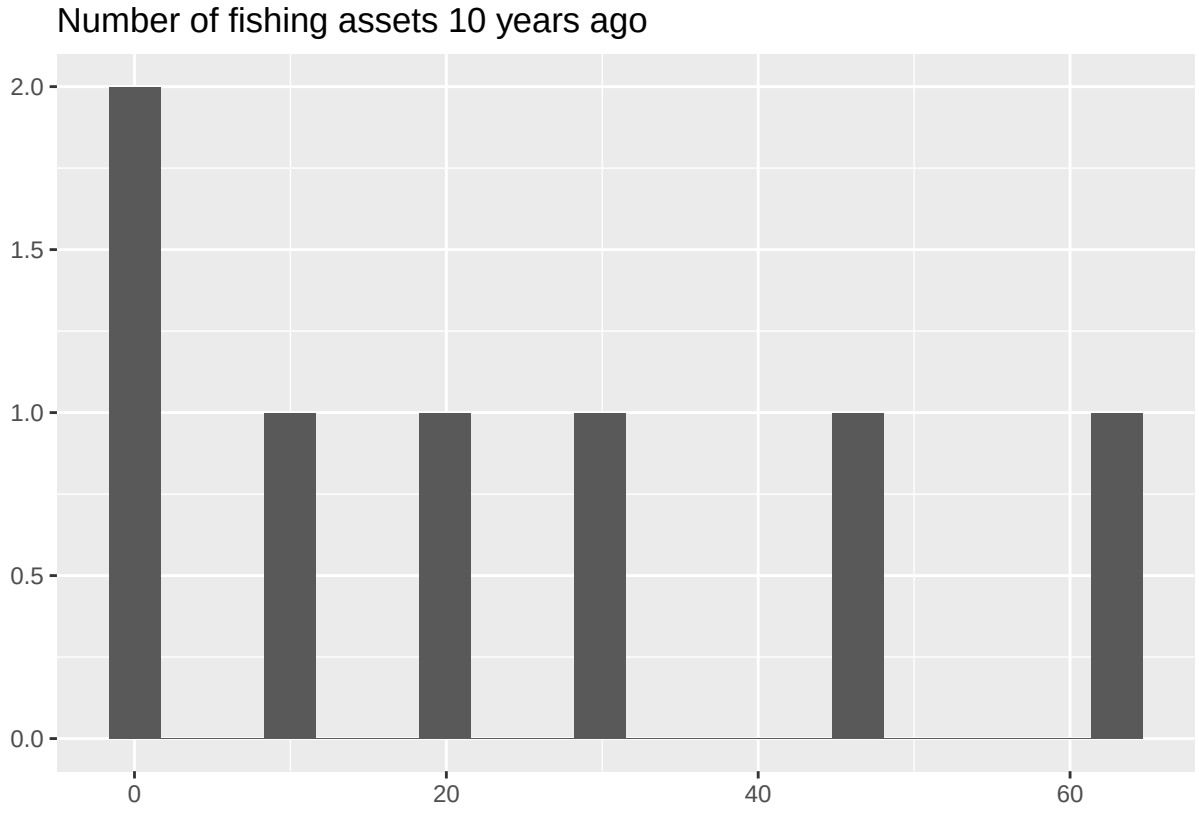



***Asset: FAD (Fish Aggregating Device)***




***Asset: Other Fishing Equipment (note)***

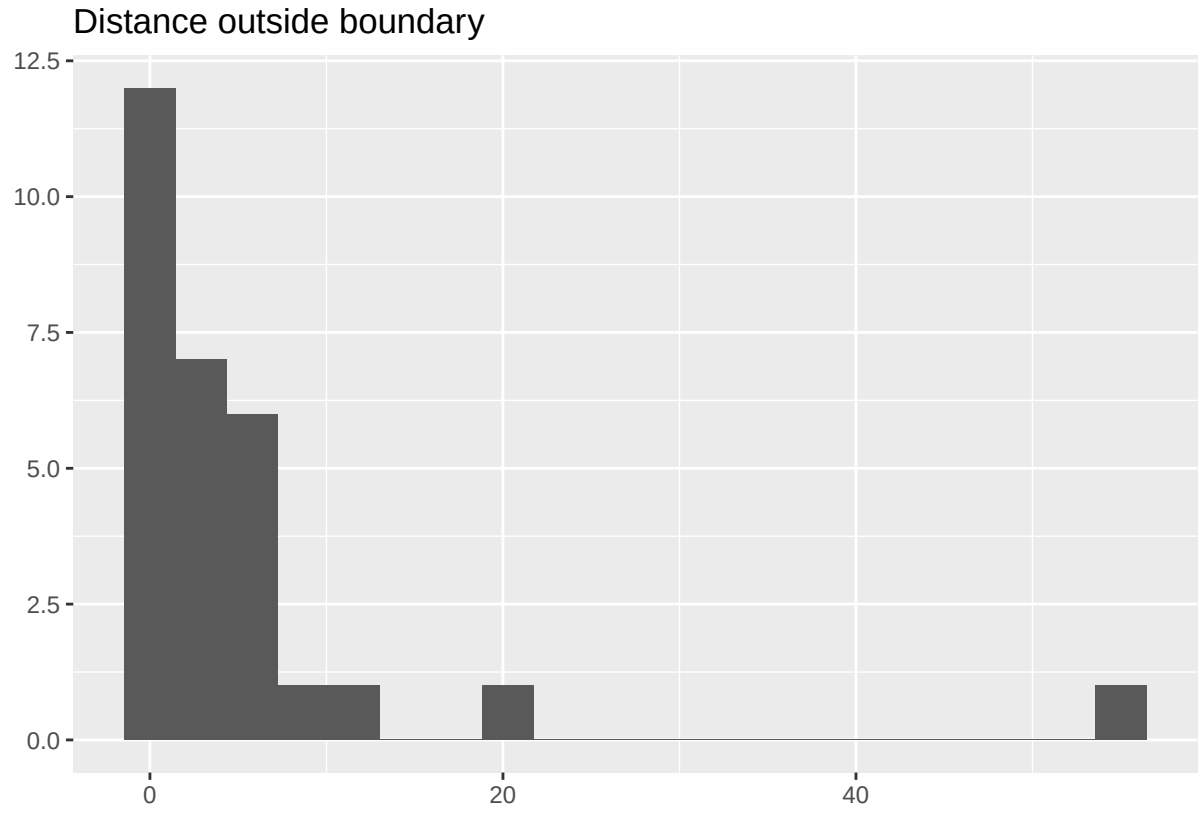


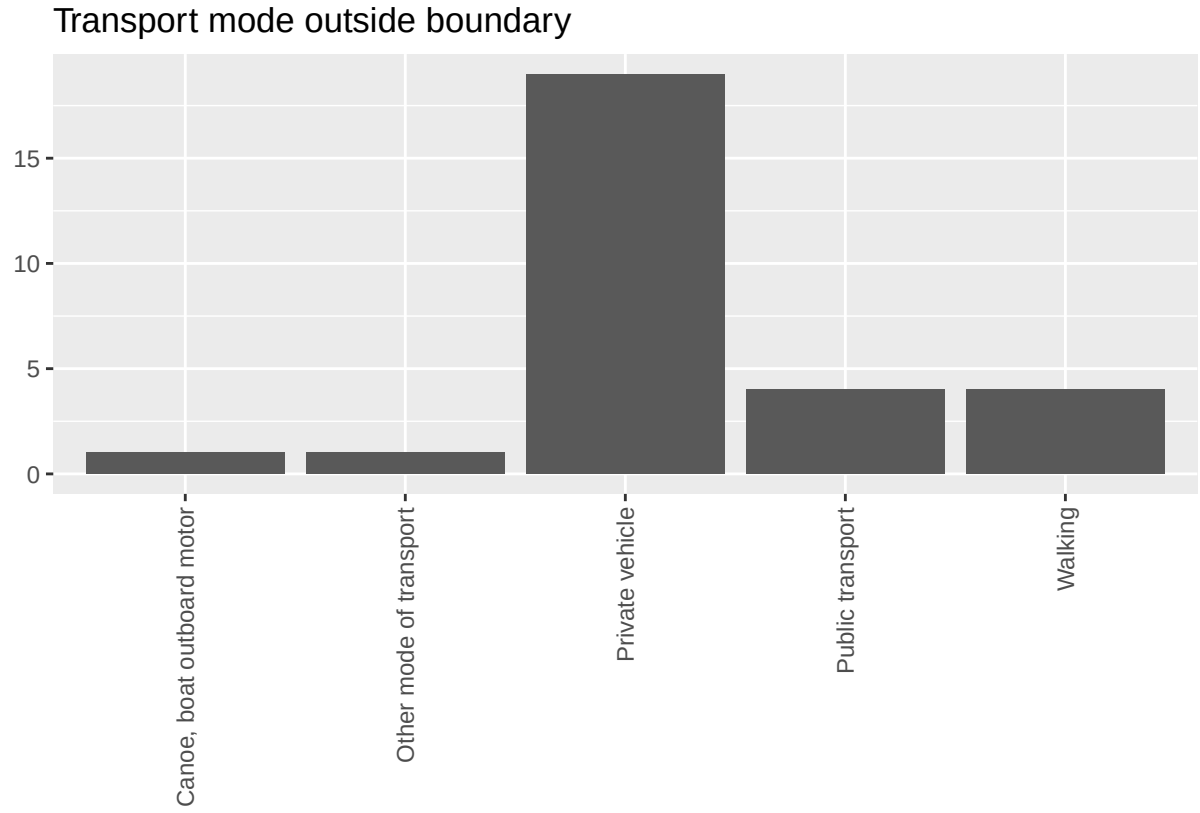



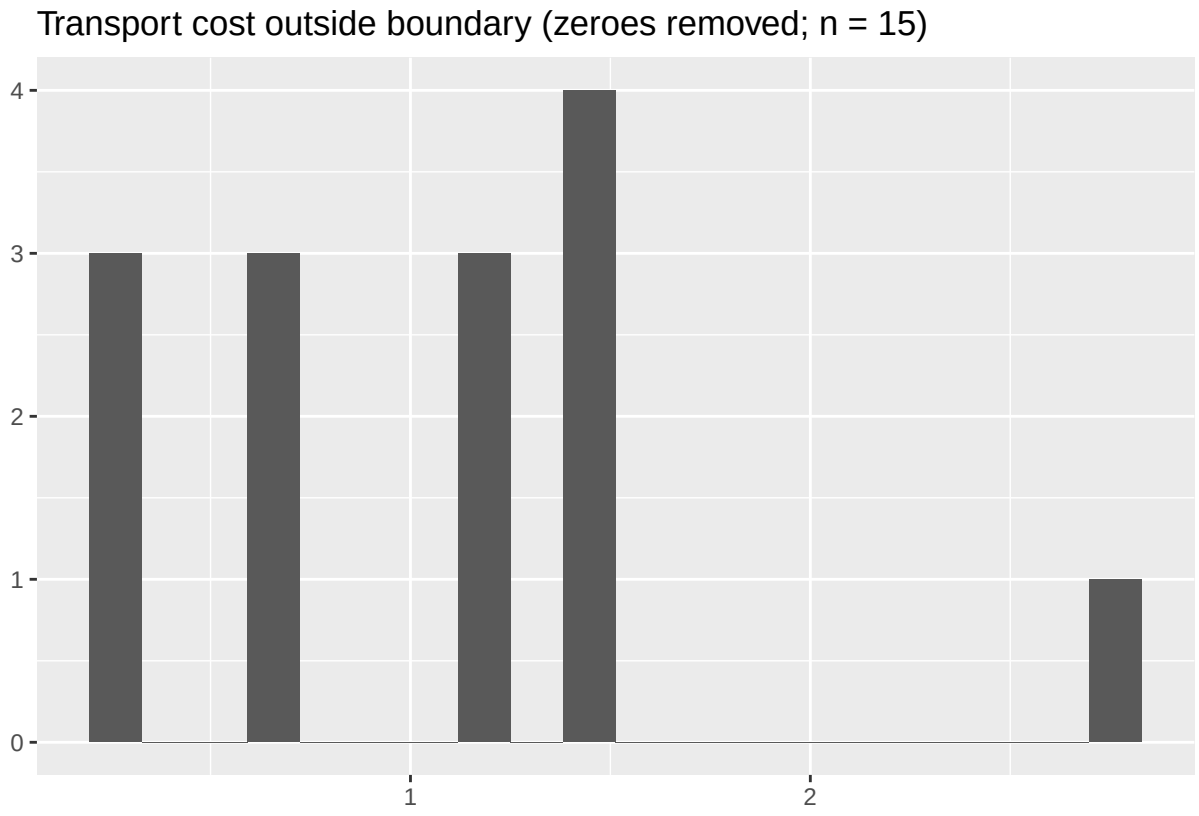
### Outside Roster Data: List of outside assets

```
## # A tibble: 11 x 1
##    outside_roster__id
##    <chr>
##  1 Clinic/Hospital
##  2 Bank
##  3 Nearest Market
##  4 Nearest Post Office
##  5 Nearest Credit Facility
##  6 Nearest Police Station
##  7 Nearest Court House
##  8 Airport
##  9 Nearest Trade Store/Supermarket
## 10 Nearest fish landing site
## 11 Nearest Church
```

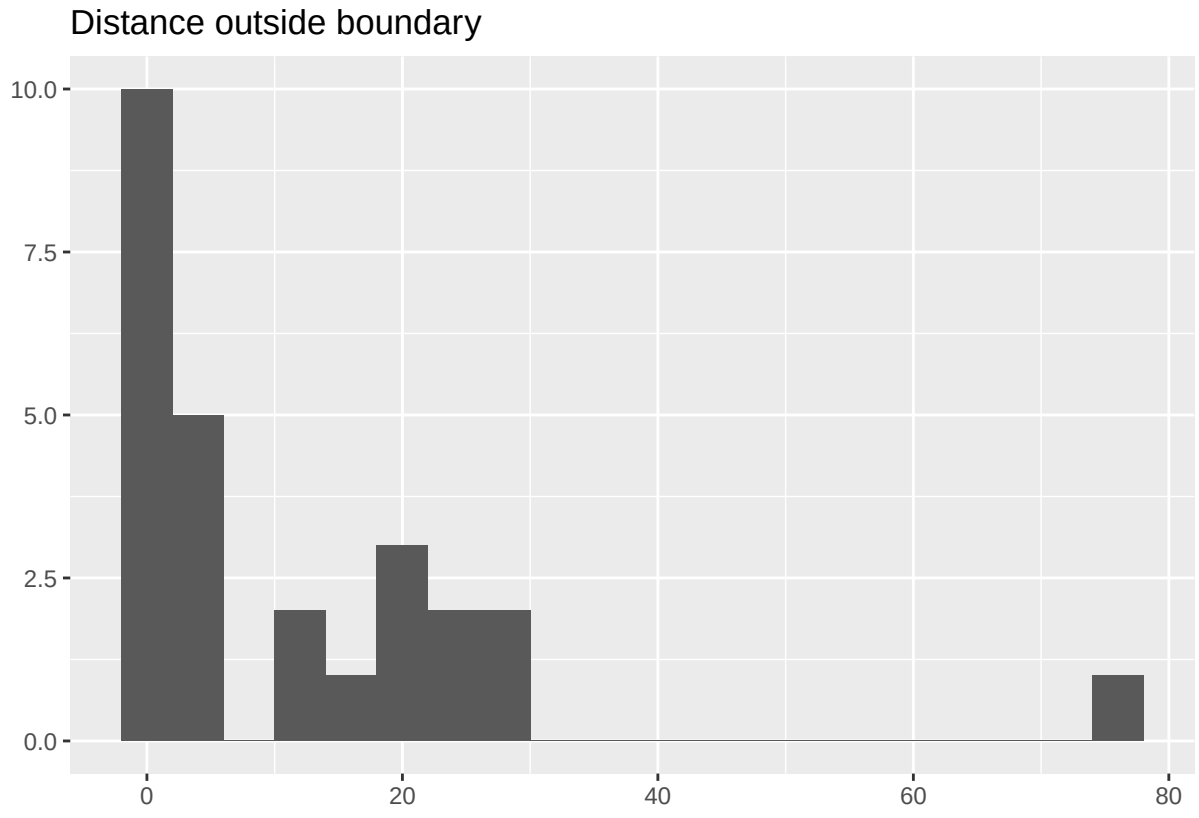
***Asset: Clinic/Hospital***

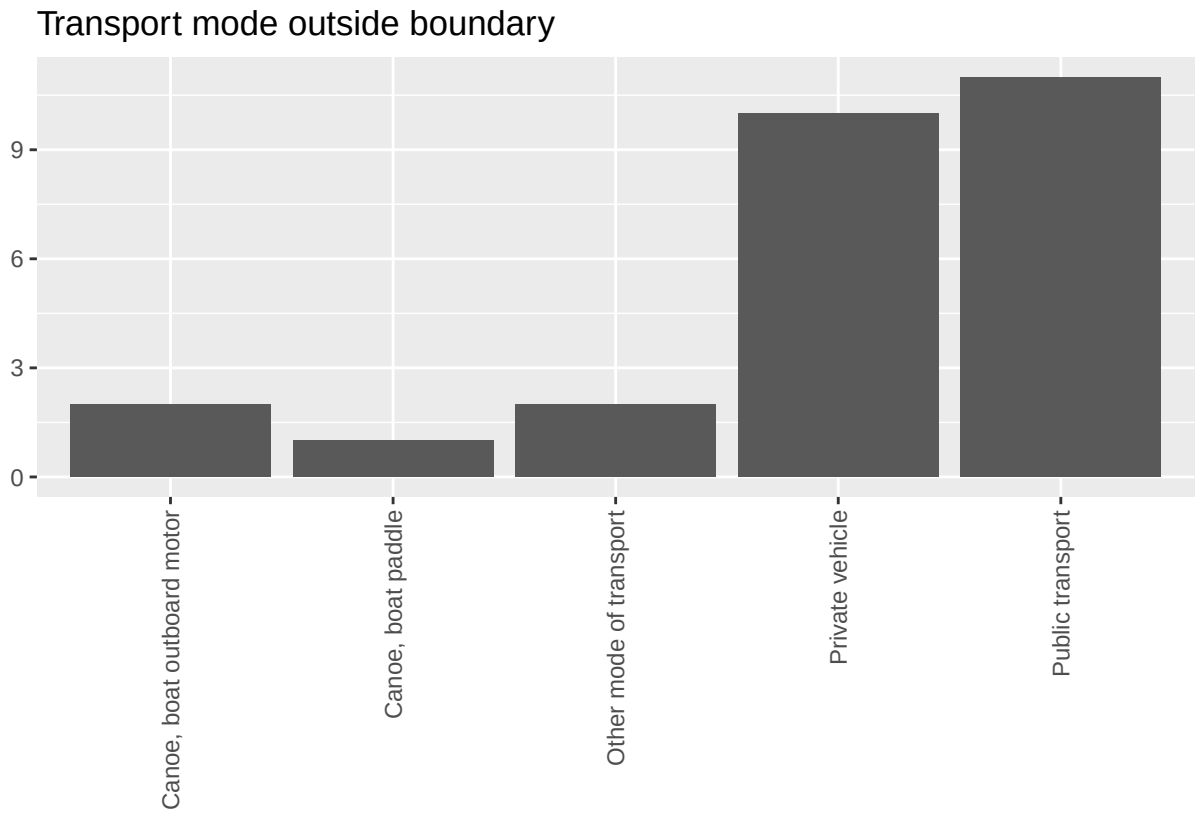


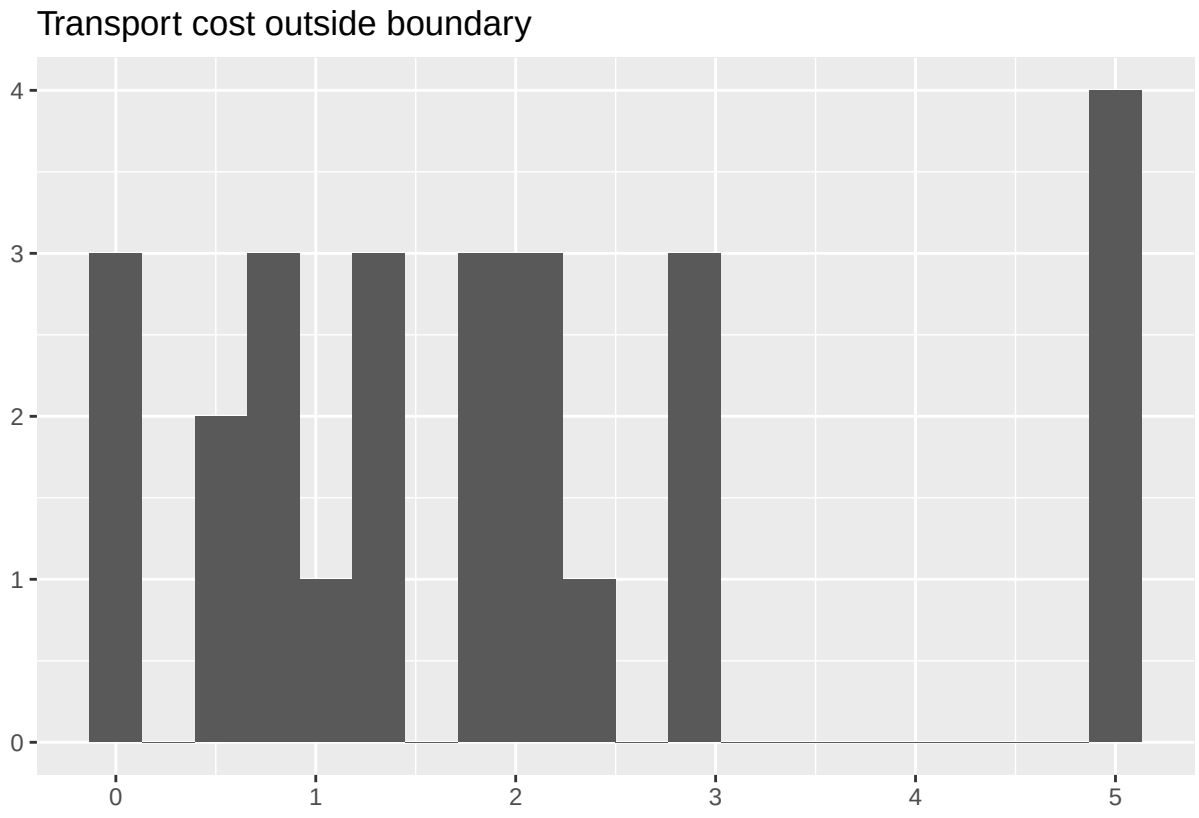




Transport cost outside boundary (zeroes removed; n = 15)
4
3
2
1
0
1
2

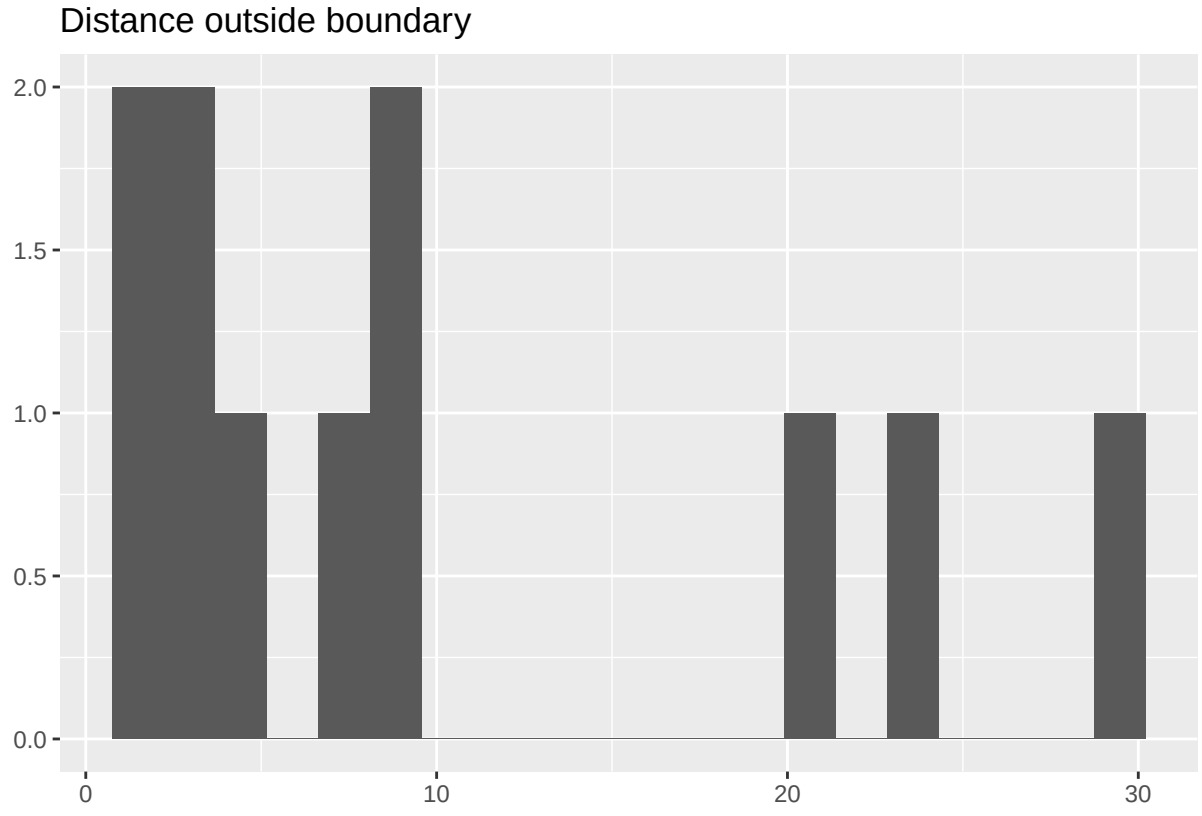
***Asset: Bank***

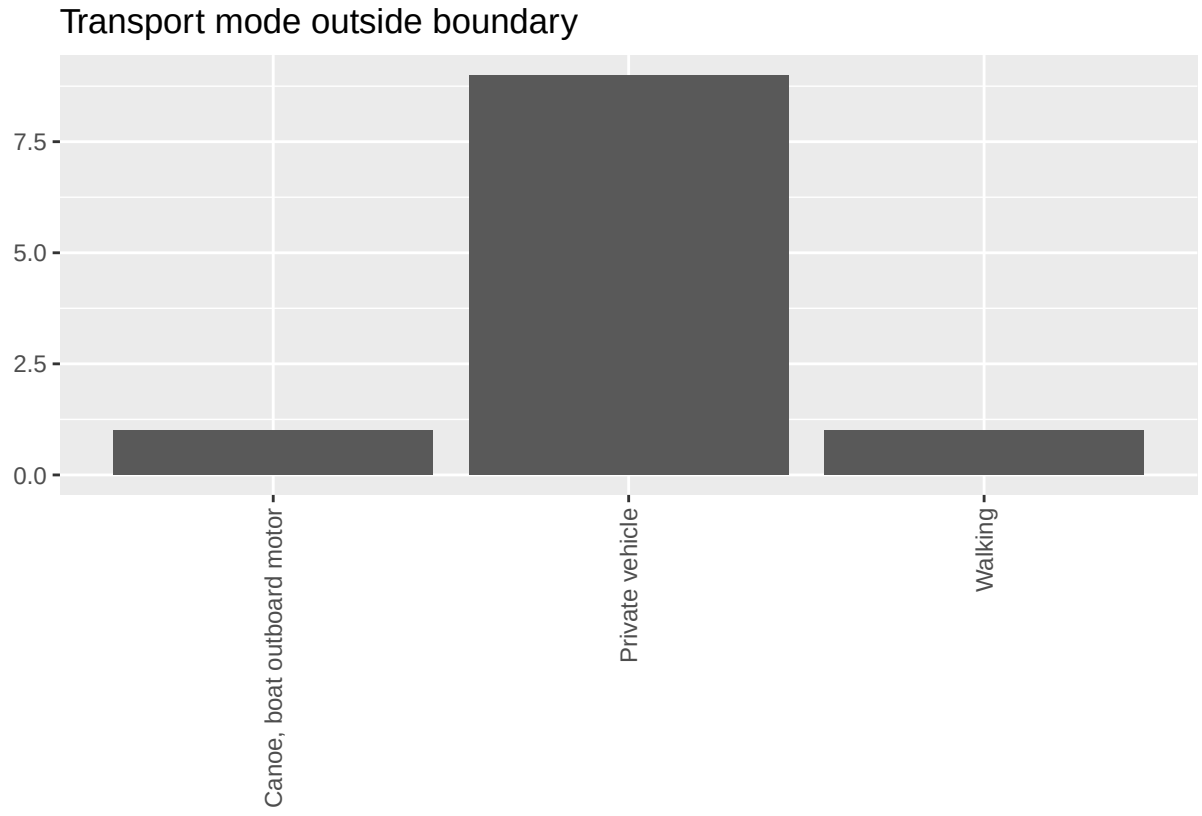

Distance outside boundary
10.0
7.5
5.0
2.5
0.0
0
20
40
60
80

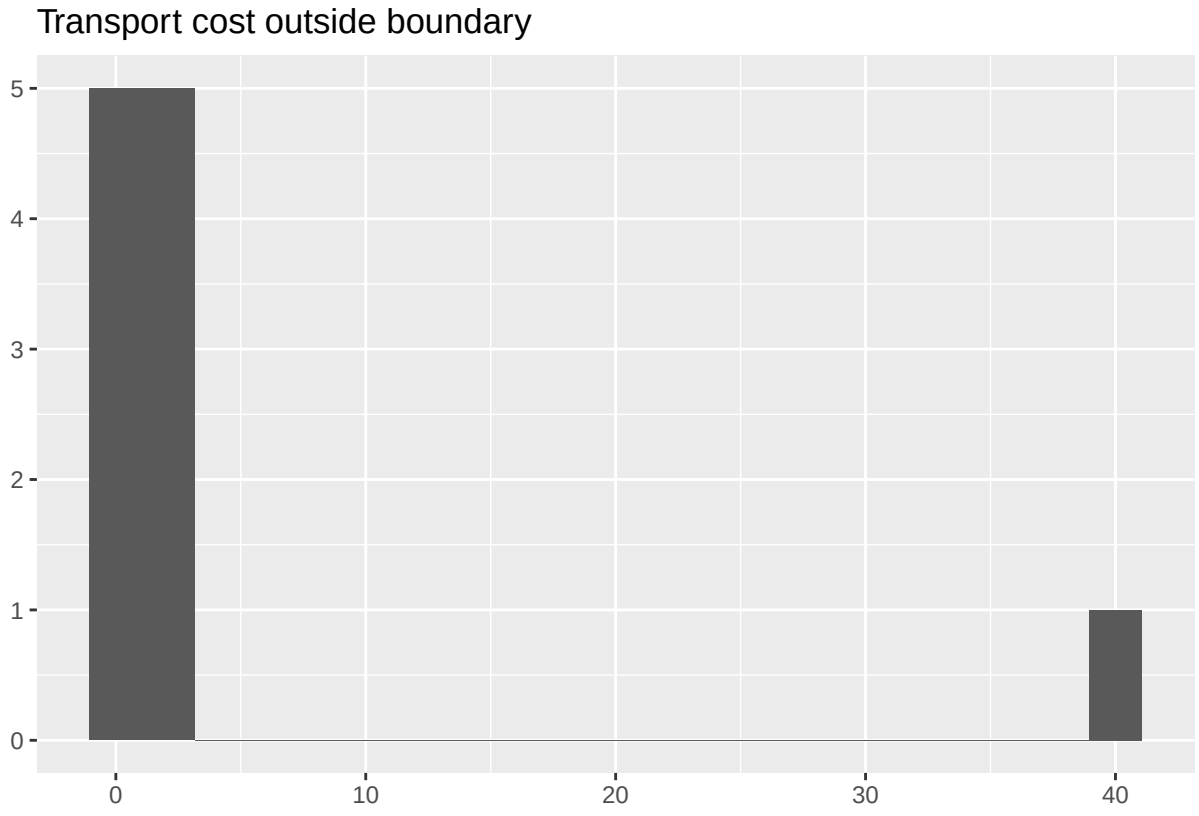

Transport mode outside boundary
9
6
3
0
Canoe, boat outboard motor
Canoe, boat paddle
Other mode of transport
Private vehicle
Public transport


Transport cost outside boundary
4
3
2
1
0
0
1
2
3
4
5

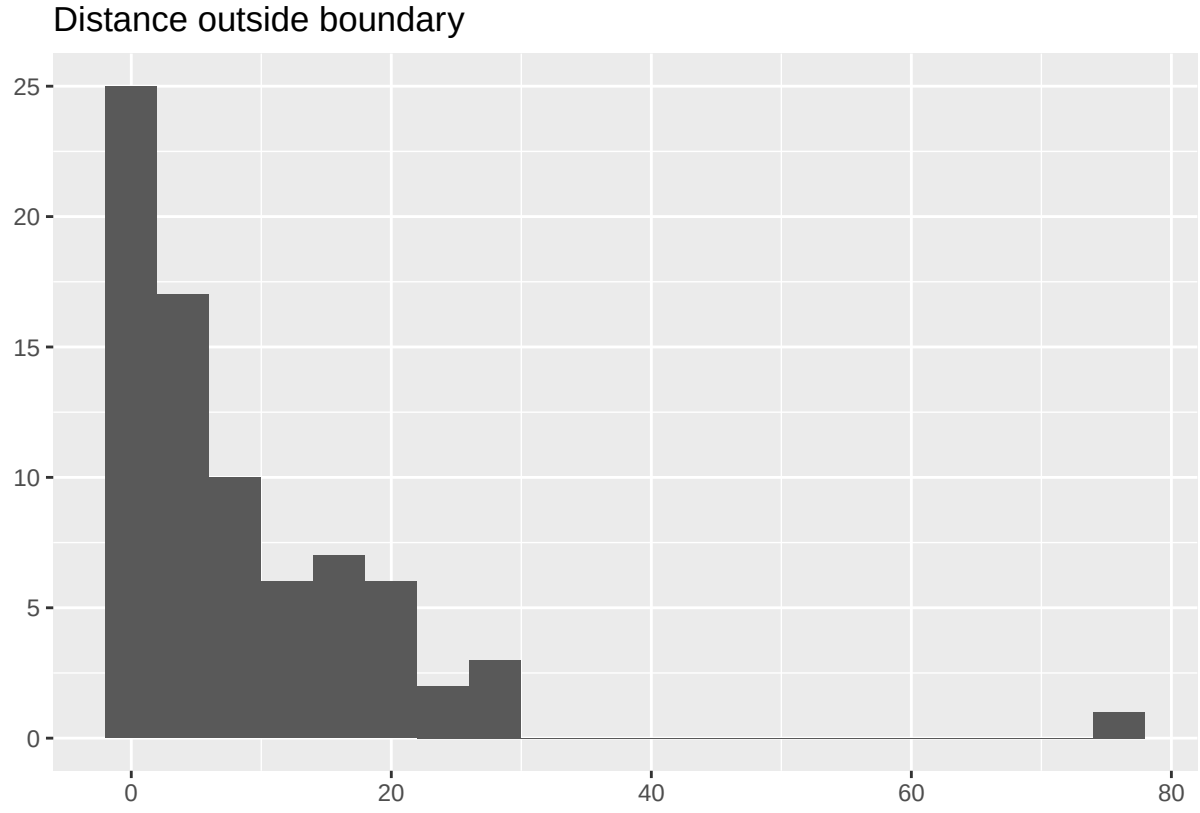
***Asset: Nearest Market***

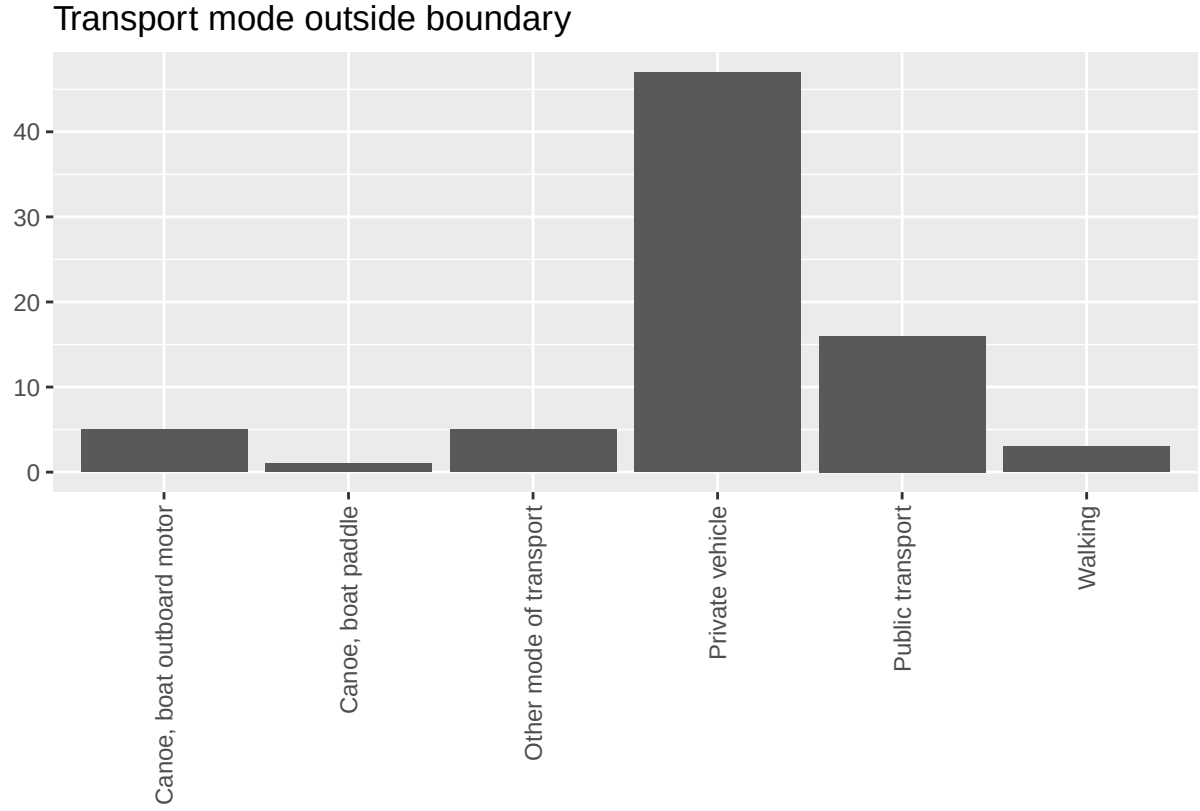



Transport cost outside boundary
5
4
3
2
1
0
0
10
20
30
40

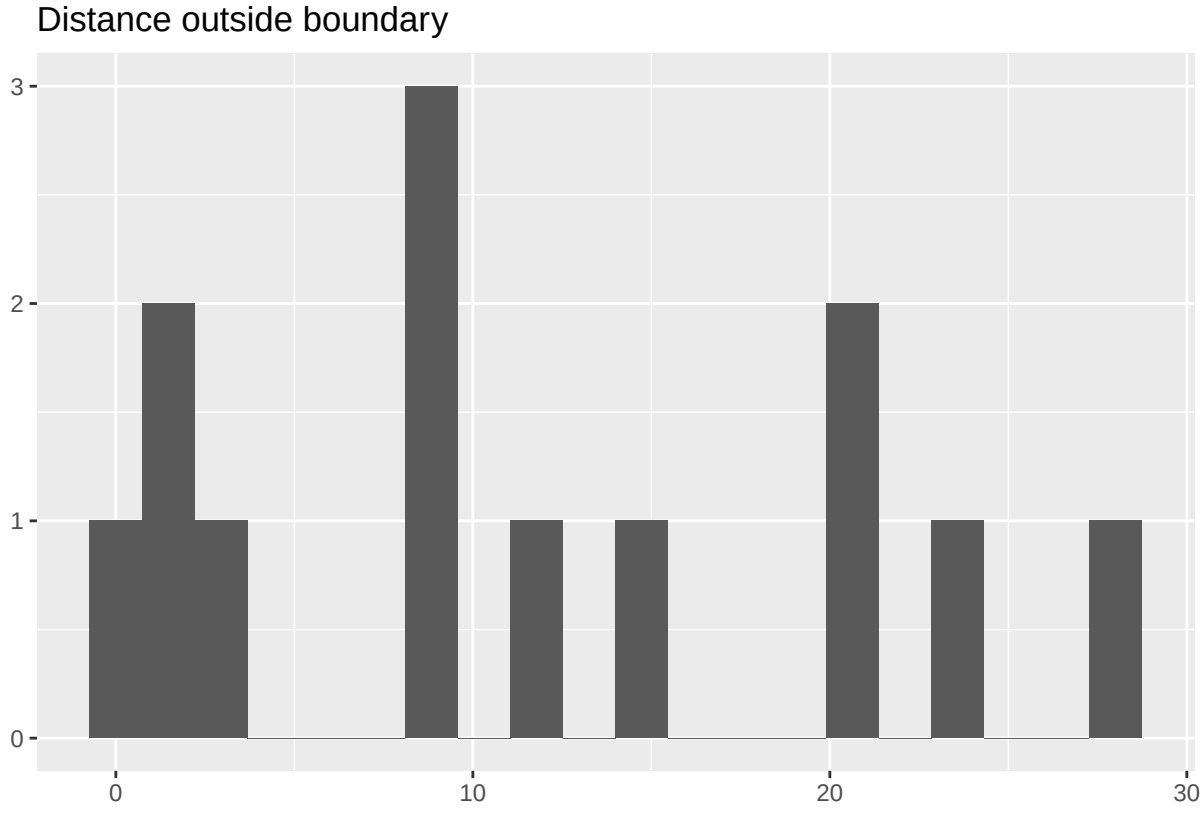
***Asset: Nearest Post Office***

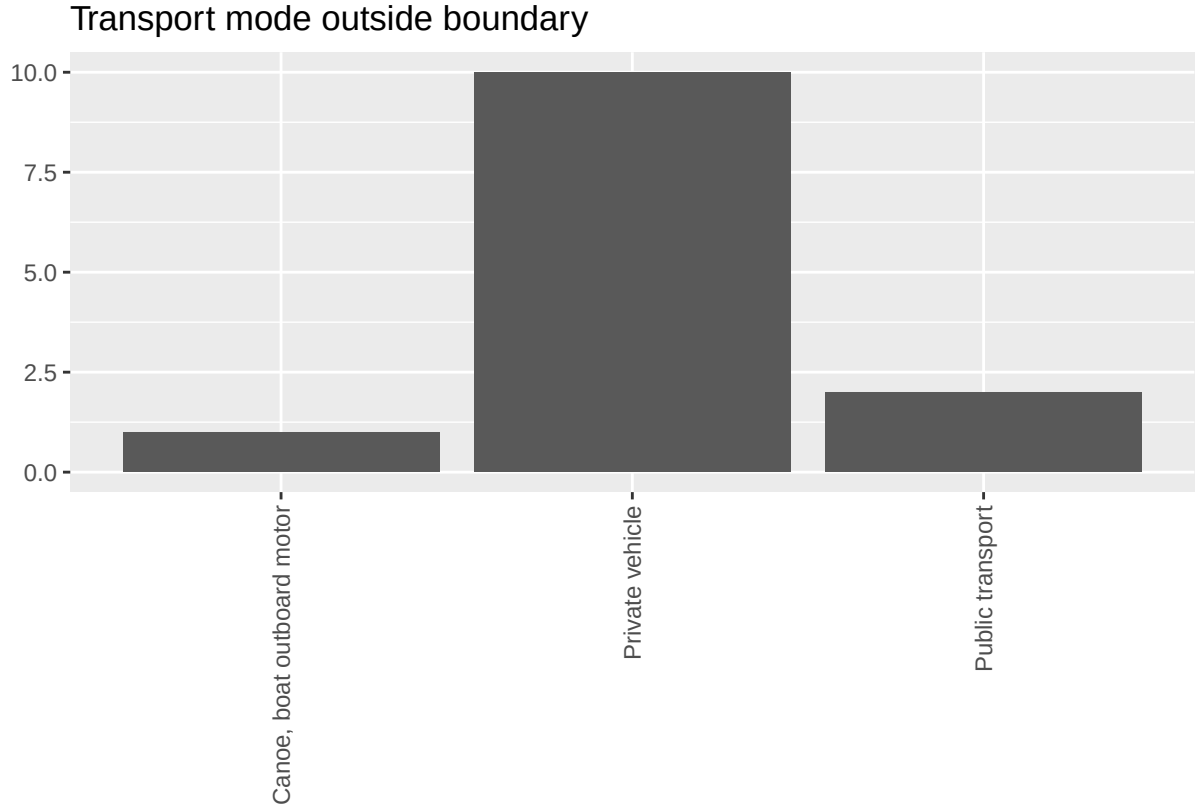


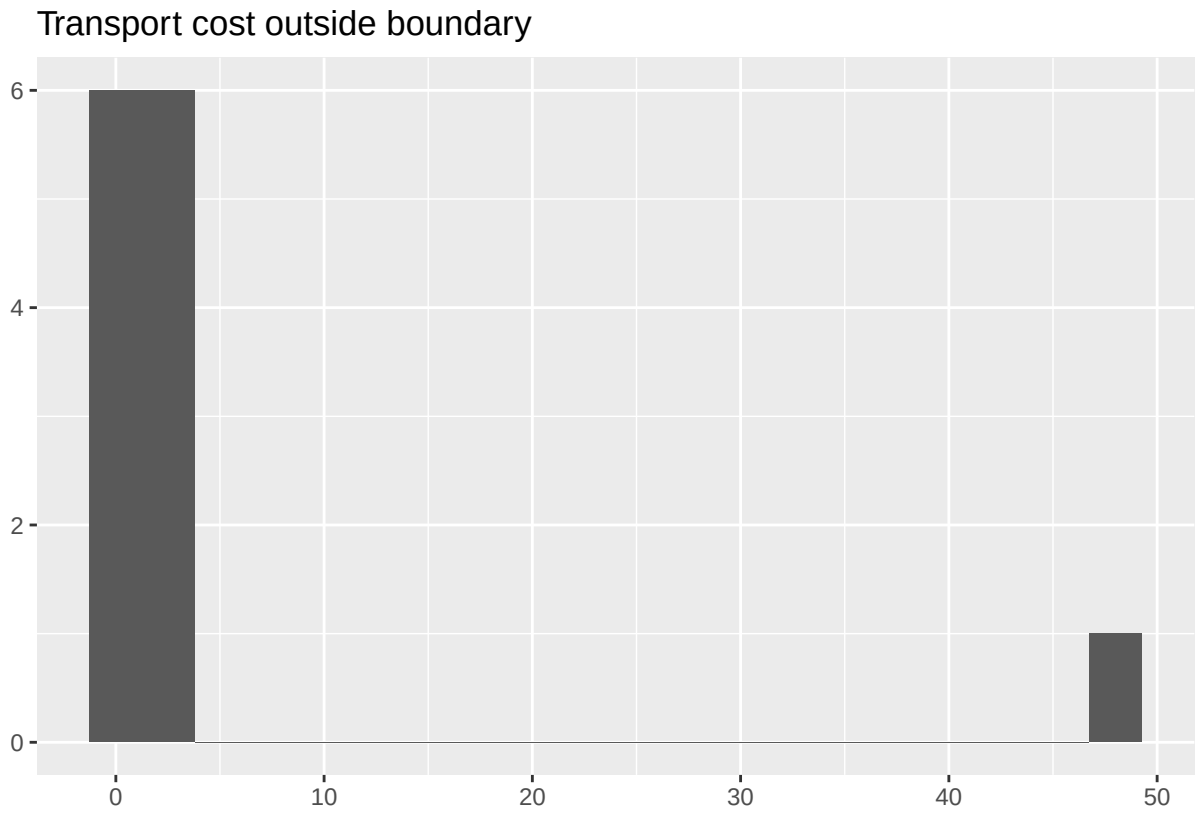




Transport cost outside boundary (zeroes removed; n = 22)
30
20
10
0
0
10
20
30
40

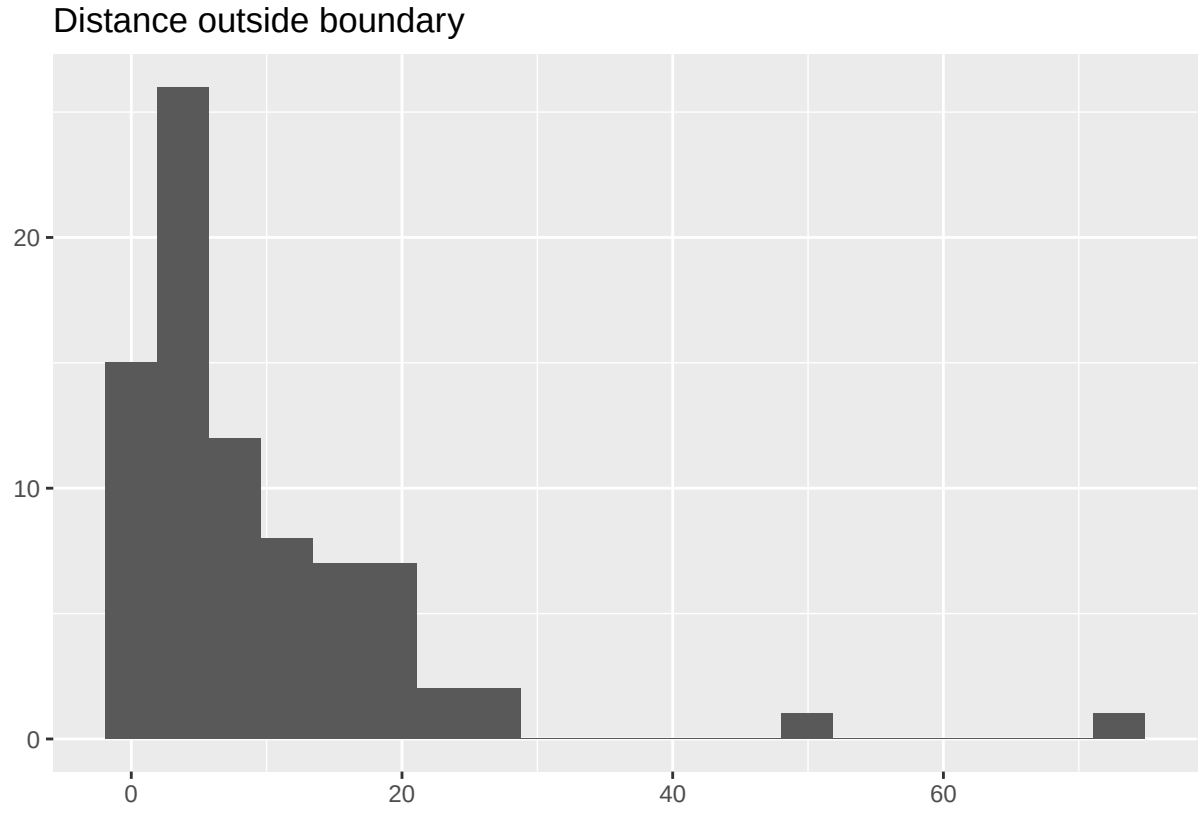
***Asset: Nearest Credit Facility***

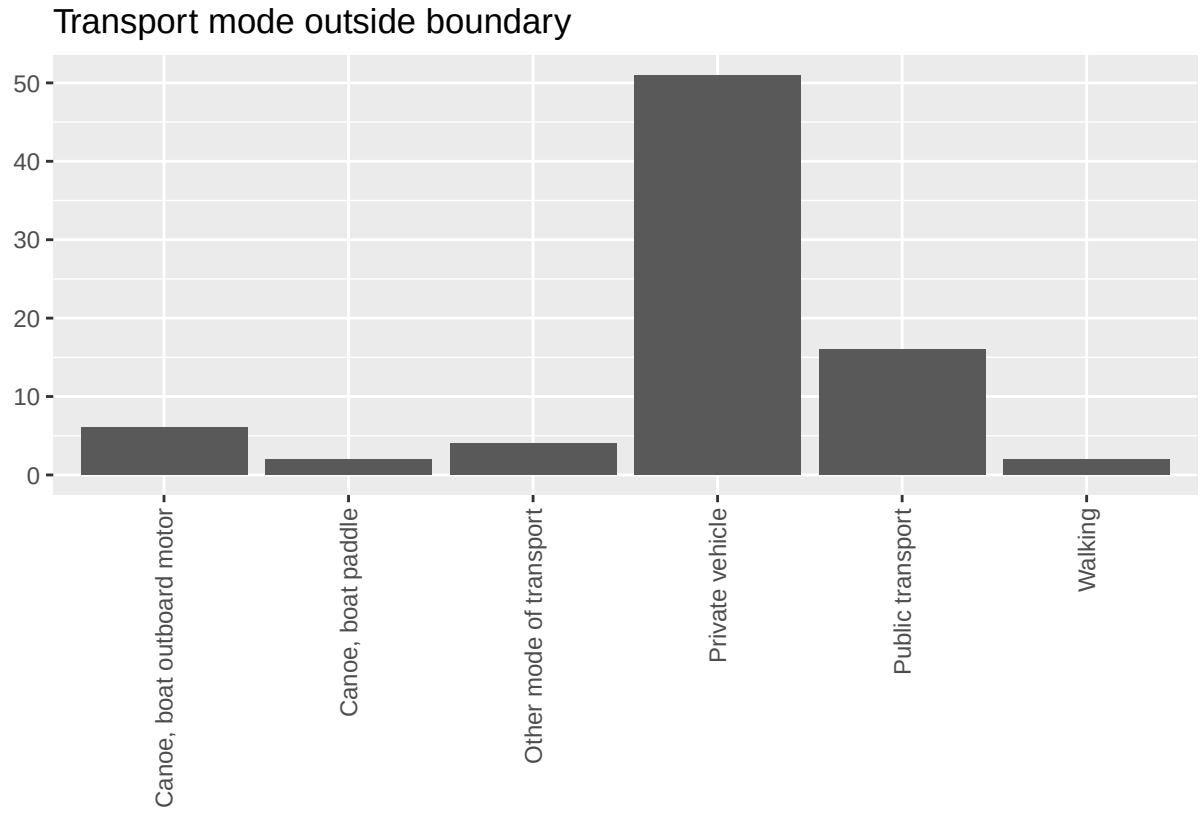


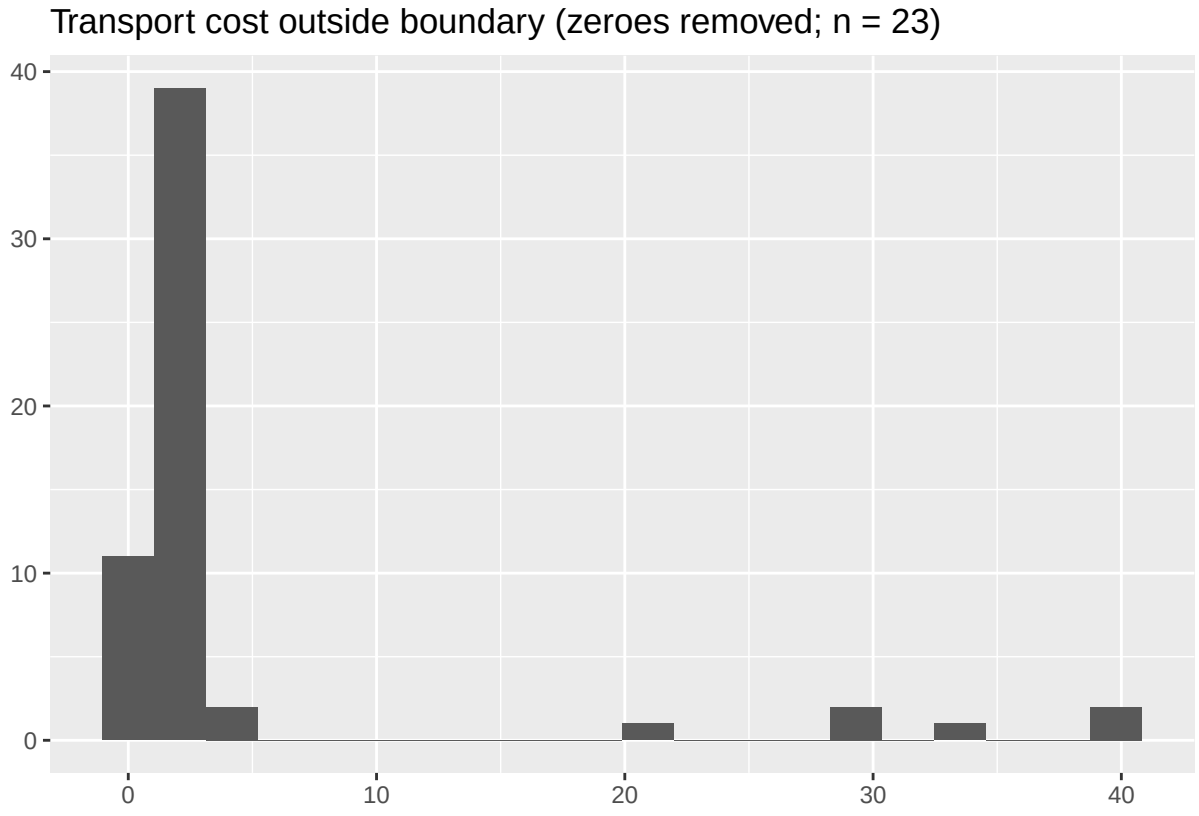




Transport cost outside boundary
6
4
2
0
0
10
20
30
40
50

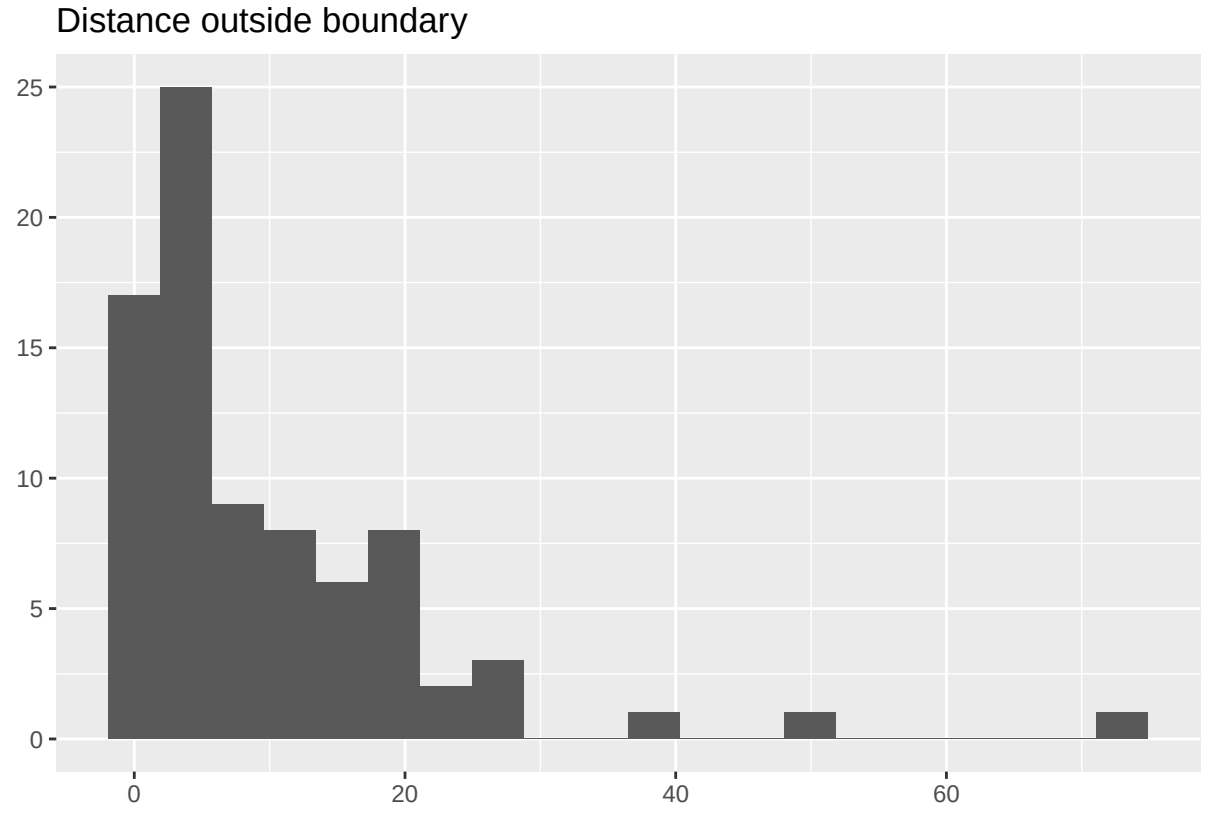
***Asset: Nearest Police Station***

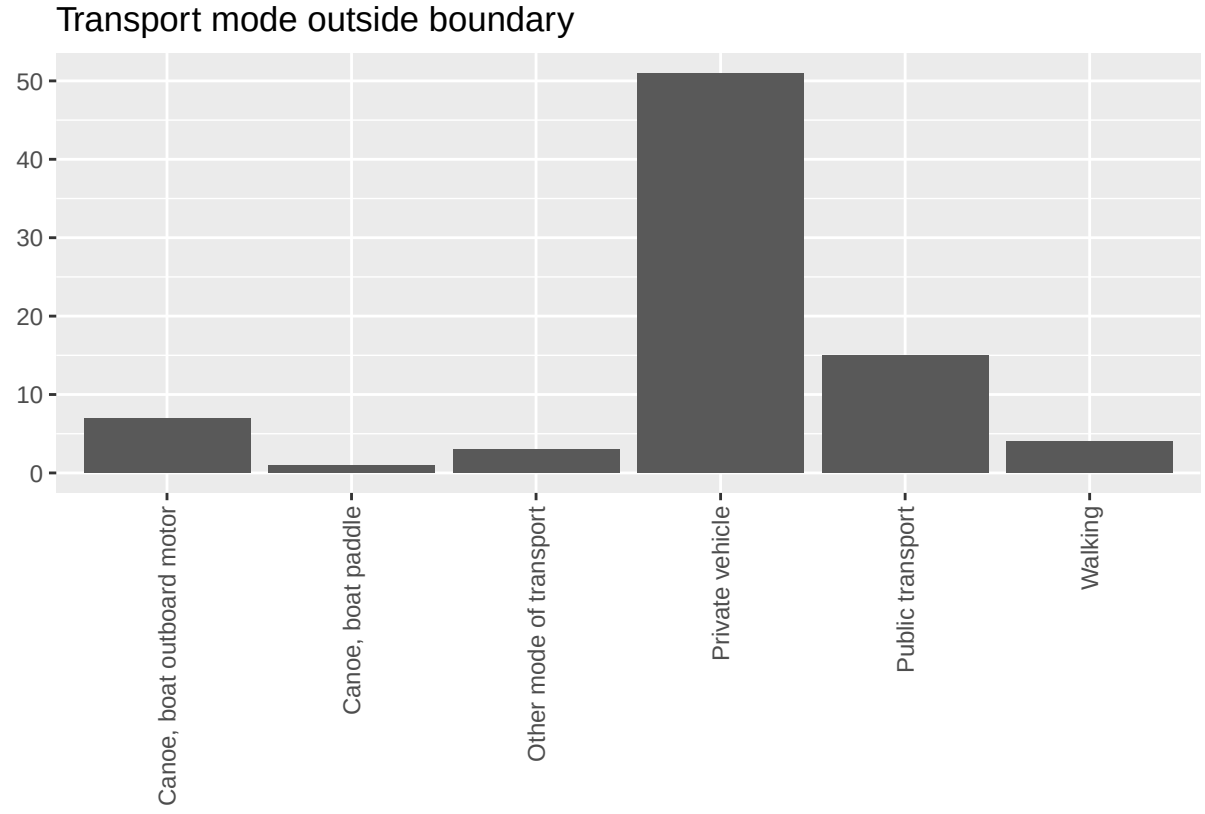


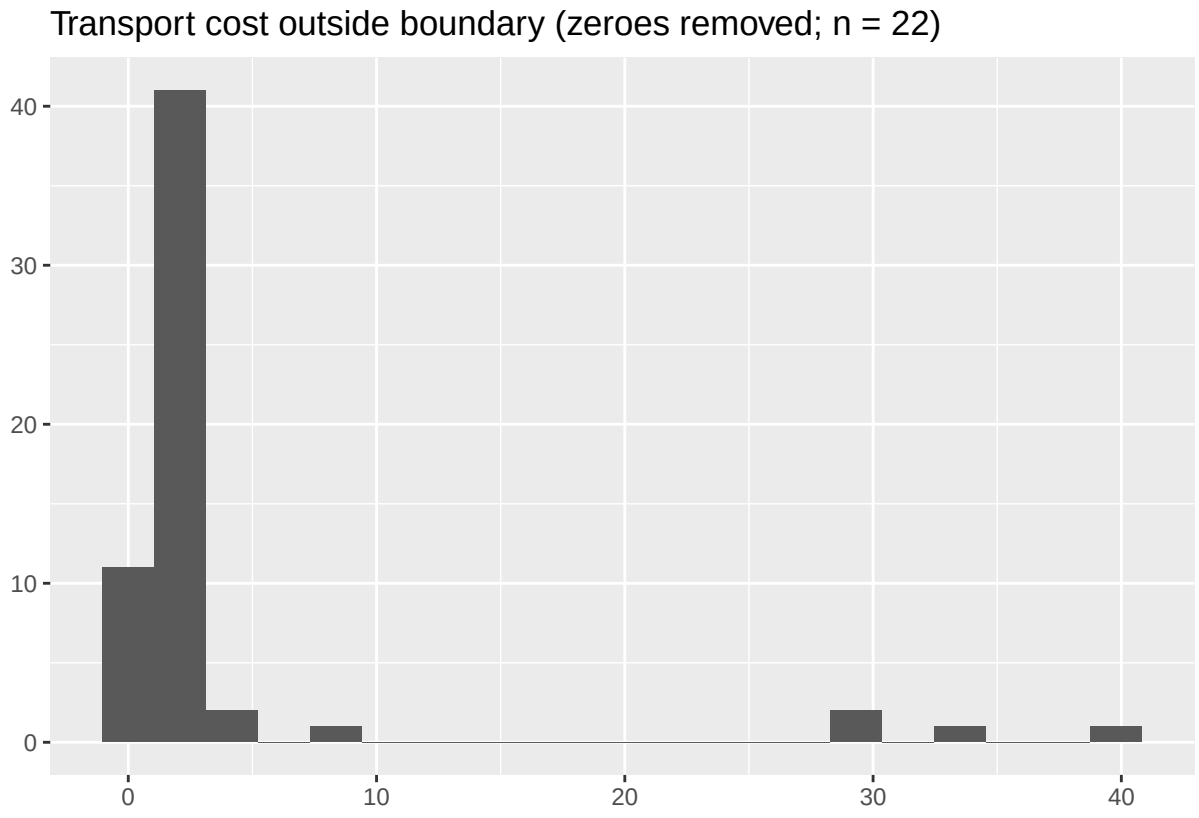




Transport cost outside boundary (zeroes removed; n = 23)
40
30
20
10
0
0
10
20
30
40

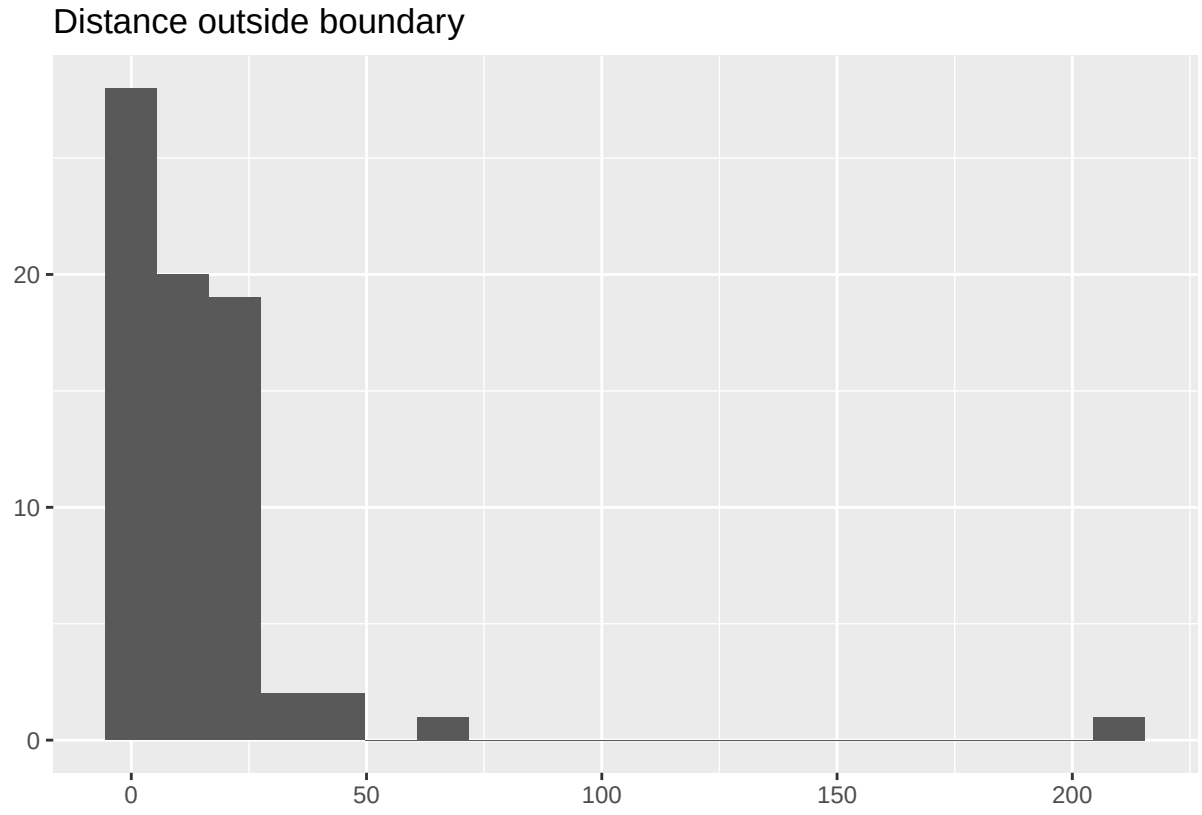
***Asset: Nearest Court House***

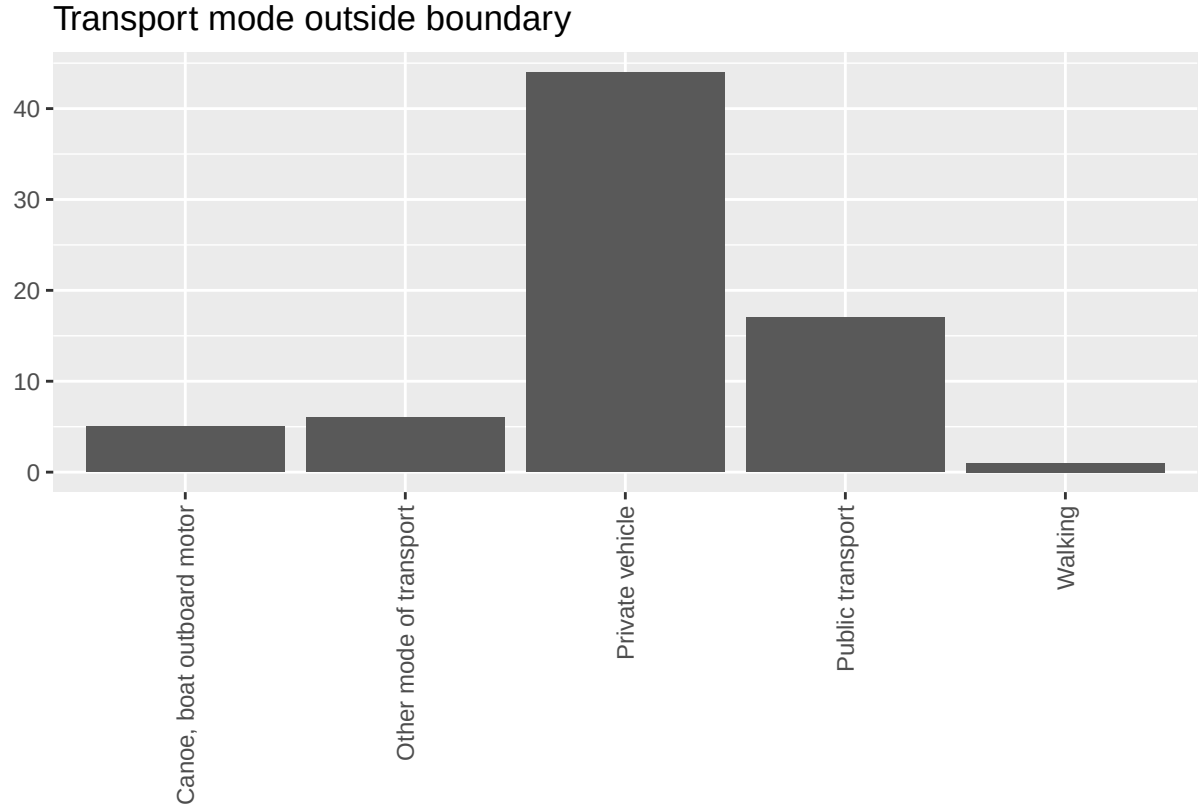


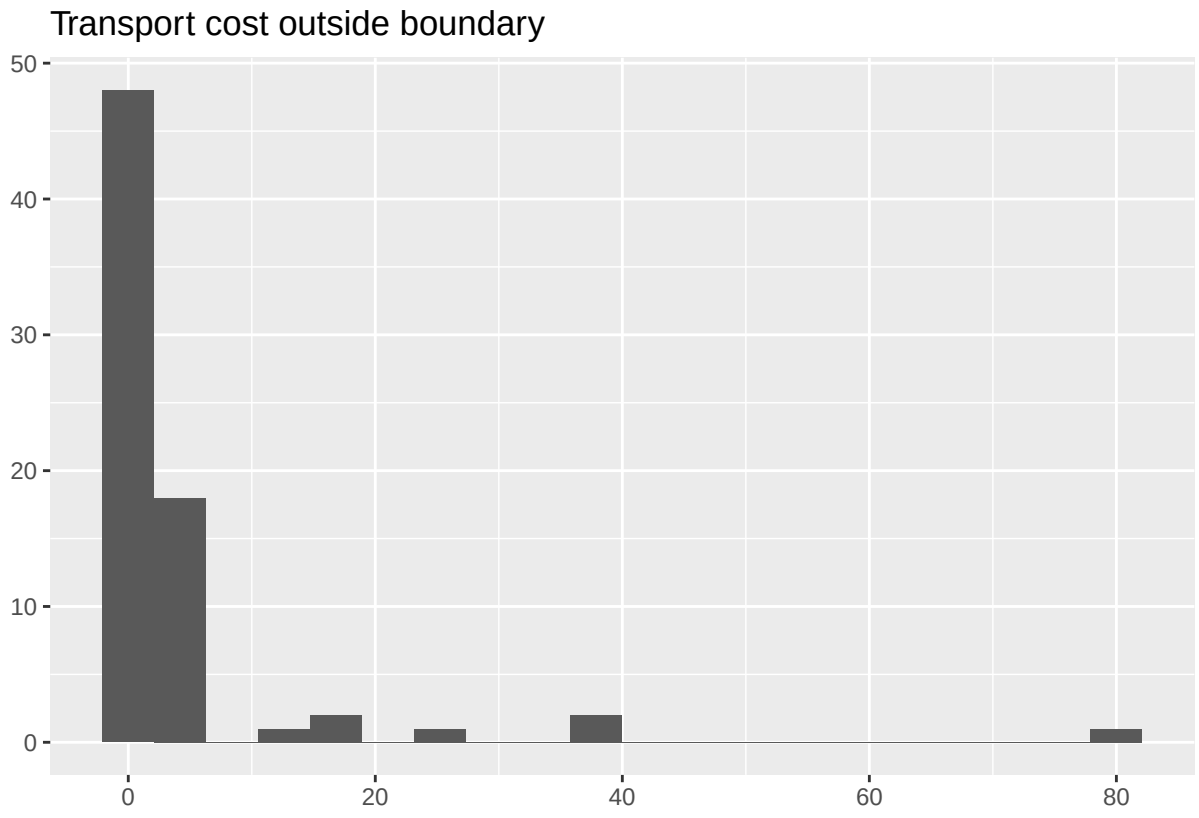




Transport cost outside boundary (zeroes removed; n = 22)
40
30
20
10
0
0
10
20
30
40

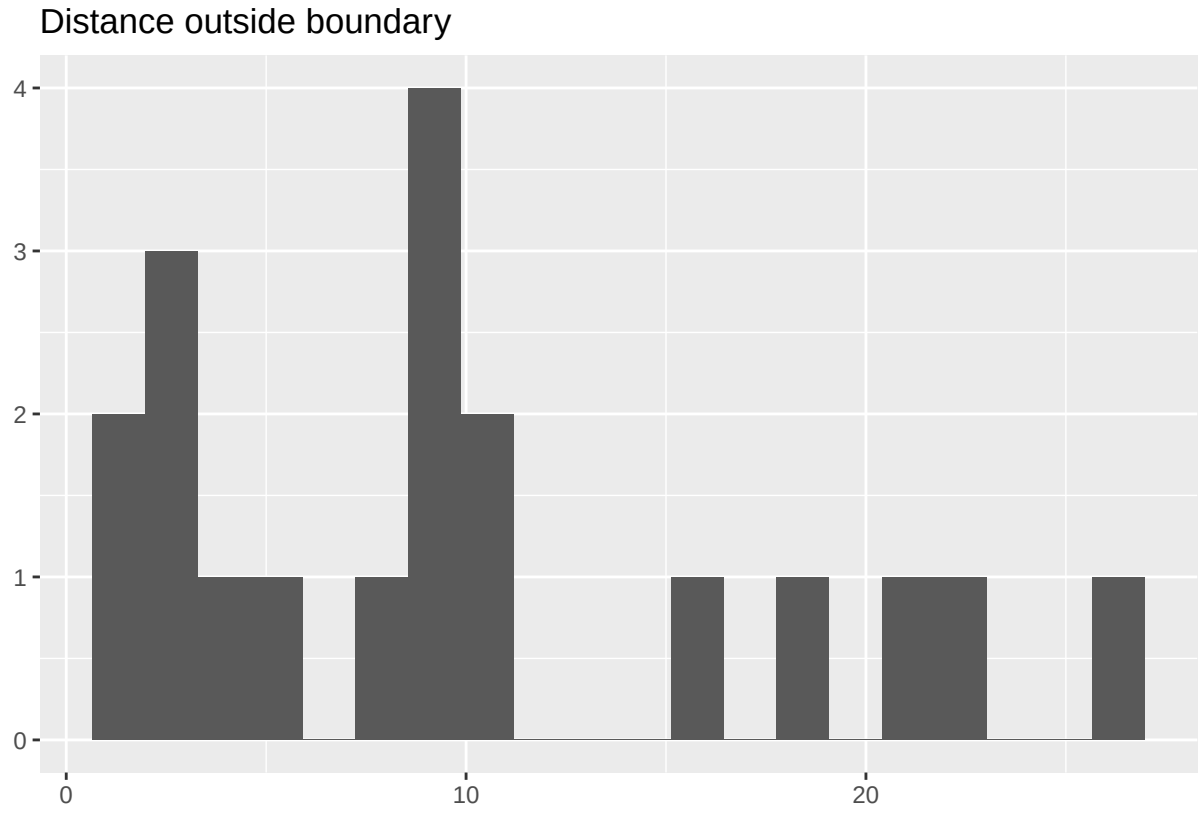
***Asset: Airport***

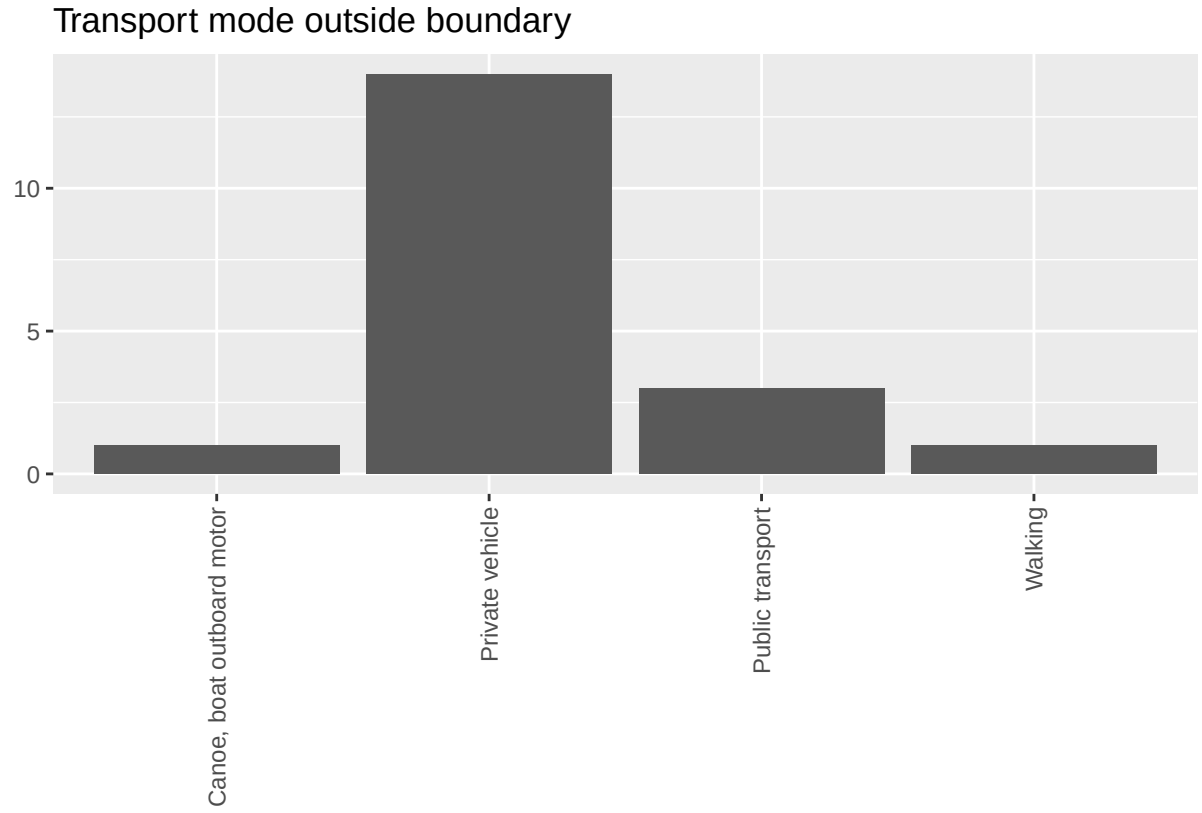


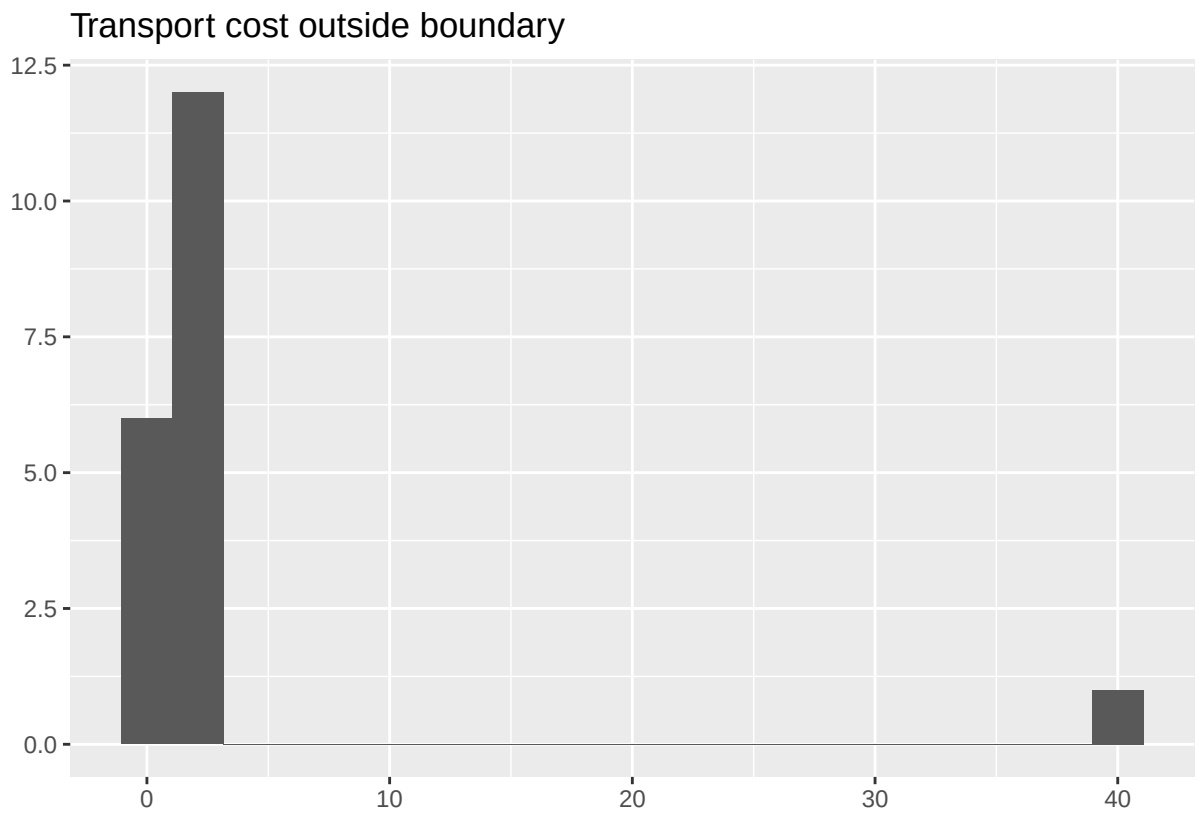




Transport cost outside boundary
50
40
30
20
10
0
0
20
40
60
80

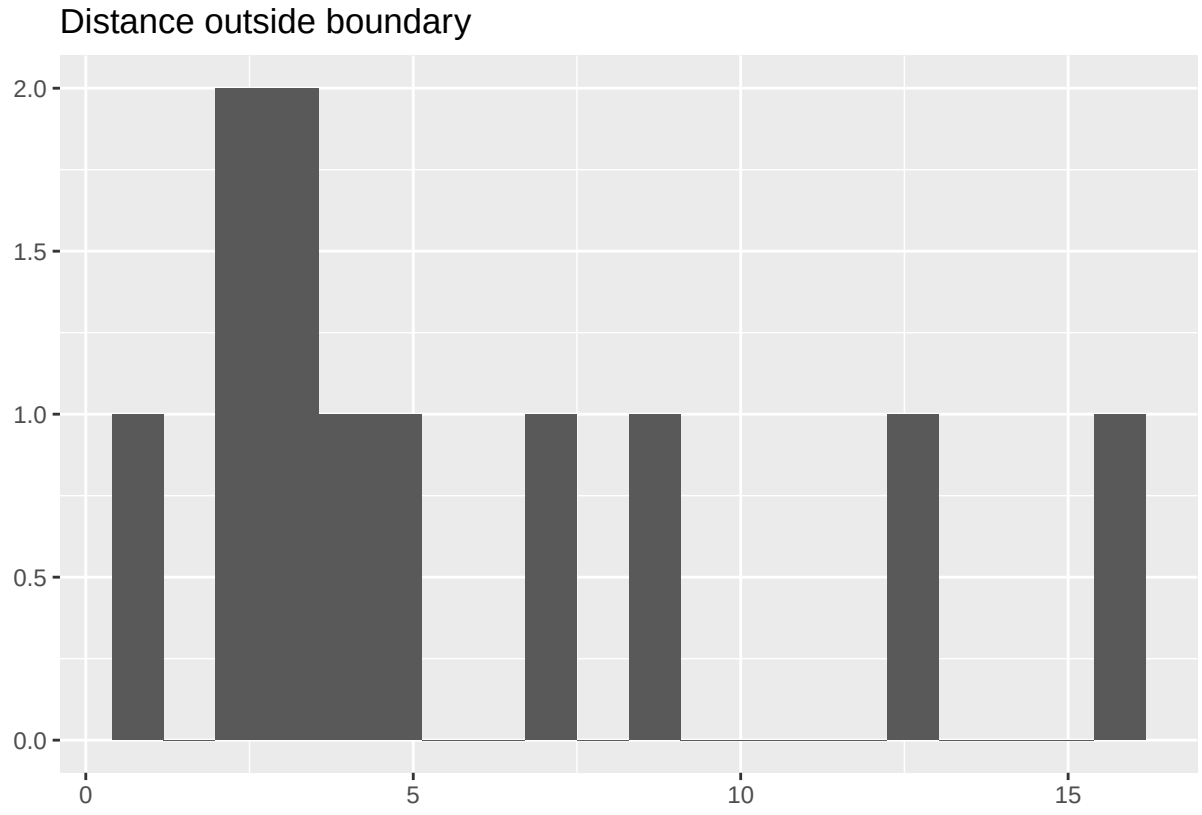
***Asset: Nearest Trade Store/Supermarket***

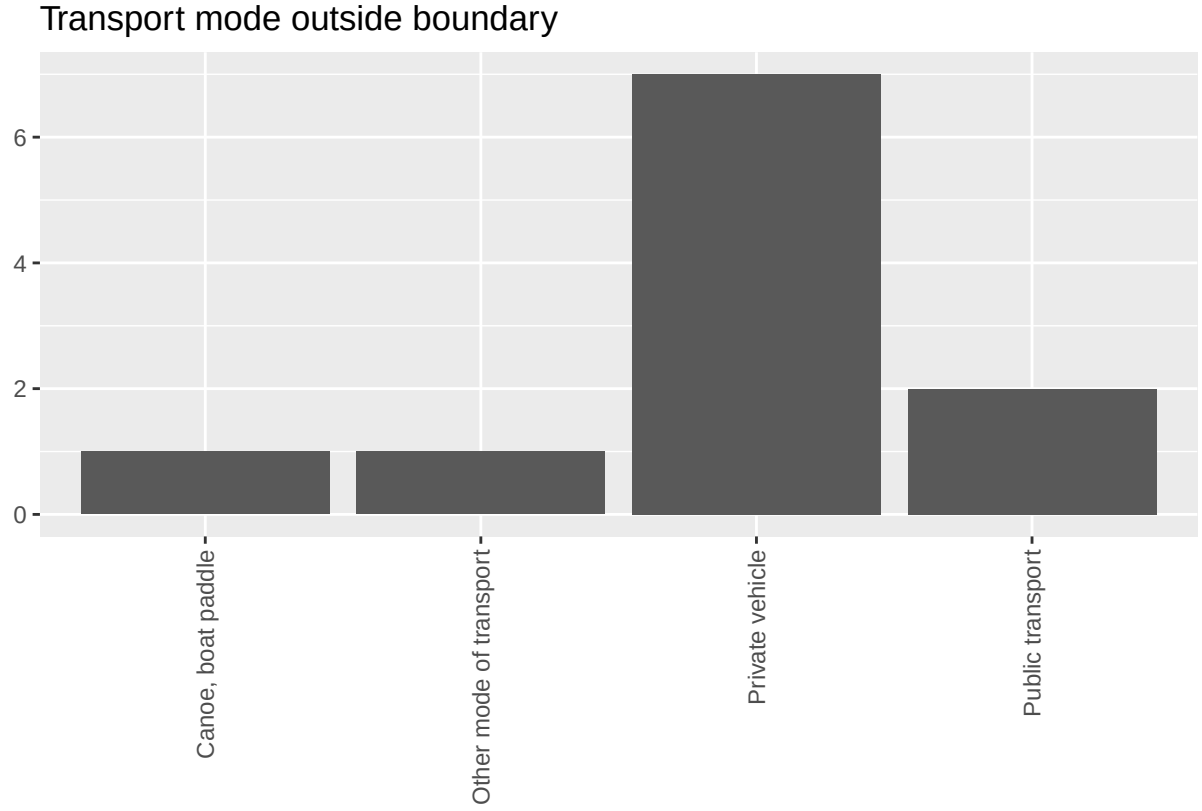


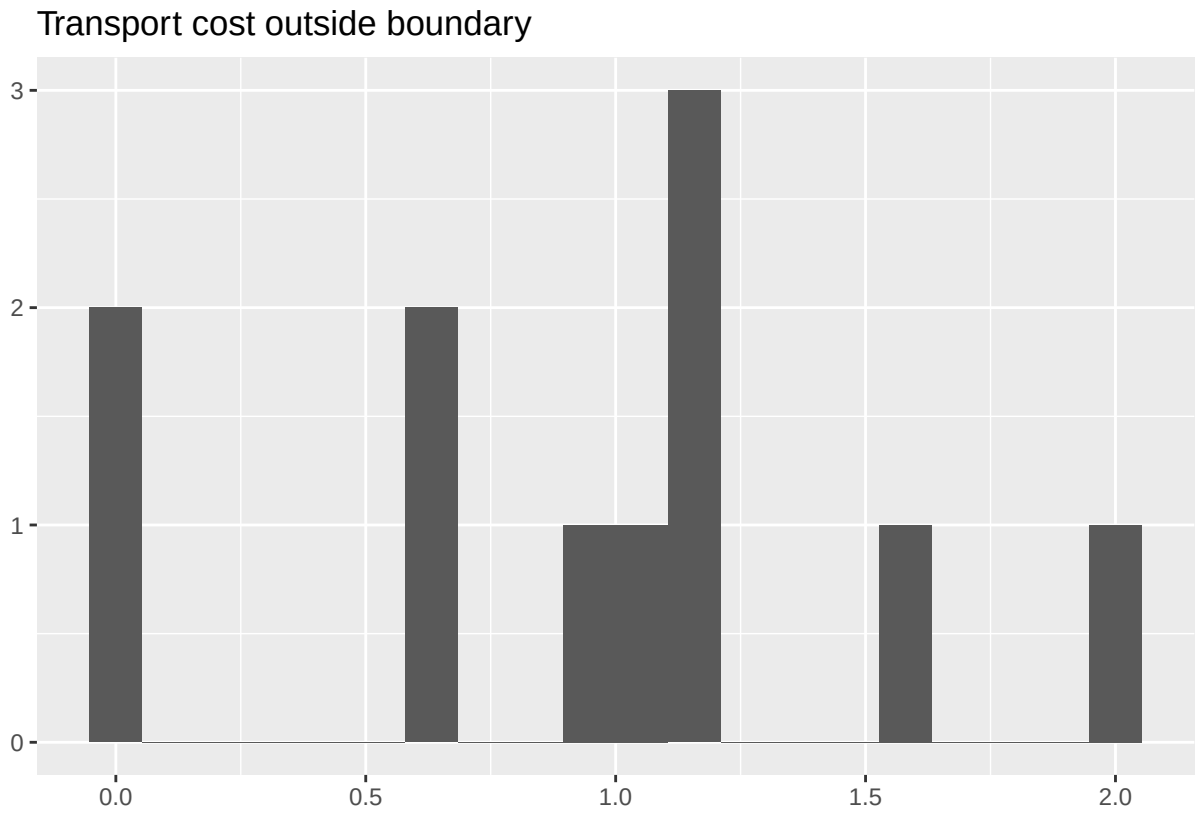




Transport cost outside boundary
12.5
10.0
7.5
5.0
2.5
0.0
0
10
20
30
40

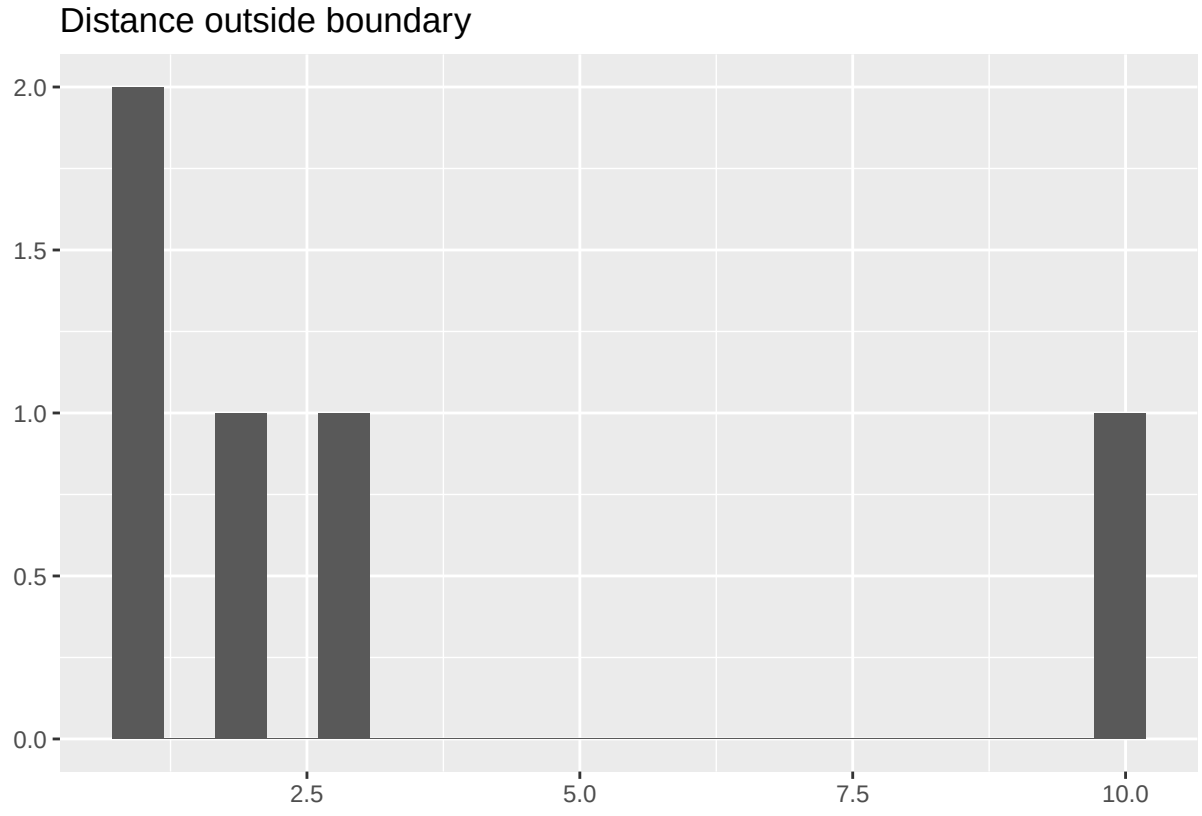
***Asset: Nearest fish landing site***

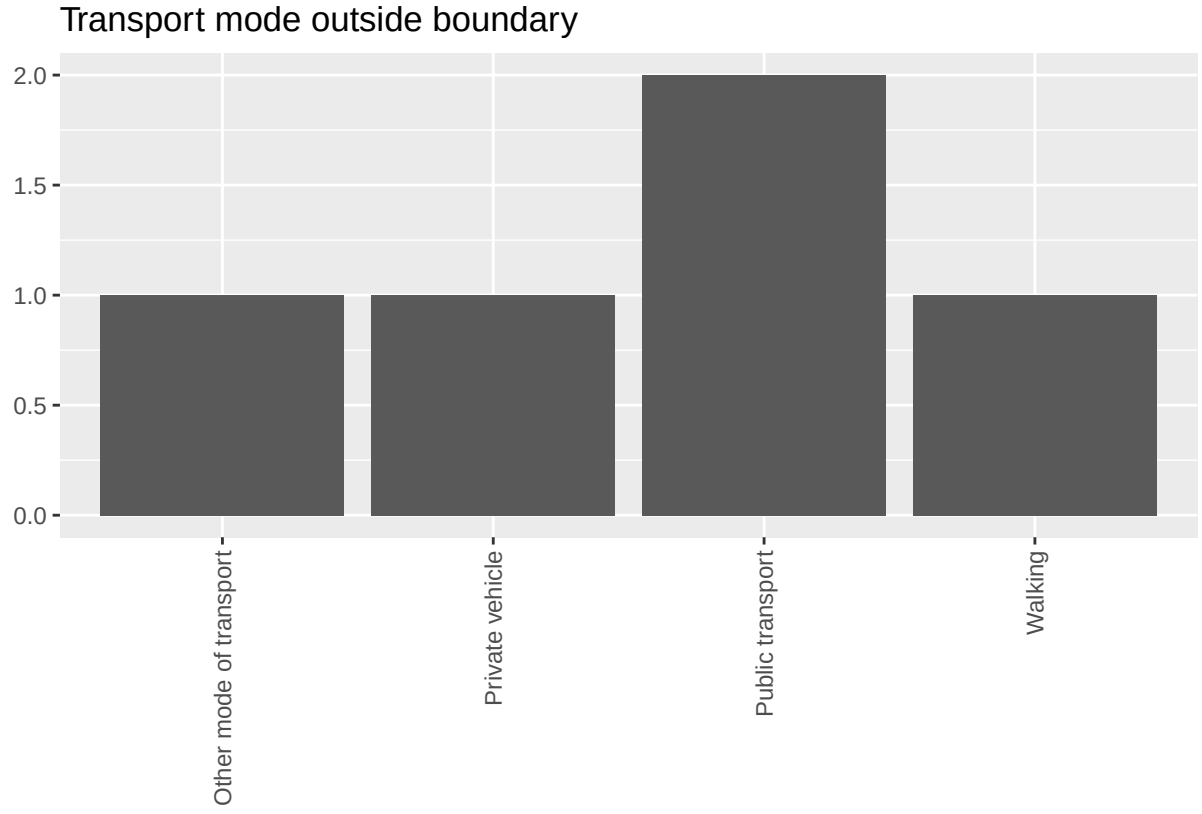


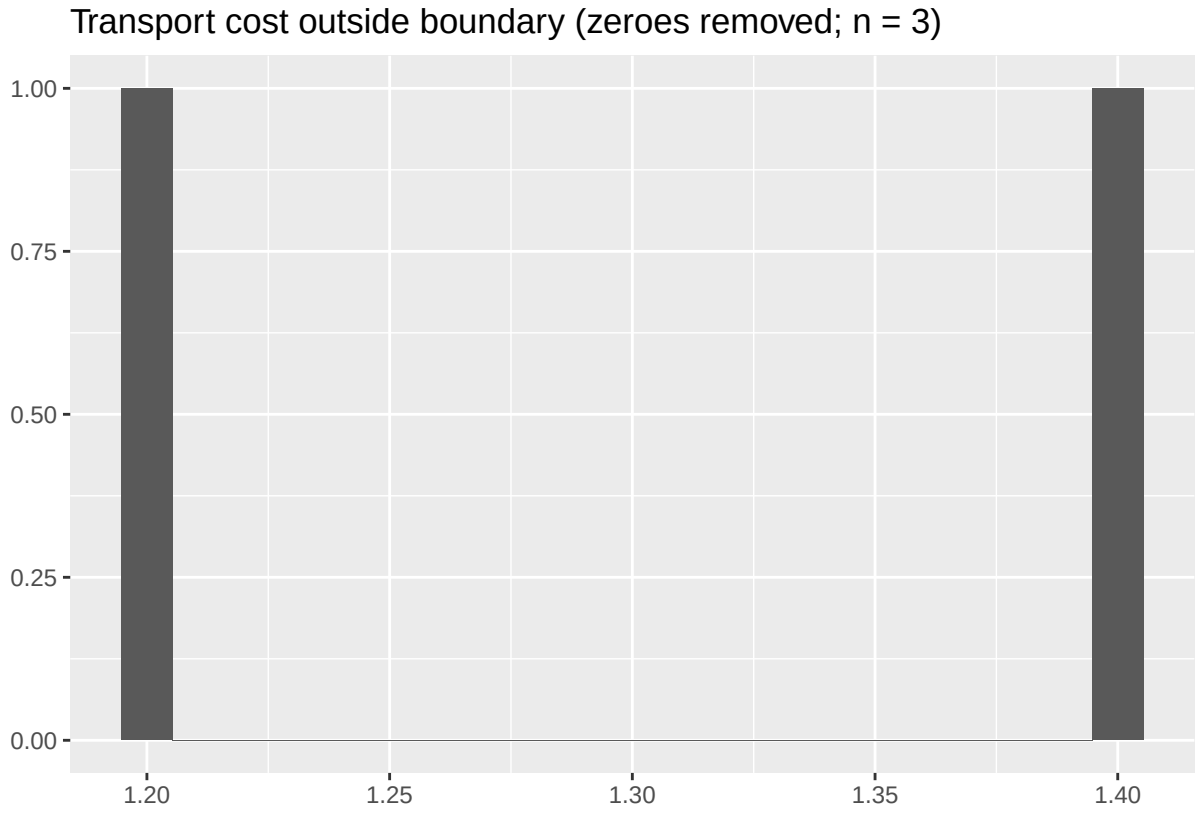




Transport cost outside boundary
3
2
1
0
0.0
0.5
1.0
1.5
2.0

***Asset: Nearest Church***



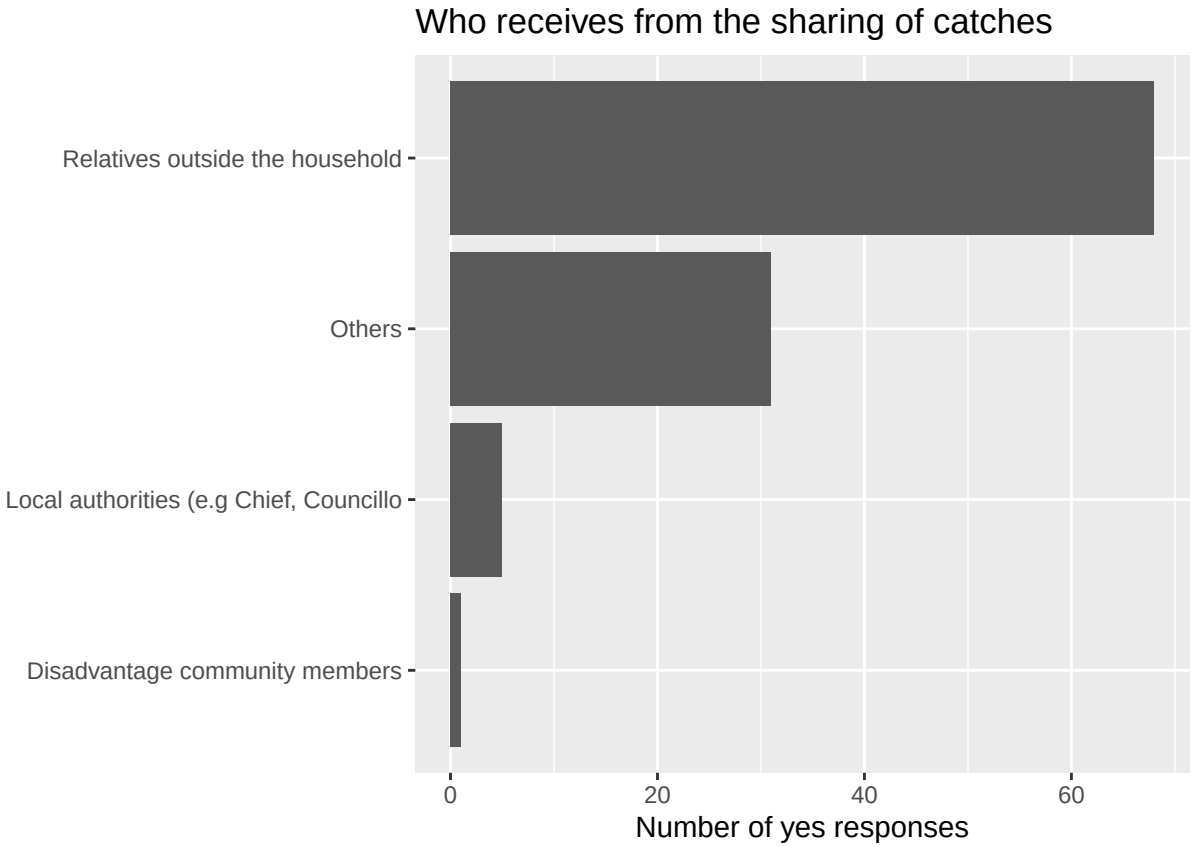



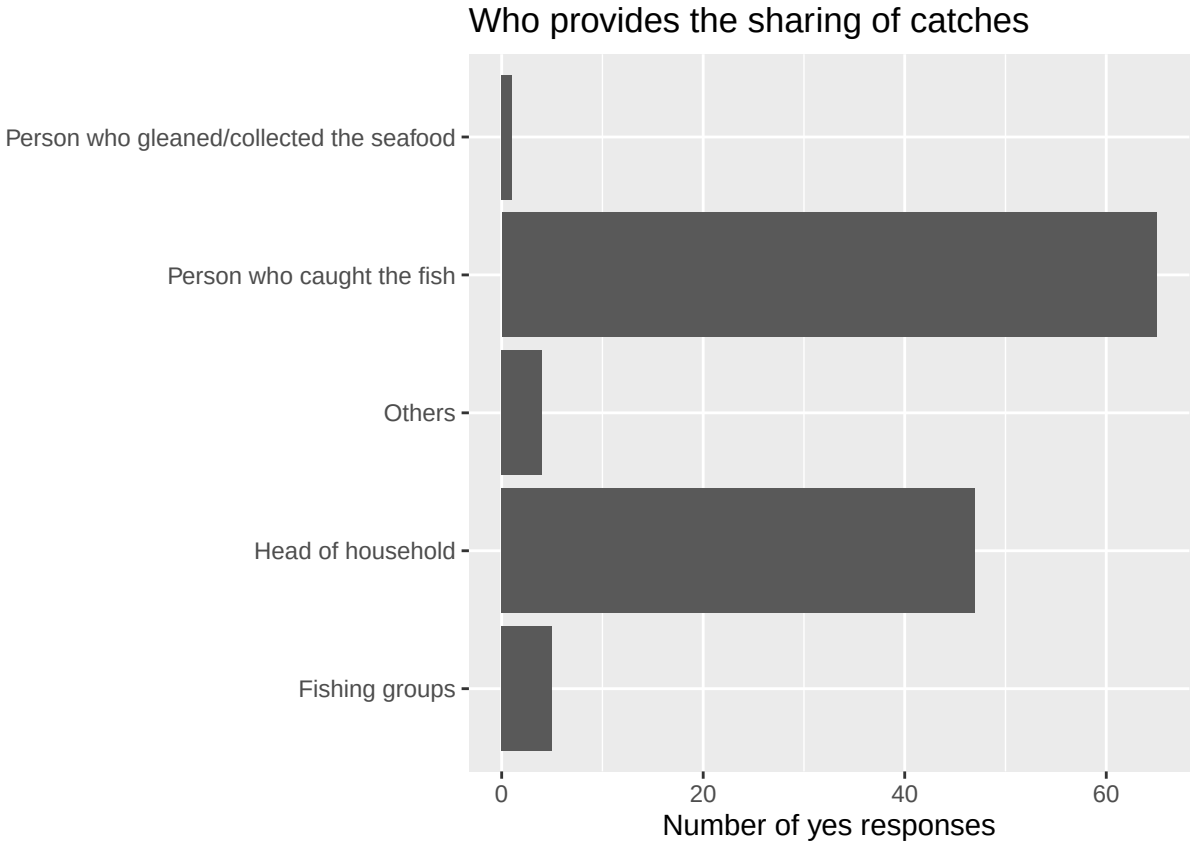


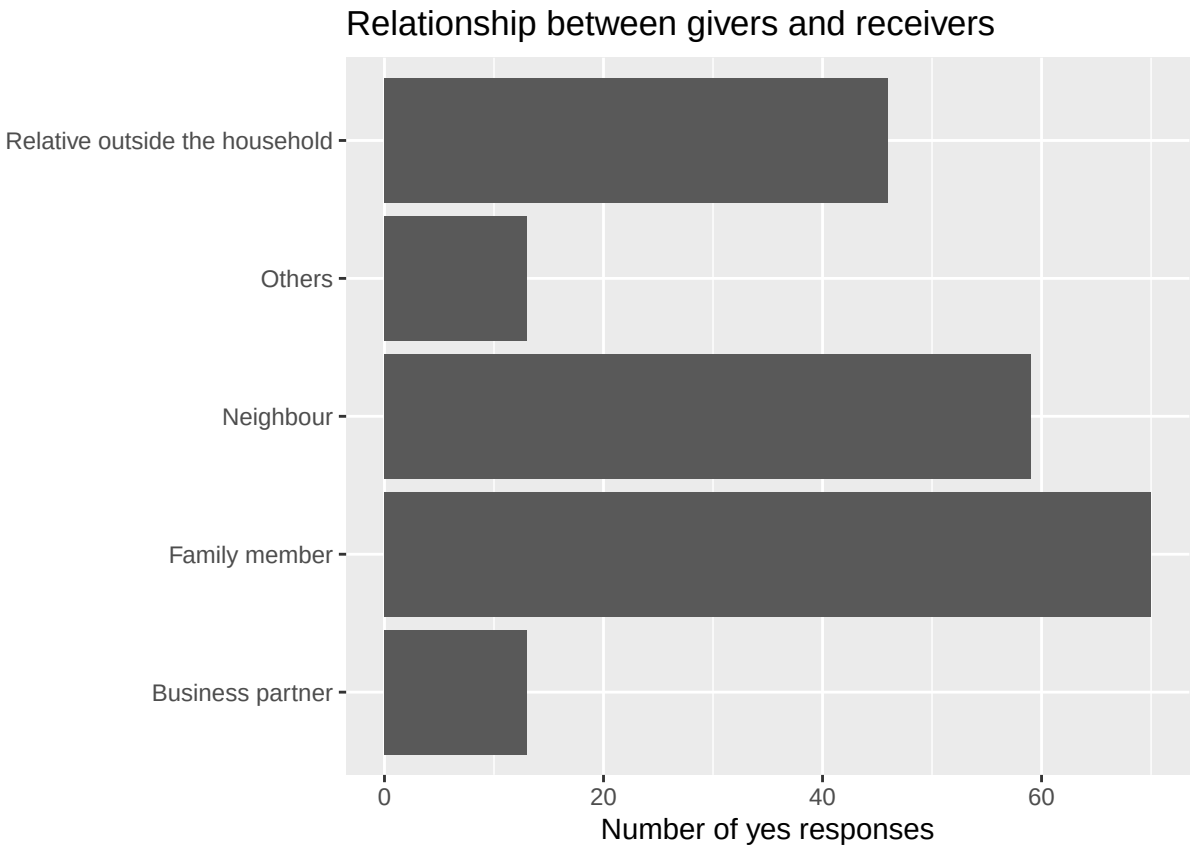

### Share Roster Data: List of events

```
## # A tibble: 3 x 1
##   share_roster__id
##   <chr>
## 1 Finfish
## 2 Other non-finfish seafood (shellfish, sea worm, etc.)
## 3 Non-fish foods
```

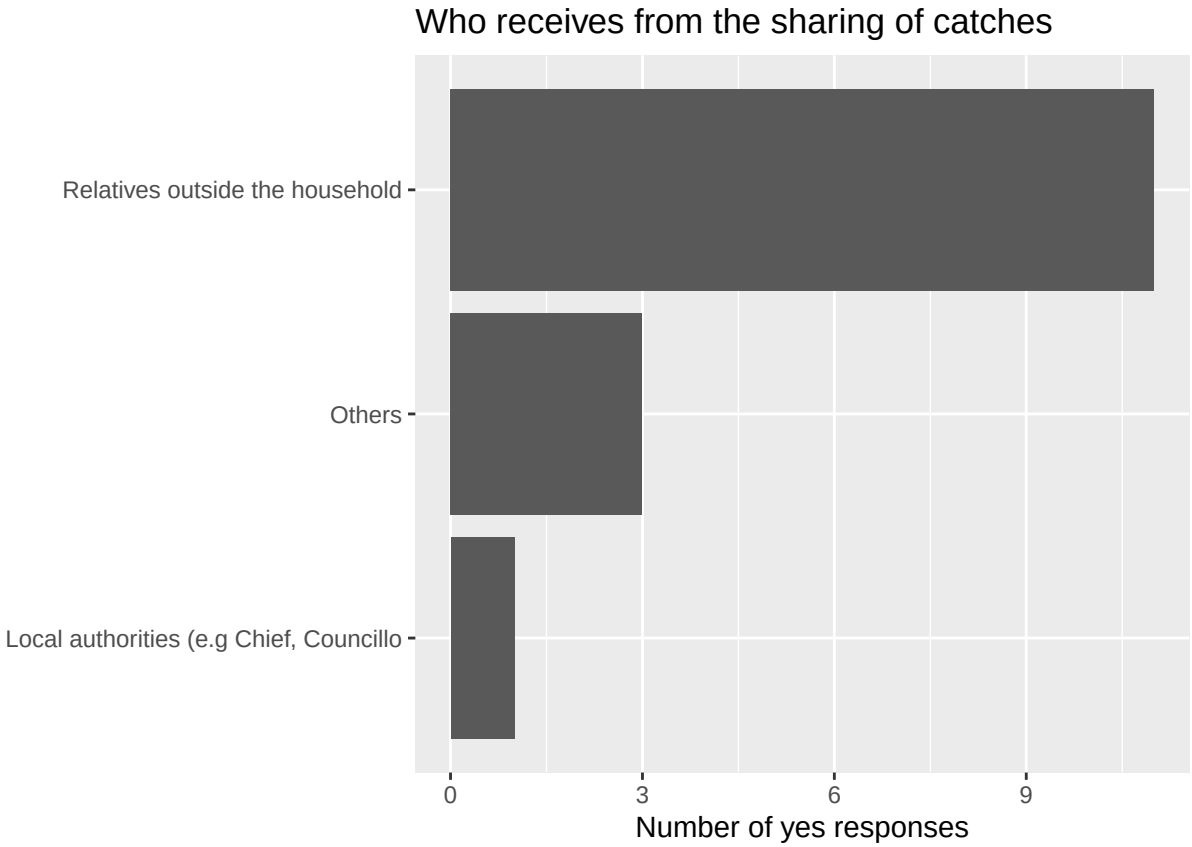
***Asset: Finfish***

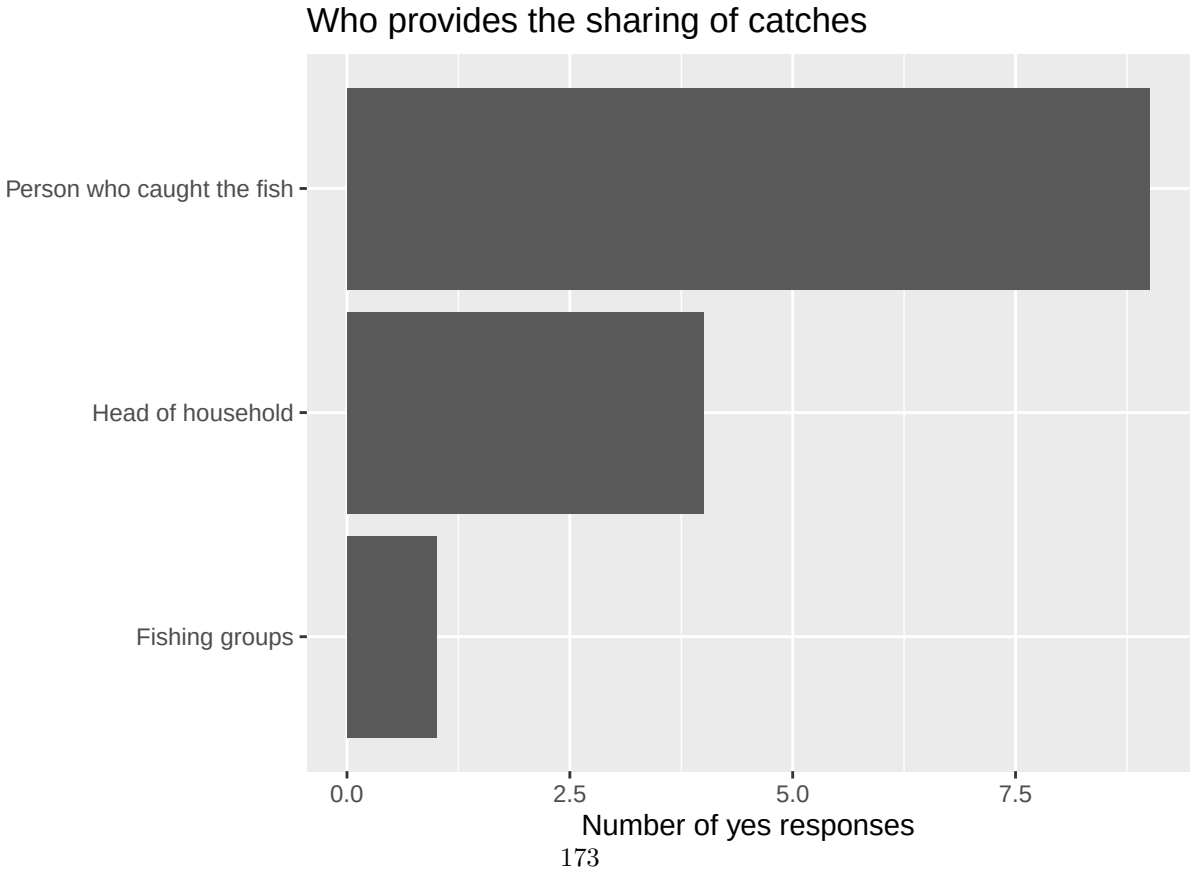


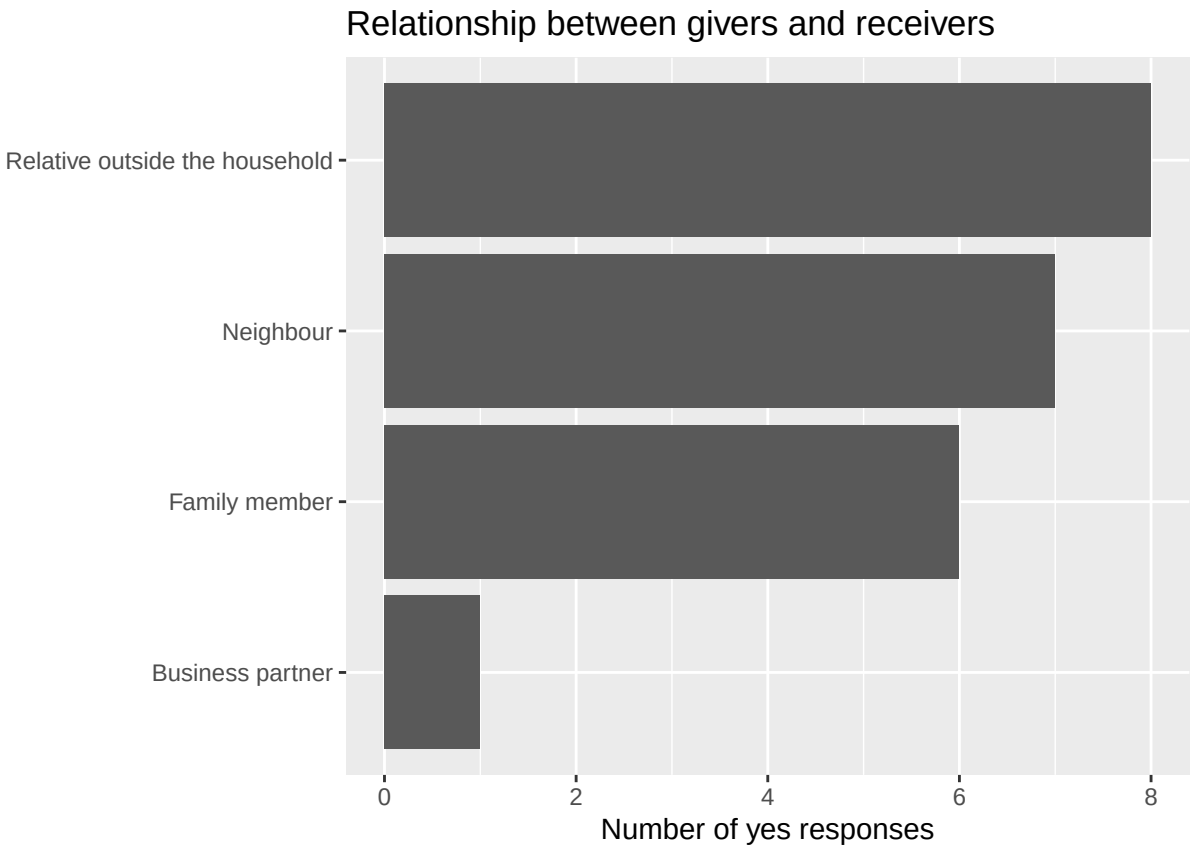




Relationship between givers and receivers
Relative outside the household
Others
Neighbour
Family member
Business partner
0
20
40
60
Number of yes responses

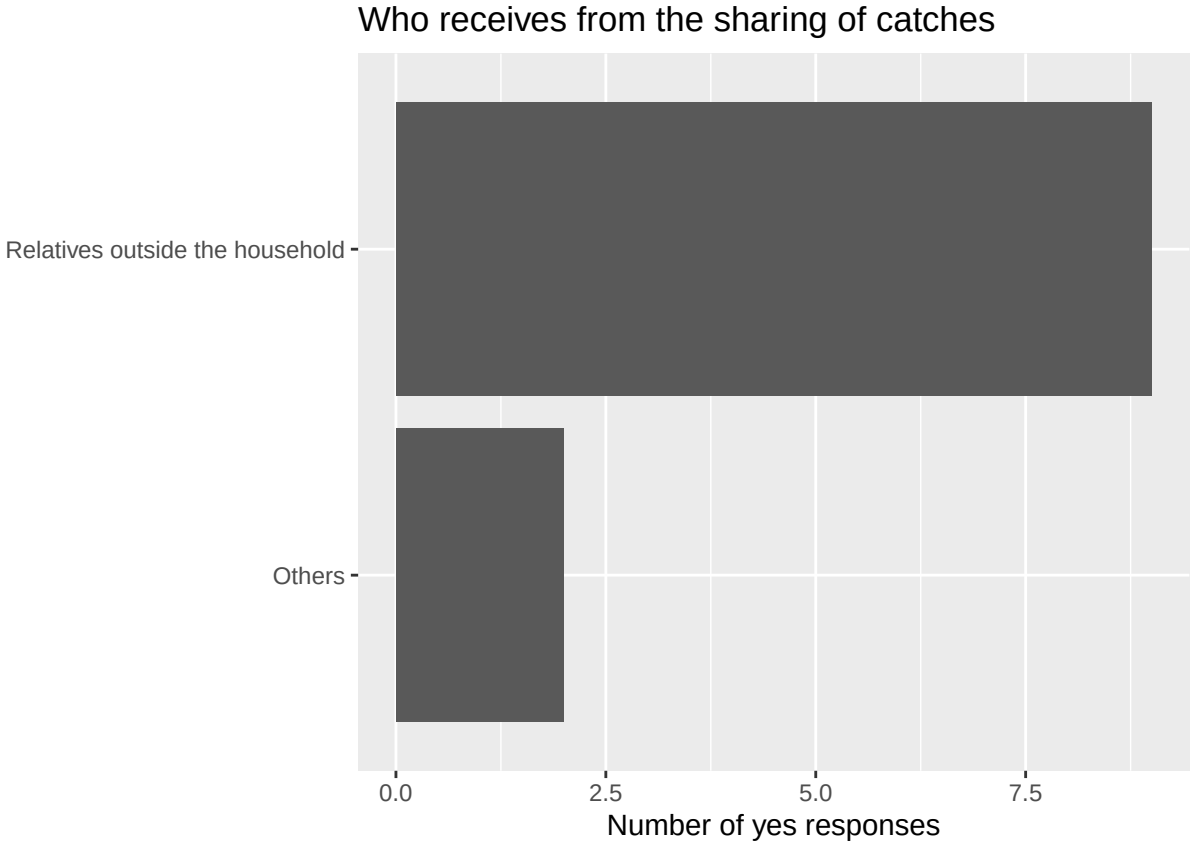
***Asset: Other non-finfish seafood (shellfish, sea worm, etc.)***

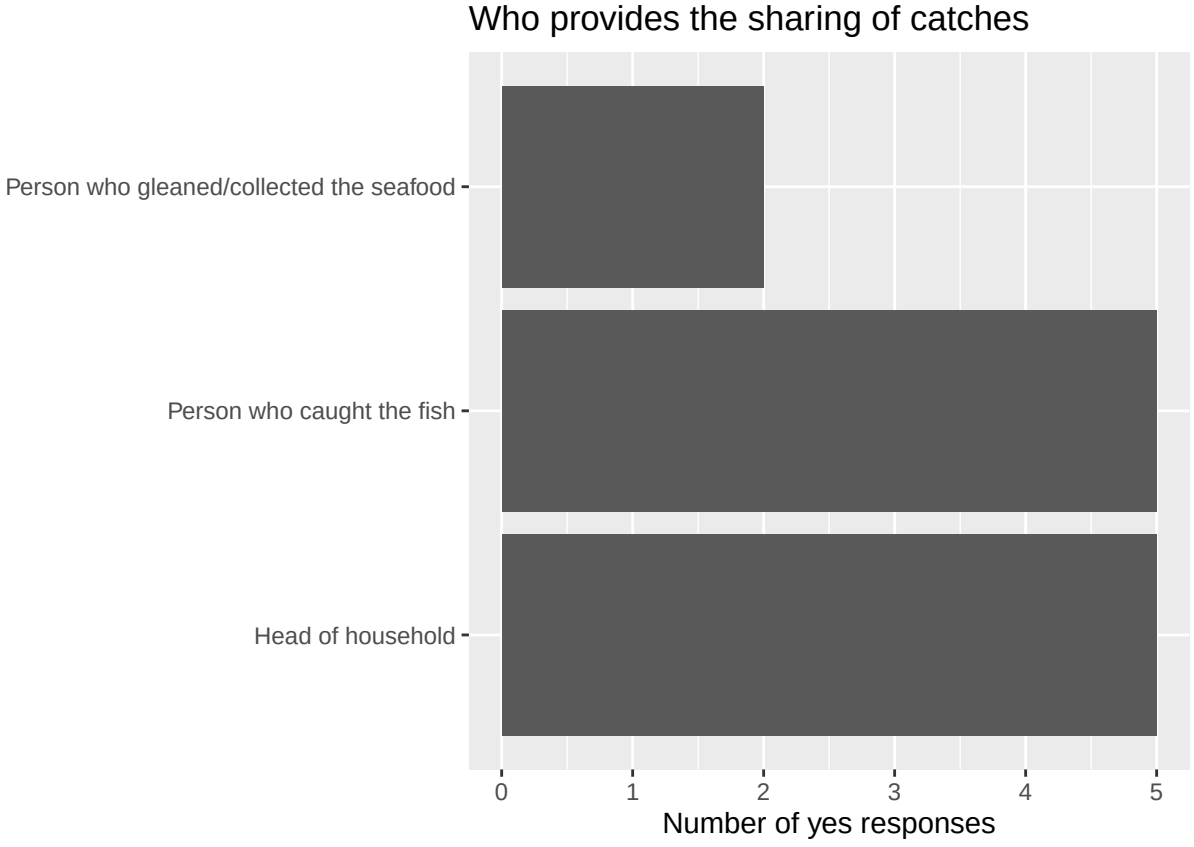


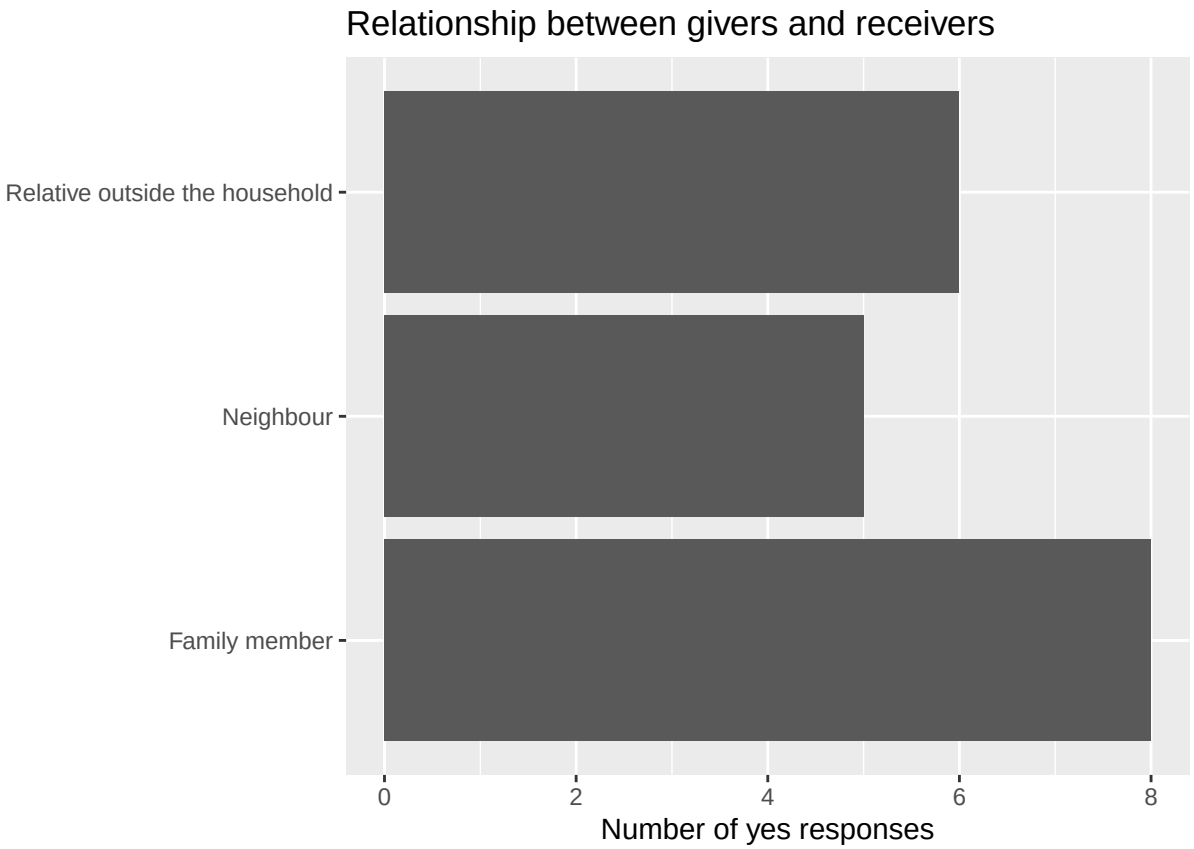




Relationship between givers and receivers
Relative outside the household
Neighbour
Family member
Business partner
0
2
4
6
8
Number of yes responses

***Asset: Non-fish foods***



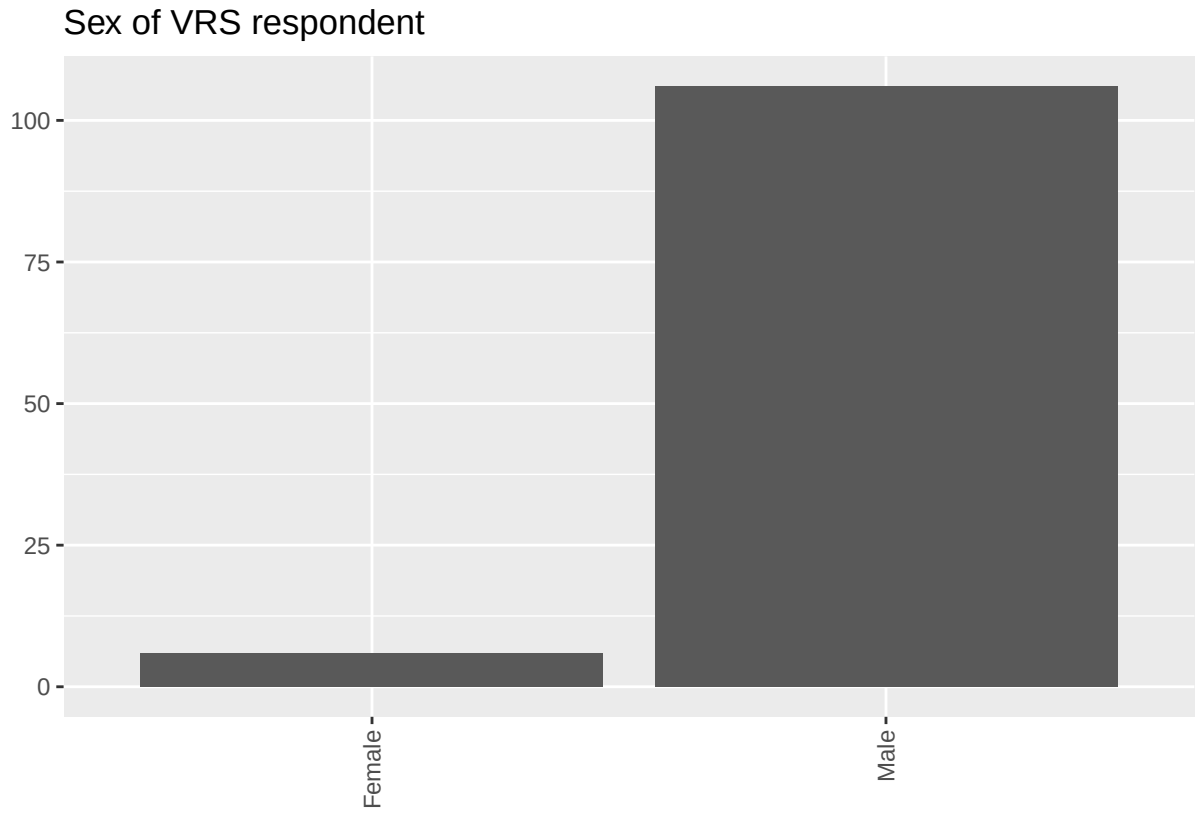



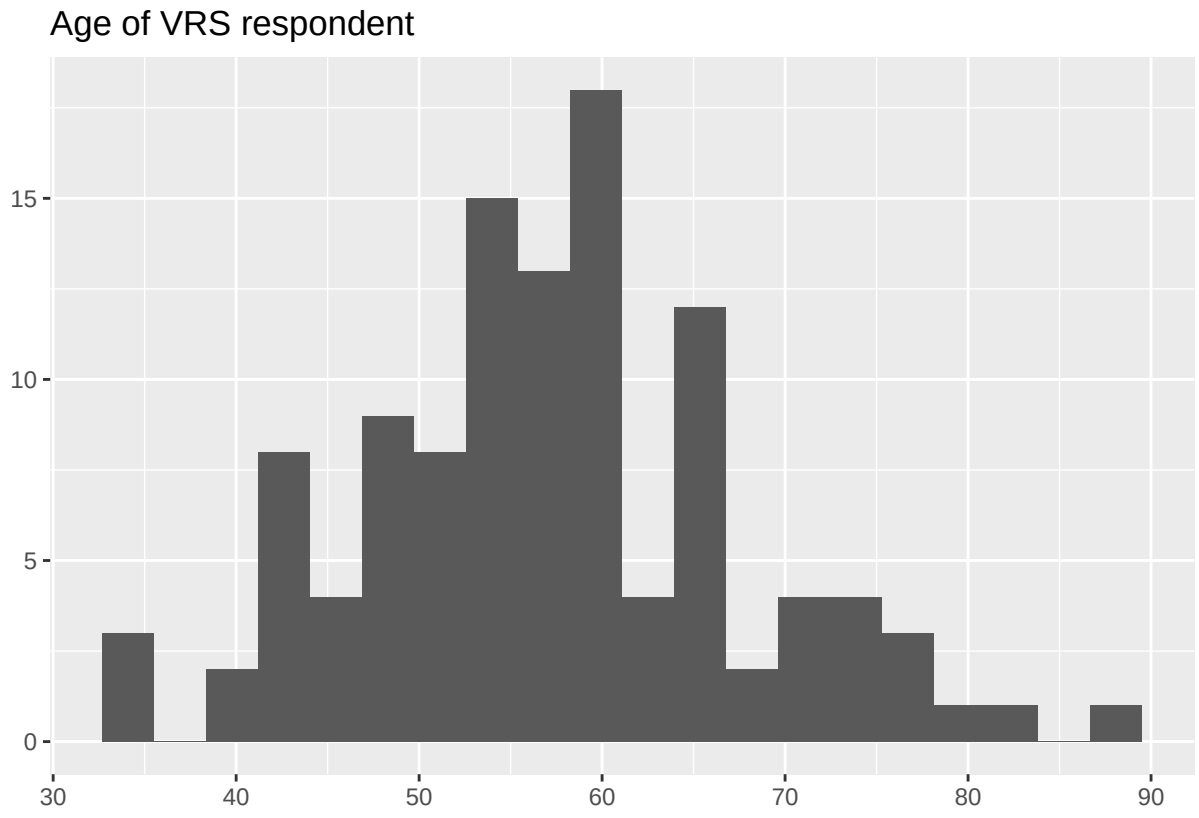


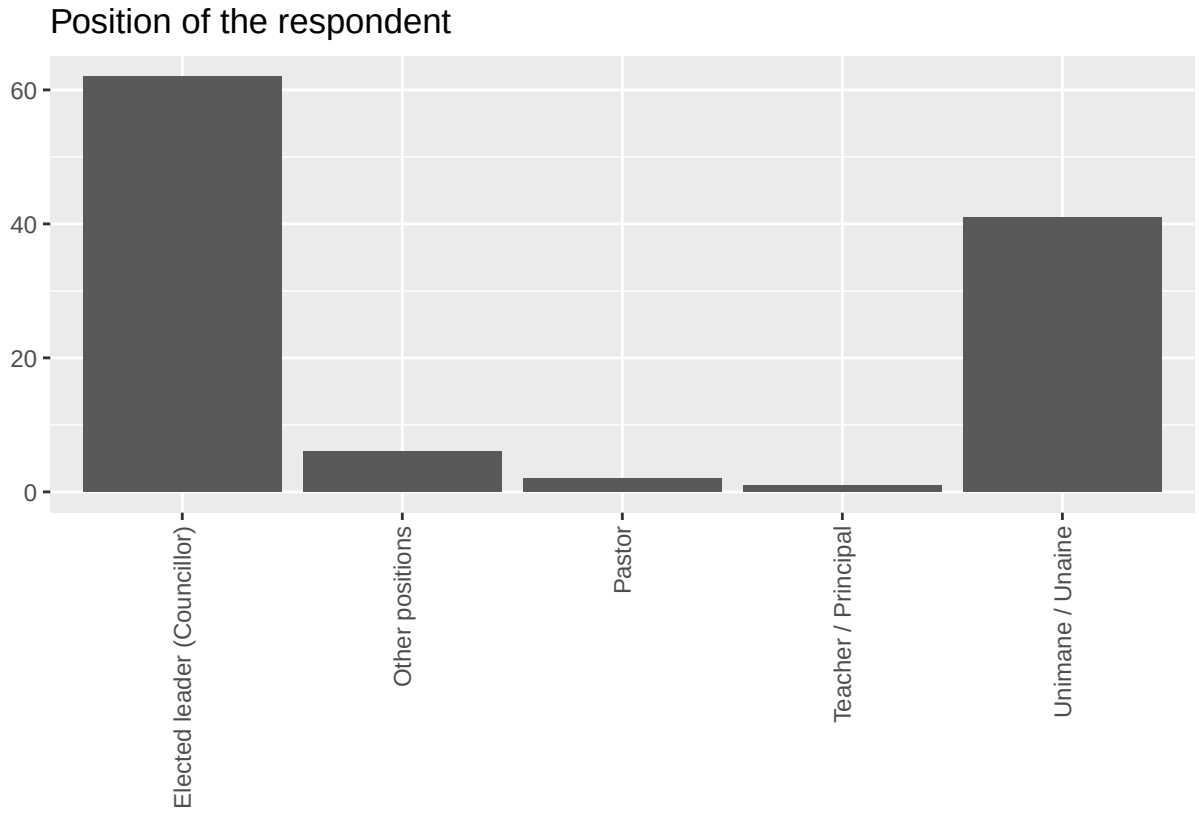

### VRS Roster Data: List of events

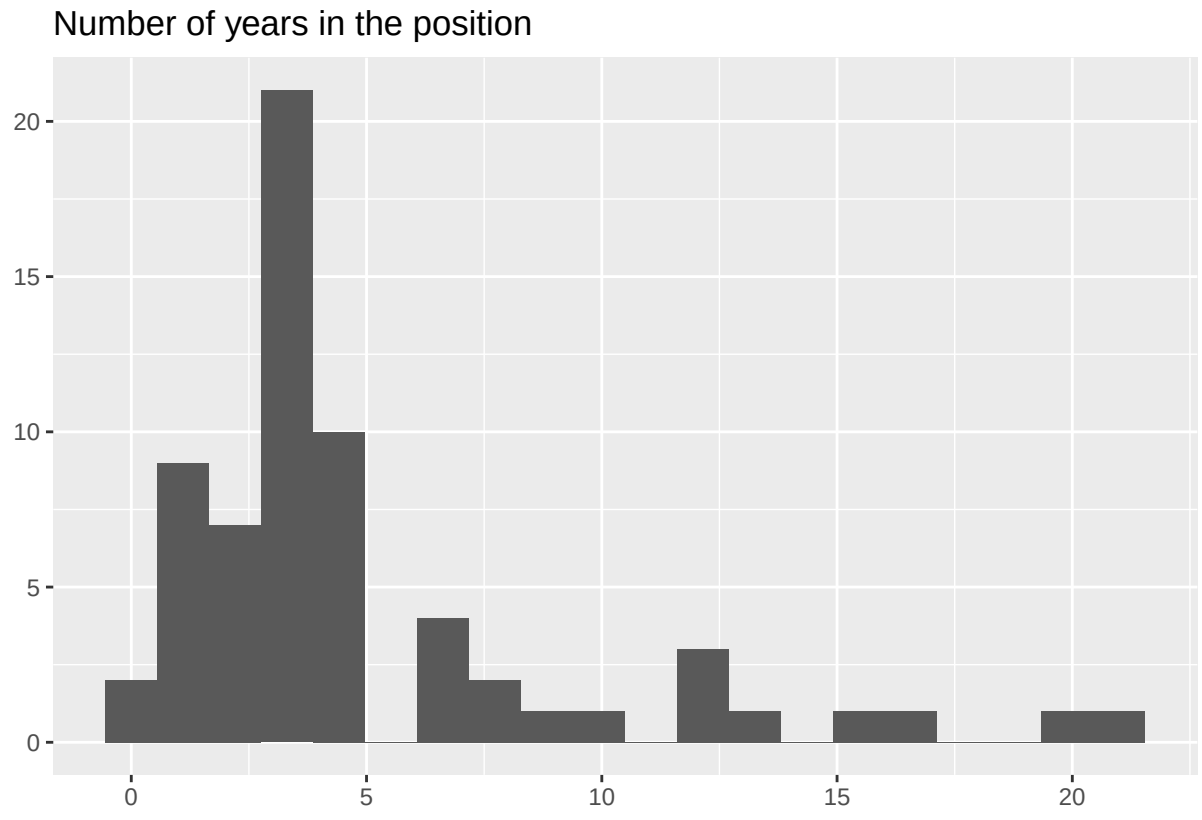
```
## # A tibble: 2 x 1
##   vrs_roster__id
##   <chr>
## 1 1
## 2 2
```

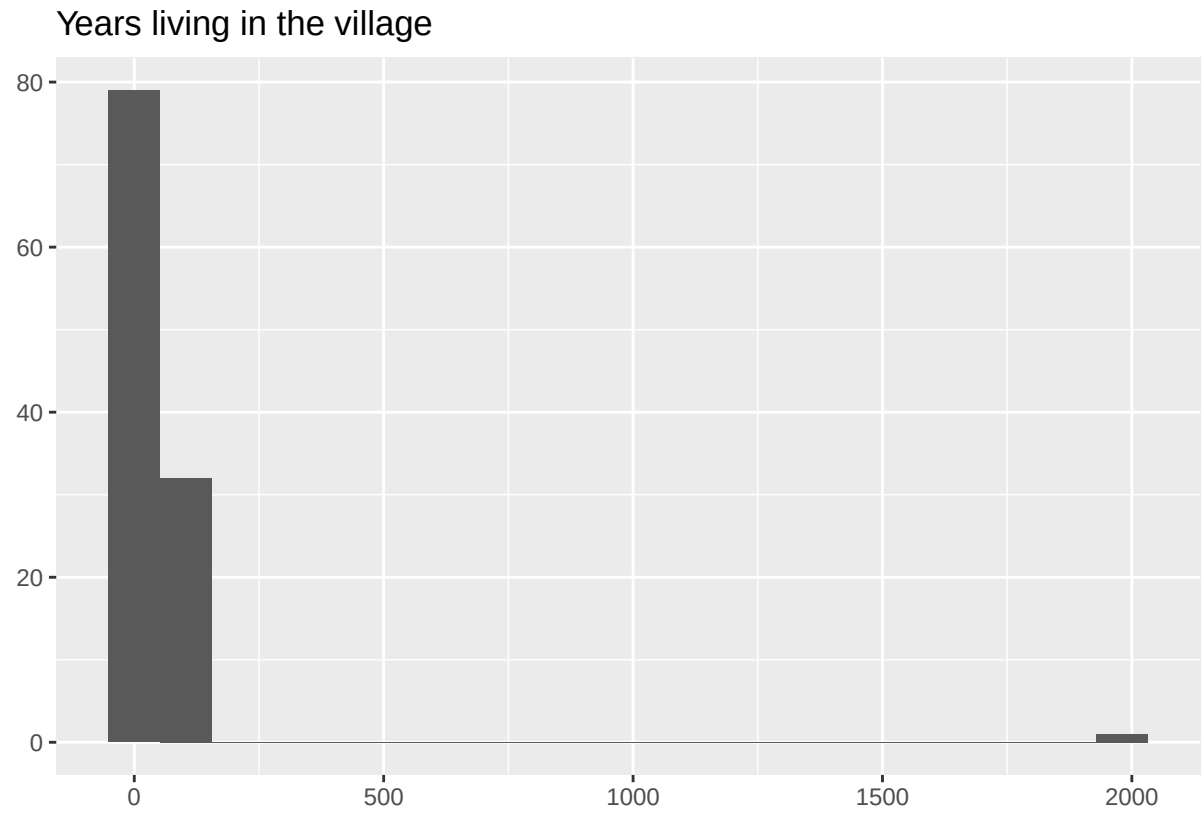
***VRS Roster: 1***


Sex of VRS respondent
100
75
50
25
0
Female
Male


Age of VRS respondent
15
10
5
0
30
40
50
60
70
80
90


Position of the respondent
60
40
20
0
Elected leader (Councillor)
Other positions
Pastor
Teacher / Principal
Unimane / Unaine


Number of years in the position
20
15
10
5
0
0
5
10
15
20




### *VRS Roster: 2*

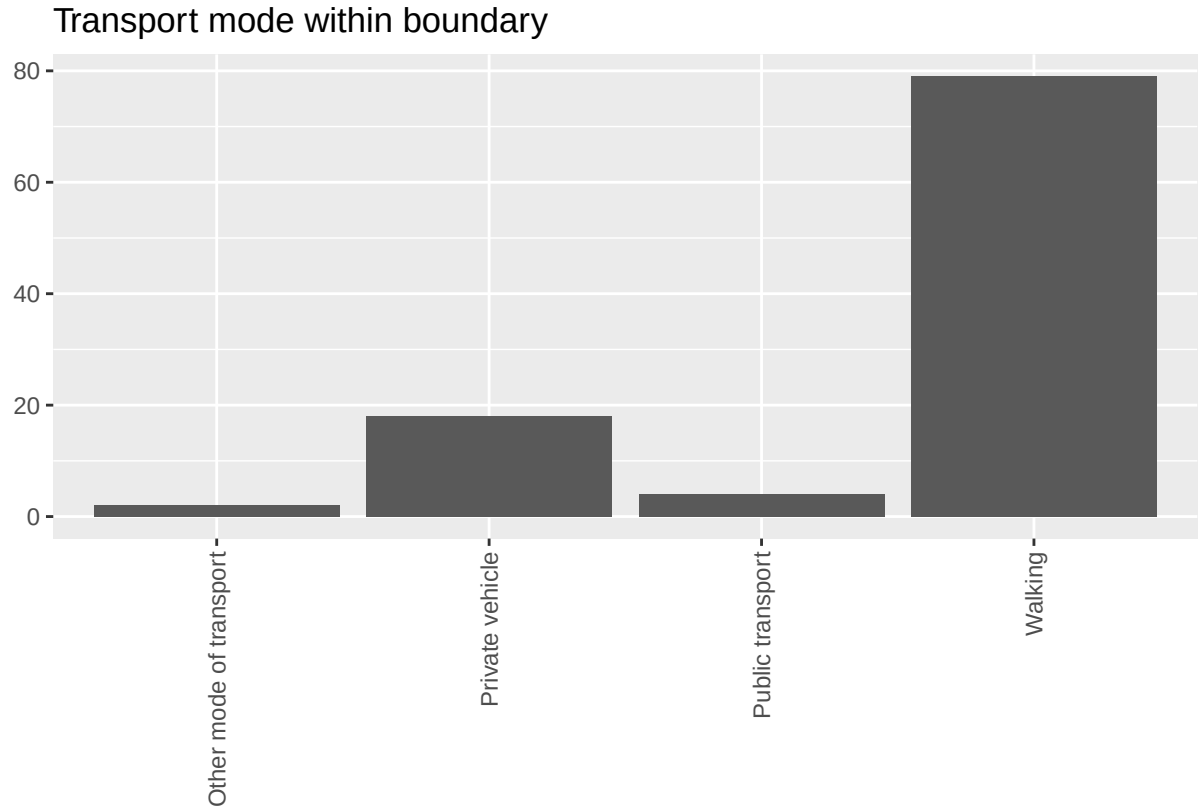
**Note: only contains one individual with the following characteristics**

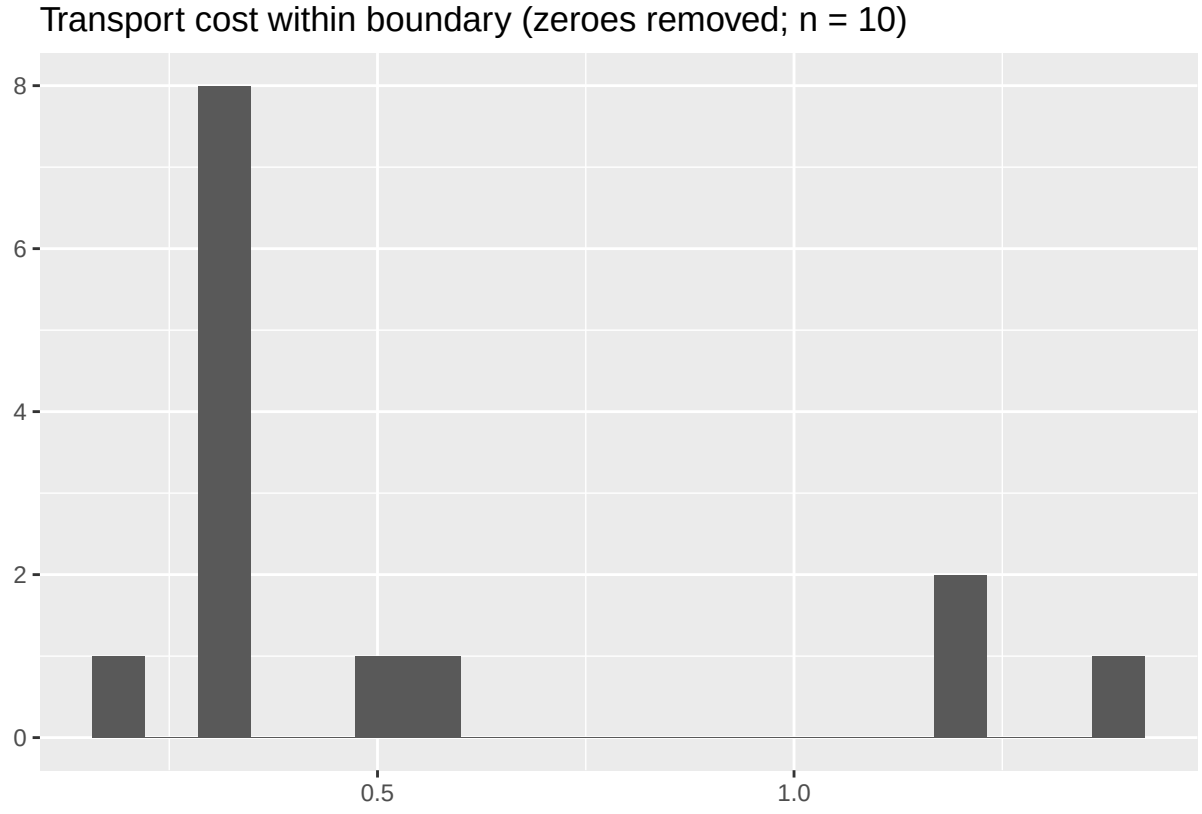
```
## # A tibble: 5 x 6
##   interview__key interview__id vrs_roster__id respondent_names response
##   <chr>          <chr>         <chr>          <chr>            <chr>
## 1 25-11-36-51    b8777fe7e091~ 2              Kaiea Tibwere    Male
## 2 25-11-36-51    b8777fe7e091~ 2              Kaiea Tibwere    59
## 3 25-11-36-51    b8777fe7e091~ 2              Kaiea Tibwere    Elected~
## 4 25-11-36-51    b8777fe7e091~ 2              Kaiea Tibwere    4
## 5 25-11-36-51    b8777fe7e091~ 2              Kaiea Tibwere    34
## # ... with 1 more variable: question <chr>
```

```
## # A tibble: 11 x 1
##    within_roster__id
##    <chr>
##  1 Nearest Church
##  2 Nearest Trade Store/Supermarket
##  3 Airport
##  4 Clinic/Hospital
##  5 Nearest fish landing site
##  6 Nearest Credit Facility
##  7 Nearest Market
##  8 Nearest Post Office
```

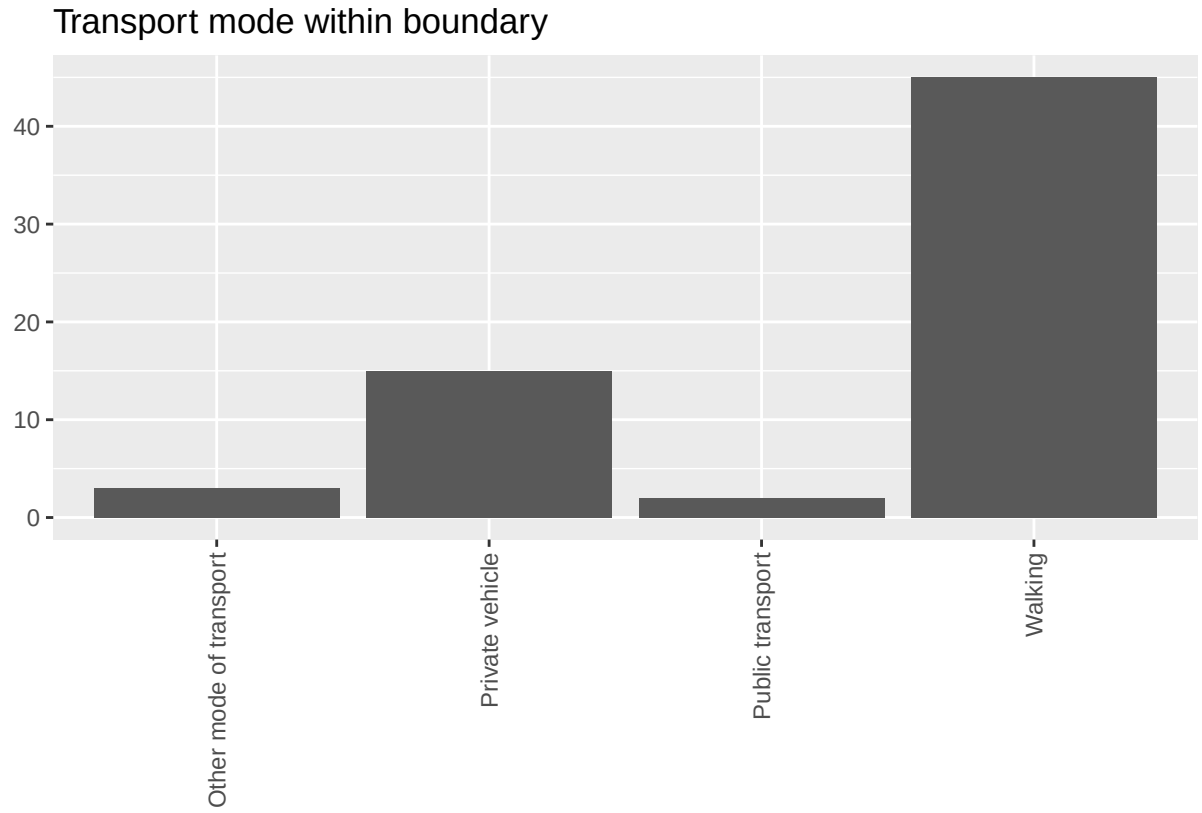
```
##  9 Nearest Police Station
## 10 Nearest Court House
## 11 Bank
```

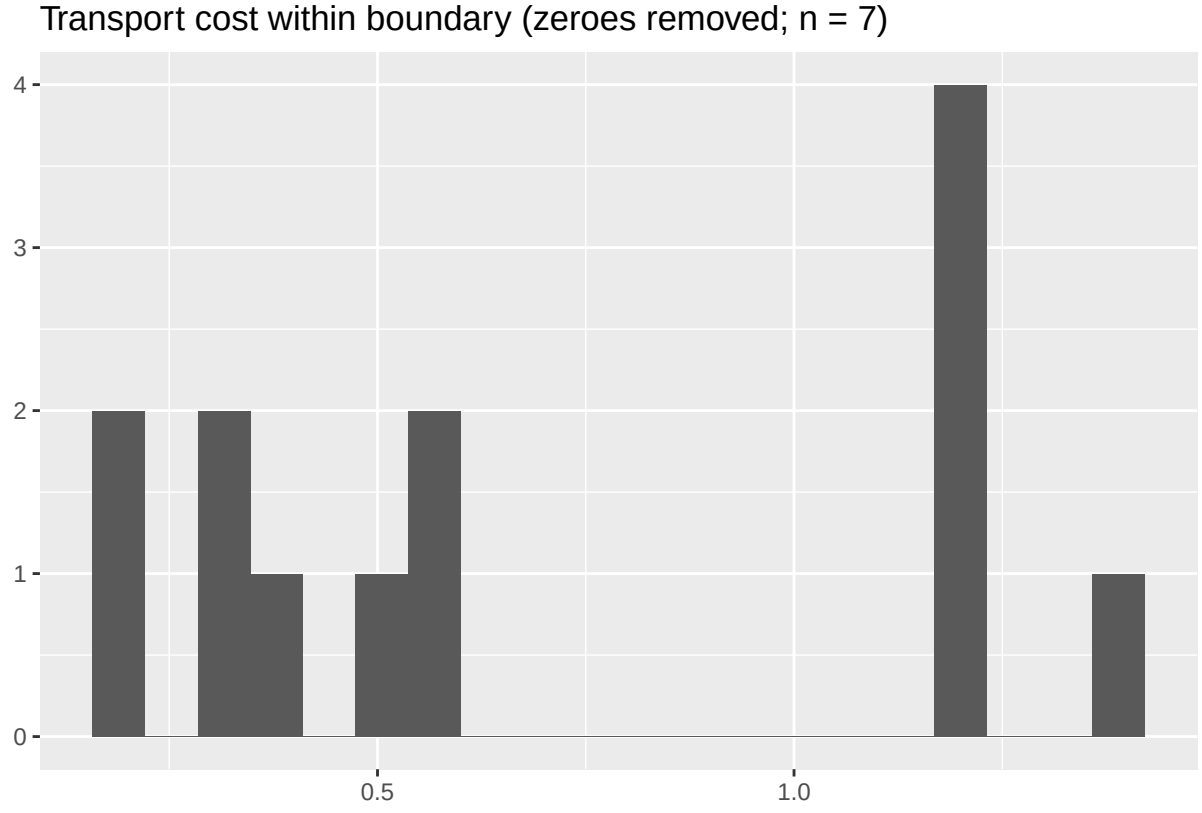
***Asset: Nearest Church***



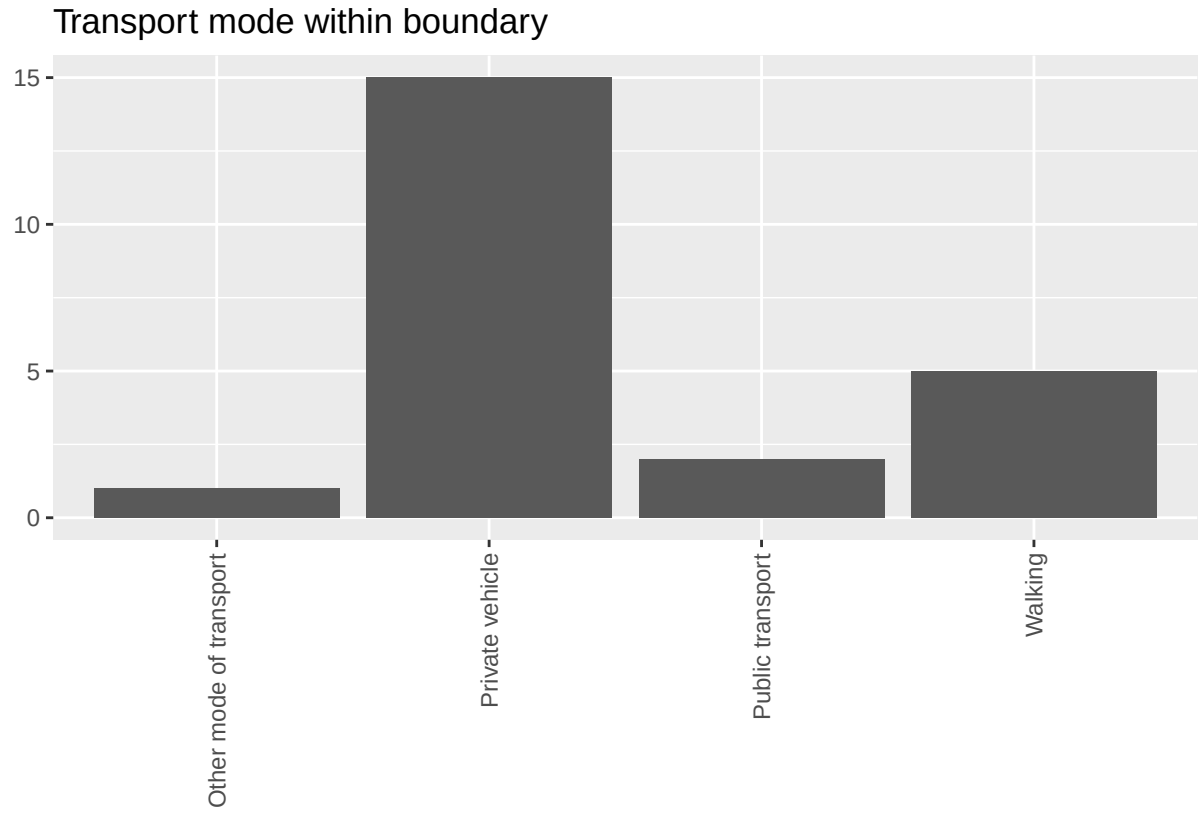



***Asset: Nearest Trade Store/Supermarket***

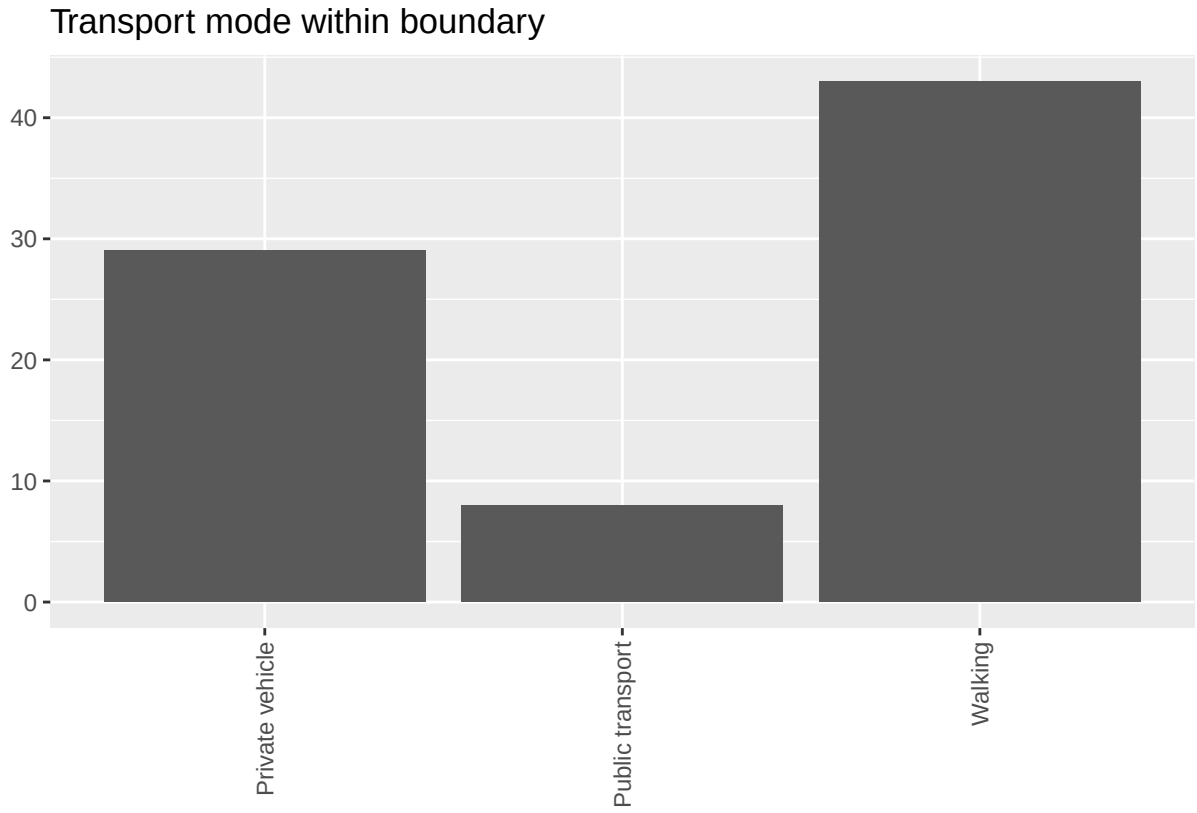


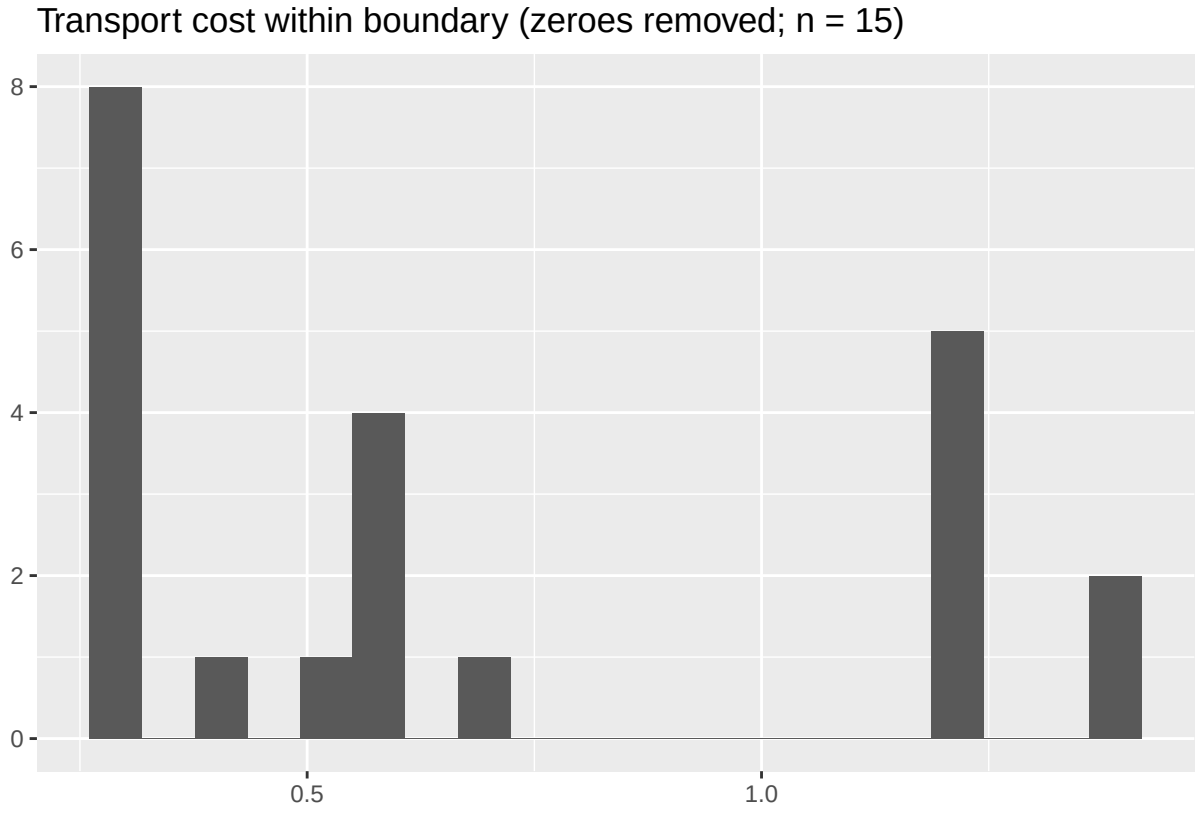



***Asset: Airport***

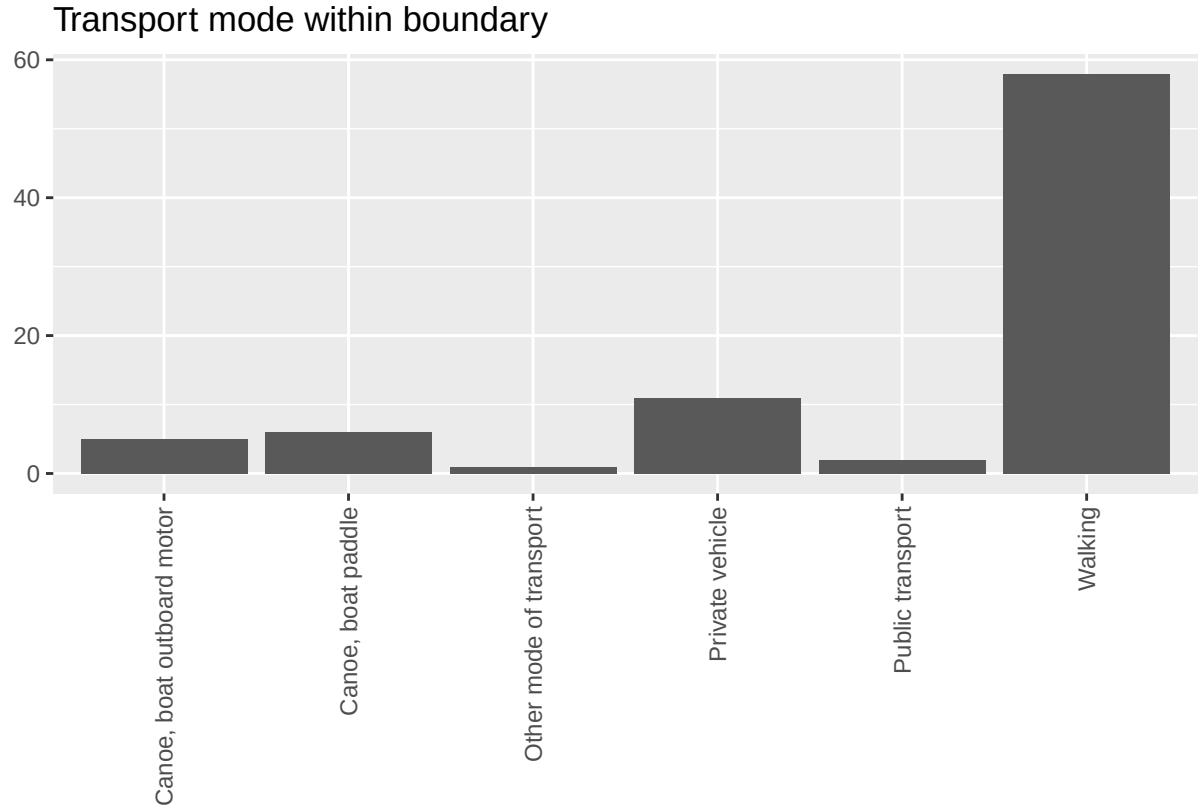



***Asset: Clinic/Hospital***

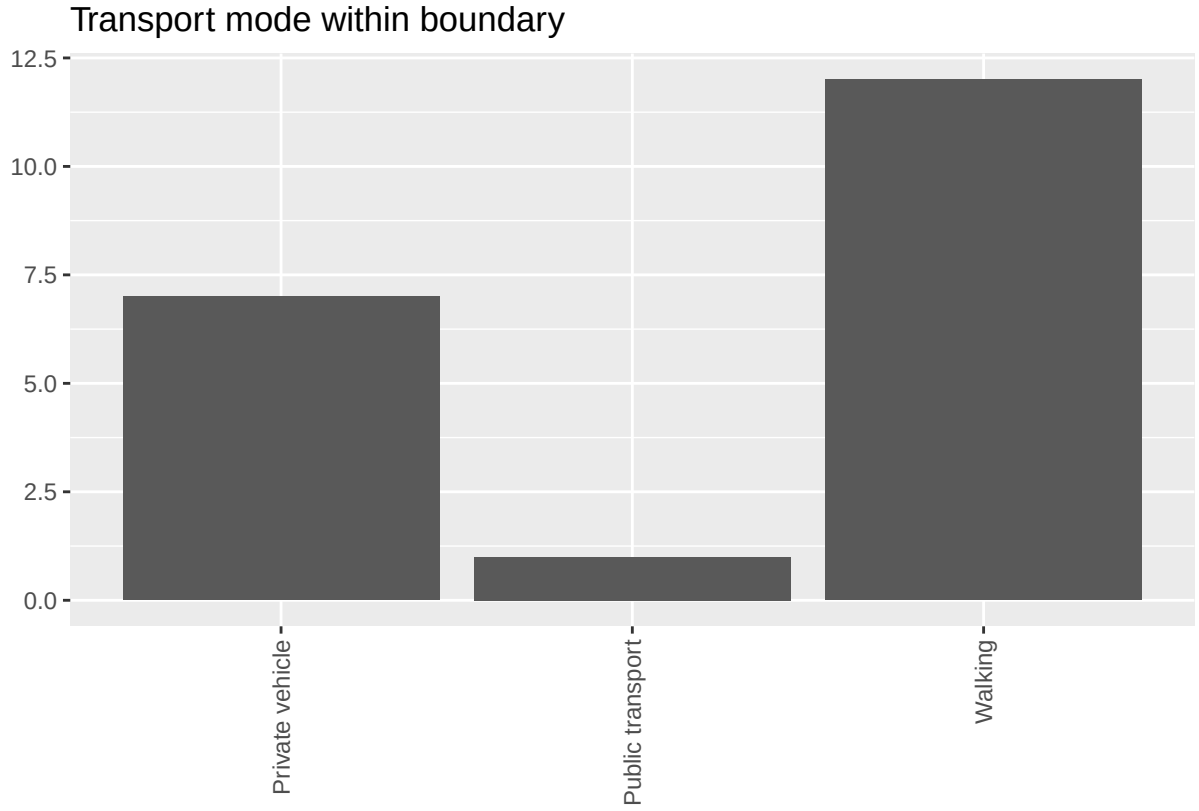


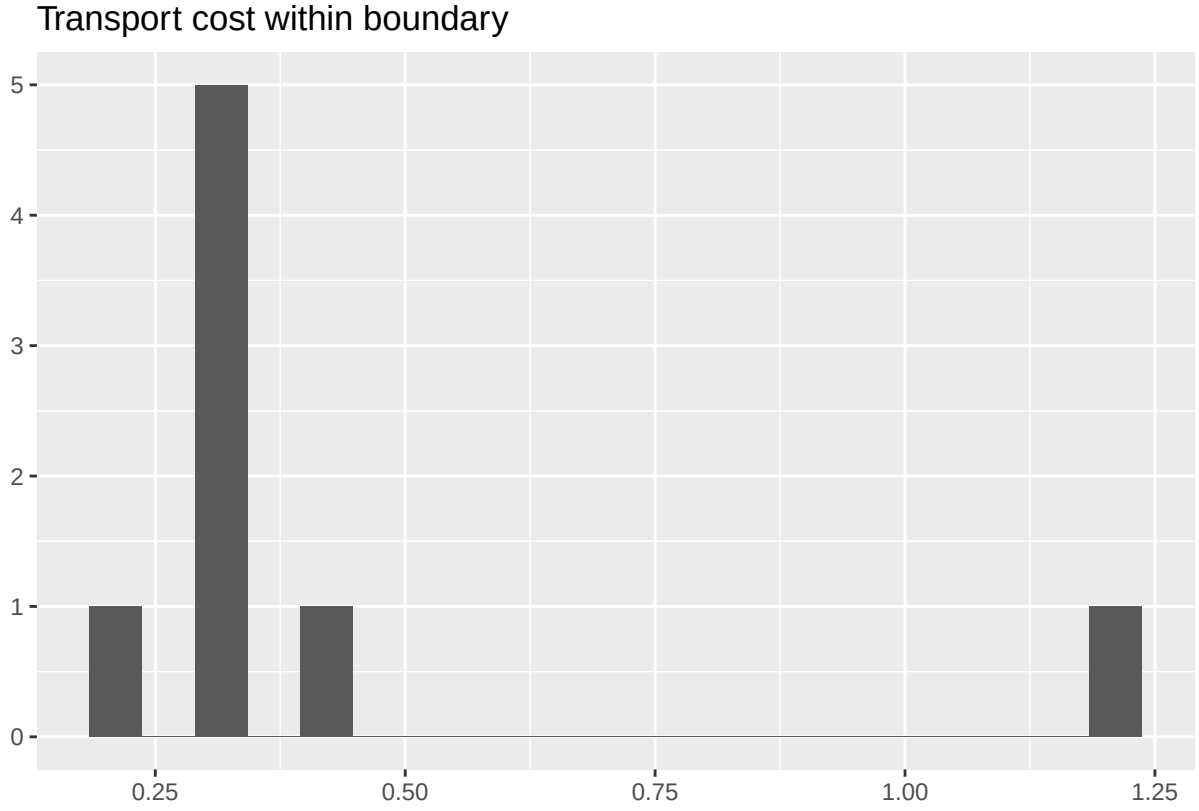



***Asset: Nearest fish landing site***

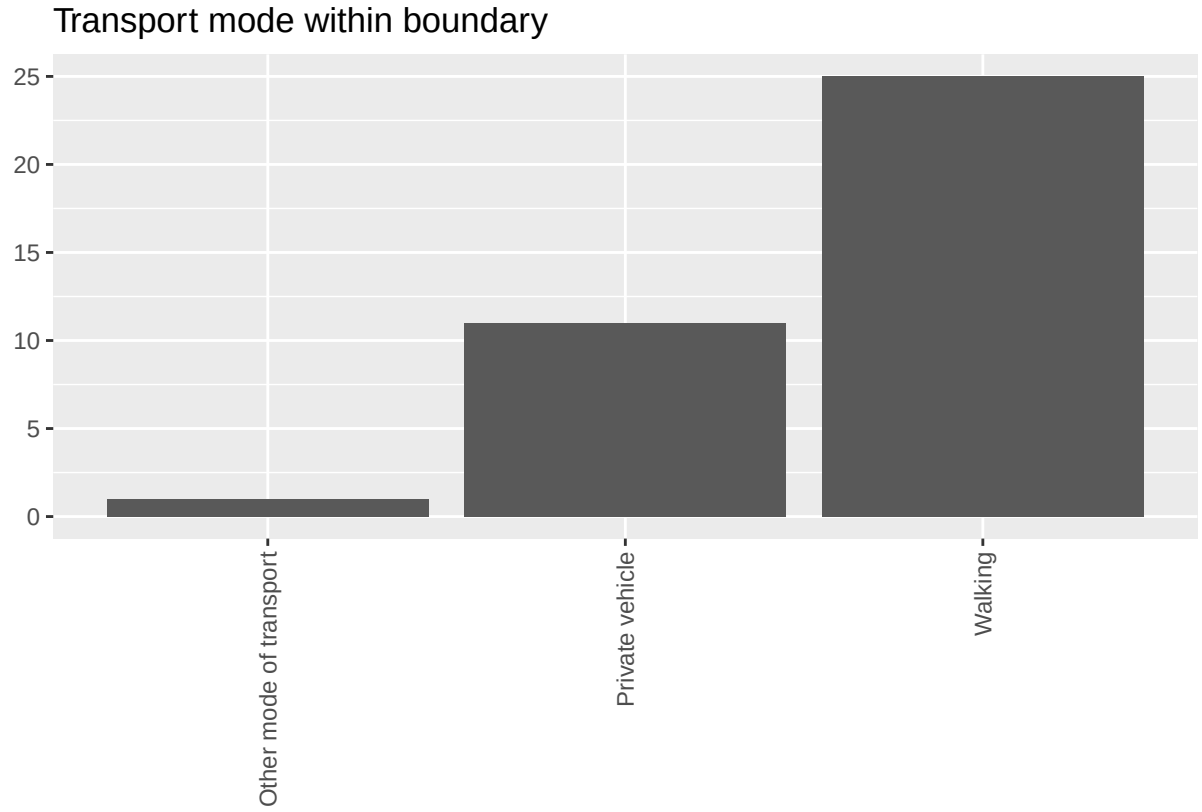


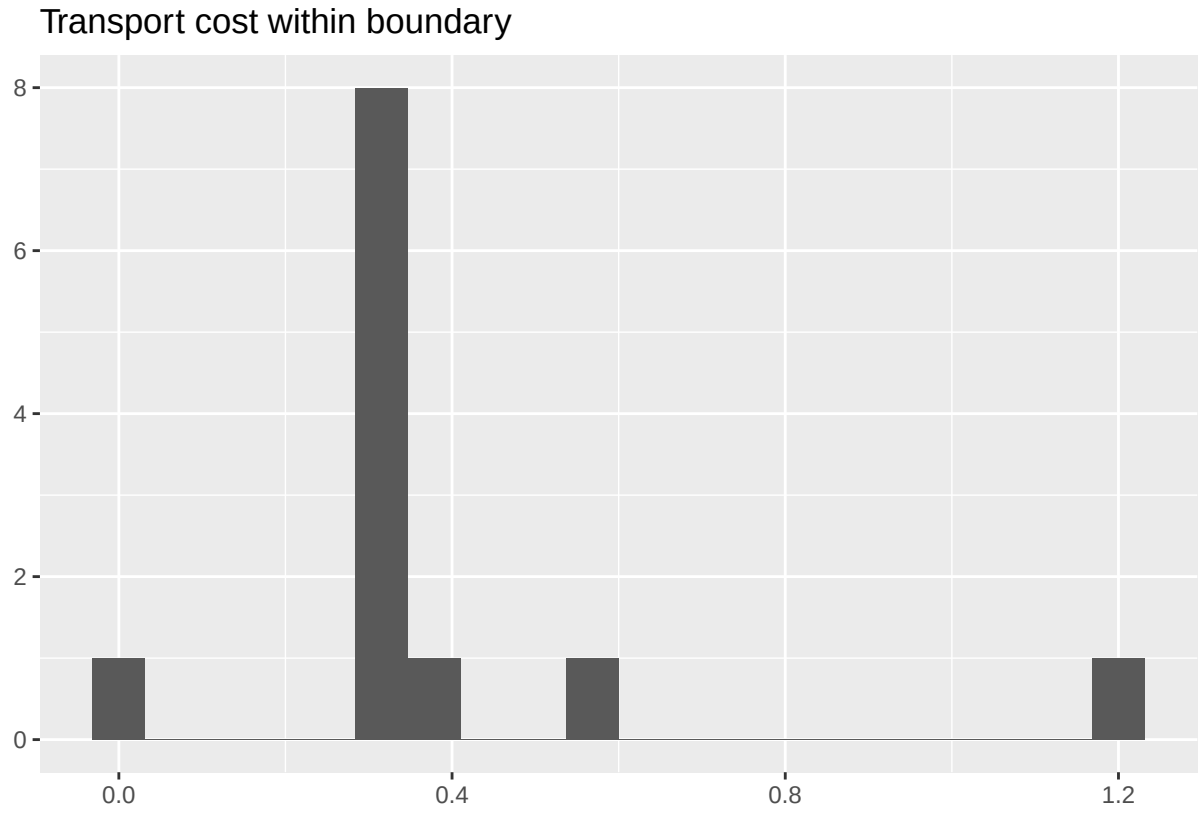

***Asset: Nearest Credit Facility***



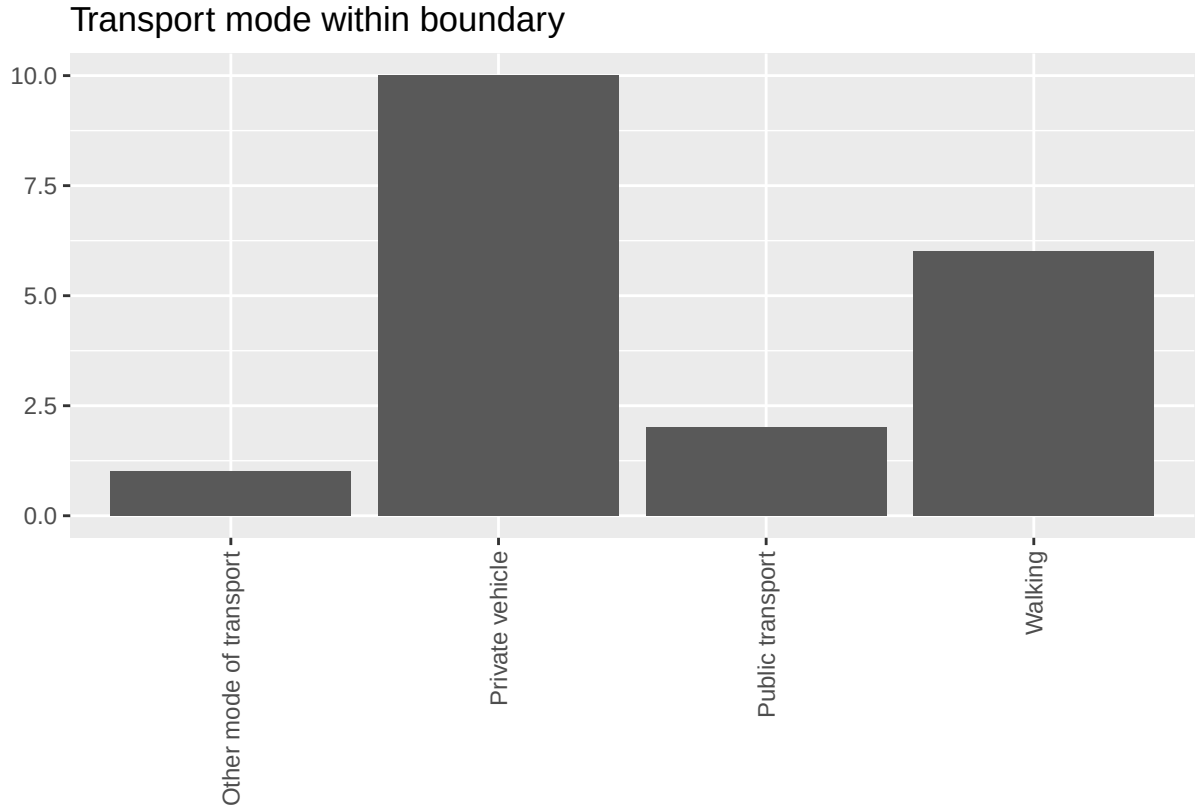



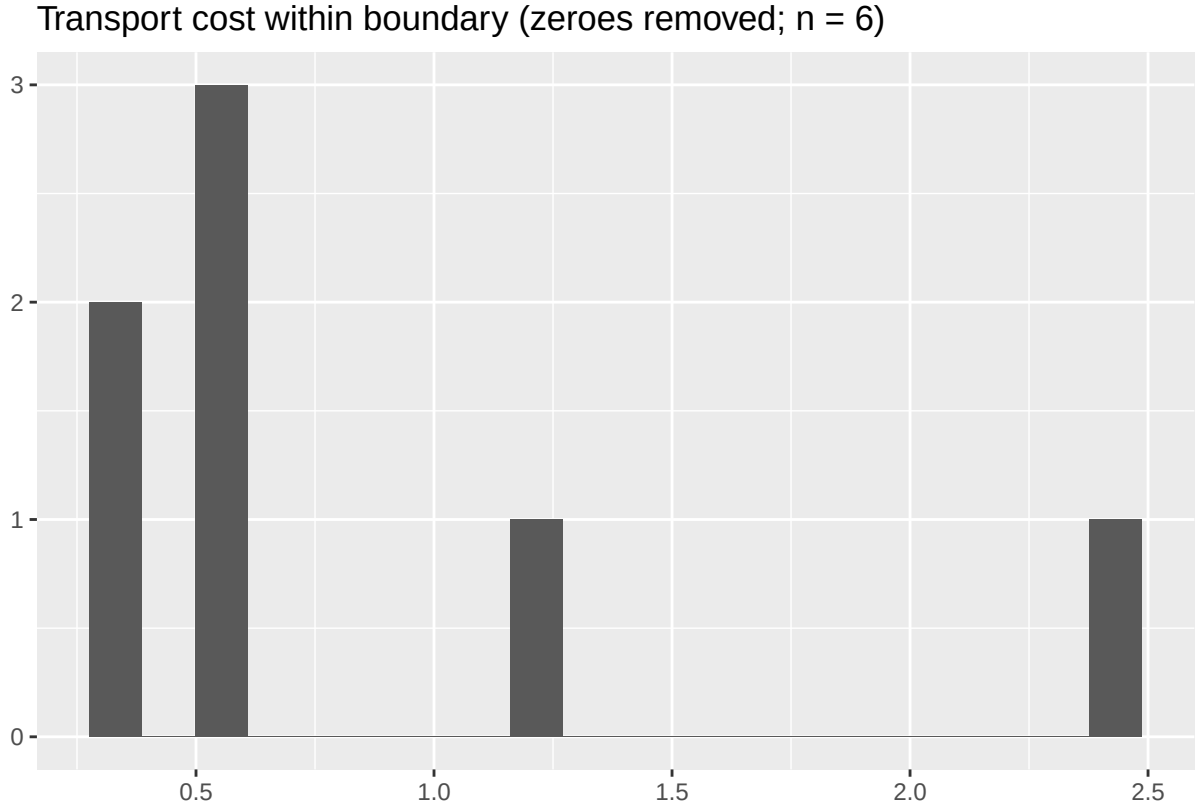
***Asset: Nearest Market***



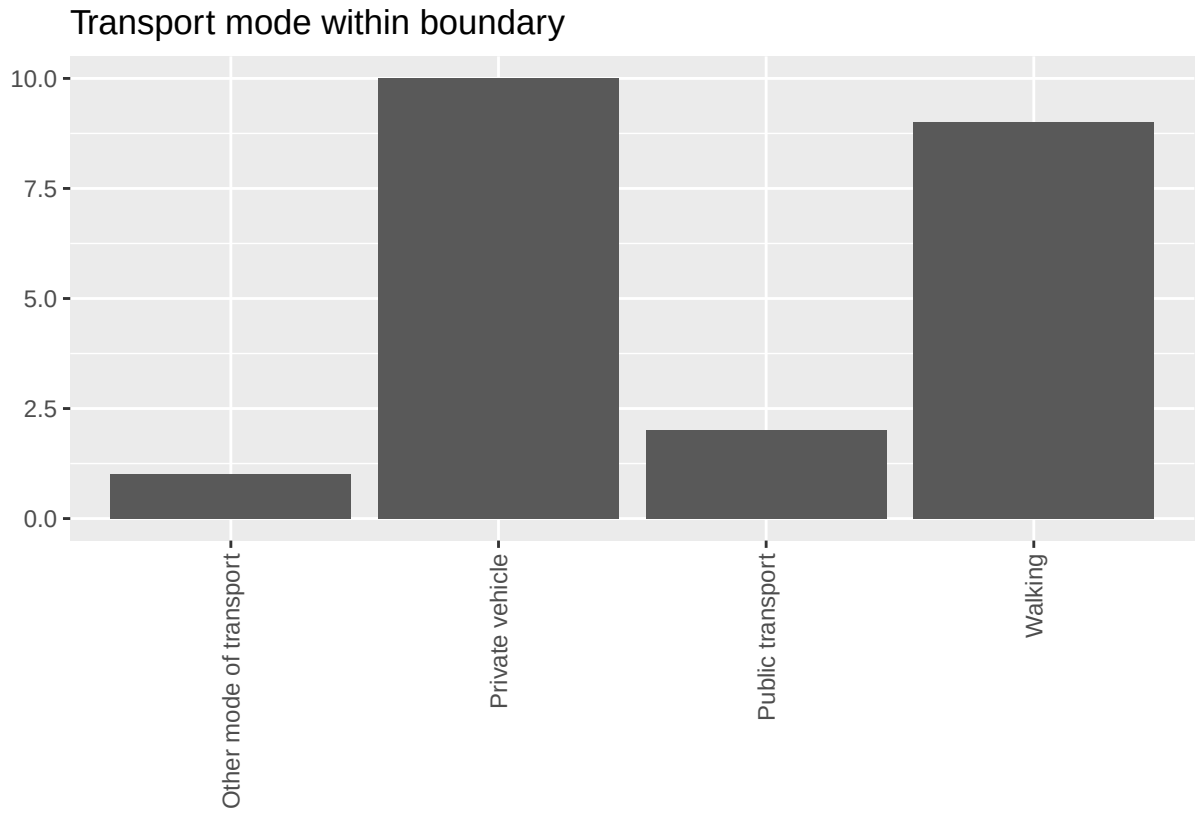



***Asset: Nearest Post Office***

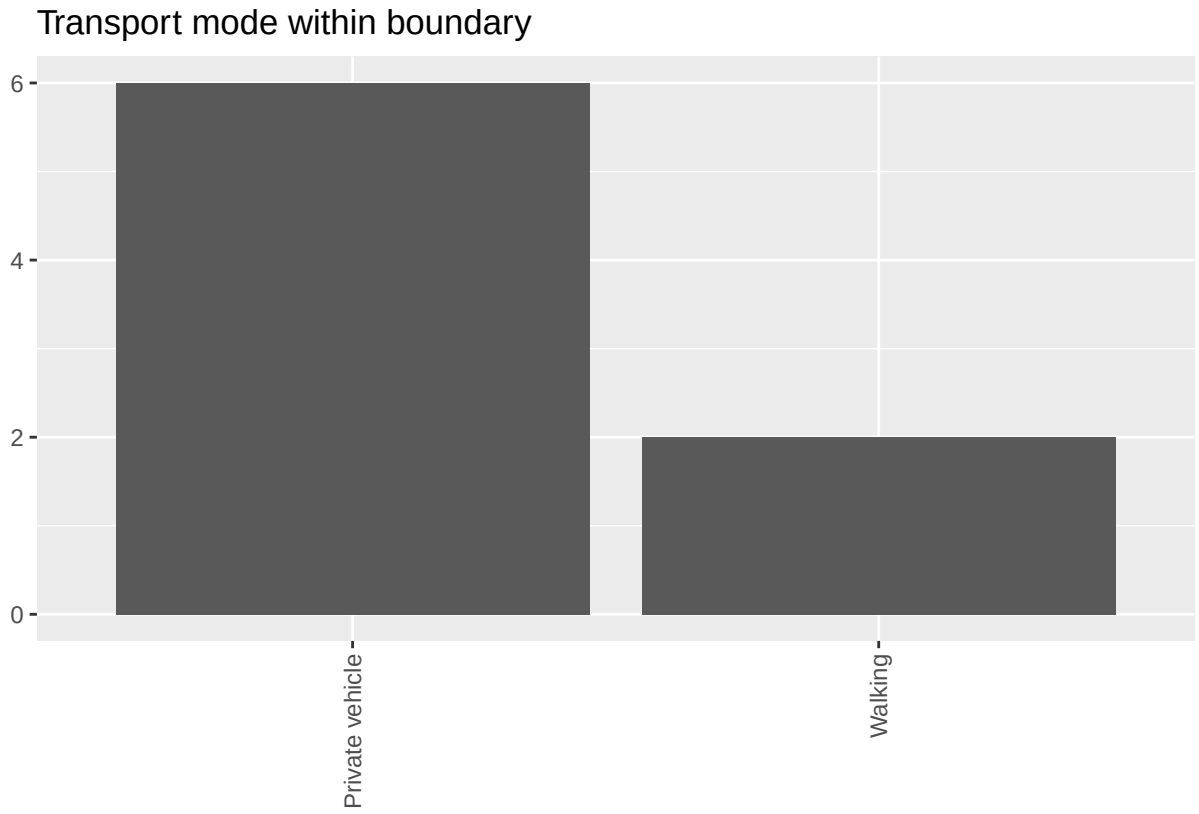


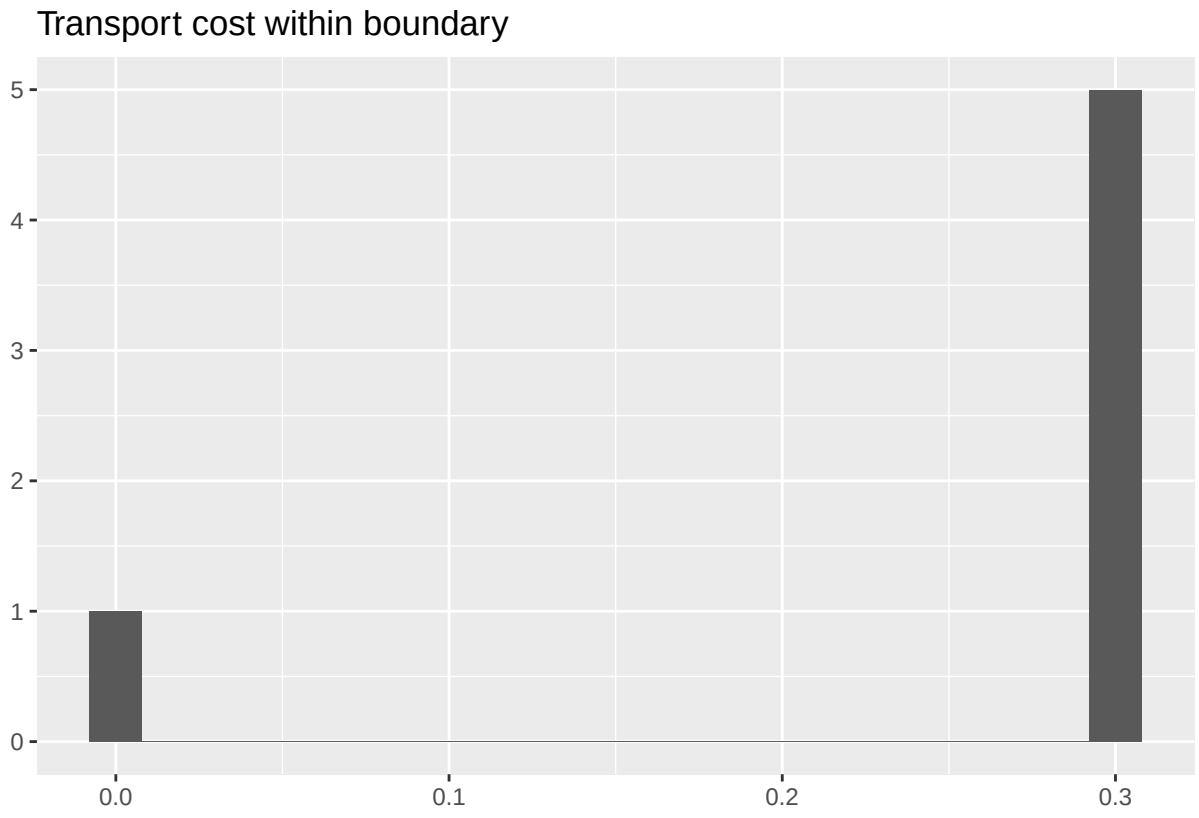



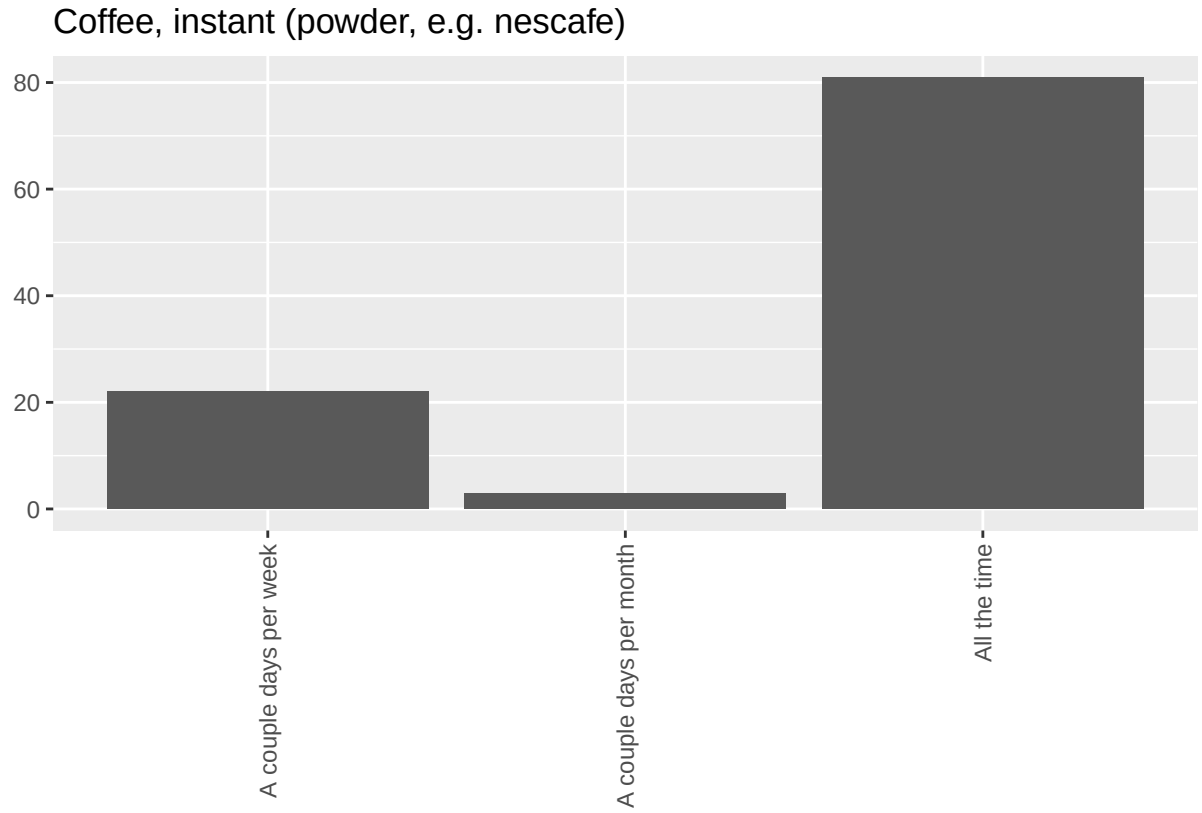
***Asset: Nearest Court House***

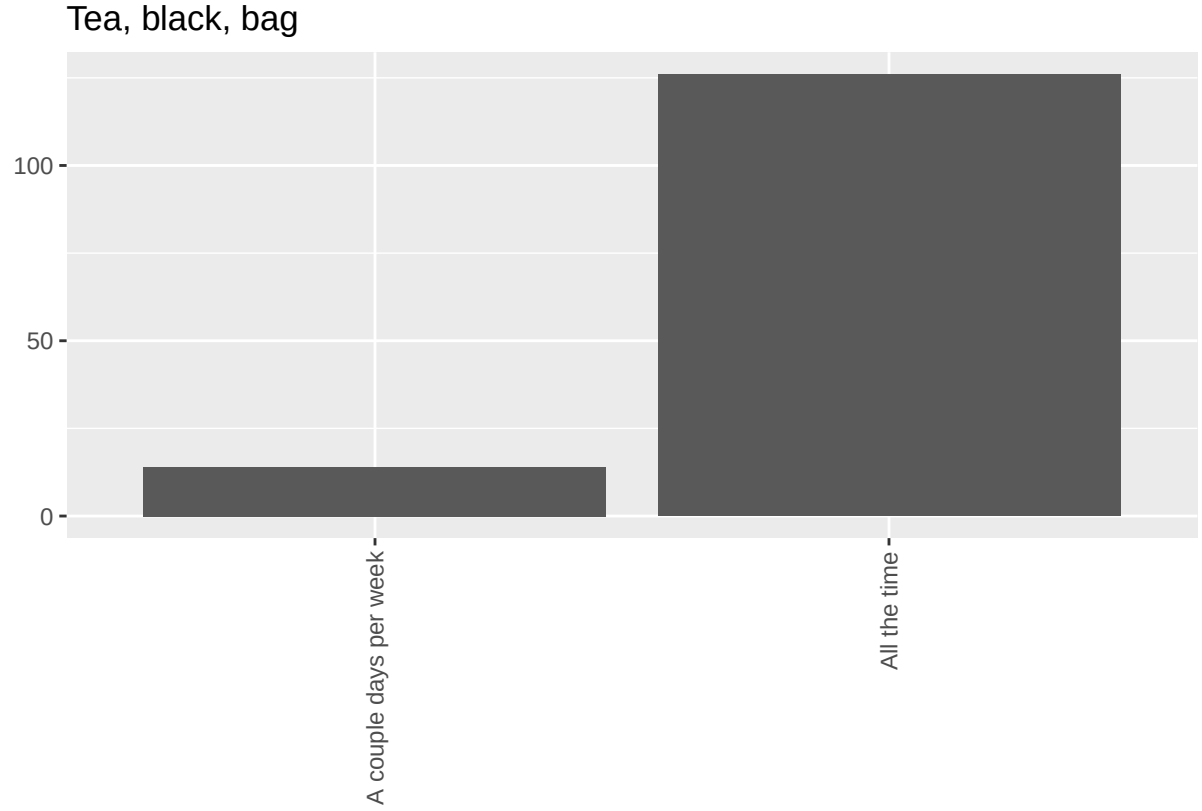


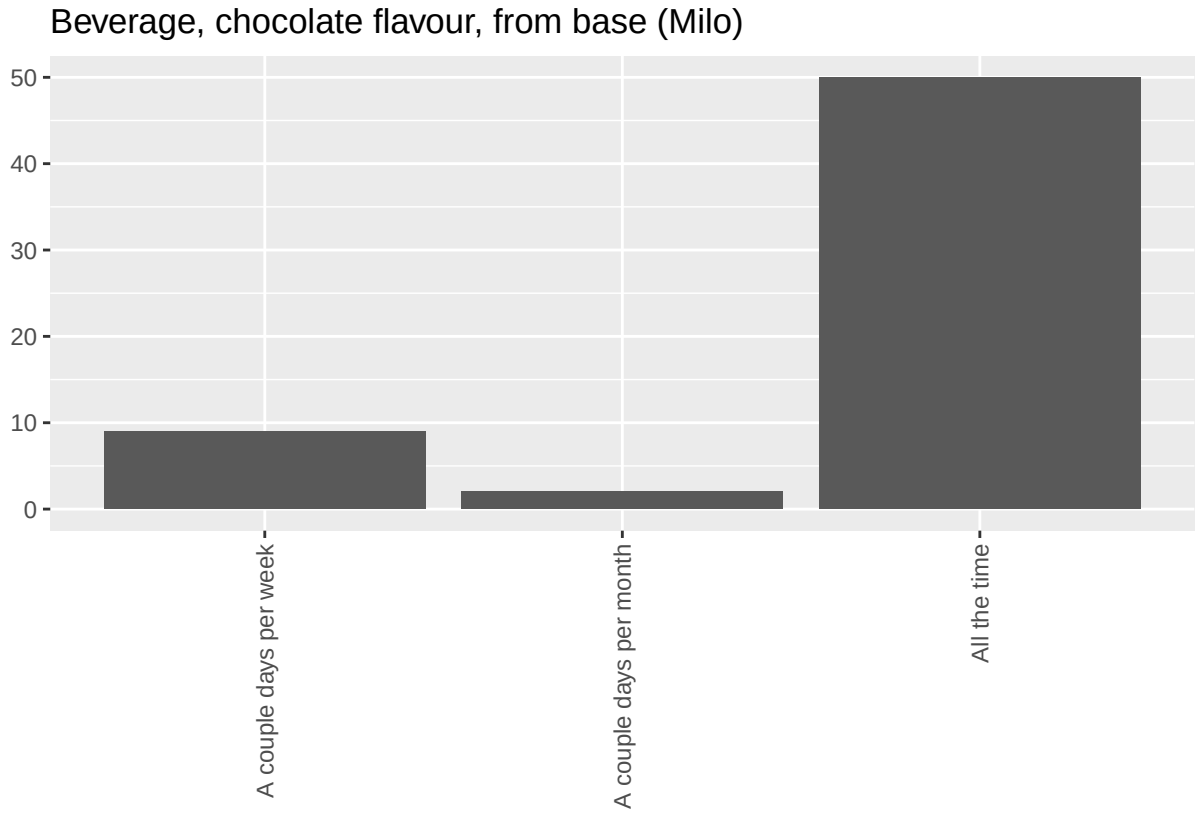

***Asset: Bank***

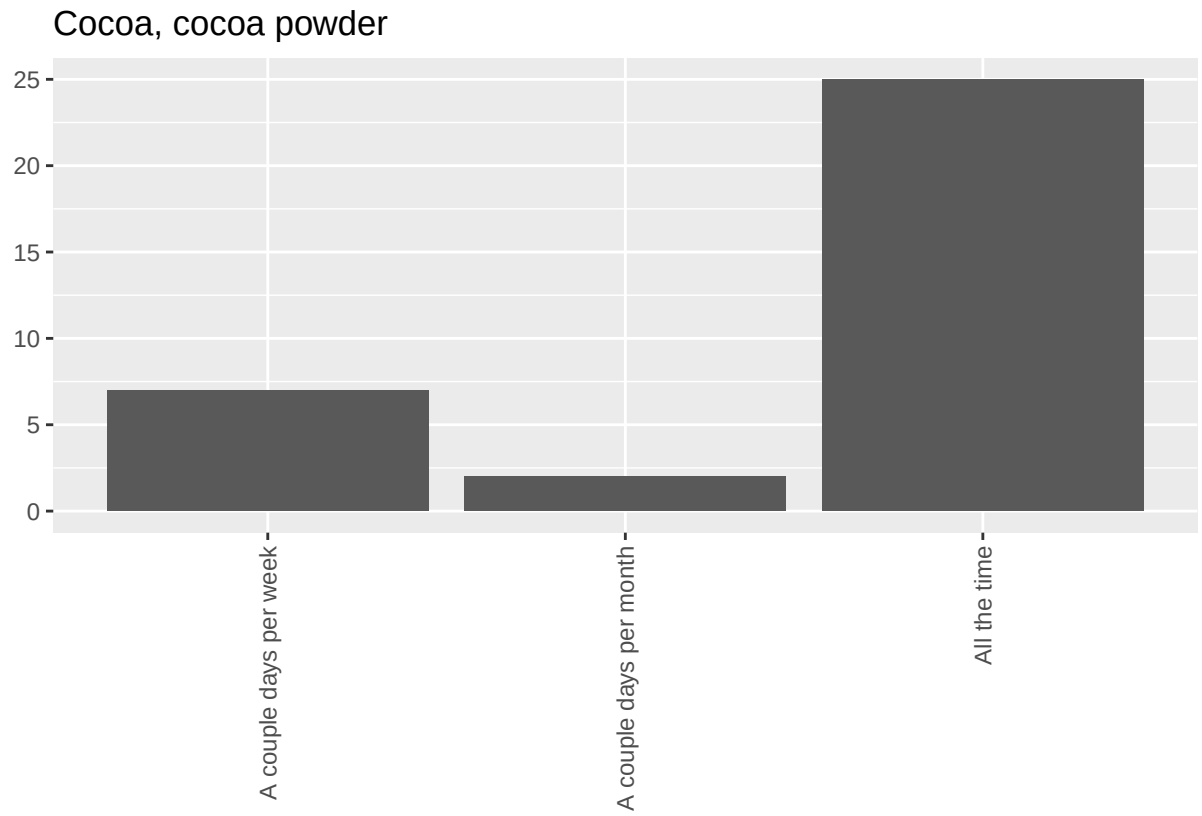

Transport mode within boundary
6
4
2
0
Private vehicle
Walking

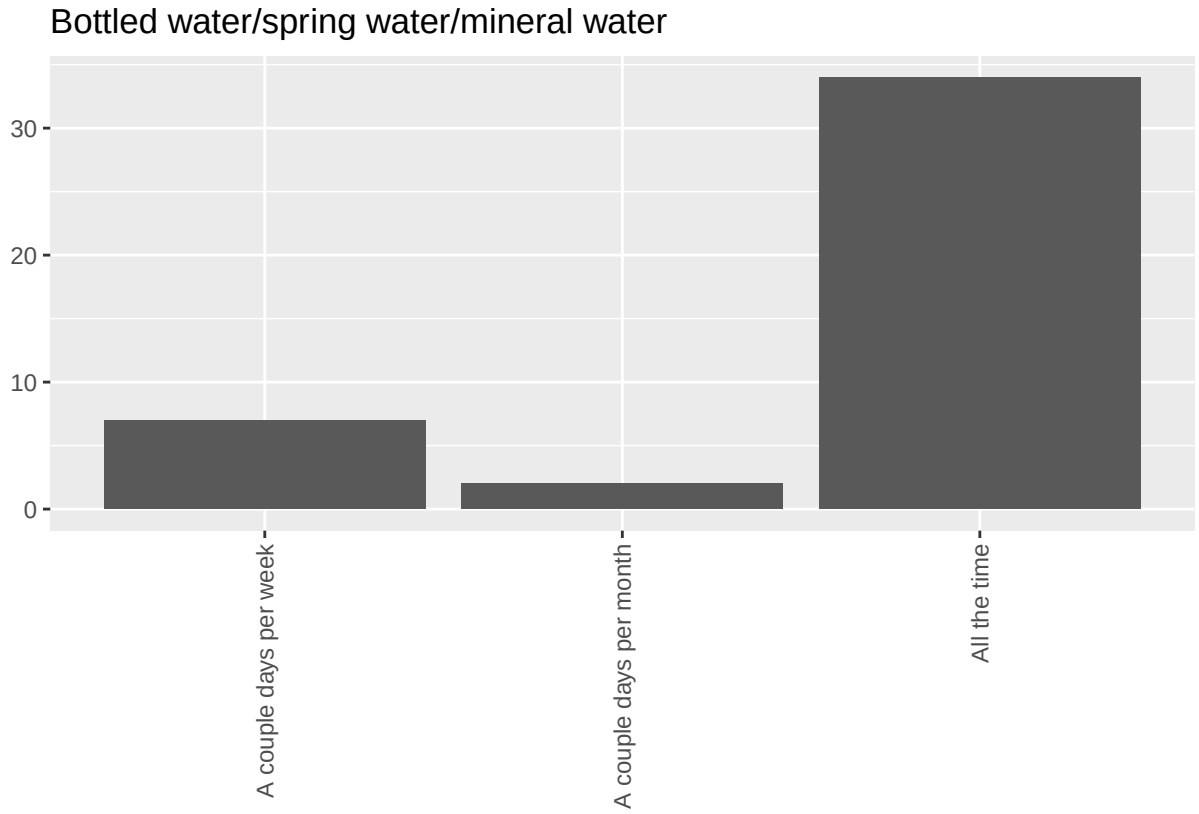

Transport cost within boundary
5
4
3
2
1
0
0.0
0.1
0.2
0.3

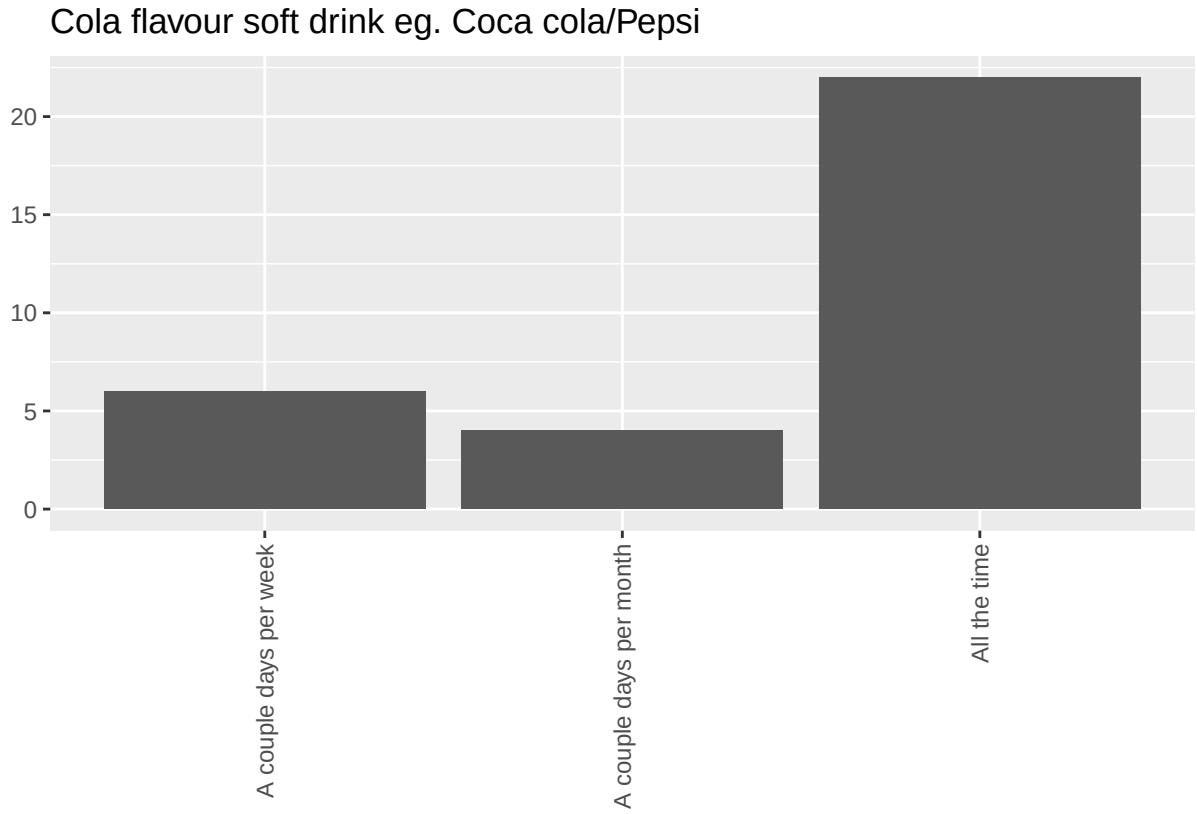

Coffee, instant (powder, e.g. nescafe)
80
60
40
20
0
A couple days per week
A couple days per month
All the time

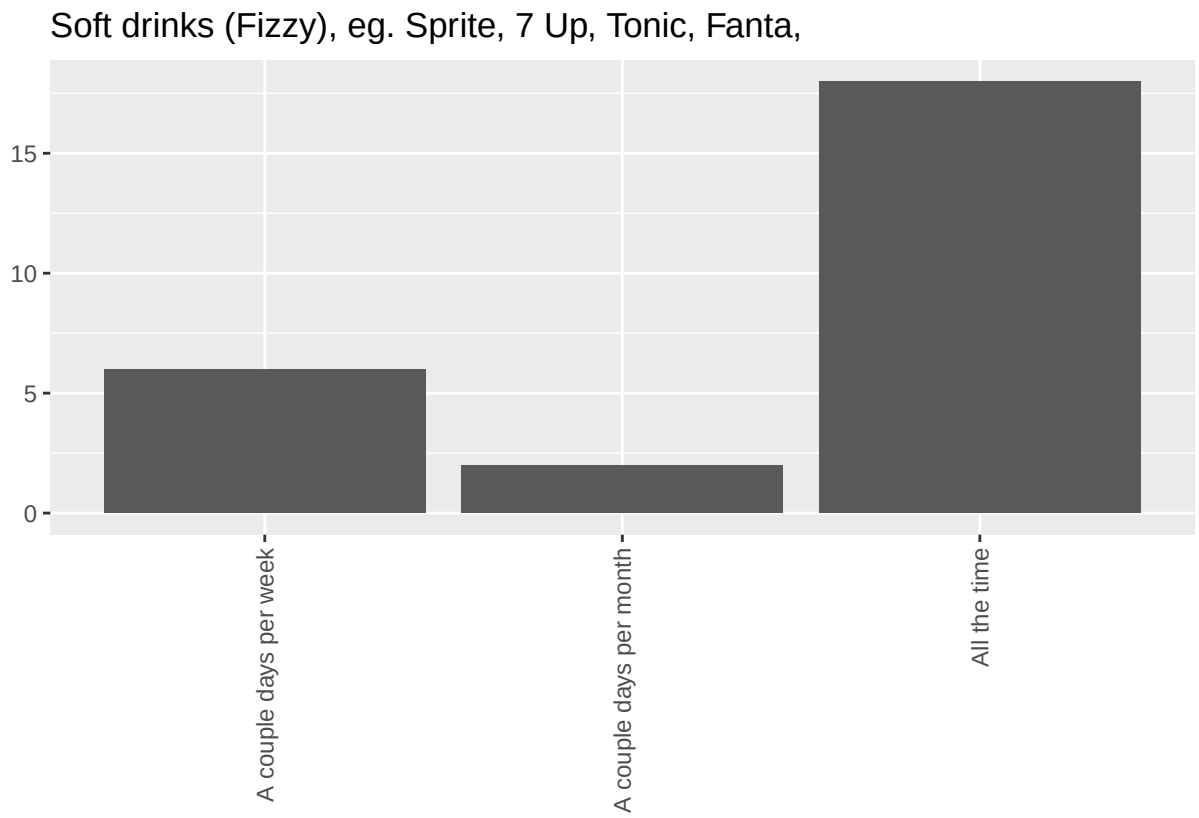

Tea, black, bag
100
50
0
A couple days per week
All the time

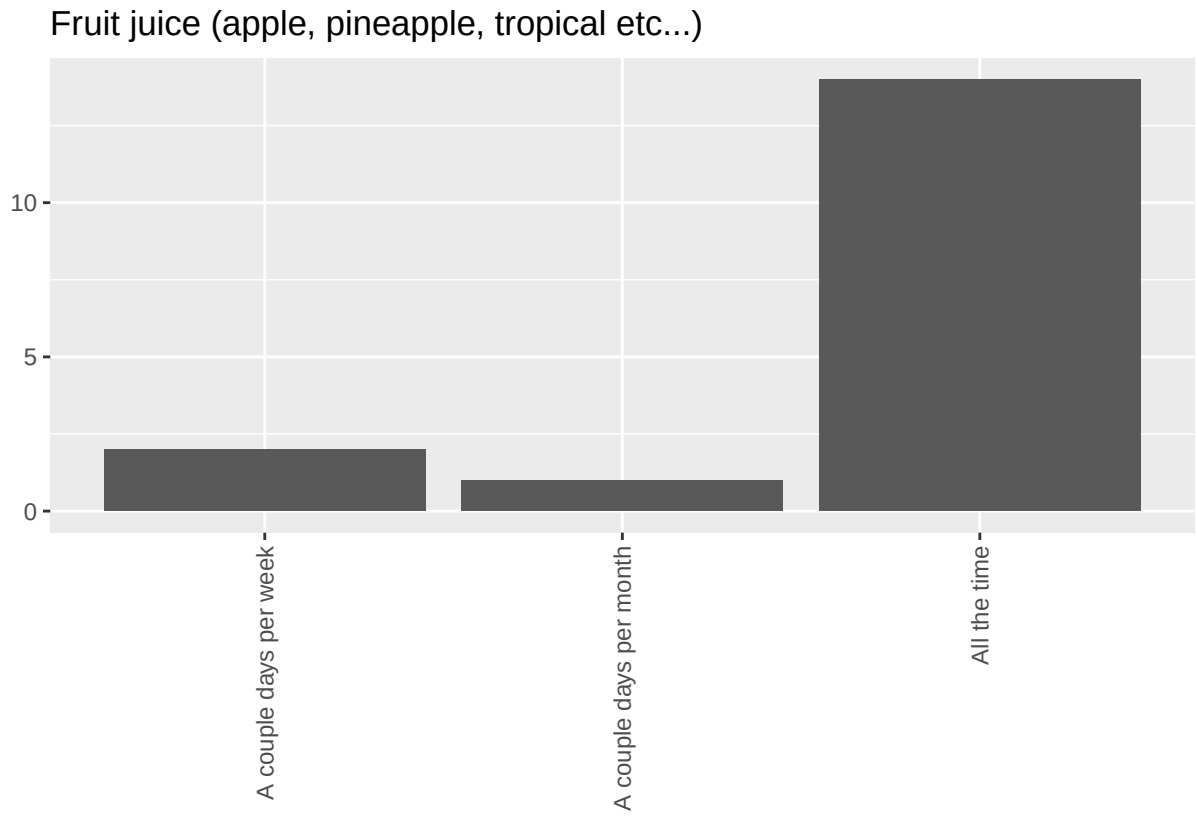

Beverage, chocolate flavour, from base (Milo)
50
40
30
20
10
0
A couple days per week
A couple days per month
All the time

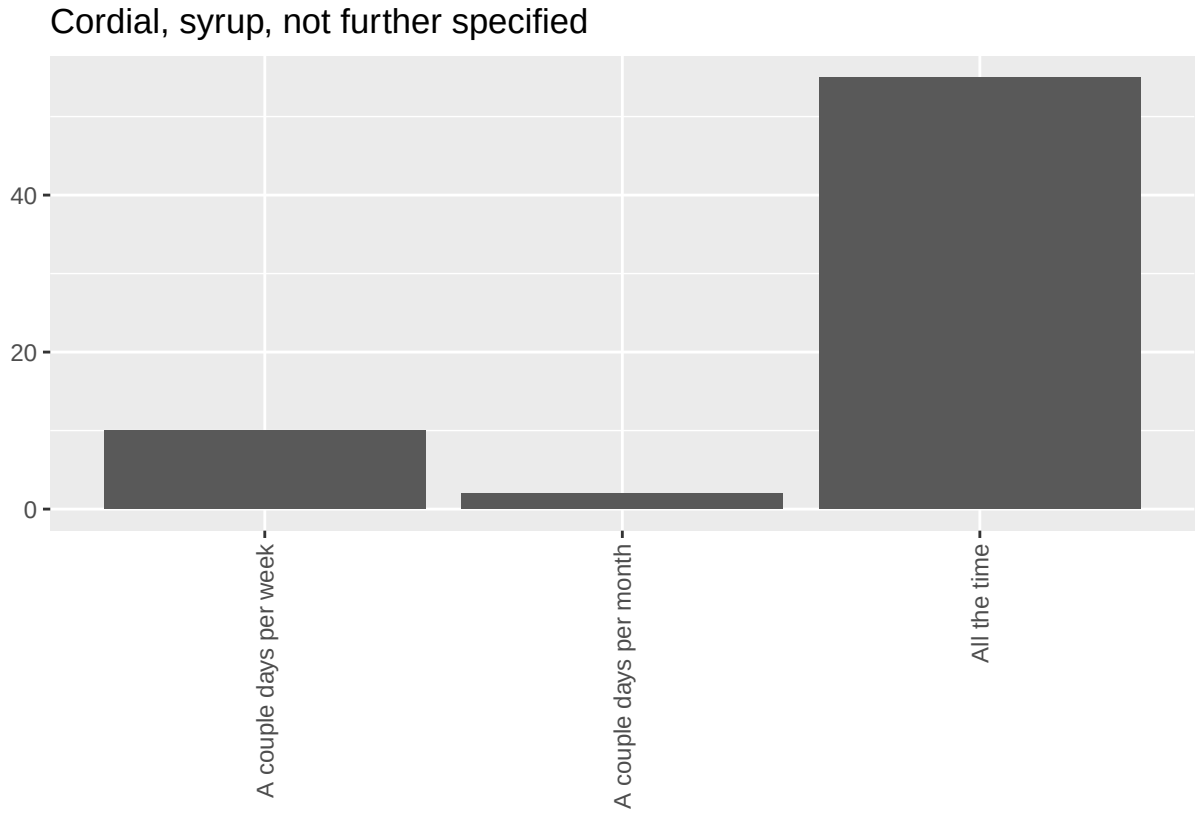

Cocoa, cocoa powder
25
20
15
10
5
0
A couple days per week
A couple days per month
All the time

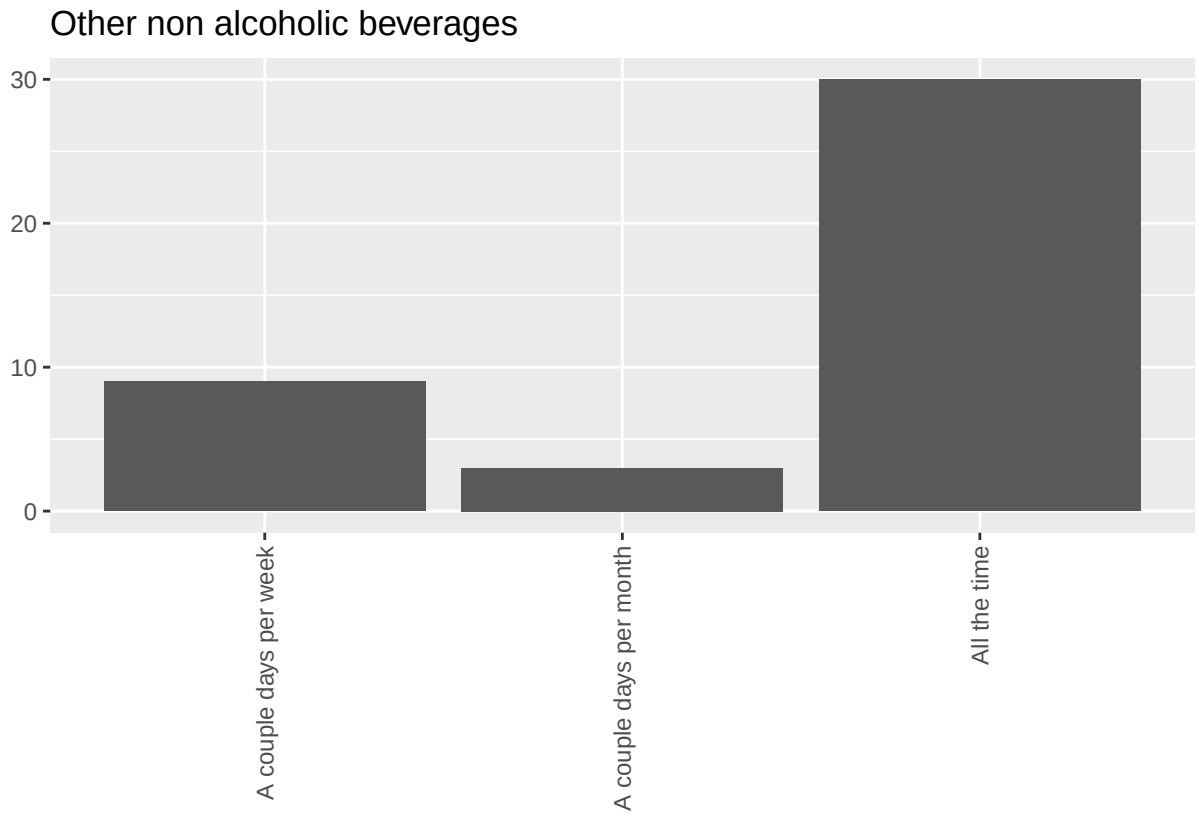

Bottled water/spring water/mineral water
30
20
10
0
A couple days per week
A couple days per month
All the time

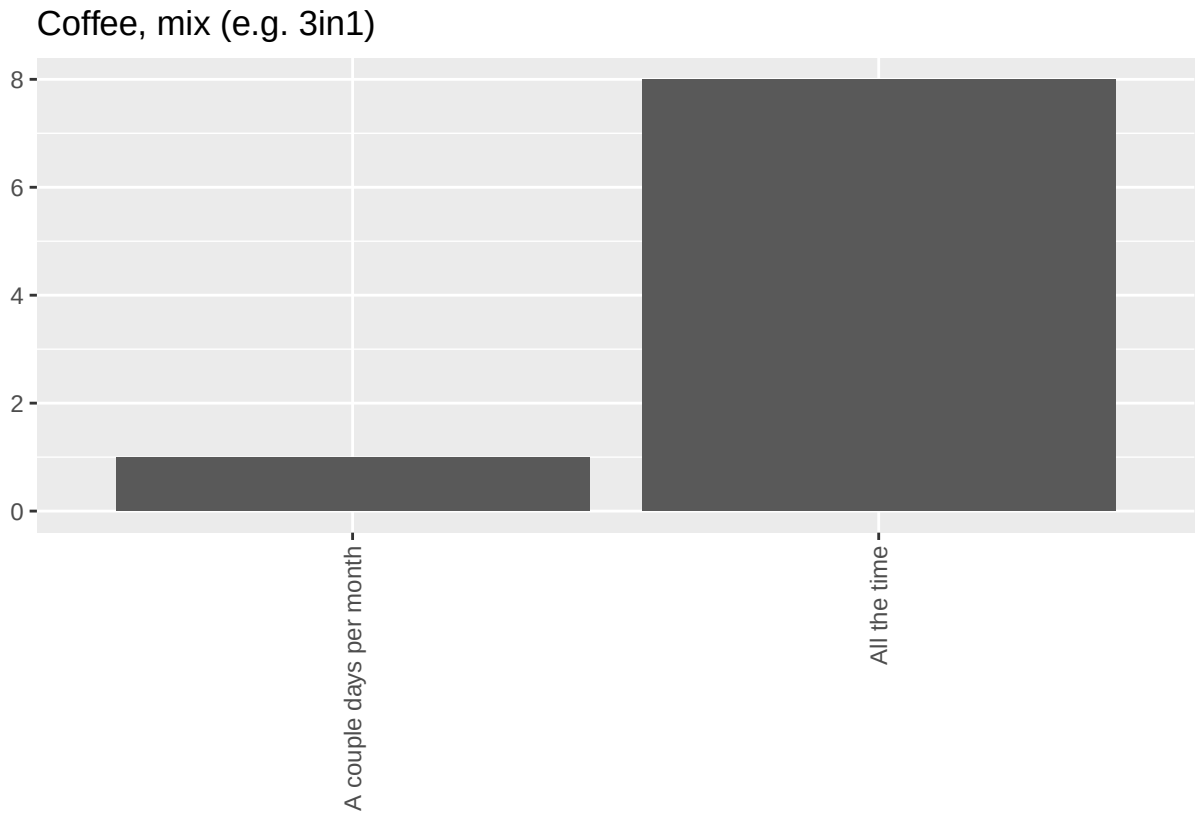

Cola flavour soft drink eg. Coca cola/Pepsi
20
15
10
5
0
A couple days per week
A couple days per month
All the time

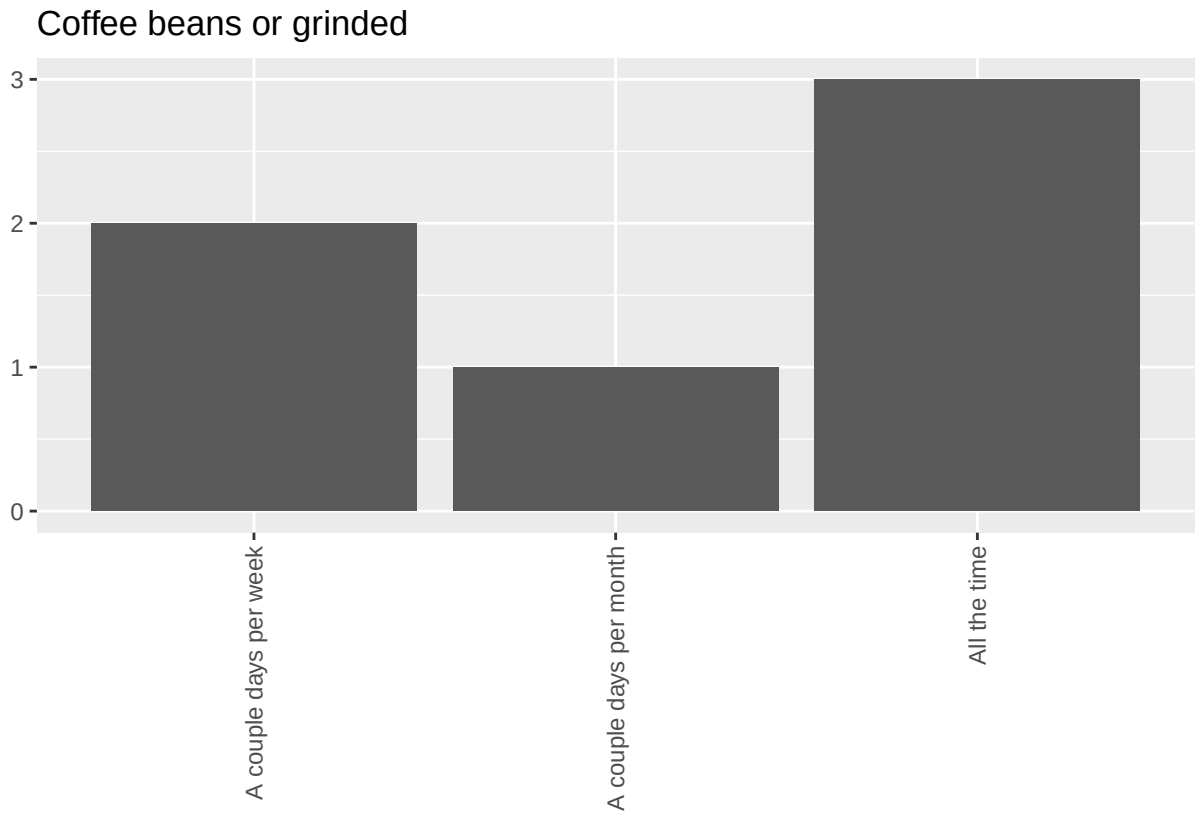

Soft drinks (Fizzy), eg. Sprite, 7 Up, Tonic, Fanta,
15
10
5
0
A couple days per week
A couple days per month
All the time

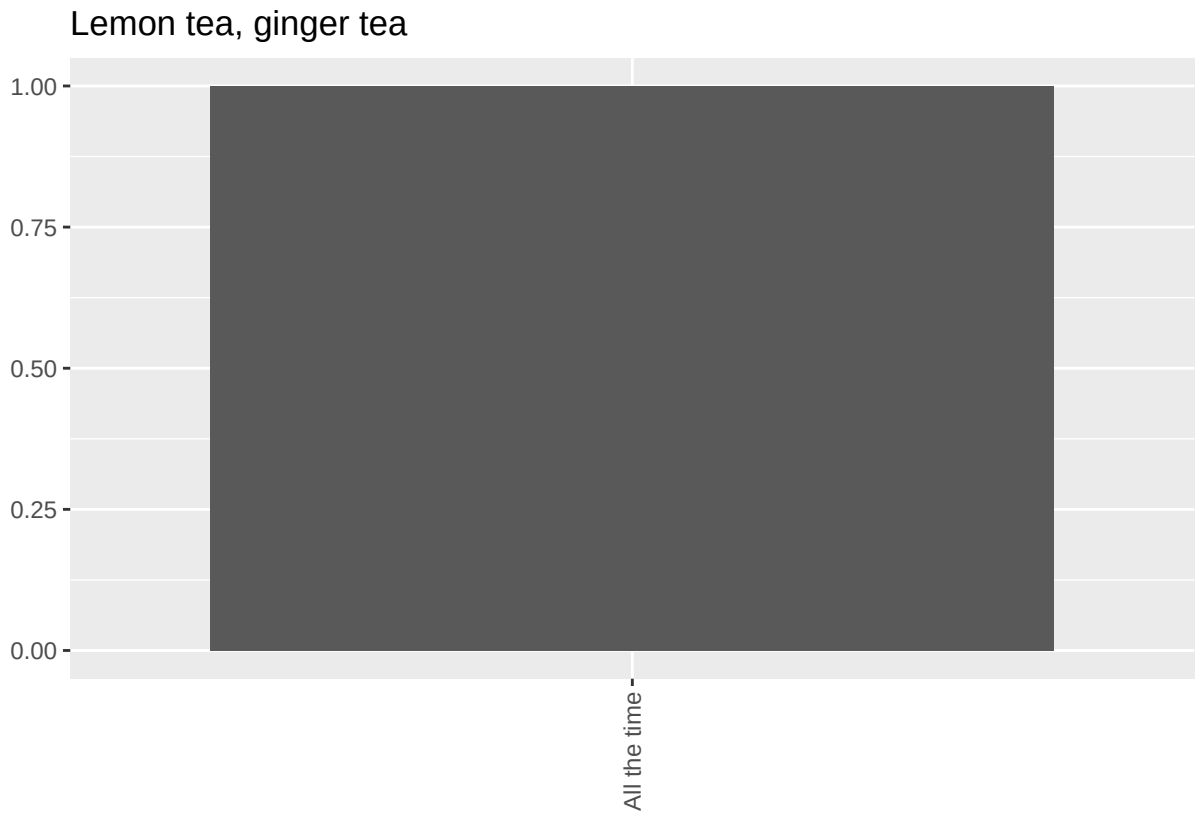

Fruit juice (apple, pineapple, tropical etc...)
10
5
0
A couple days per week
A couple days per month
All the time

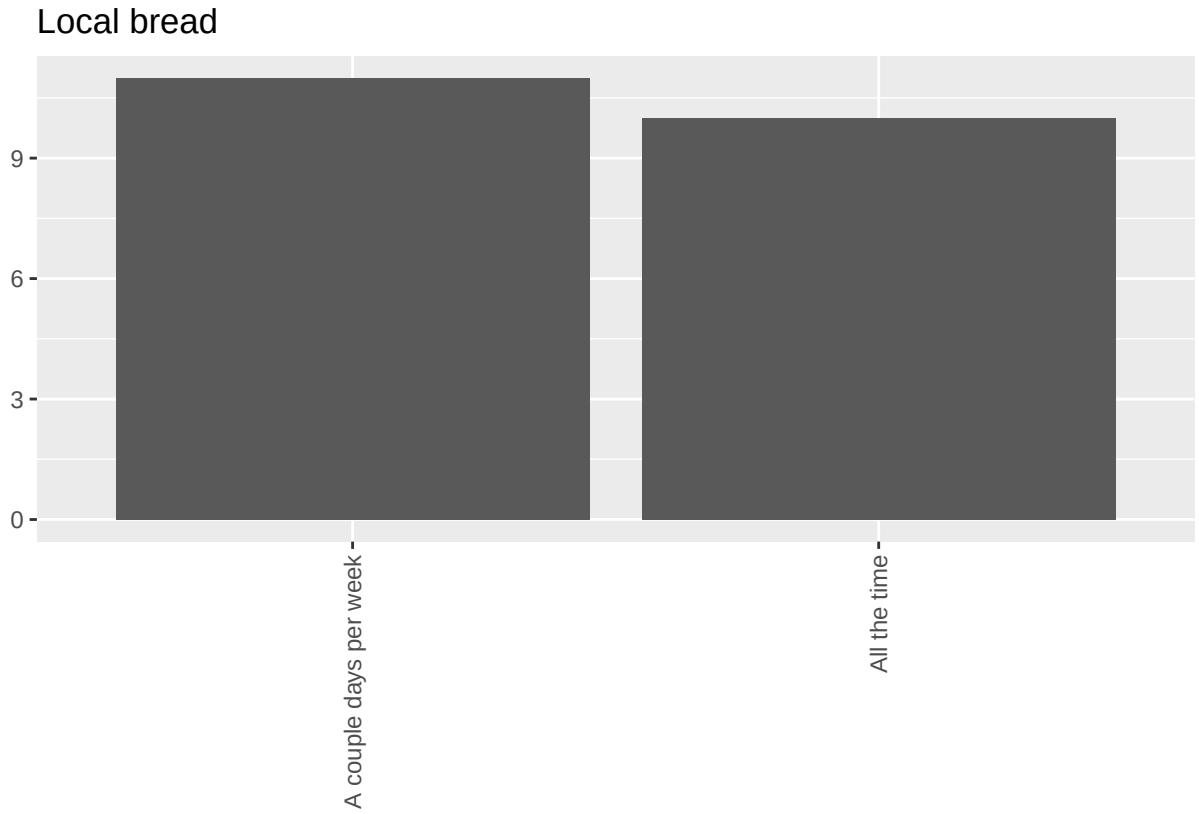

Cordial, syrup, not further specified
40
20
0
A couple days per week
A couple days per month
All the time

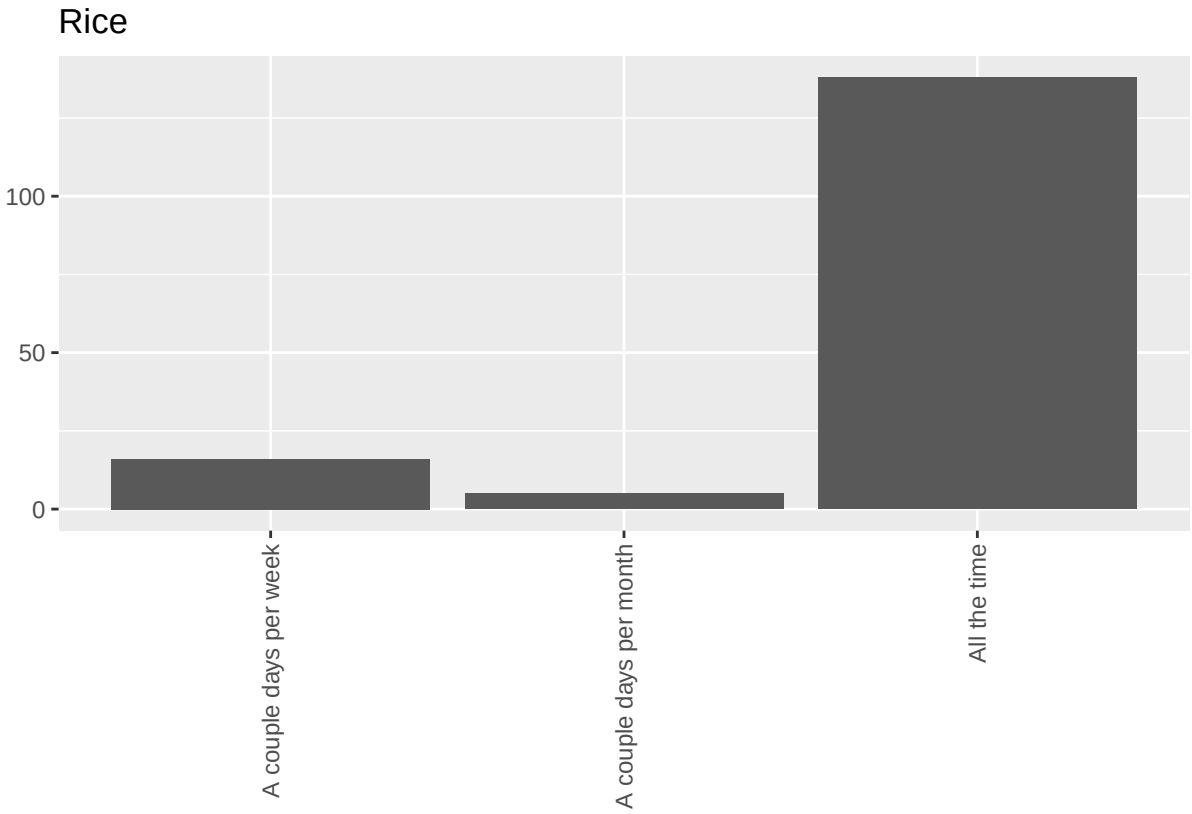

Other non alcoholic beverages
30
20
10
0
A couple days per week
A couple days per month
All the time

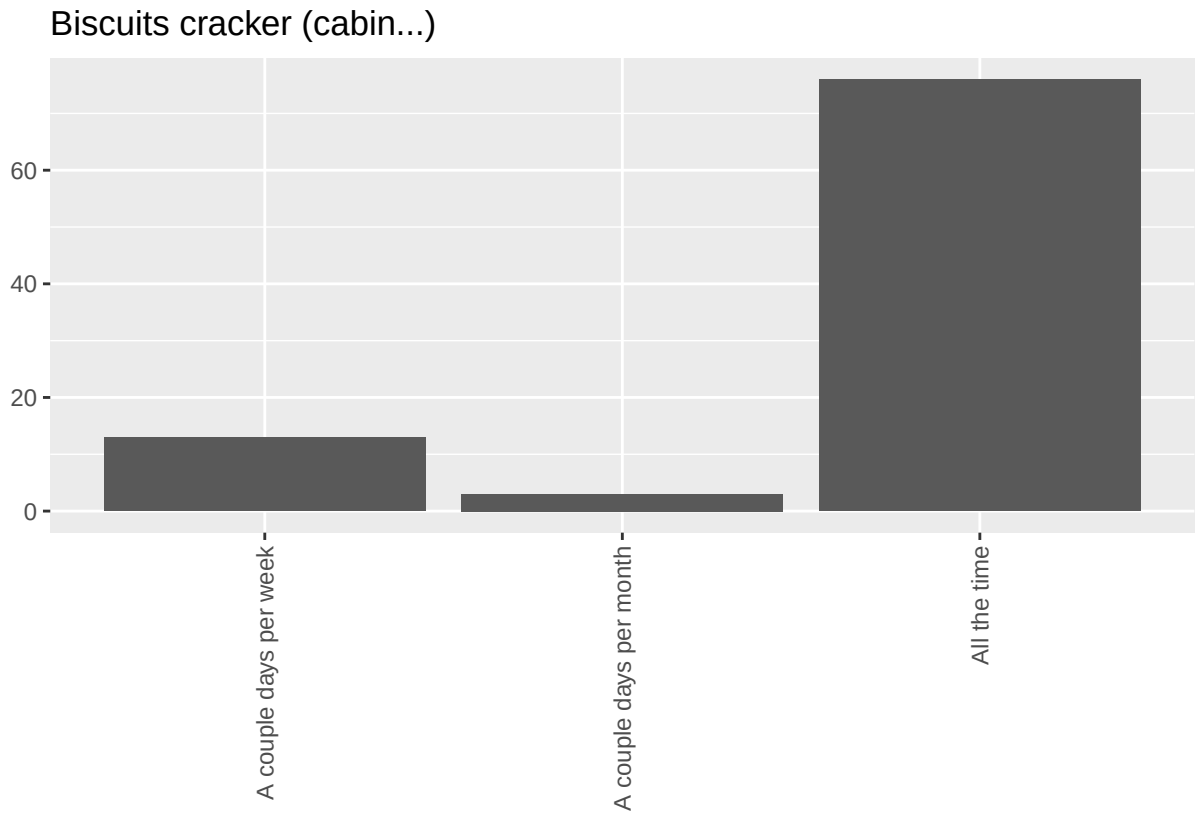

Coffee, mix (e.g. 3in1)
8
6
4
2
0
A couple days per month
All the time

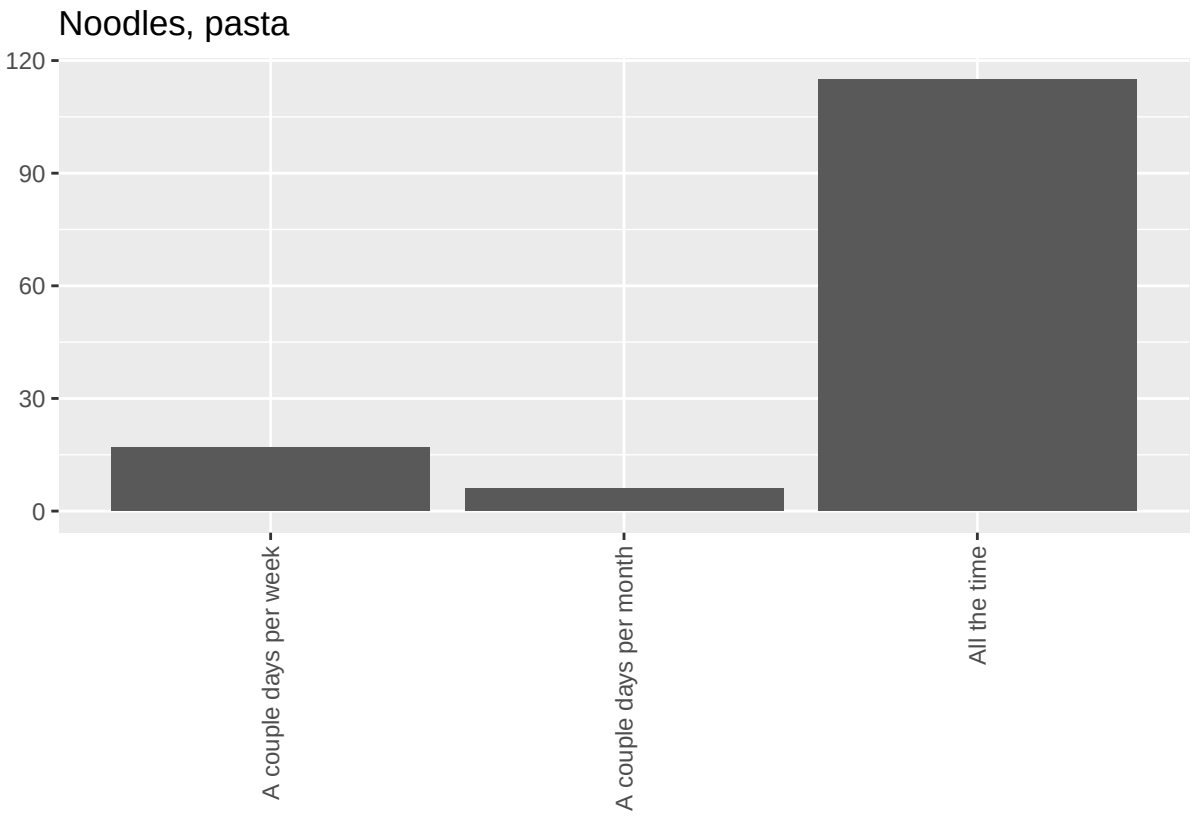

Coffee beans or grinded
3
2
1
0
A couple days per week
A couple days per month
All the time

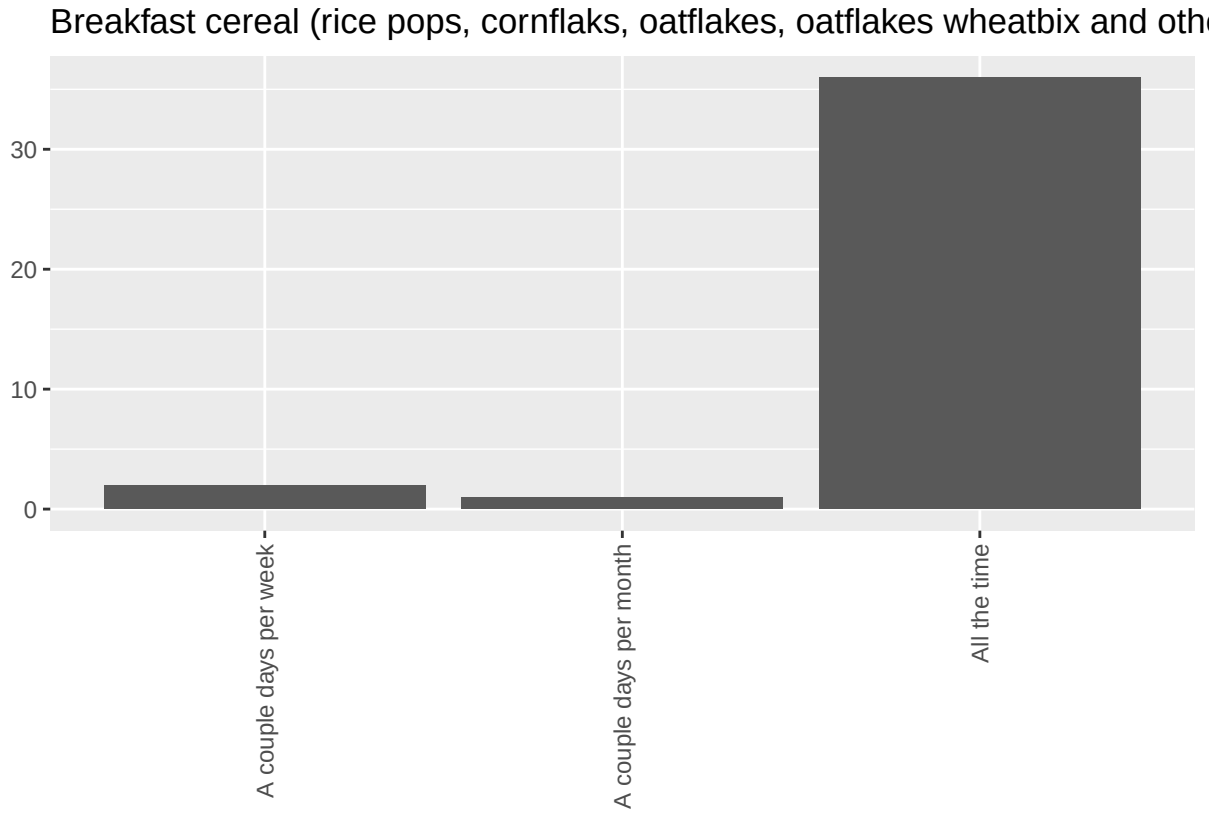

Lemon tea, ginger tea
1.00
0.75
0.50
0.25
0.00
All the time

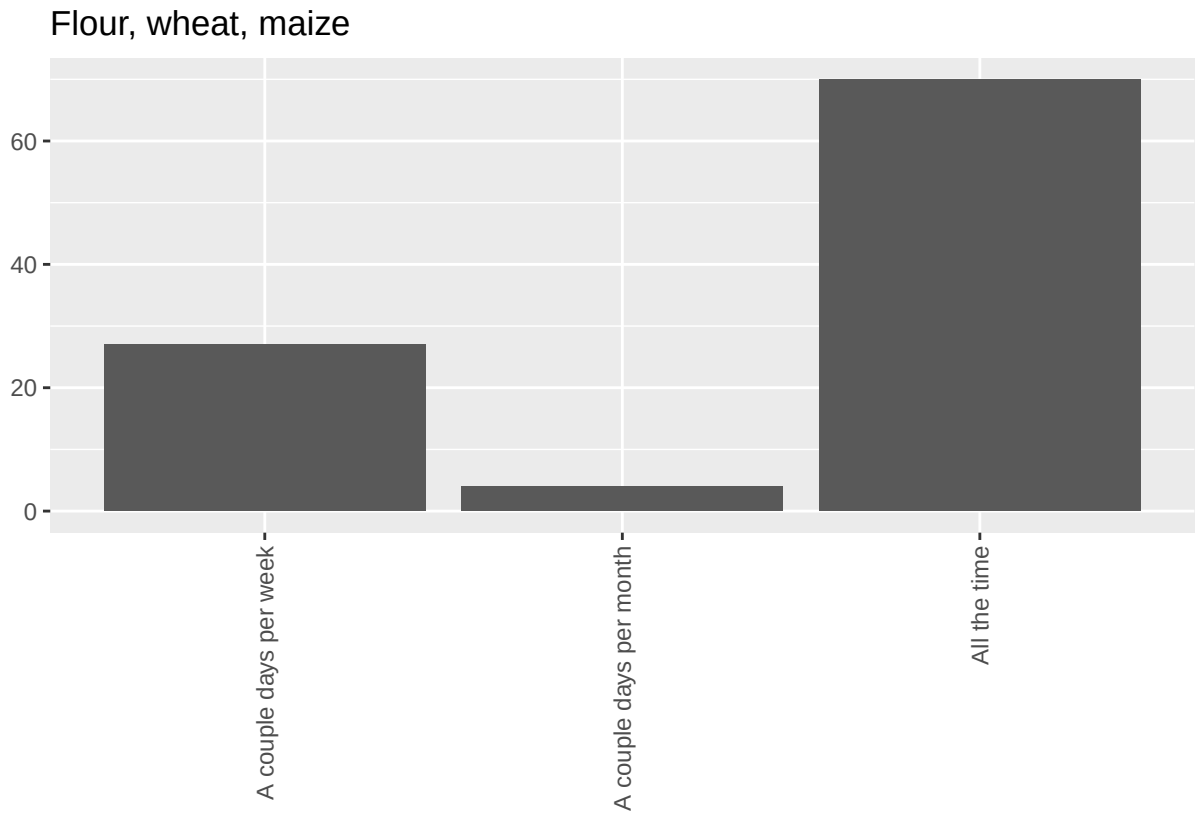

Local bread
9
6
3
0
A couple days per week
All the time

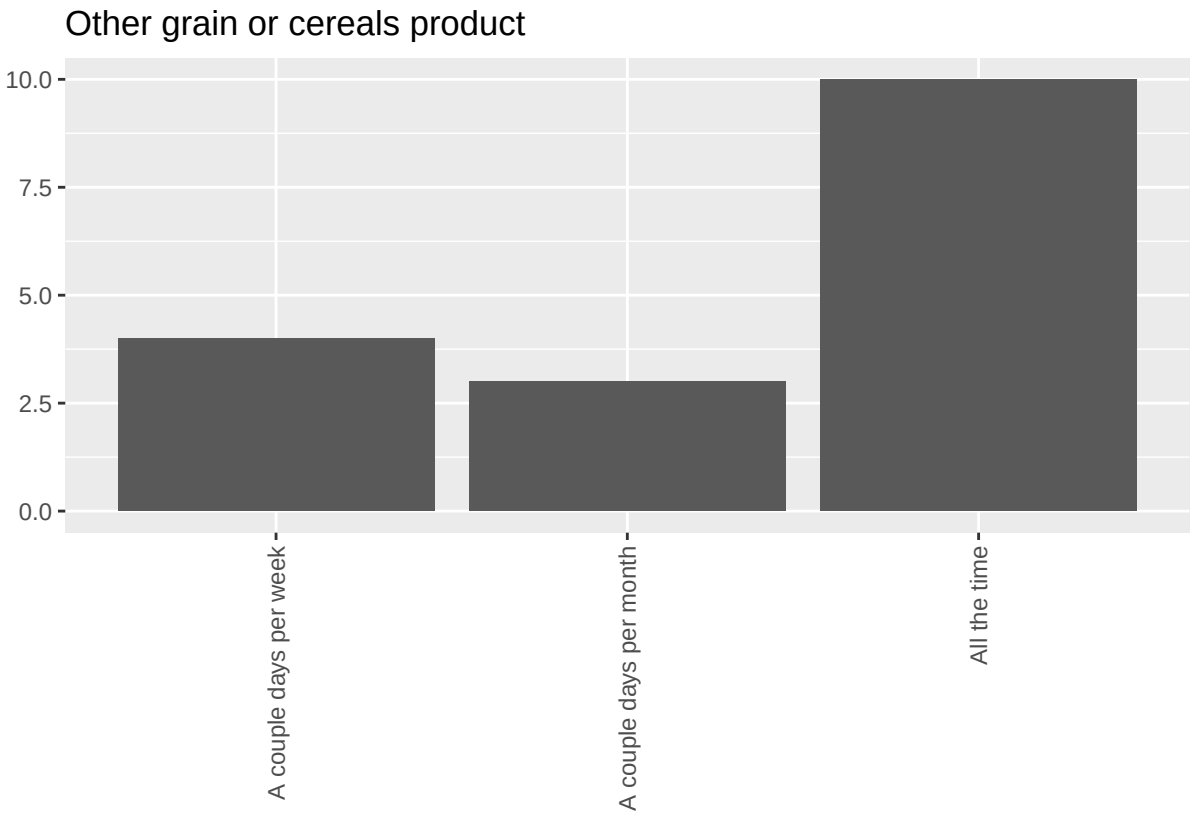

Rice
100
50
0
A couple days per week
A couple days per month
All the time

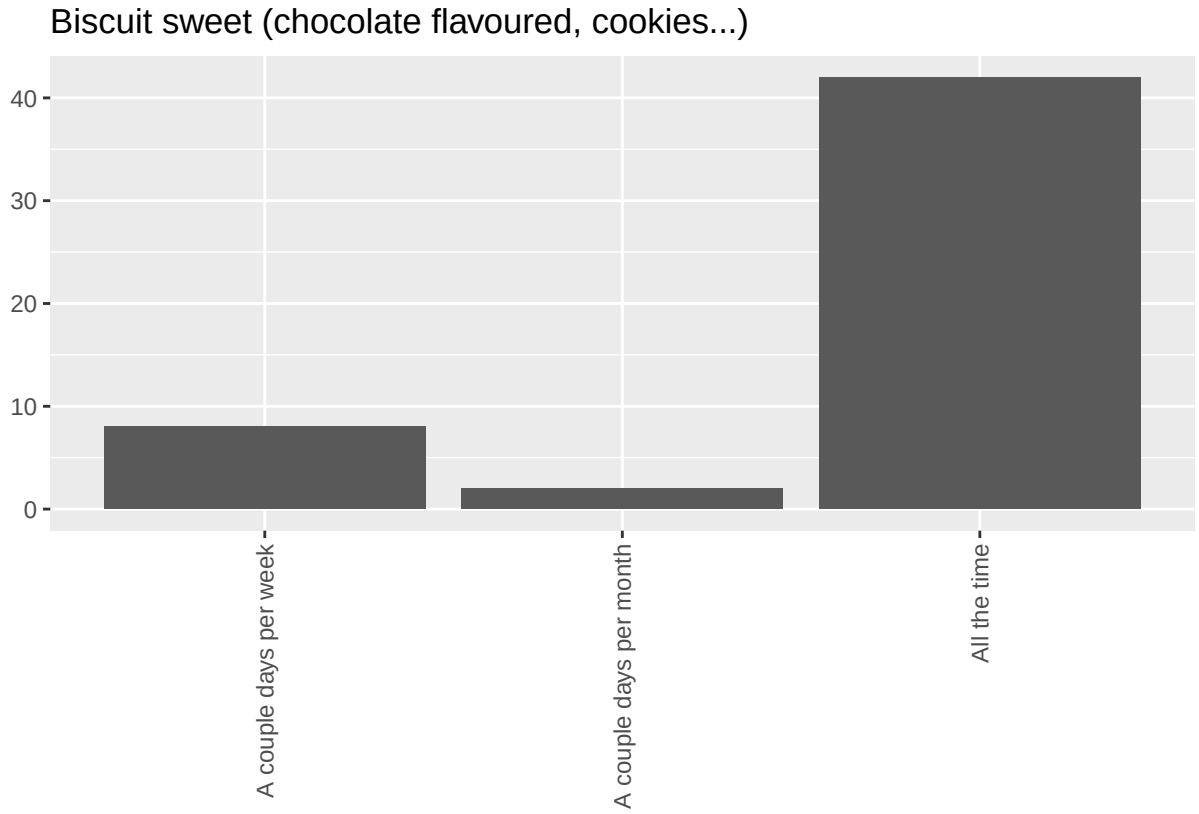

Biscuits cracker (cabin...)
60
40
20
0
A couple days per week
A couple days per month
All the time

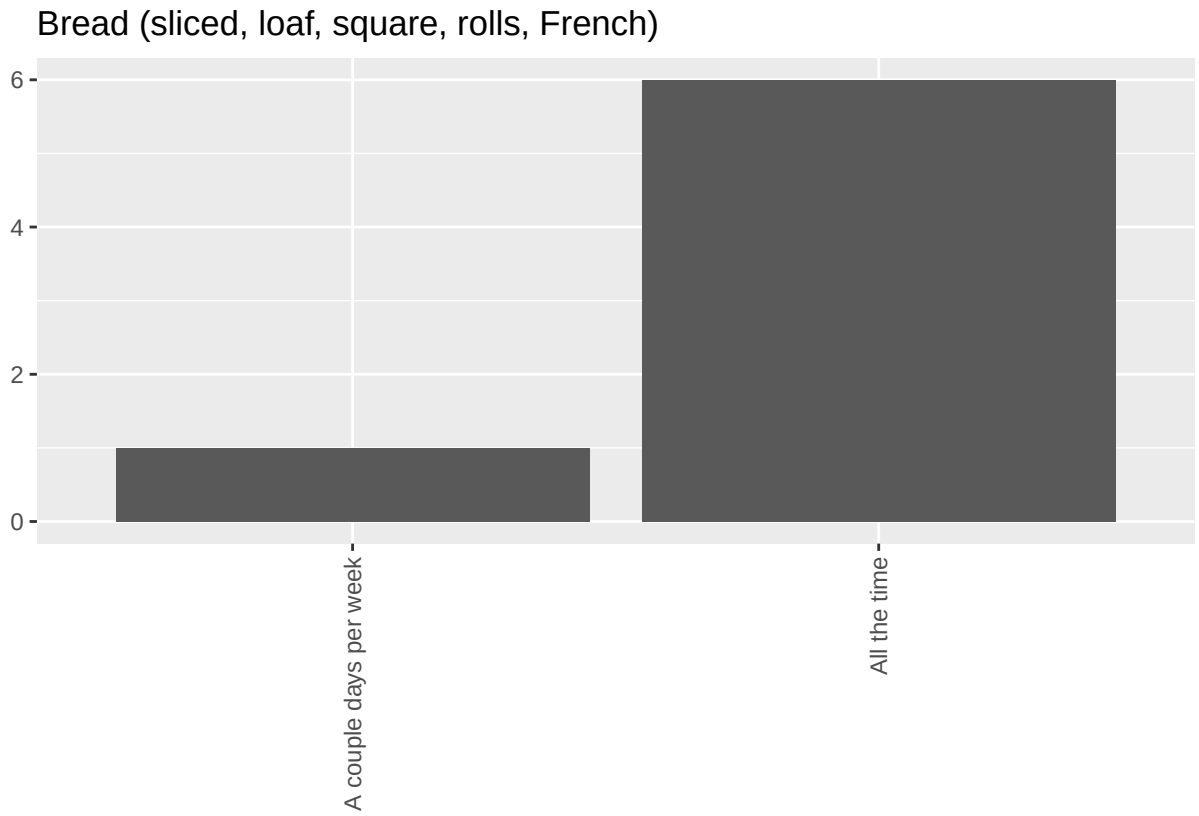

Noodles, pasta
120
90
60
30
0
A couple days per week
A couple days per month
All the time

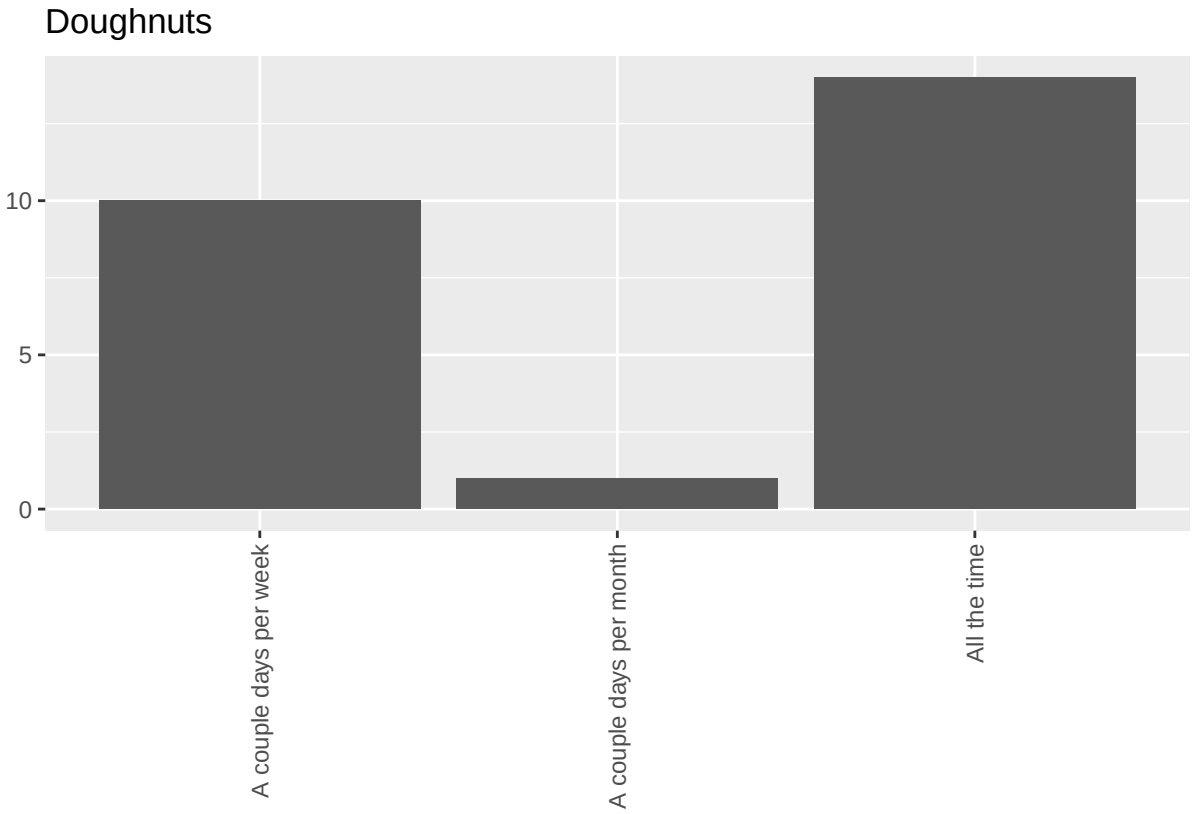

Breakfast cereal (rice pops, cornflaks, oatflakes, oatflakes wheatbix and oth
30
20
10
0
A couple days per week
A couple days per month
All the time

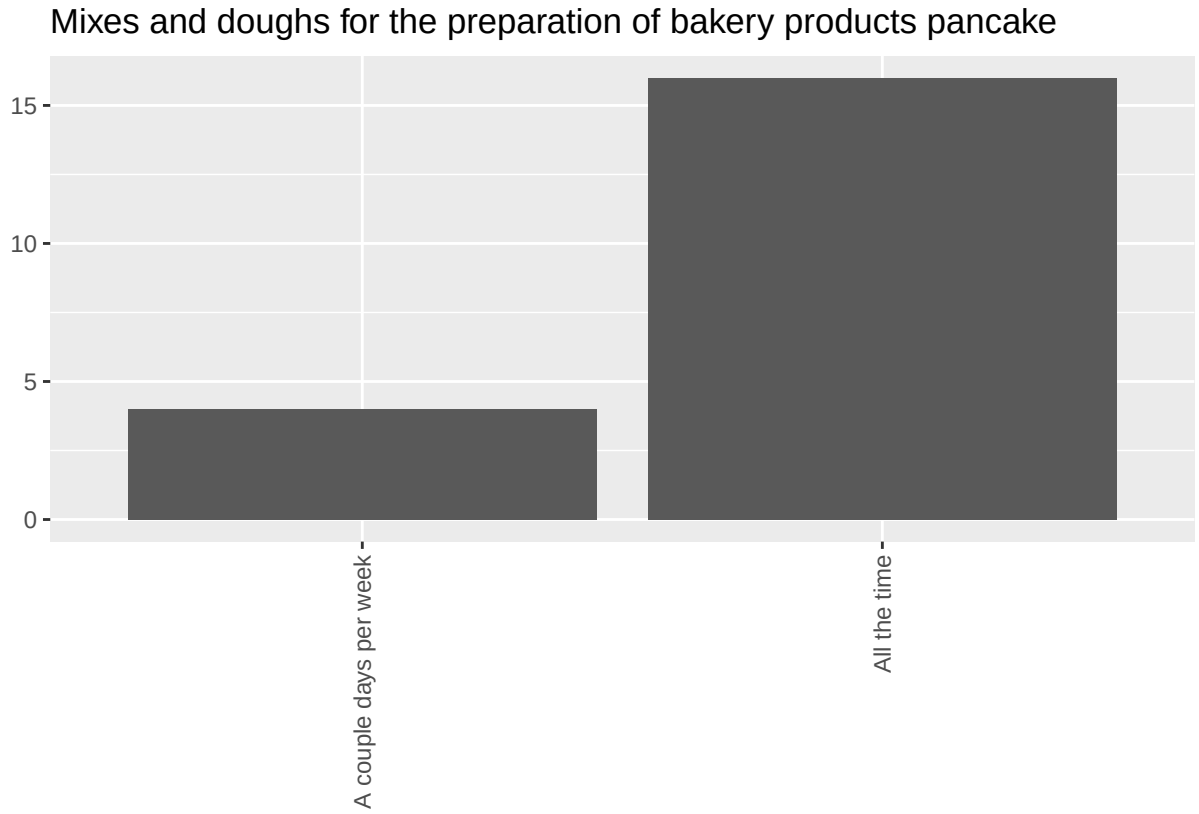

Flour, wheat, maize
60
40
20
0
A couple days per week
A couple days per month
All the time

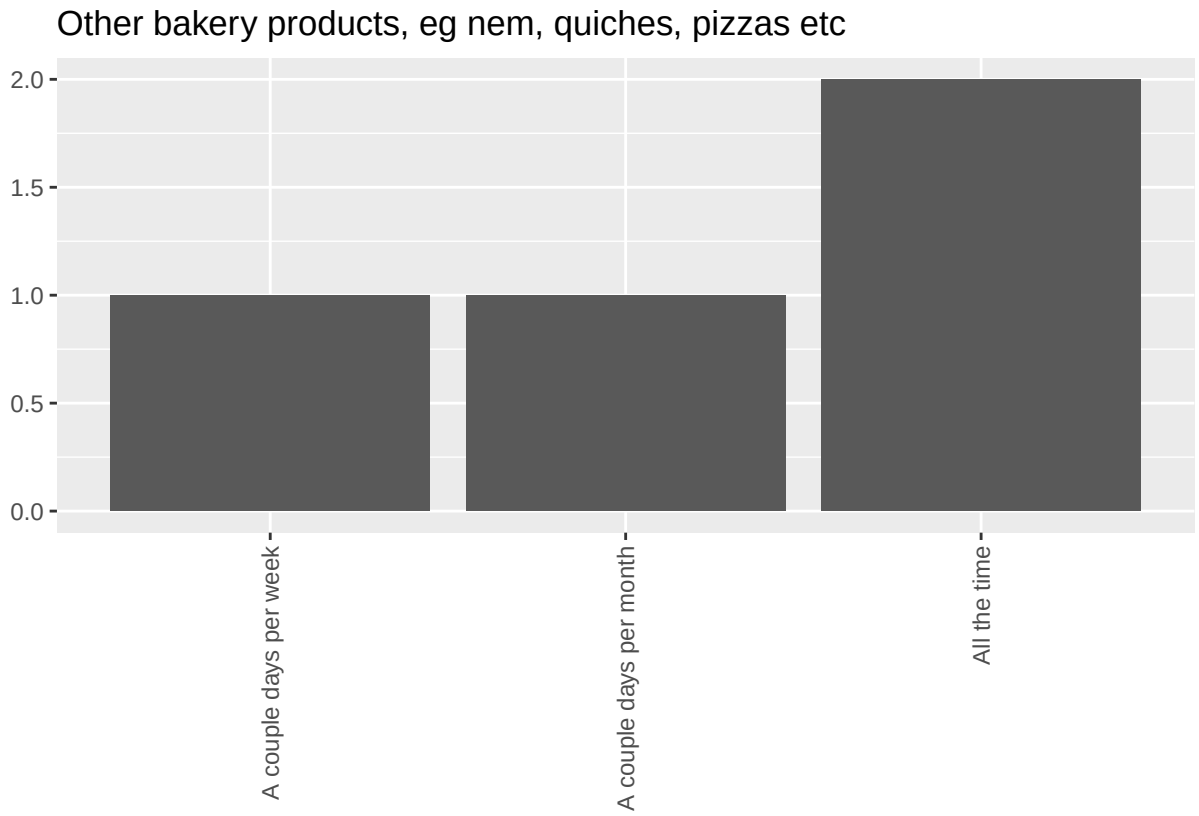

Other grain or cereals product
10.0
7.5
5.0
2.5
0.0
A couple days per week
A couple days per month
All the time

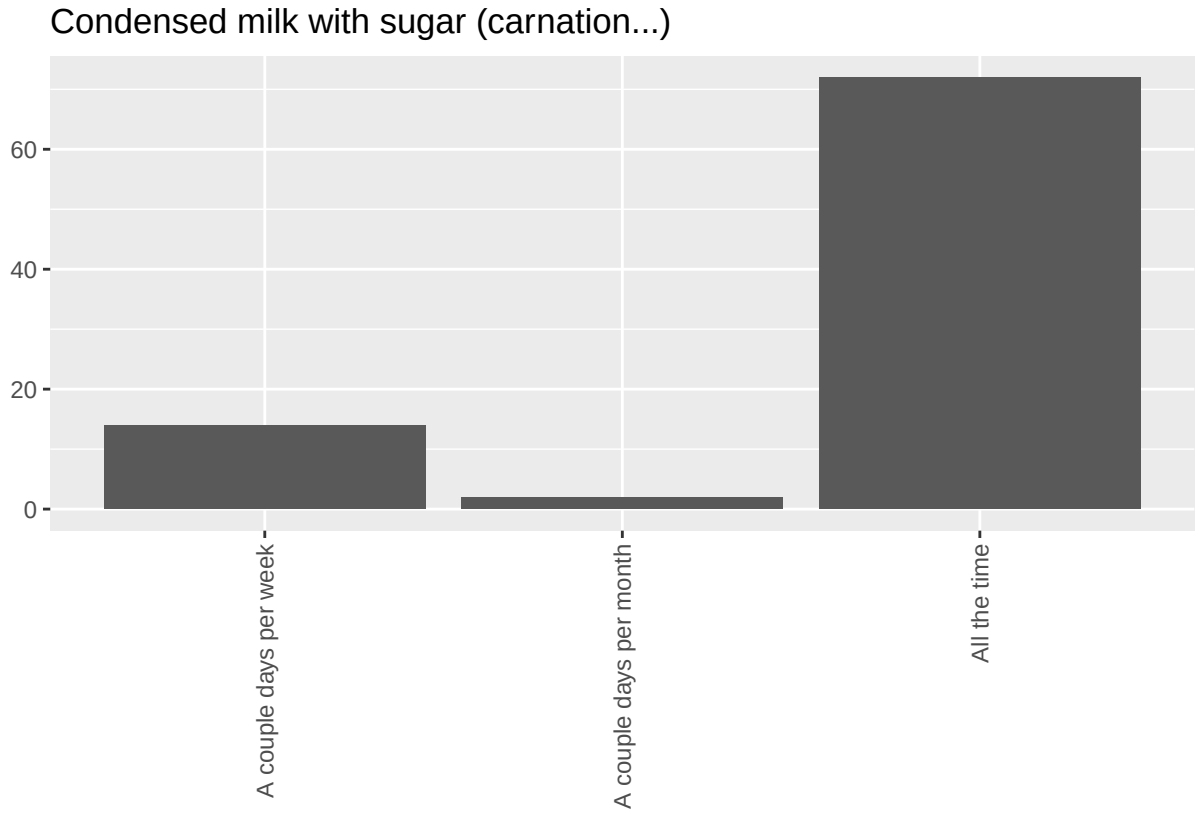

Biscuit sweet (chocolate flavoured, cookies...)
40
30
20
10
0
A couple days per week
A couple days per month
All the time

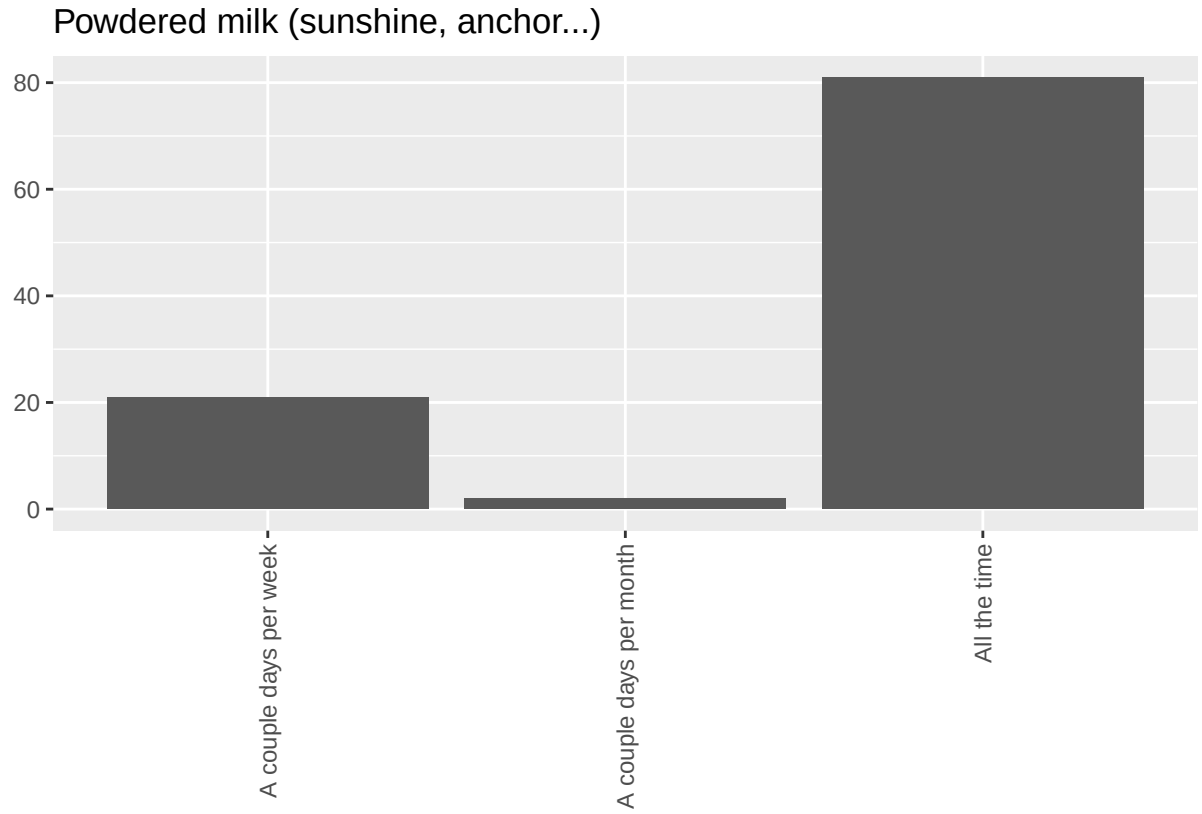

Bread (sliced, loaf, square, rolls, French)
6
4
2
0
A couple days per week
All the time

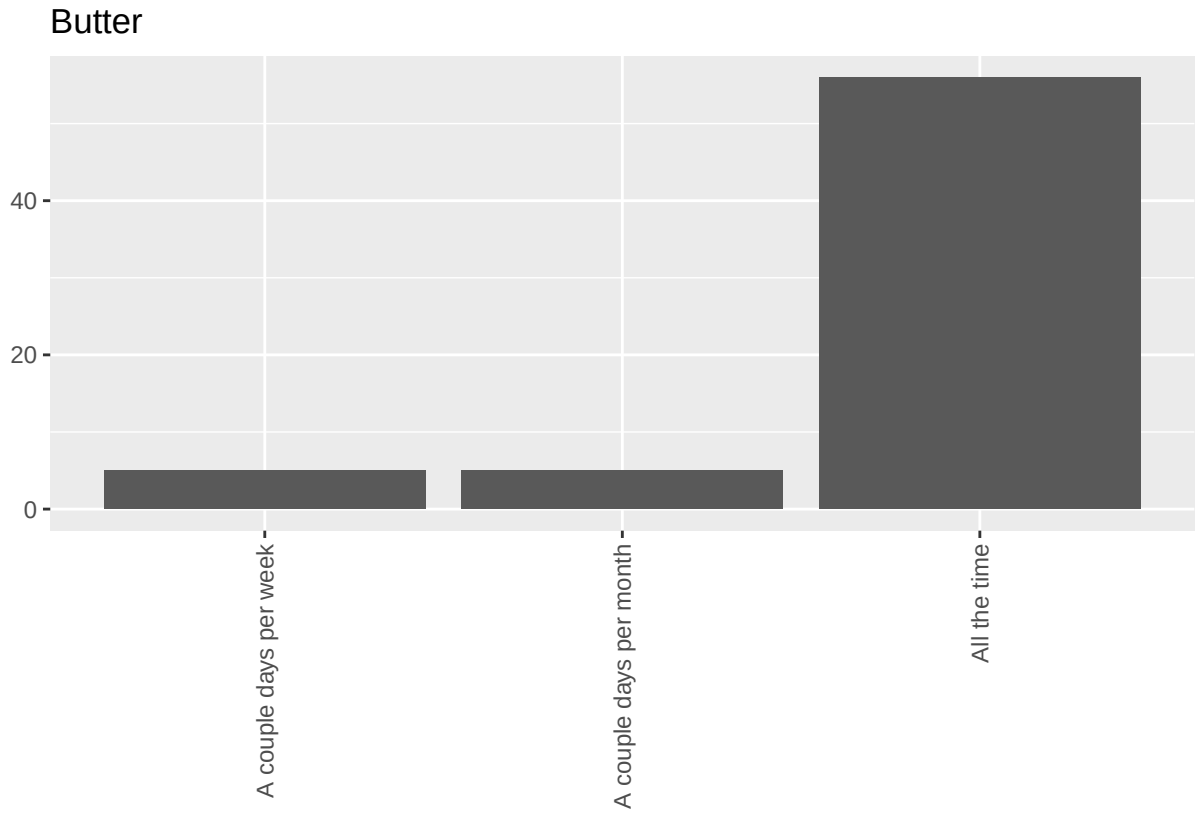

Doughnuts
10
5
0
A couple days per week
A couple days per month
All the time

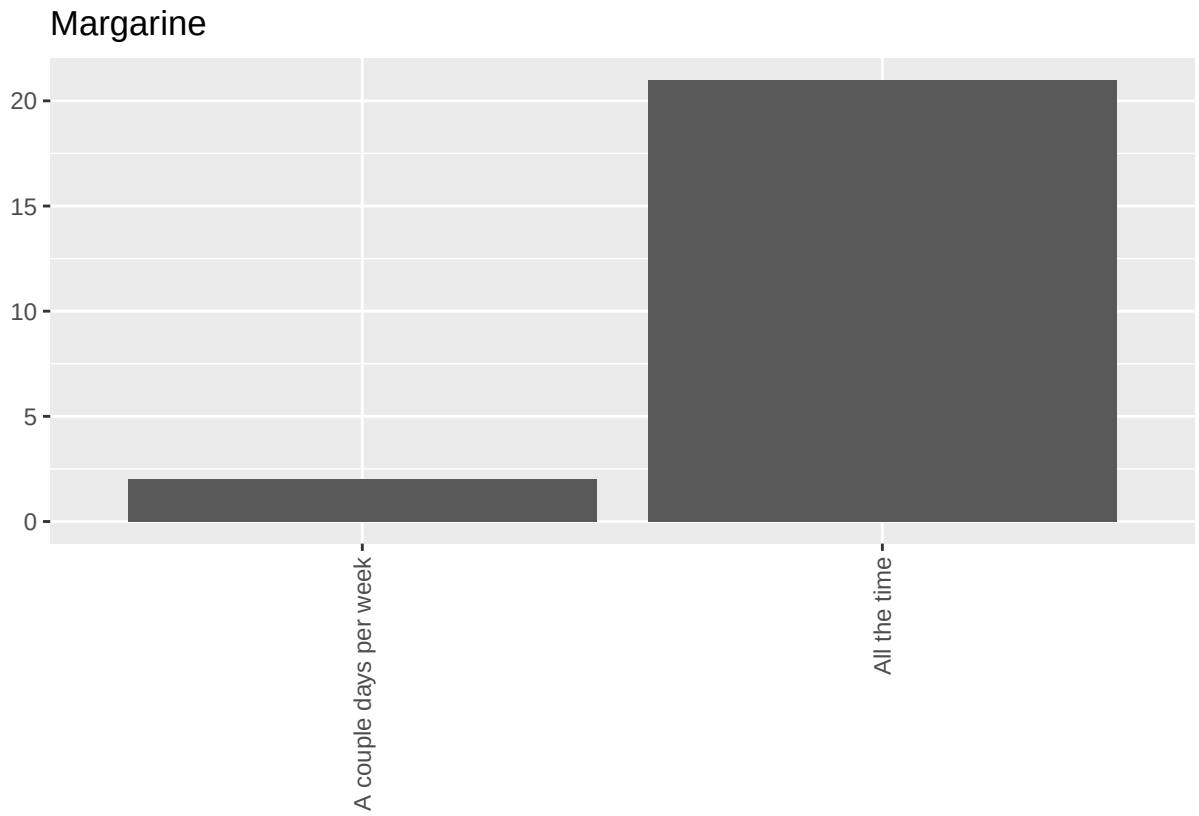

Mixes and doughs for the preparation of bakery products pancake
15
10
5
0
A couple days per week
All the time

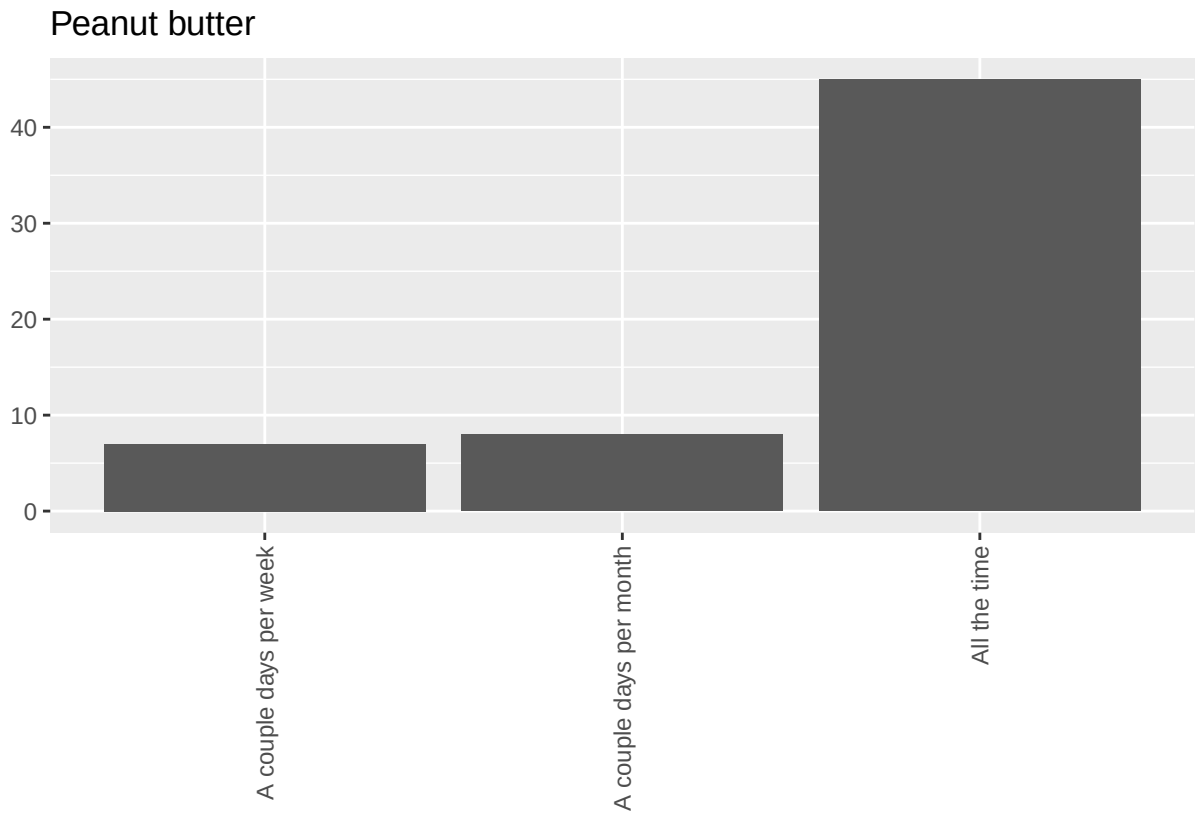

Other bakery products, eg nem, quiches, pizzas etc
2.0
1.5
1.0
0.5
0.0
A couple days per week
A couple days per month
All the time

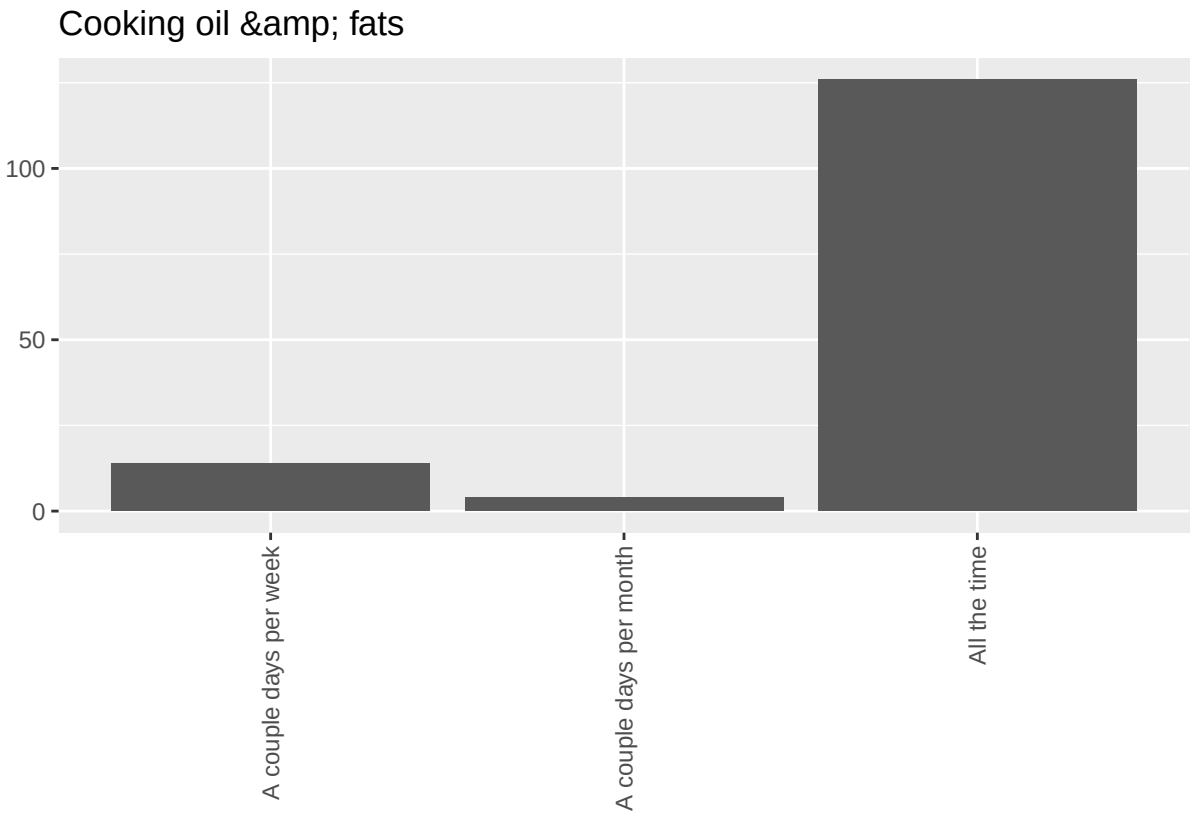

Condensed milk with sugar (carnation...)
60
40
20
0
A couple days per week
A couple days per month
All the time

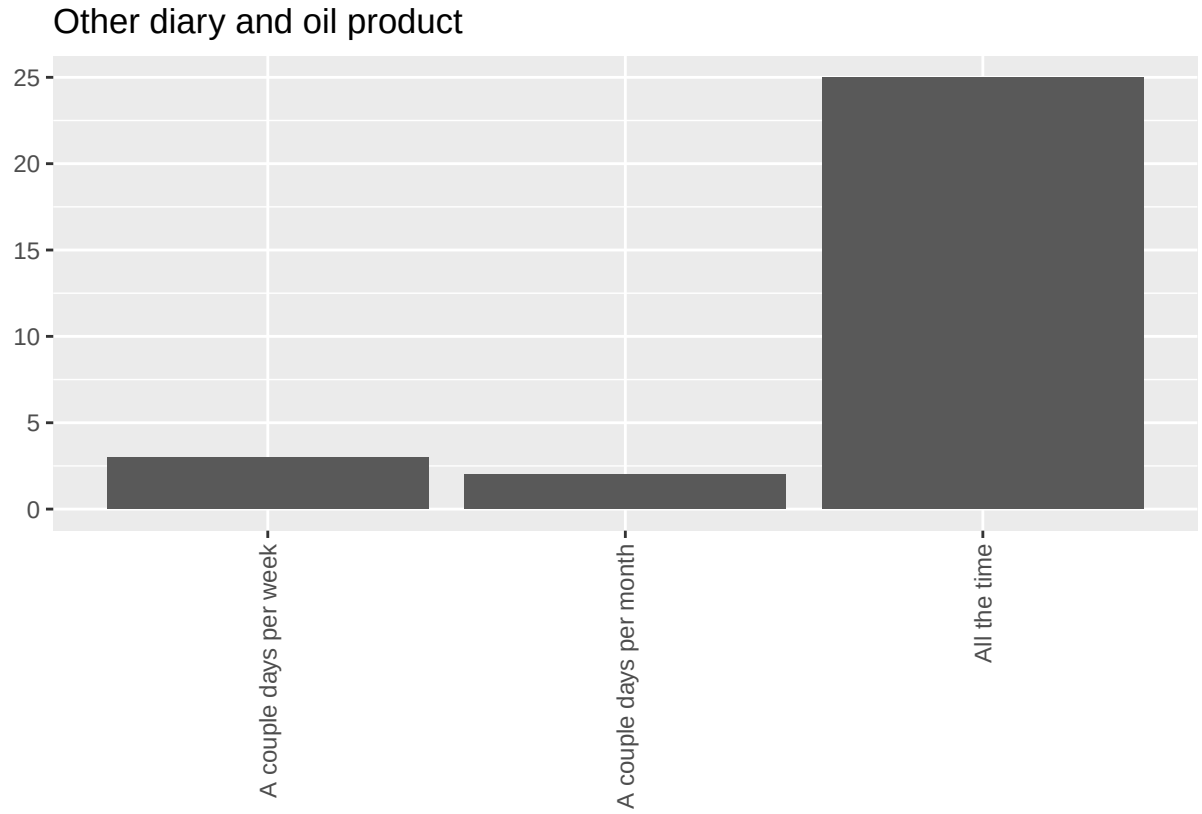

Powdered milk (sunshine, anchor...)
80
60
40
20
0
A couple days per week
A couple days per month
All the time

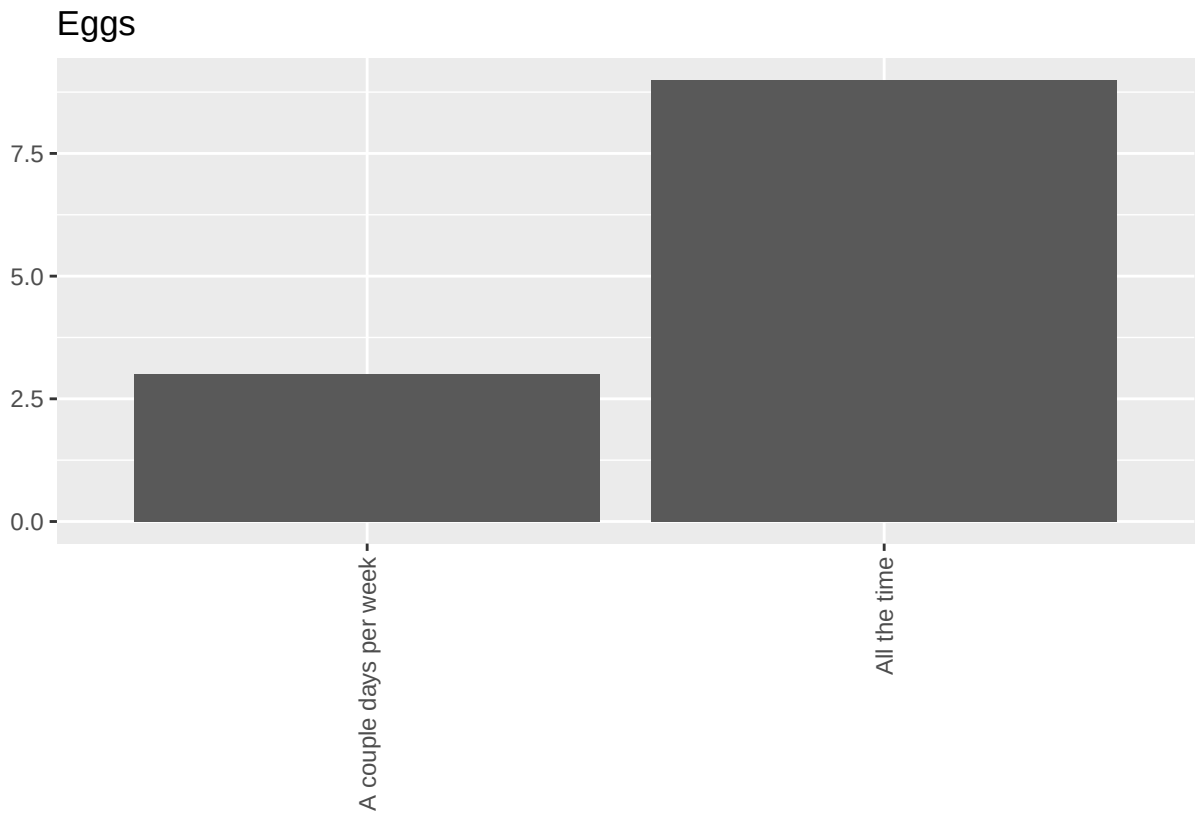

Butter
40
20
0
A couple days per week
A couple days per month
All the time

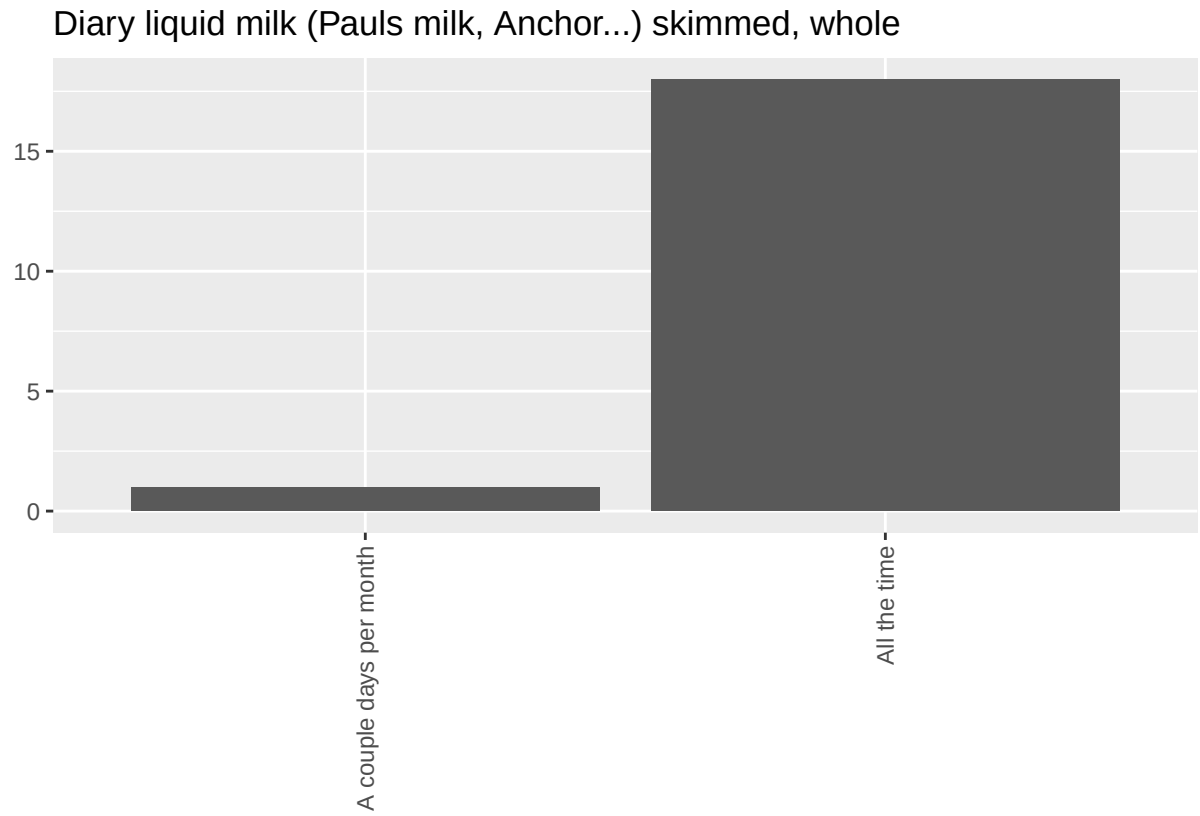

Margarine
20
15
10
5
0
A couple days per week
All the time

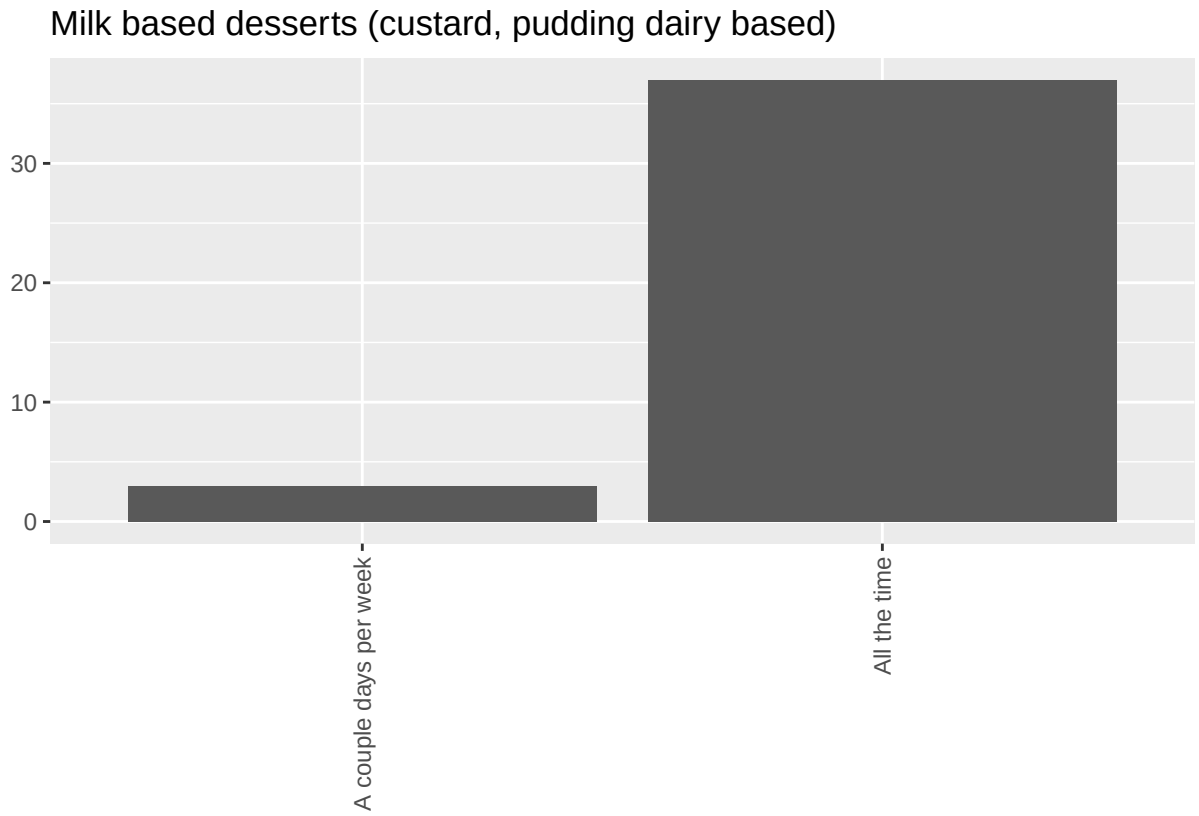

Peanut butter
40
30
20
10
0
A couple days per week
A couple days per month
All the time

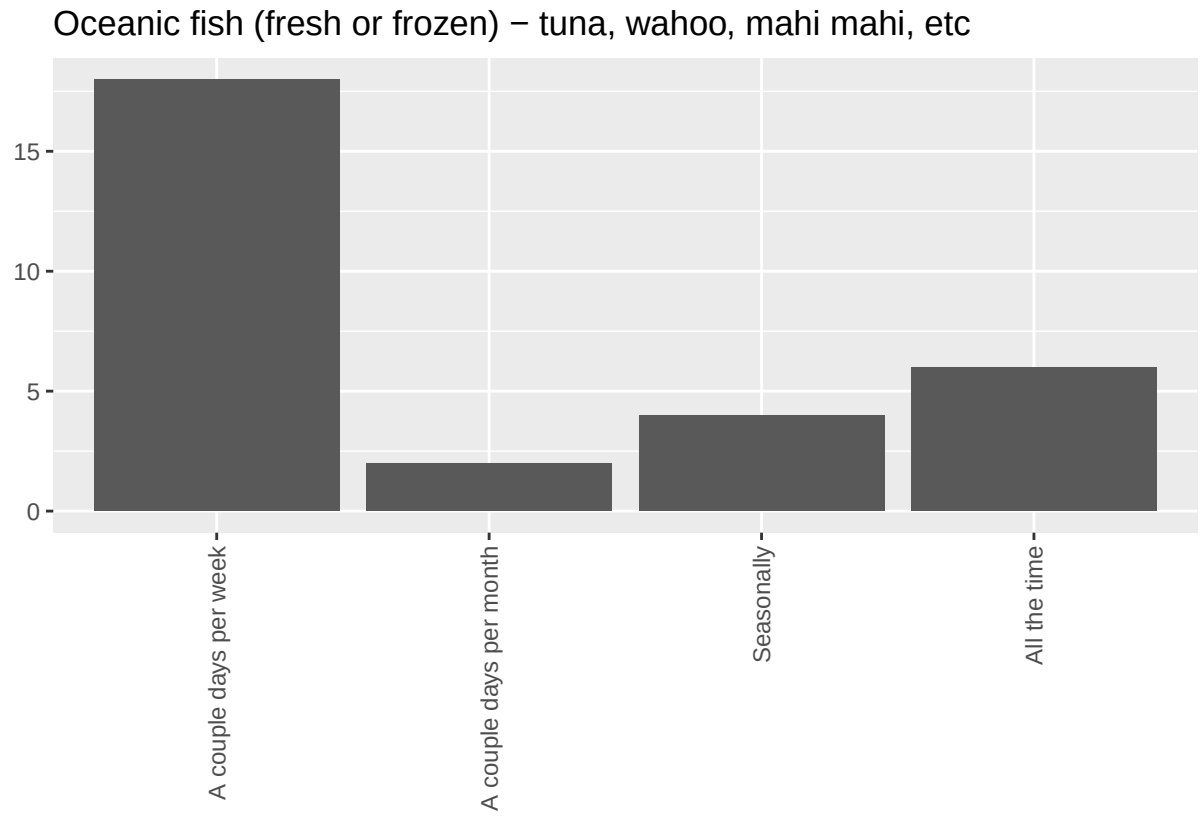

Cooking oil & fats
100
50
0
A couple days per week
A couple days per month
All the time

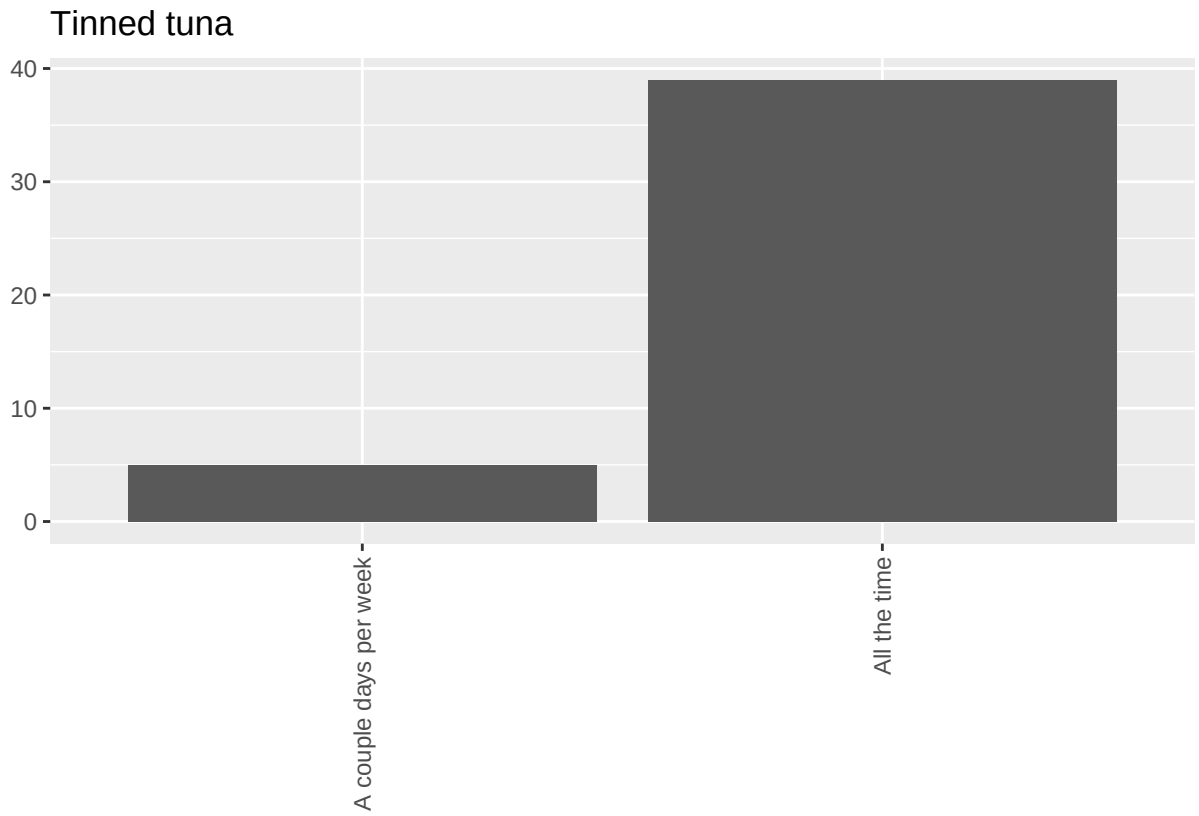

Other diary and oil product
25
20
15
10
5
0
A couple days per week
A couple days per month
All the time

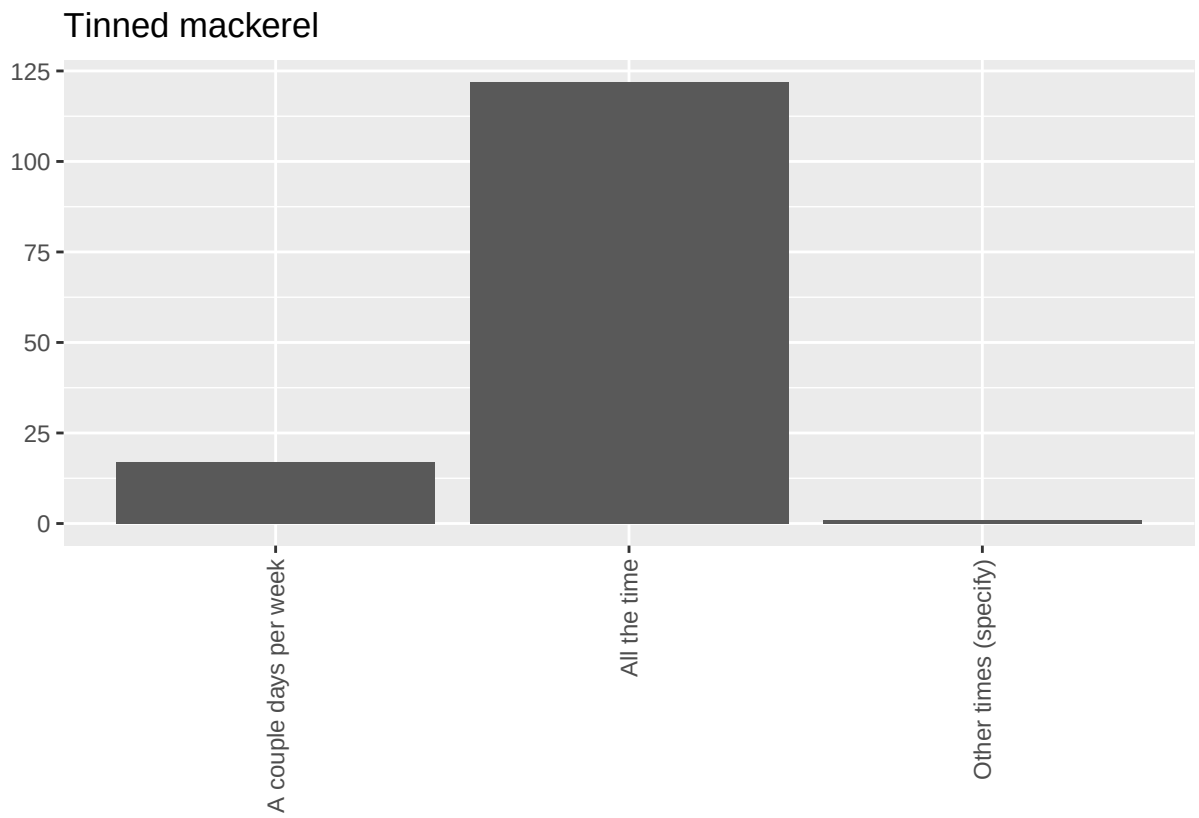

Eggs
7.5
5.0
2.5
0.0
A couple days per week
All the time

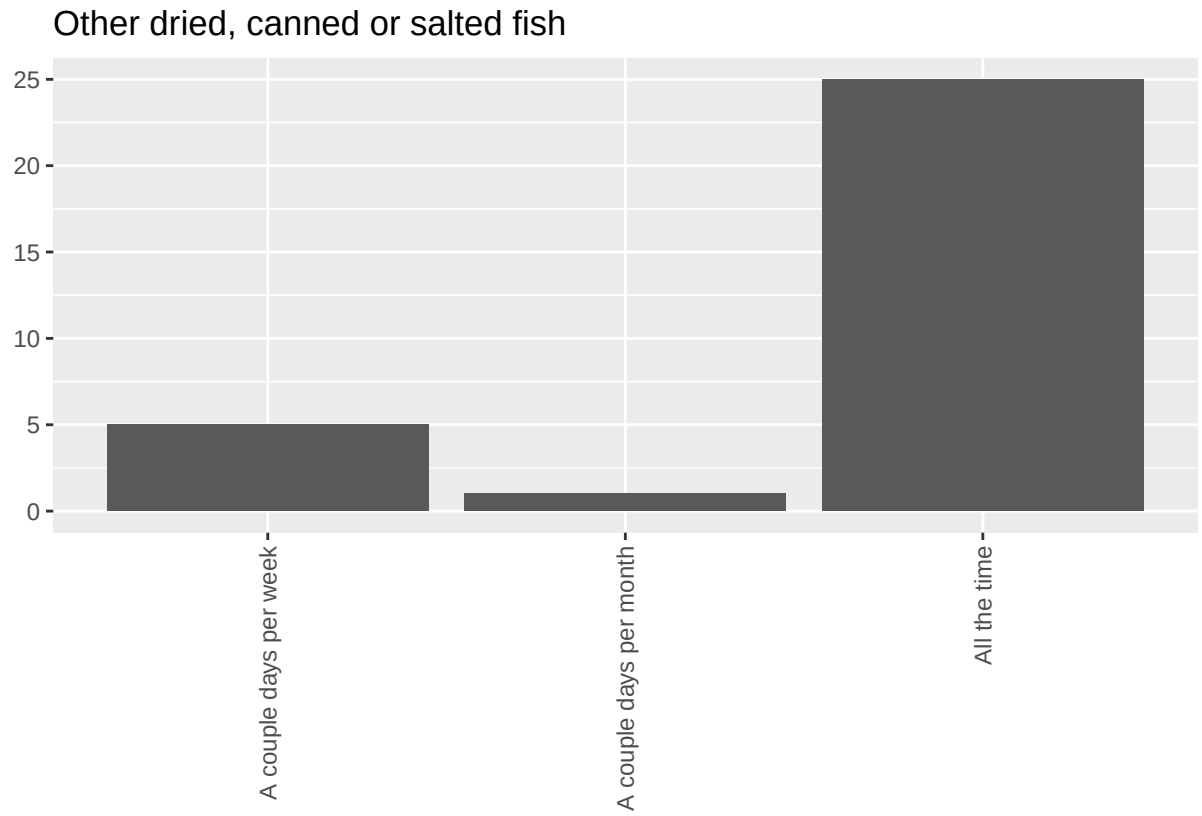

Diary liquid milk (Pauls milk, Anchor...) skimmed, whole
15
10
5
0
A couple days per month
All the time

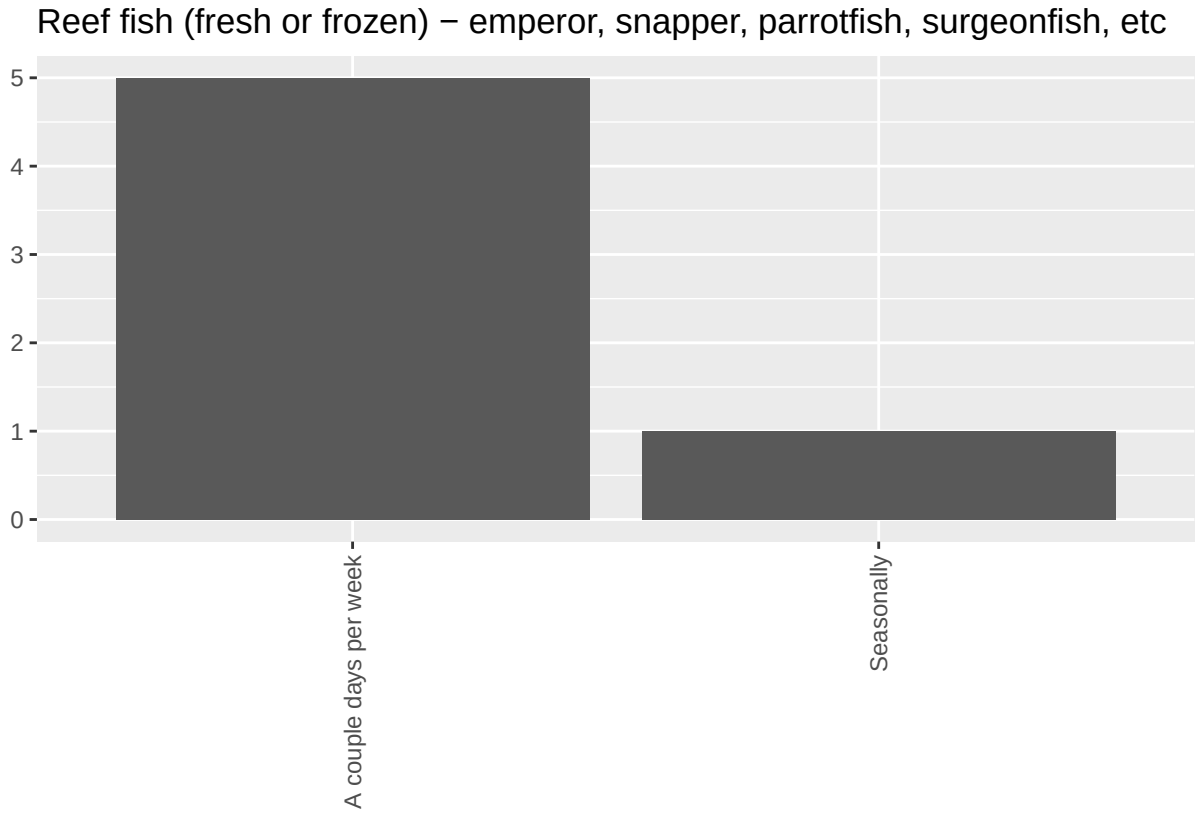

Milk based desserts (custard, pudding dairy based)
30
20
10
0
A couple days per week
All the time

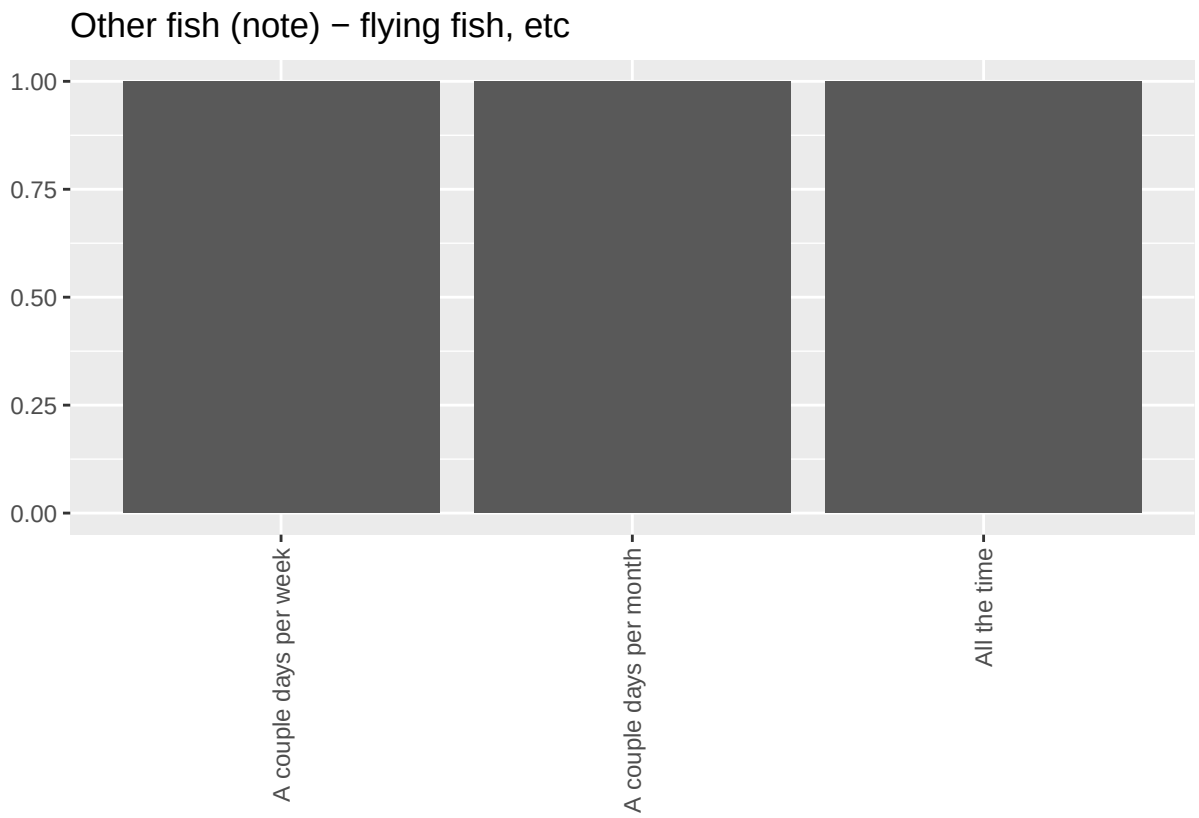

Oceanic fish (fresh or frozen) − tuna, wahoo, mahi mahi, etc
15
10
5
0
A couple days per week
A couple days per month
Seasonally
All the time


Tinned tuna
40
30
20
10
0
A couple days per week
All the time

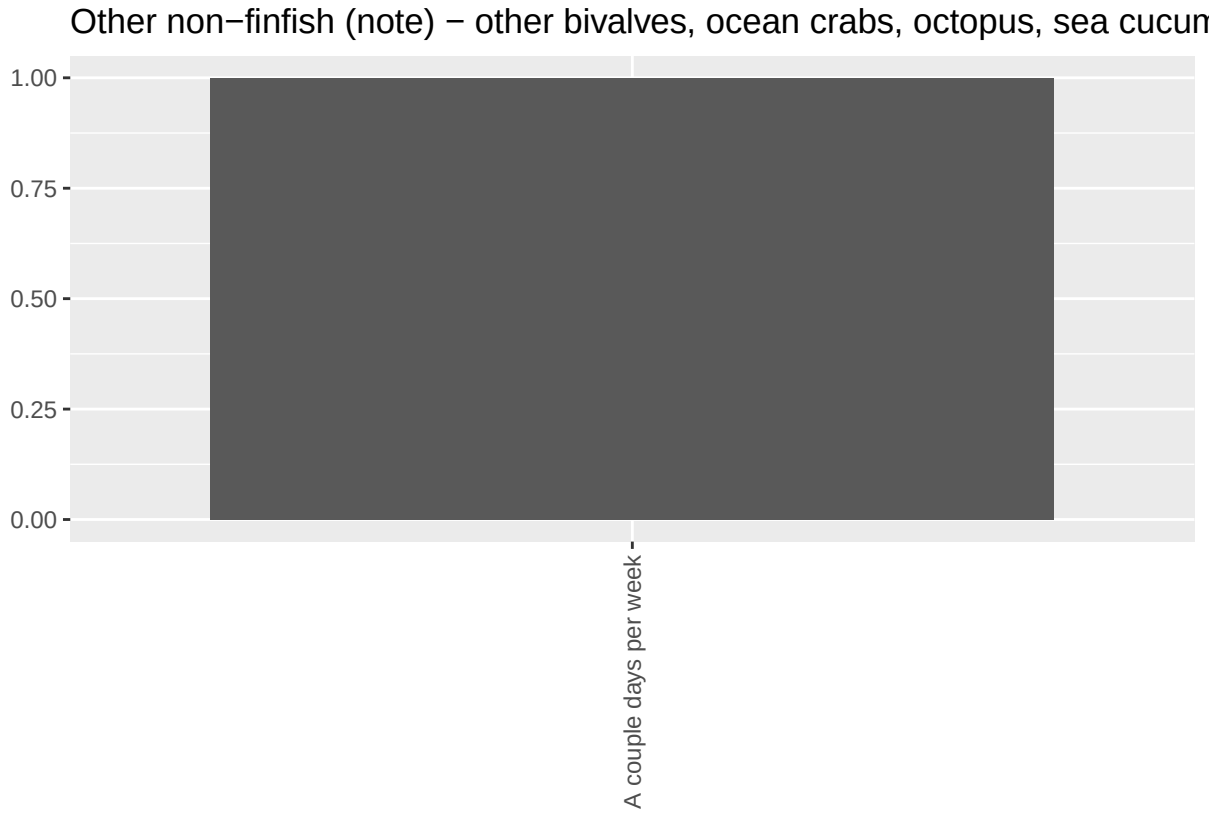

Tinned mackerel
125
100
75
50
25
0
A couple days per week
All the time
Other times (specify)

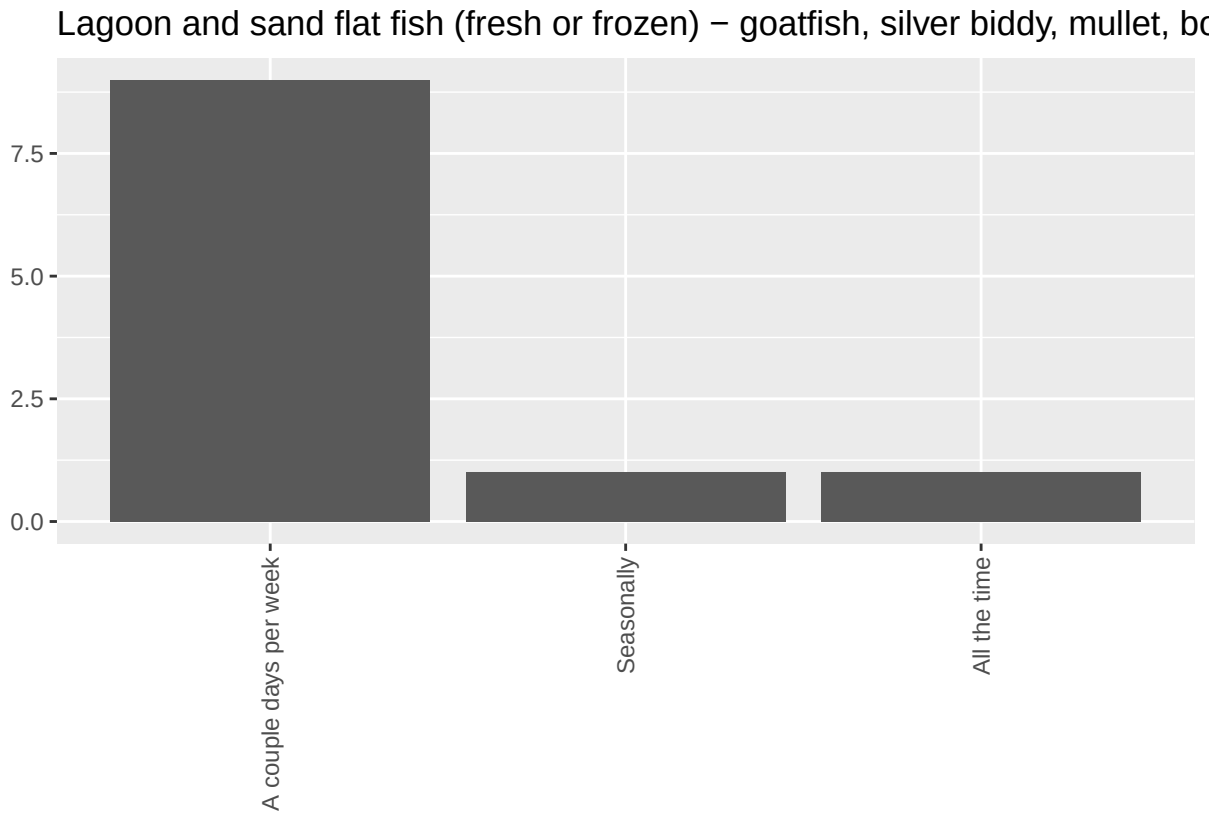

Other dried, canned or salted fish
25
20
15
10
5
0
A couple days per week
A couple days per month
All the time


Reef fish (fresh or frozen) − emperor, snapper, parrotfish, surgeonfish, etc
5
4
3
2
1
0
A couple days per week
Seasonally

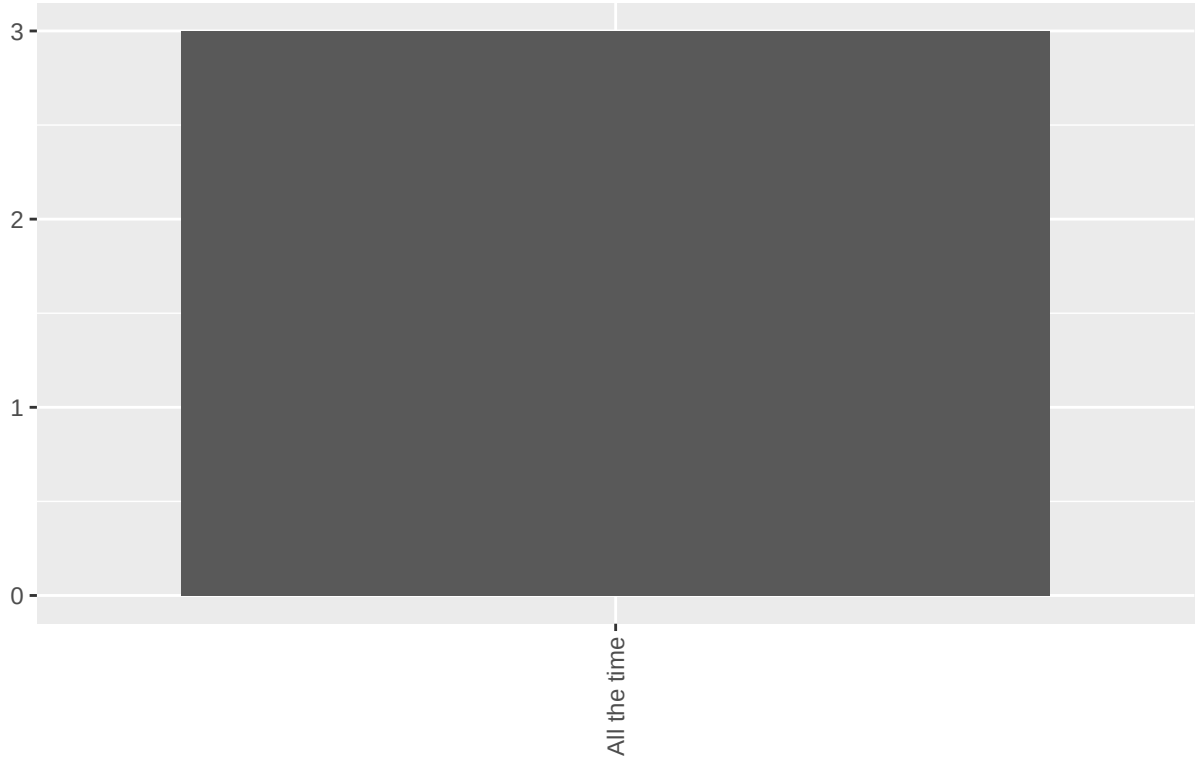

Other fish (note) − flying fish, etc
1.00
0.75
0.50
0.25
0.00
A couple days per week
A couple days per month
All the time

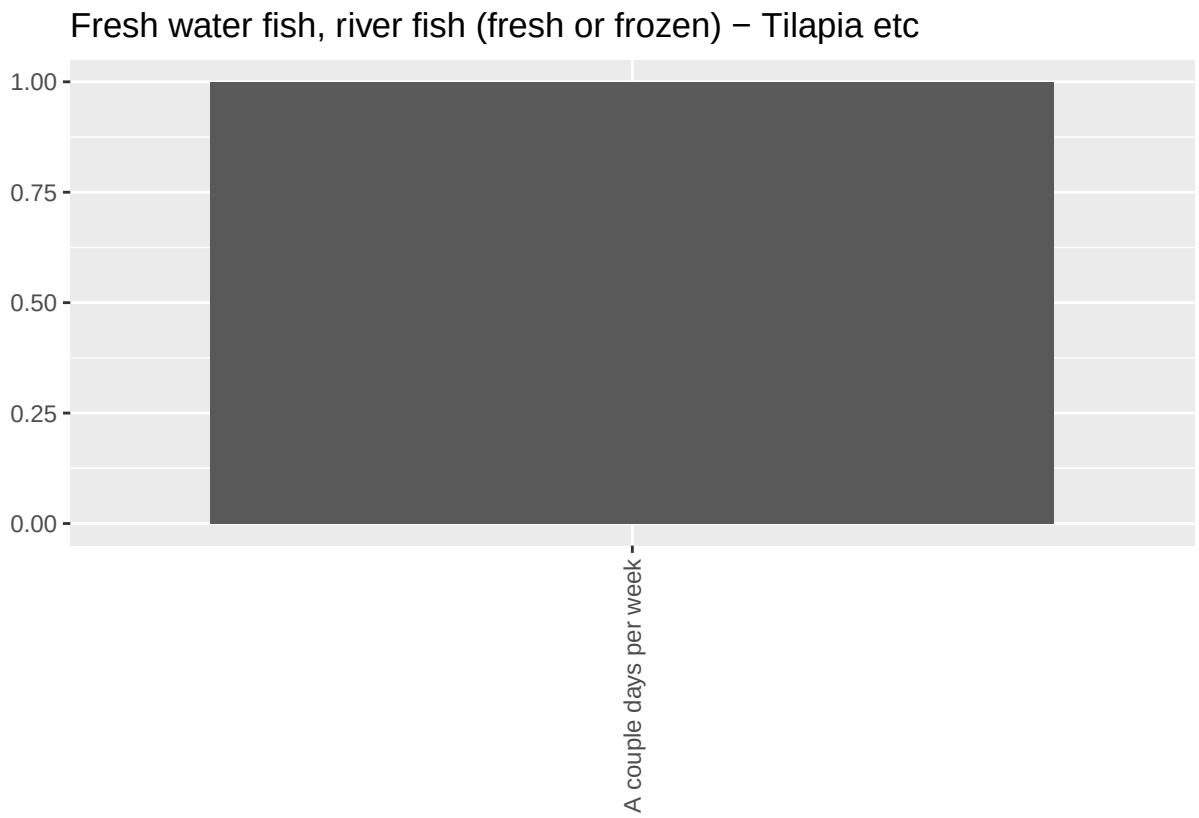

Deep sea fish (fresh or frozen) − Poulet fish, Red snapper etc
1.00
0.75
0.50
0.25
0.00
All the time

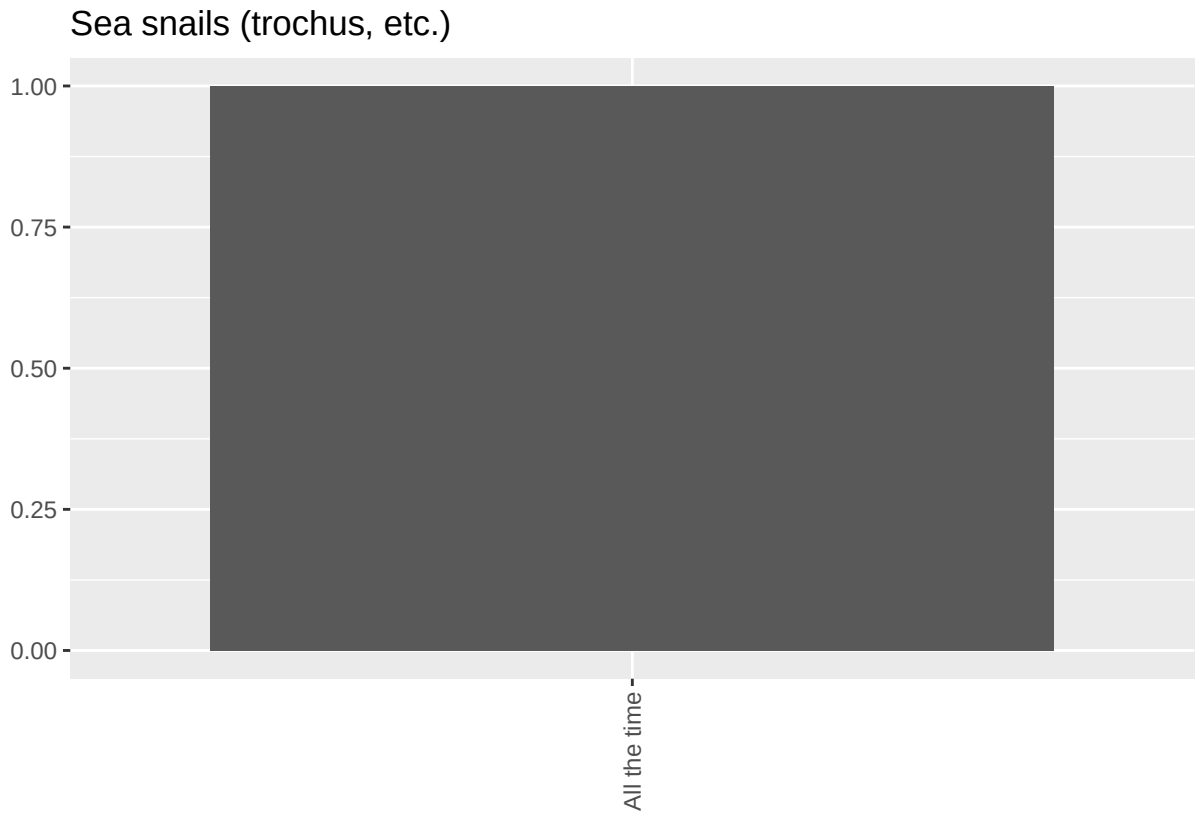

Other non−finfish (note) − other bivalves, ocean crabs, octopus, sea cucun
1.00
0.75
0.50
0.25
0.00
A couple days per week

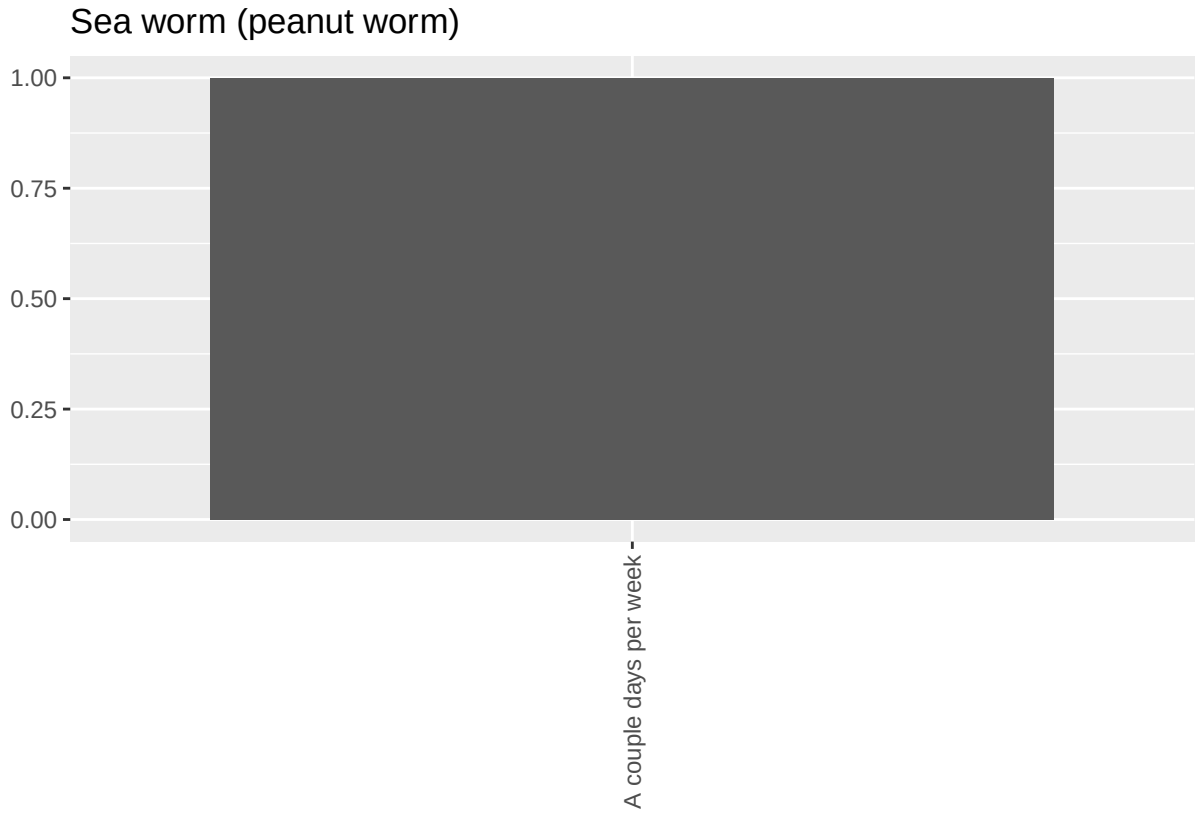

Lagoon and sand flat fish (fresh or frozen) − goatfish, silver biddy, mullet, bo
7.5
5.0
2.5
0.0
A couple days per week
Seasonally
All the time

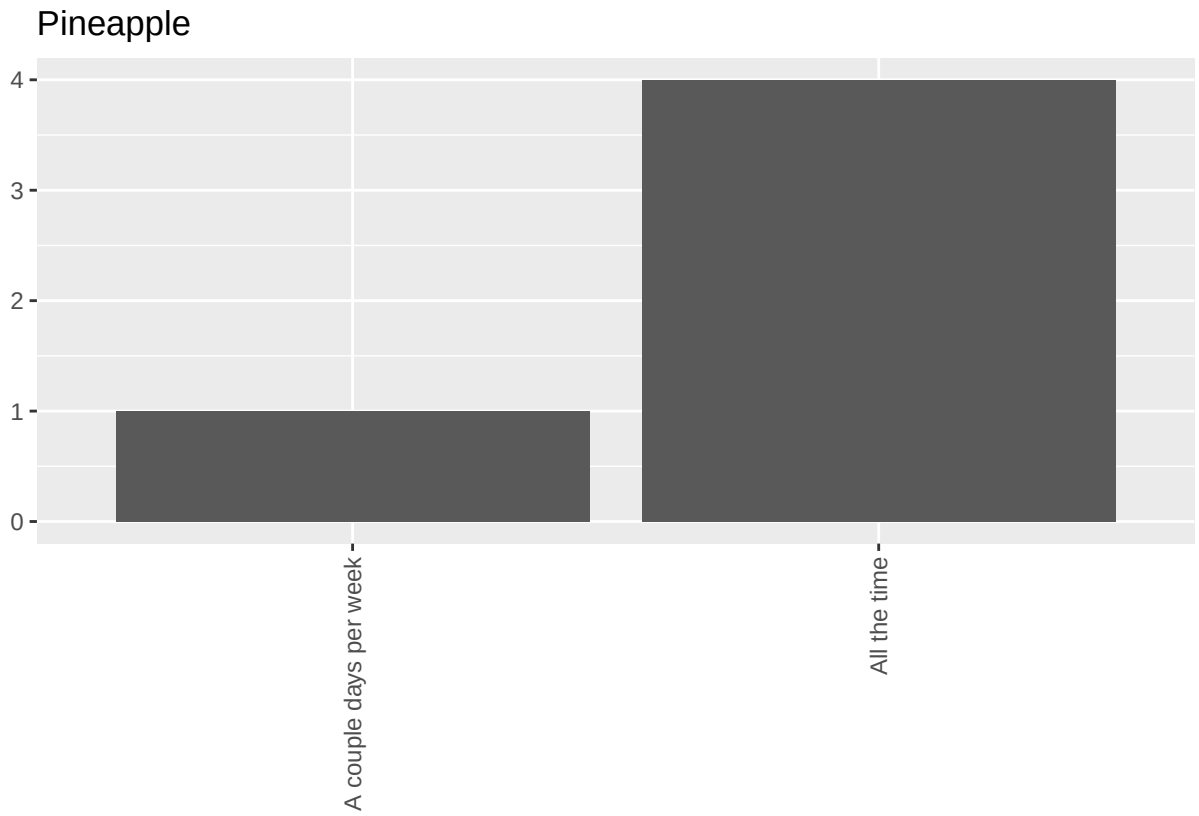
Land crab (mud crab, coconut crab, etc.)

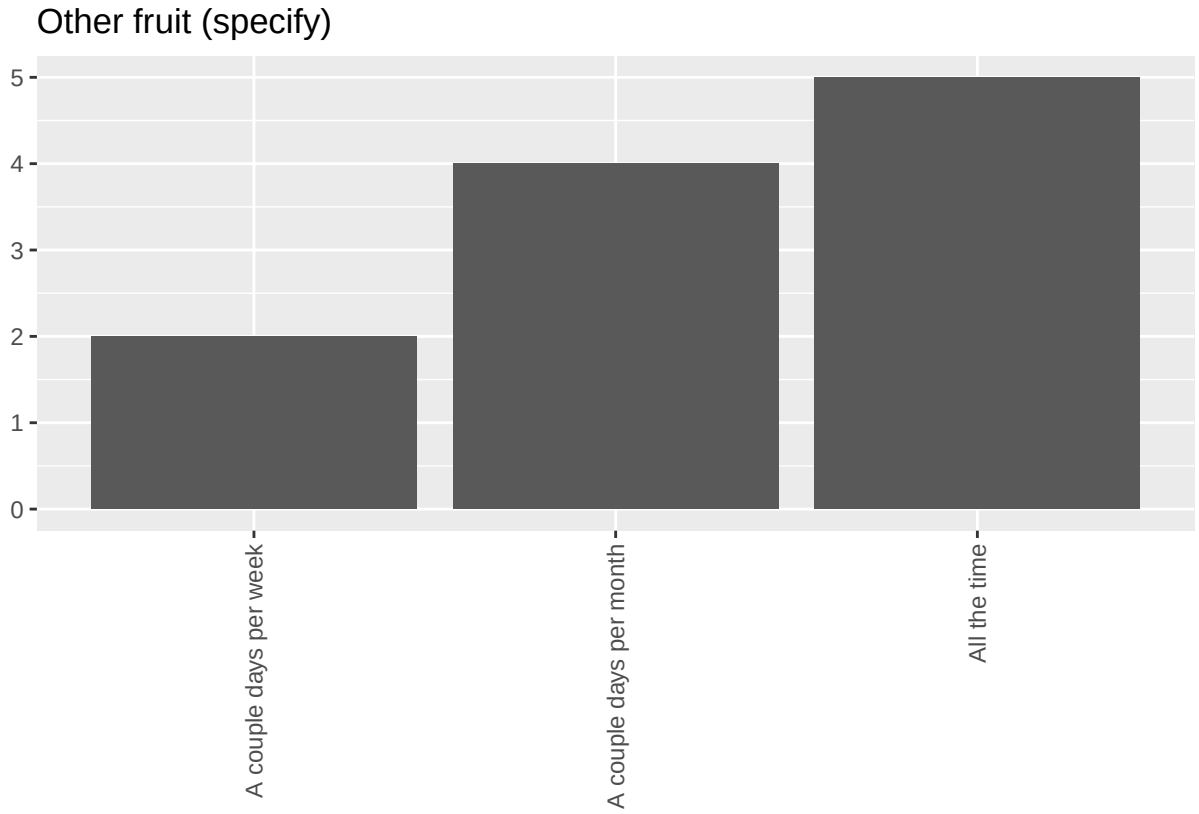


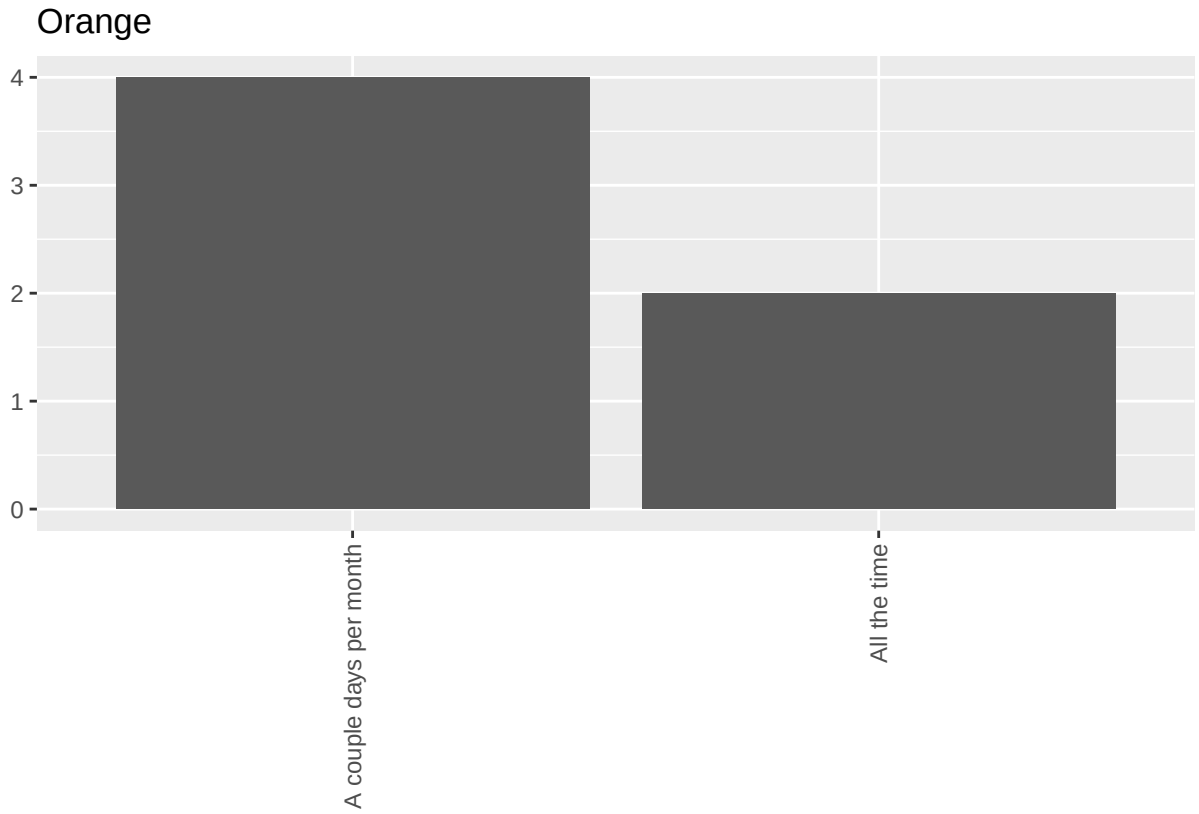

Fresh water fish, river fish (fresh or frozen) − Tilapia etc
1.00
0.75
0.50
0.25
0.00
A couple days per week

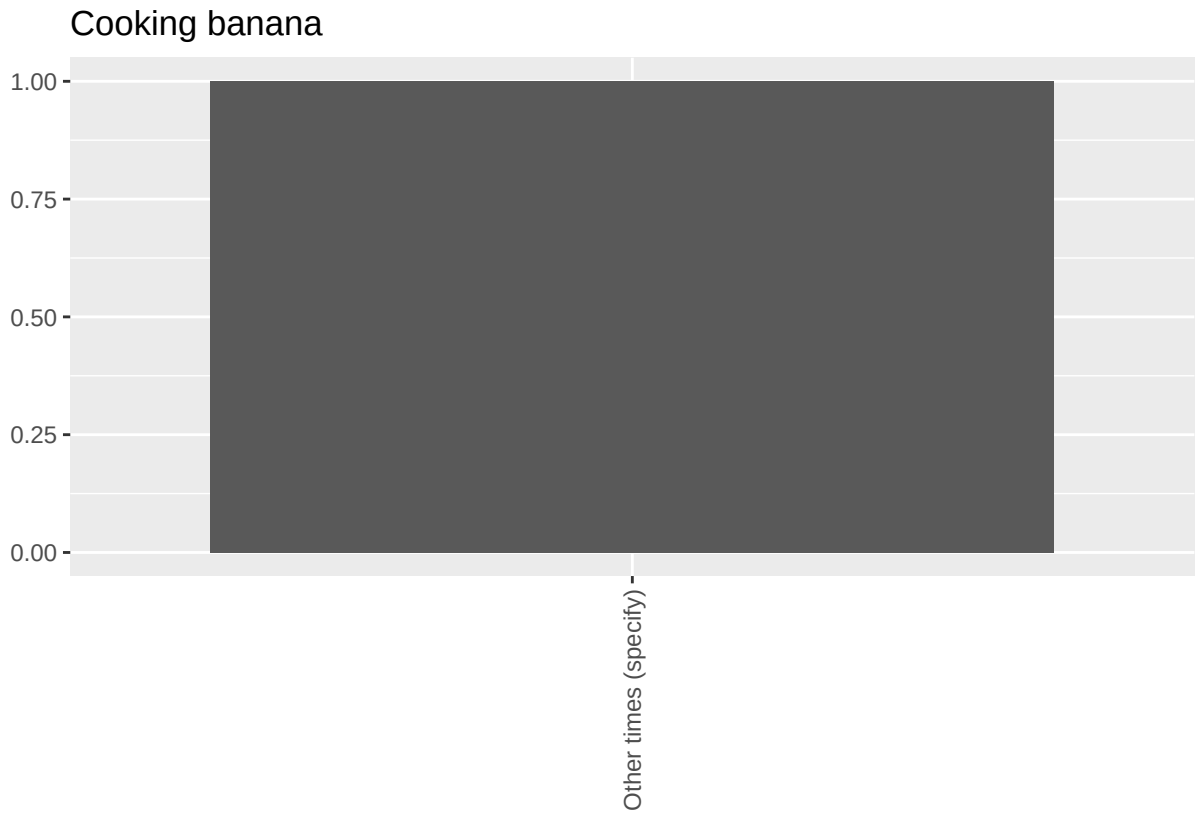

Sea snails (trochus, etc.)
1.00
0.75
0.50
0.25
0.00
All the time

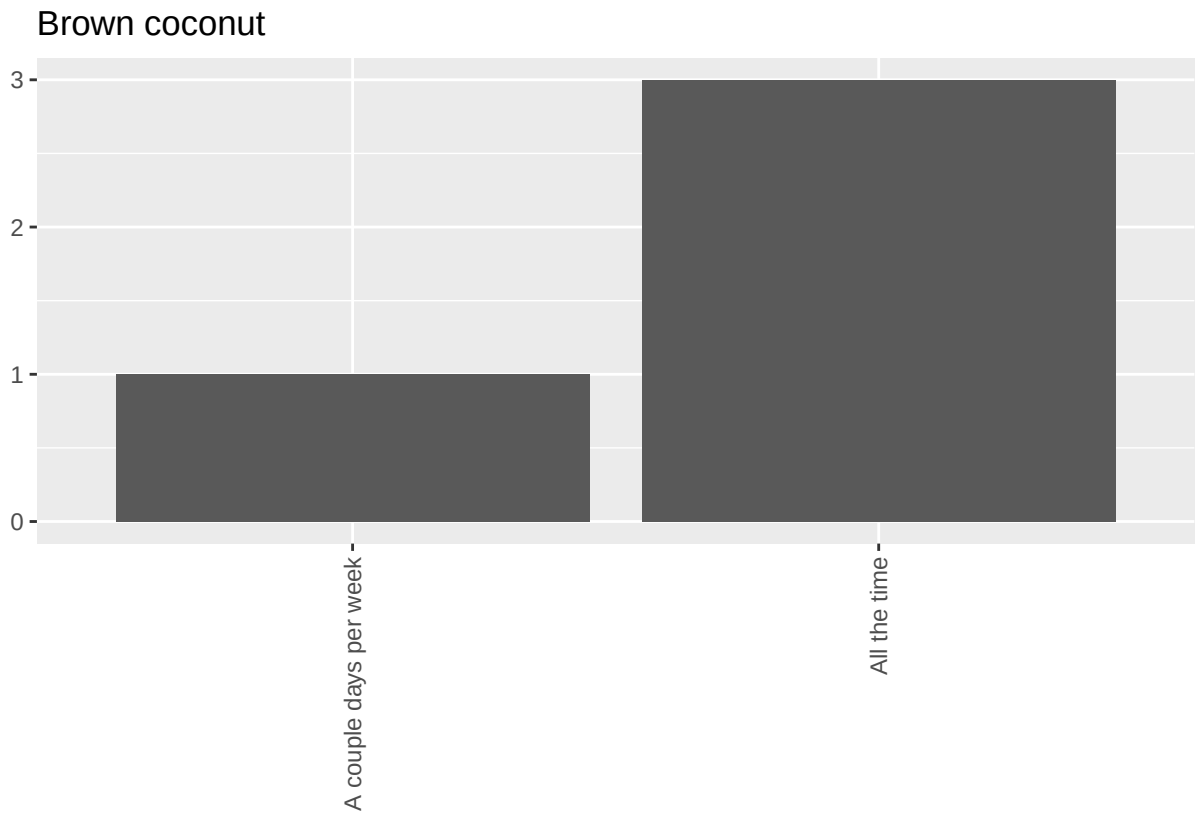

Sea worm (peanut worm)
1.00
0.75
0.50
0.25
0.00
A couple days per week

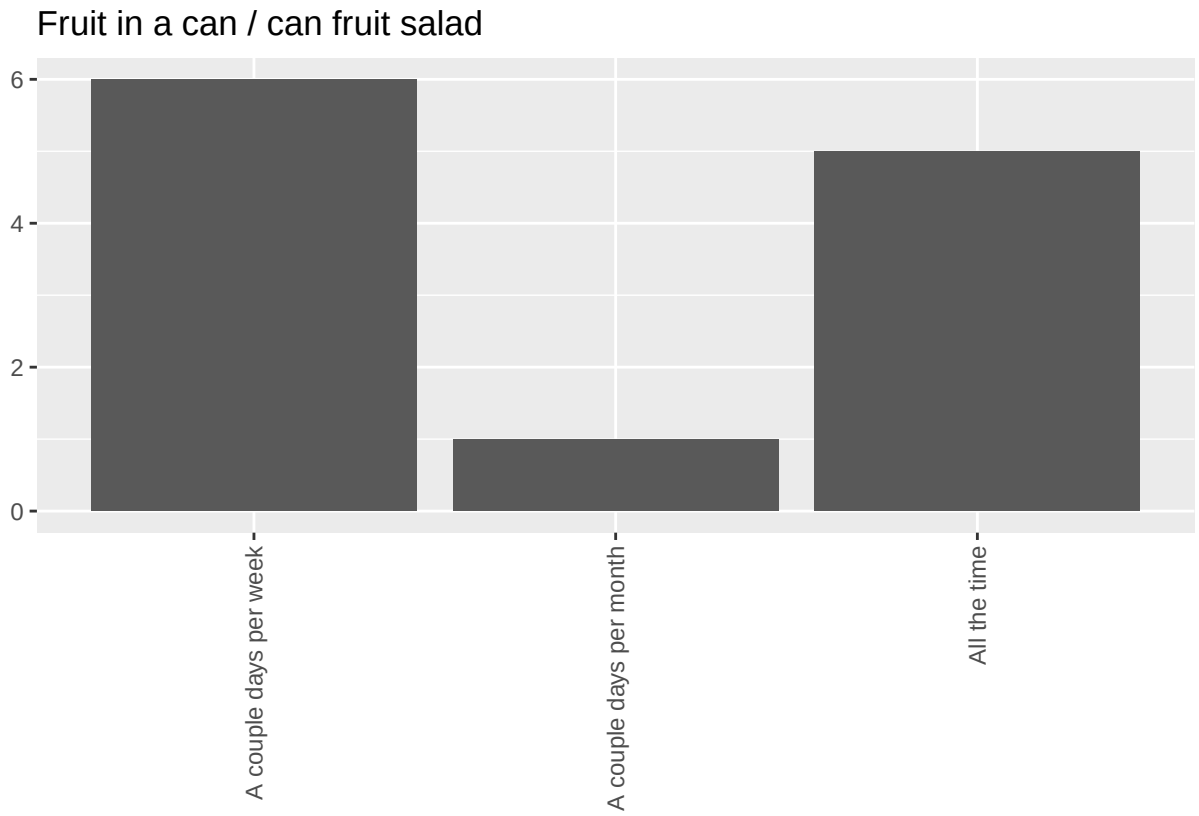

Pineapple
4
3
2
1
0
A couple days per week
All the time

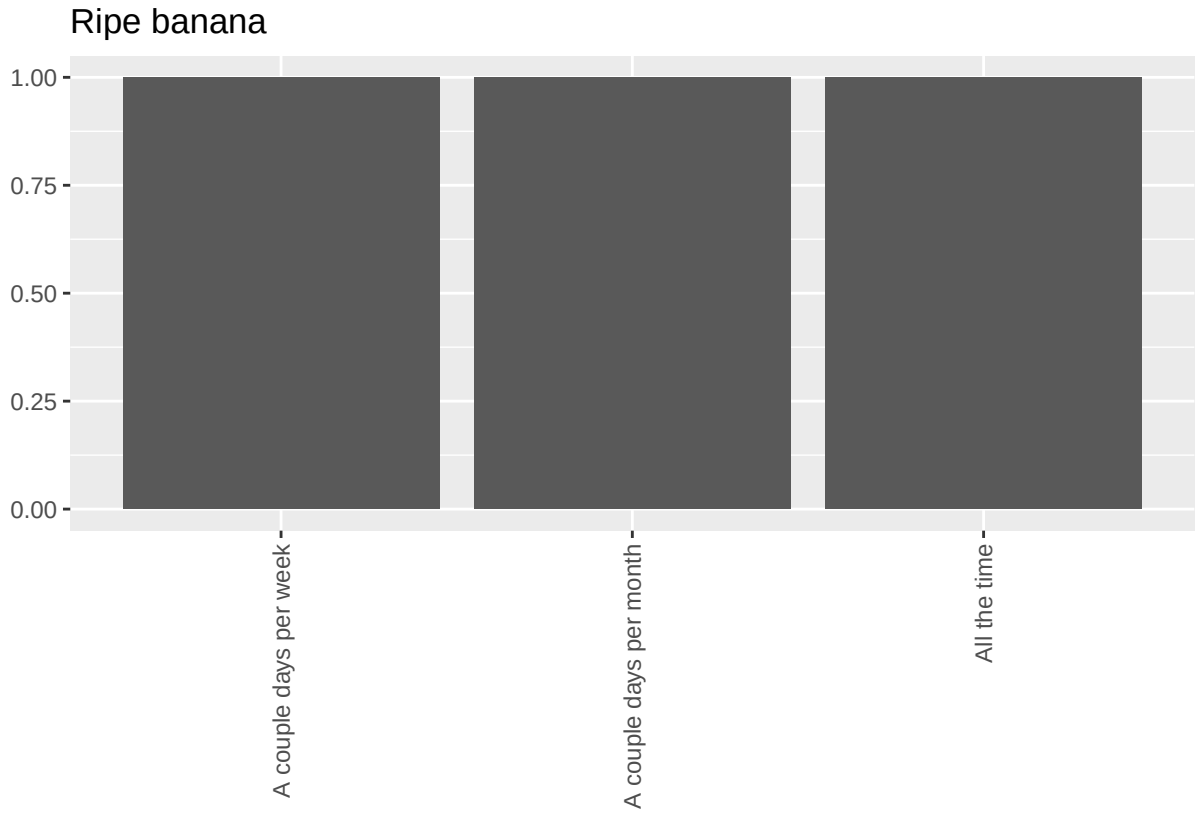

Other fruit (specify)
5
4
3
2
1
0
A couple days per week
A couple days per month
All the time

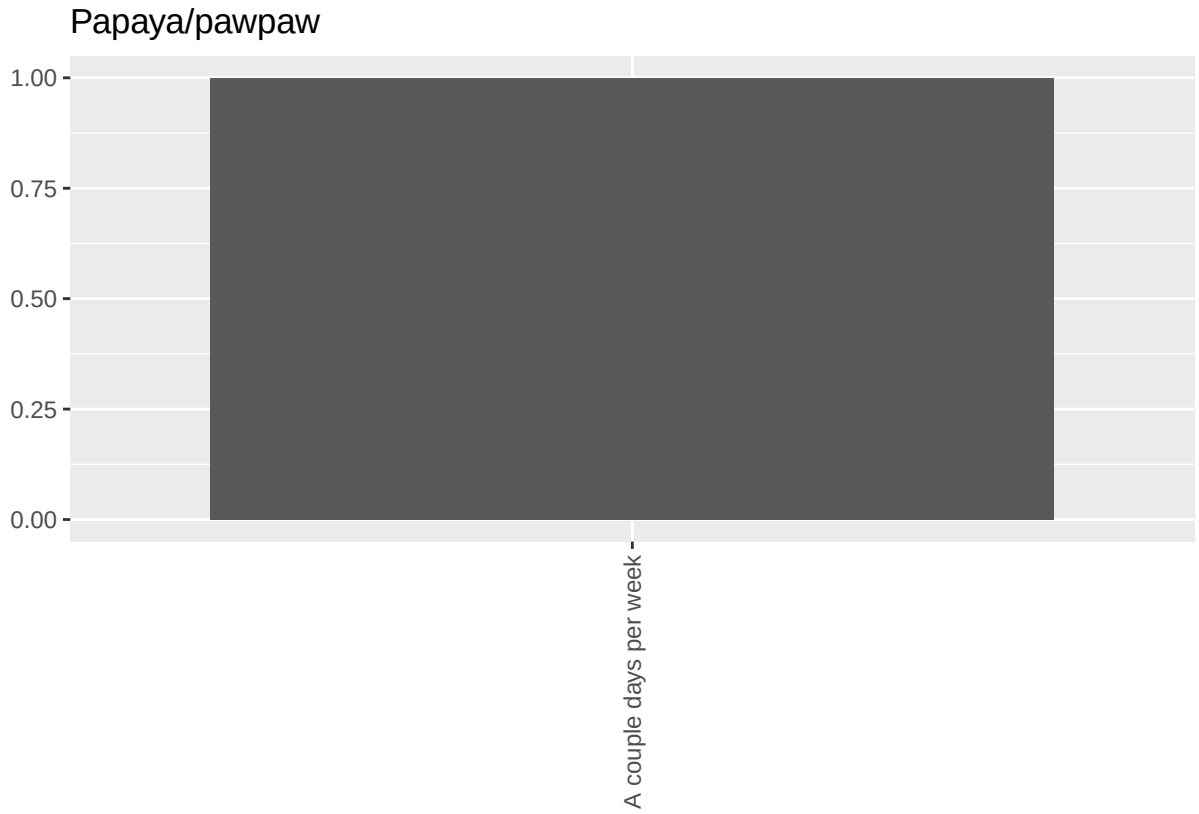

Orange
4
3
2
1
0
A couple days per month
All the time

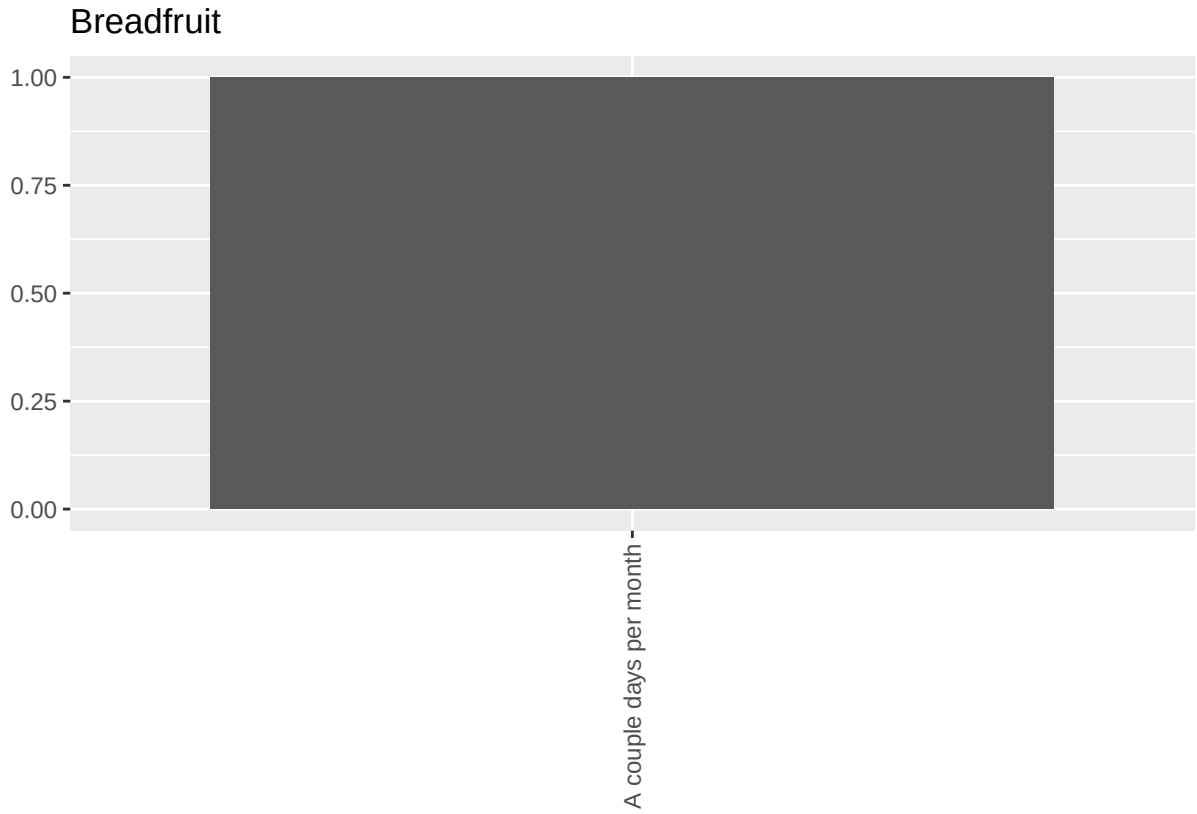

Cooking banana
1.00
0.75
0.50
0.25
0.00
Other times (specify)

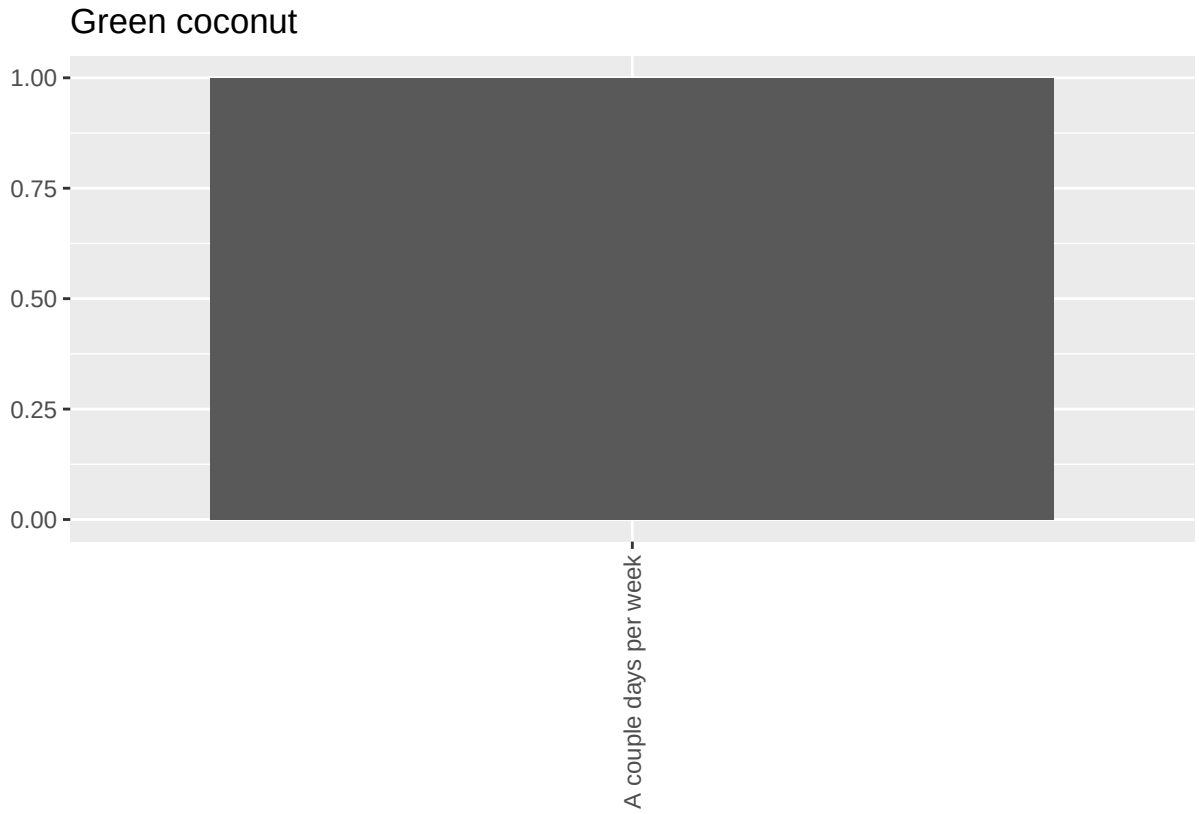

Brown coconut
3
2
1
0
A couple days per week
All the time

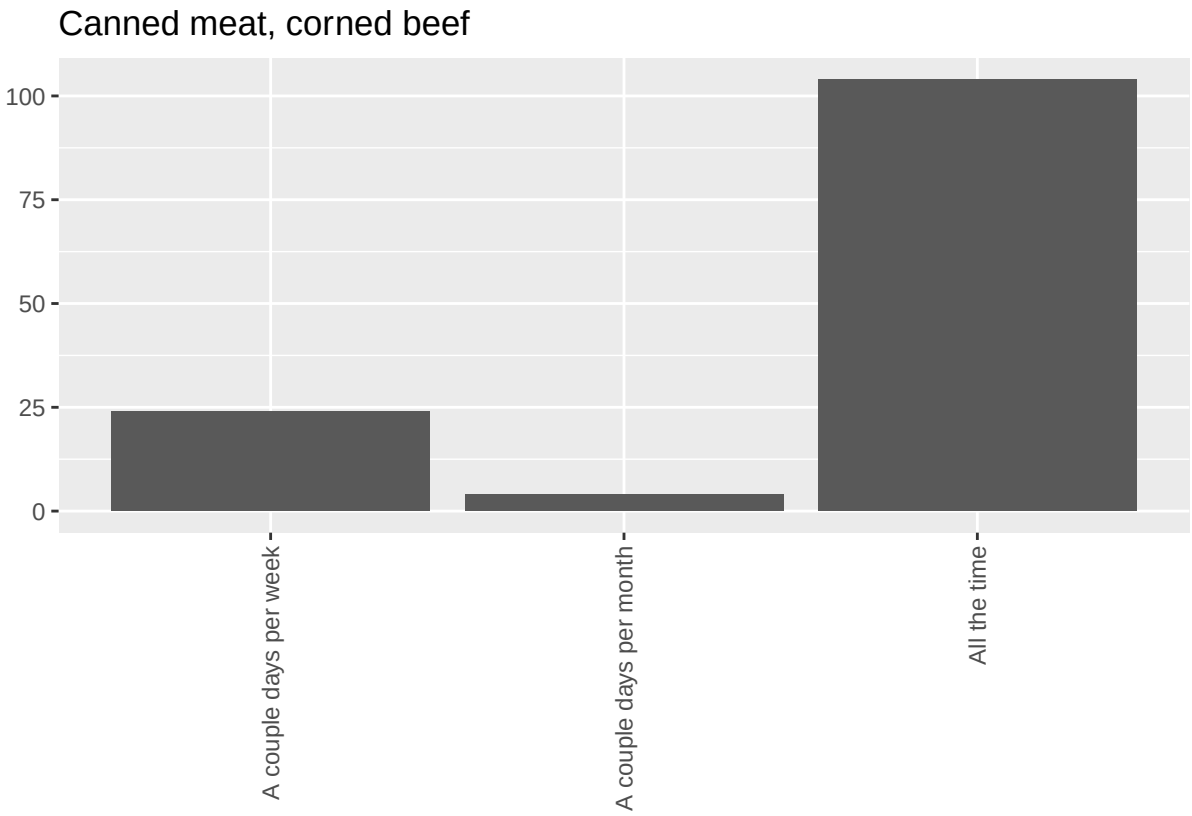

Fruit in a can / can fruit salad
6
4
2
0
A couple days per week
A couple days per month
All the time

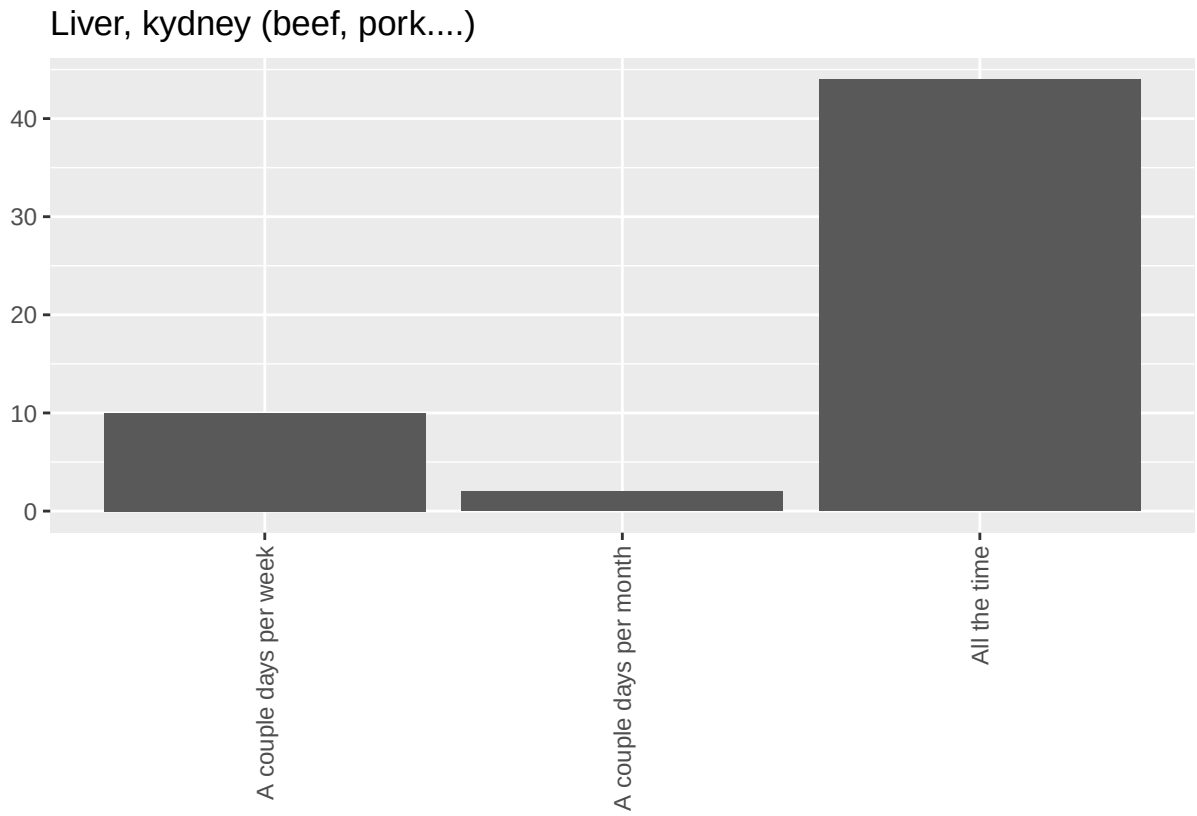

Ripe banana
1.00
0.75
0.50
0.25
0.00
A couple days per week
A couple days per month
All the time

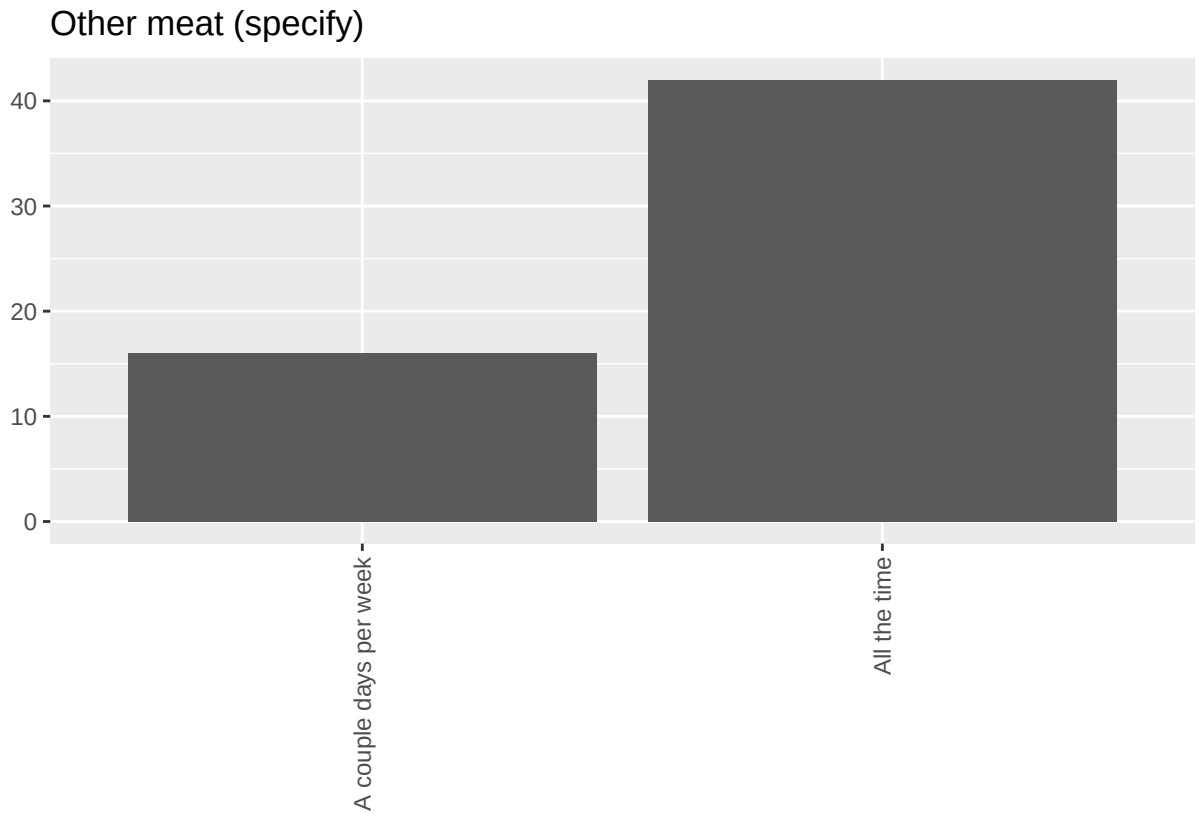

Papaya/pawpaw
1.00
0.75
0.50
0.25
0.00
A couple days per week

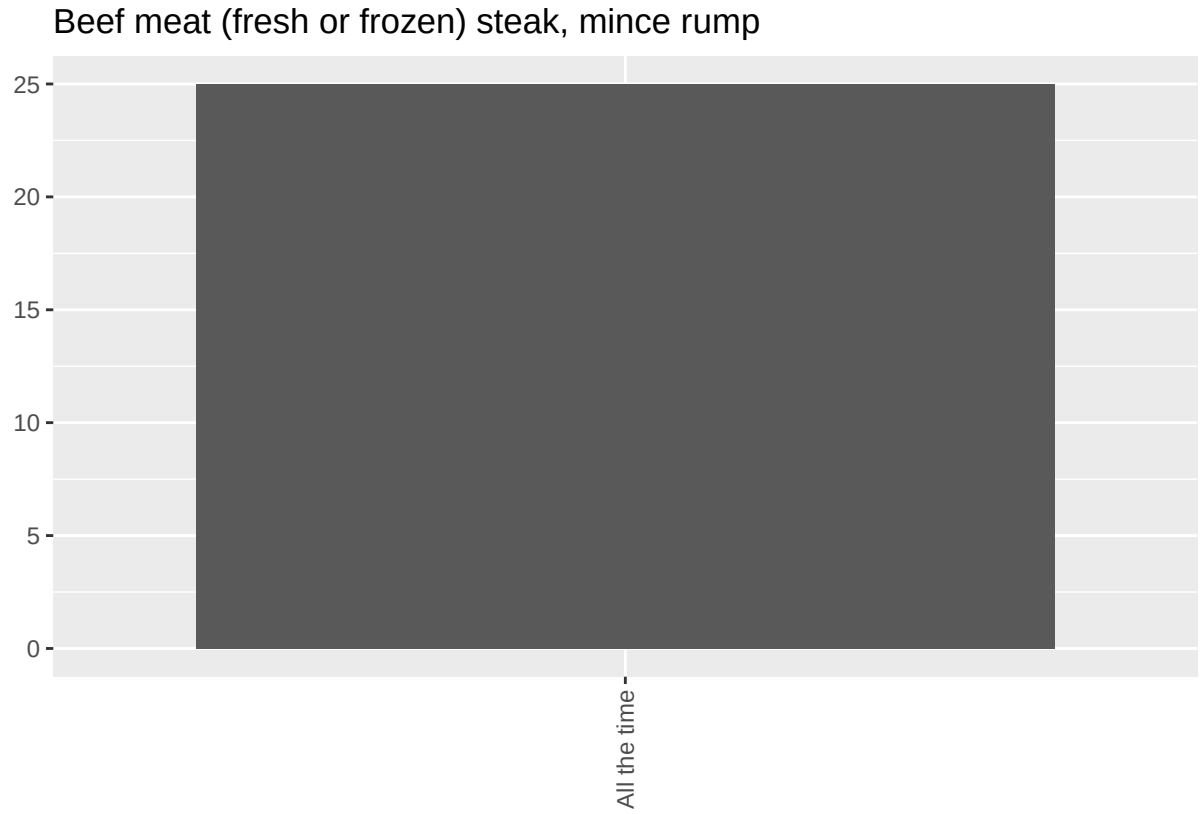

Breadfruit
1.00
0.75
0.50
0.25
0.00
A couple days per month


Green coconut
1.00
0.75
0.50
0.25
0.00
A couple days per week

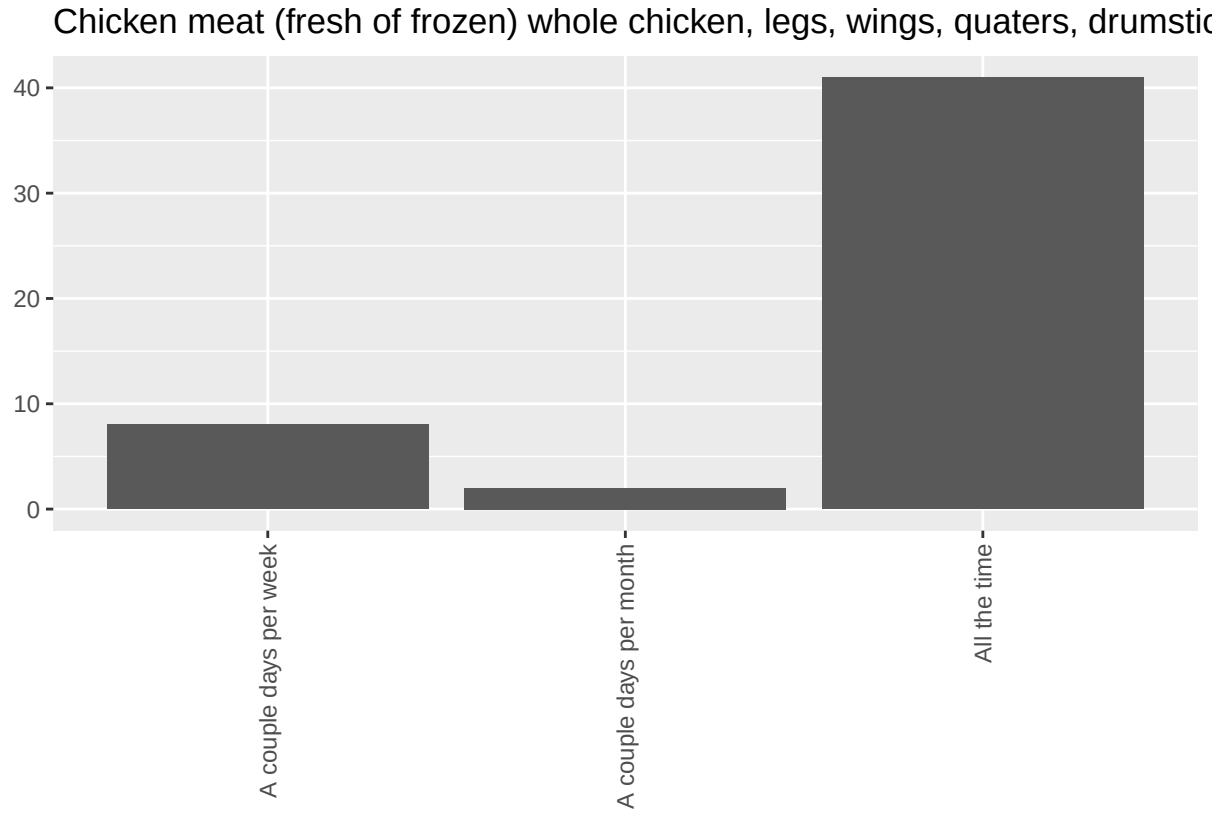

Canned meat, corned beef
100
75
50
25
0
A couple days per week
A couple days per month
All the time

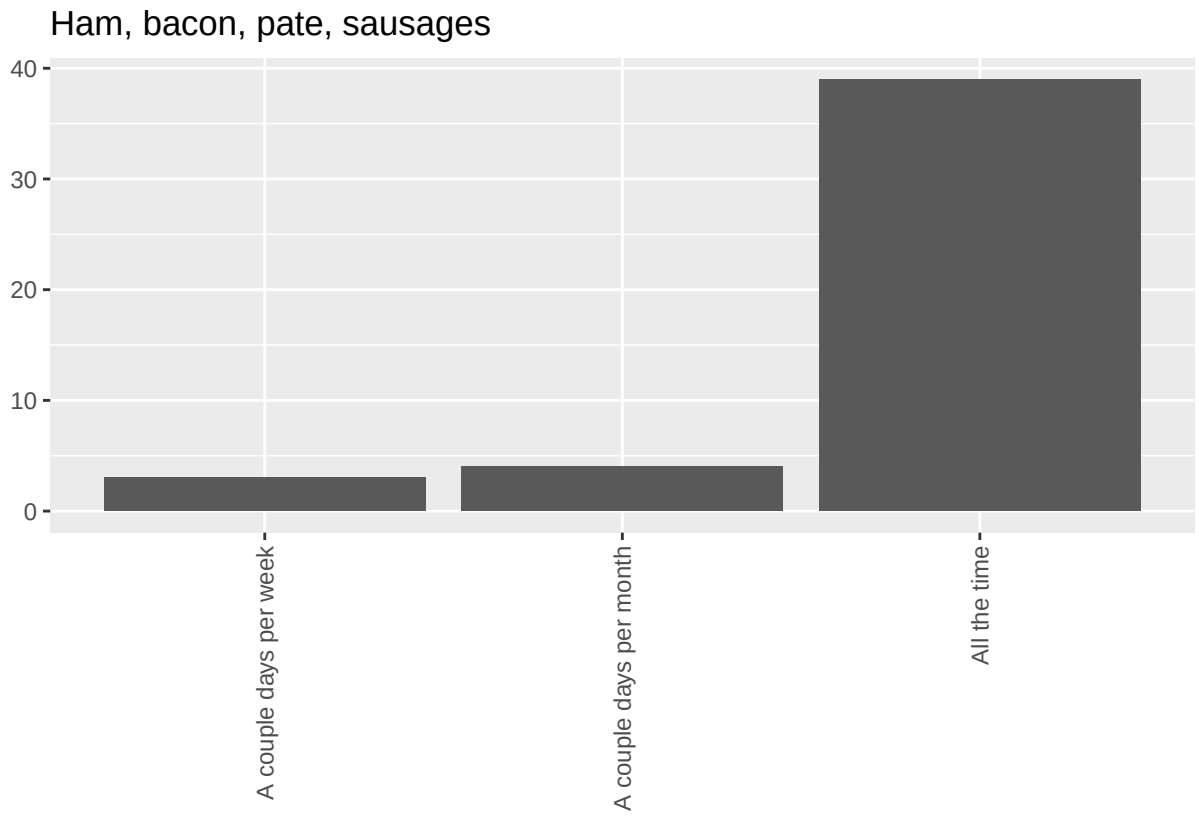

Liver, kydney (beef, pork....)
40
30
20
10
0
A couple days per week
A couple days per month
All the time

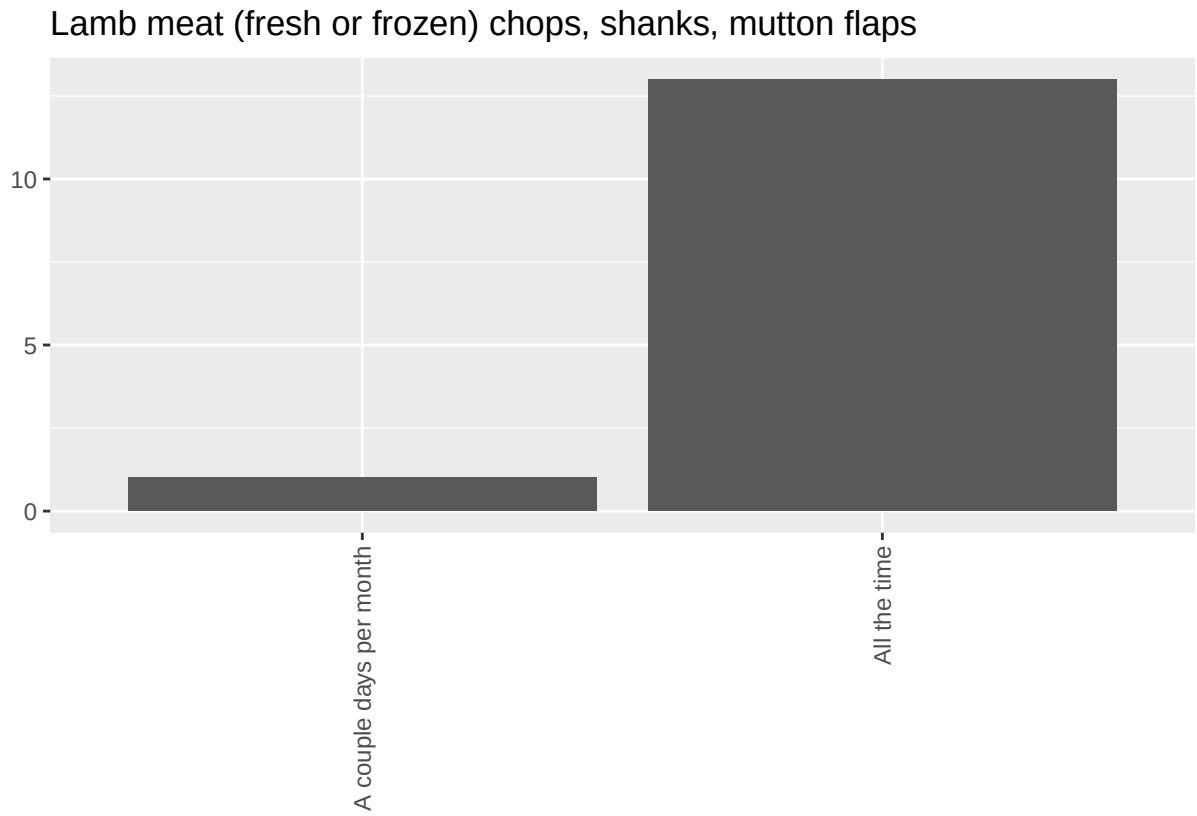

Other meat (specify)
40
30
20
10
0
A couple days per week
All the time

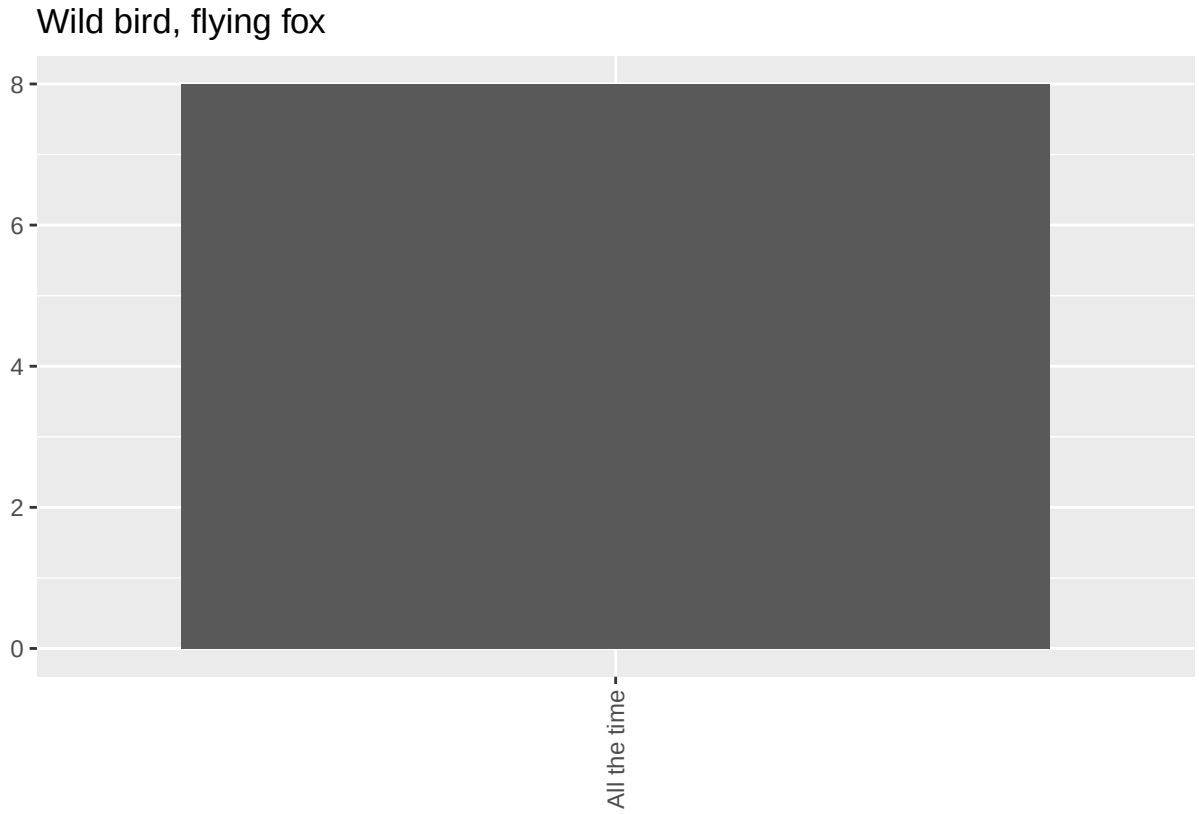

Beef meat (fresh or frozen) steak, mince rump
25
20
15
10
5
0
All the time

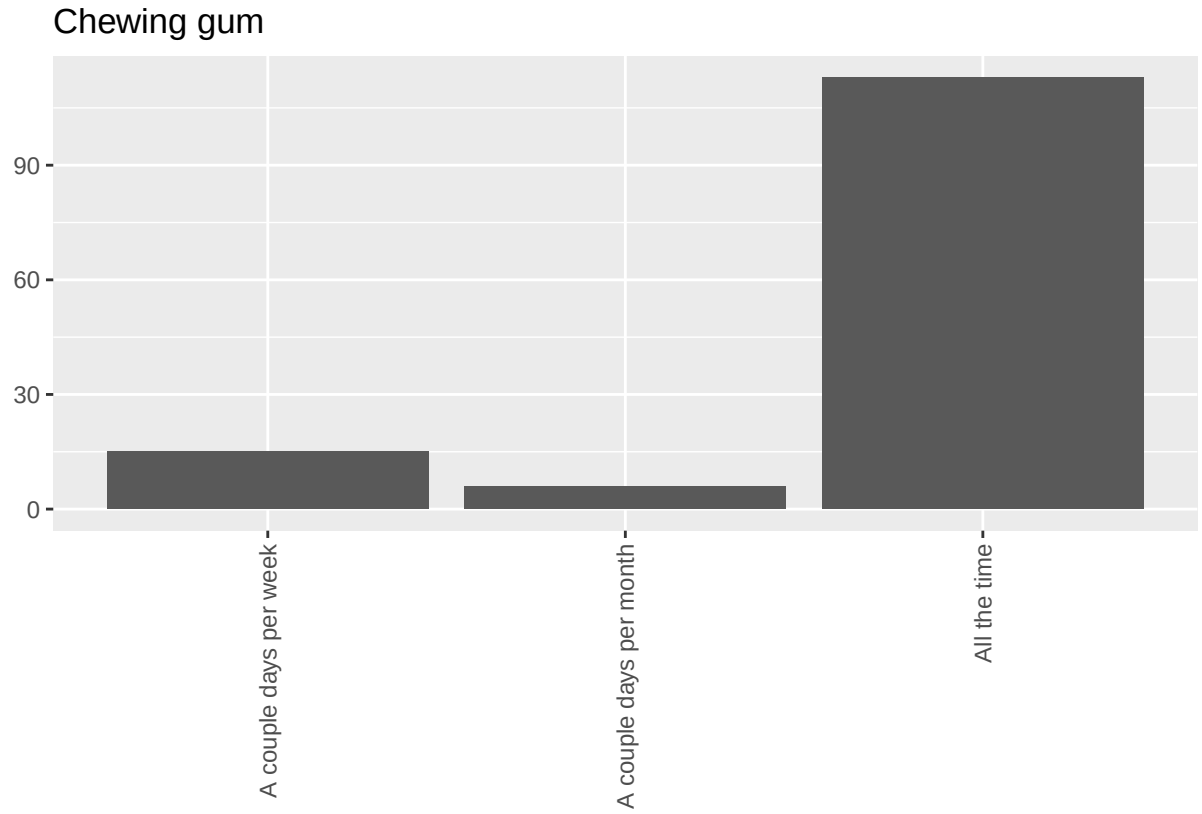

Pork meat (fresh or frozen) ribs, chop, leg
50
40
30
20
10
0
A couple days per week
All the time

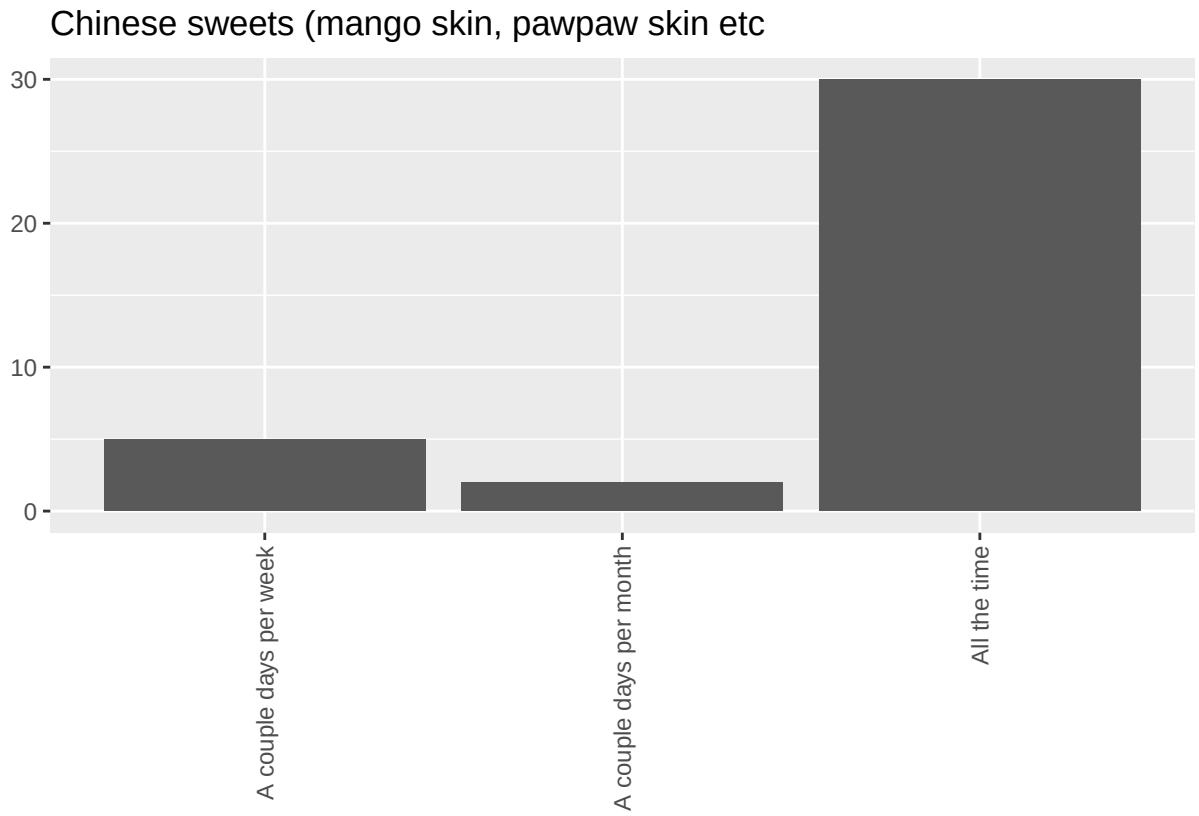

Chicken meat (fresh of frozen) whole chicken, legs, wings, quaters, drumstic
40
30
20
10
0
A couple days per week
A couple days per month
All the time

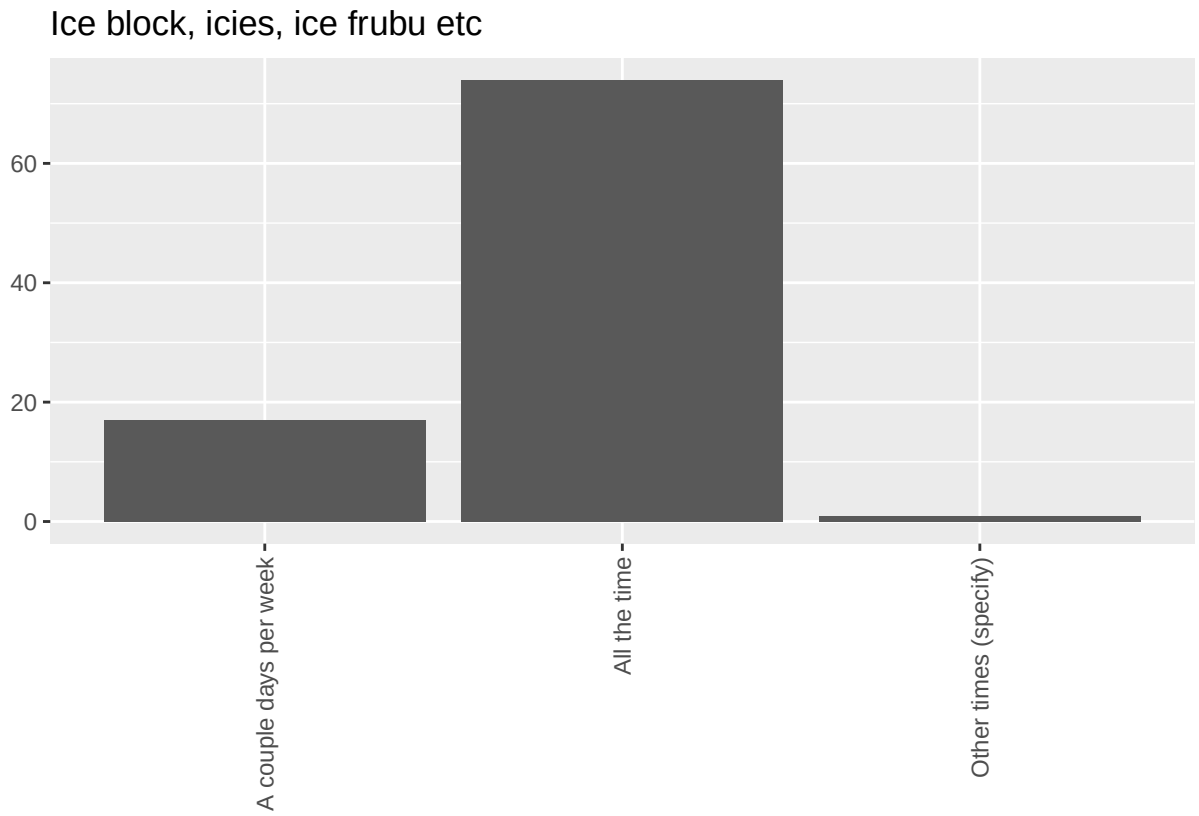

Ham, bacon, pate, sausages
40
30
20
10
0
A couple days per week
A couple days per month
All the time

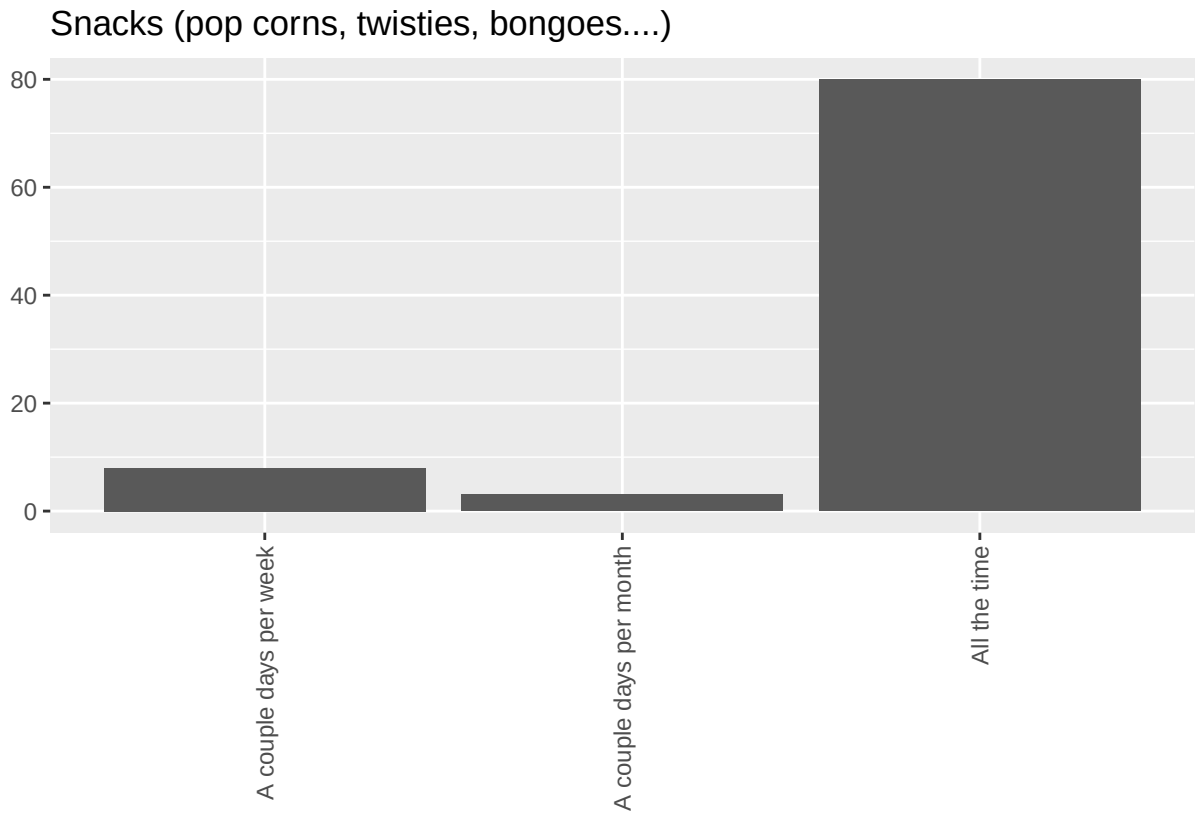

Lamb meat (fresh or frozen) chops, shanks, mutton flaps
10
5
0
A couple days per month
All the time

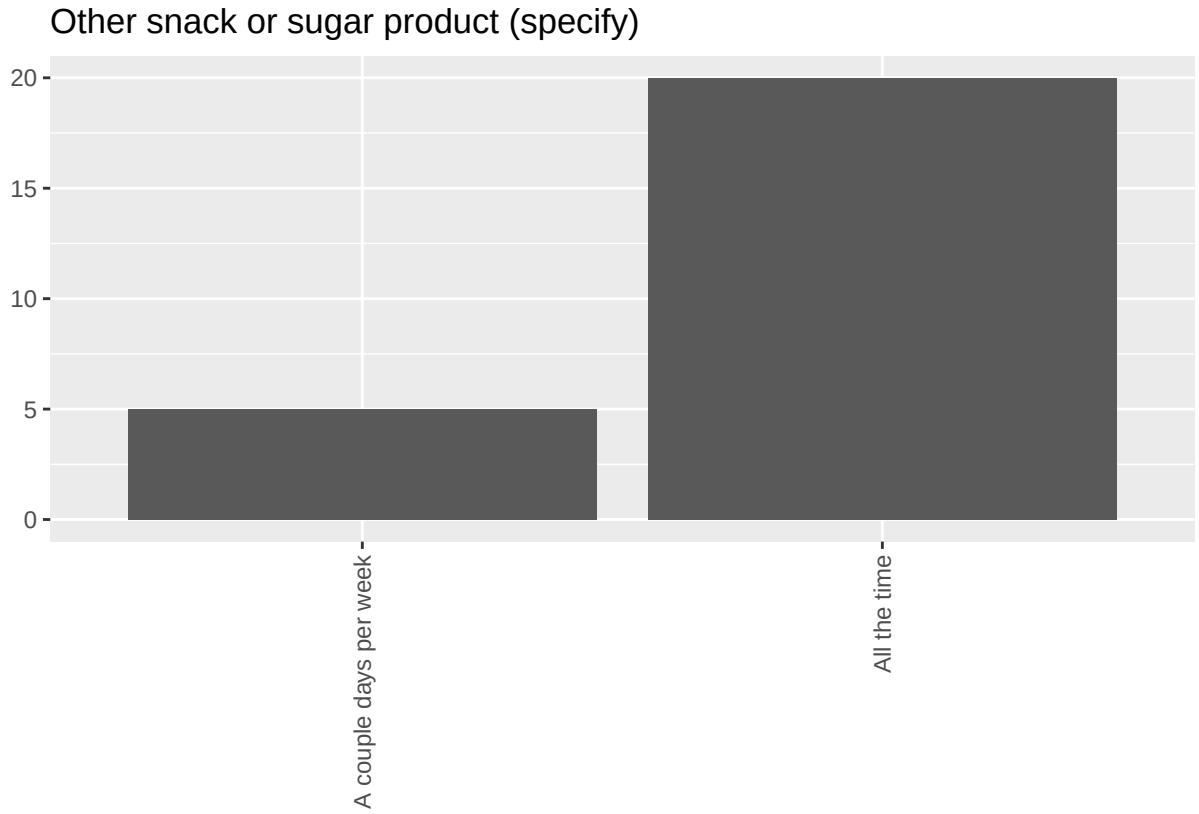

Wild bird, flying fox
8
6
4
2
0
All the time

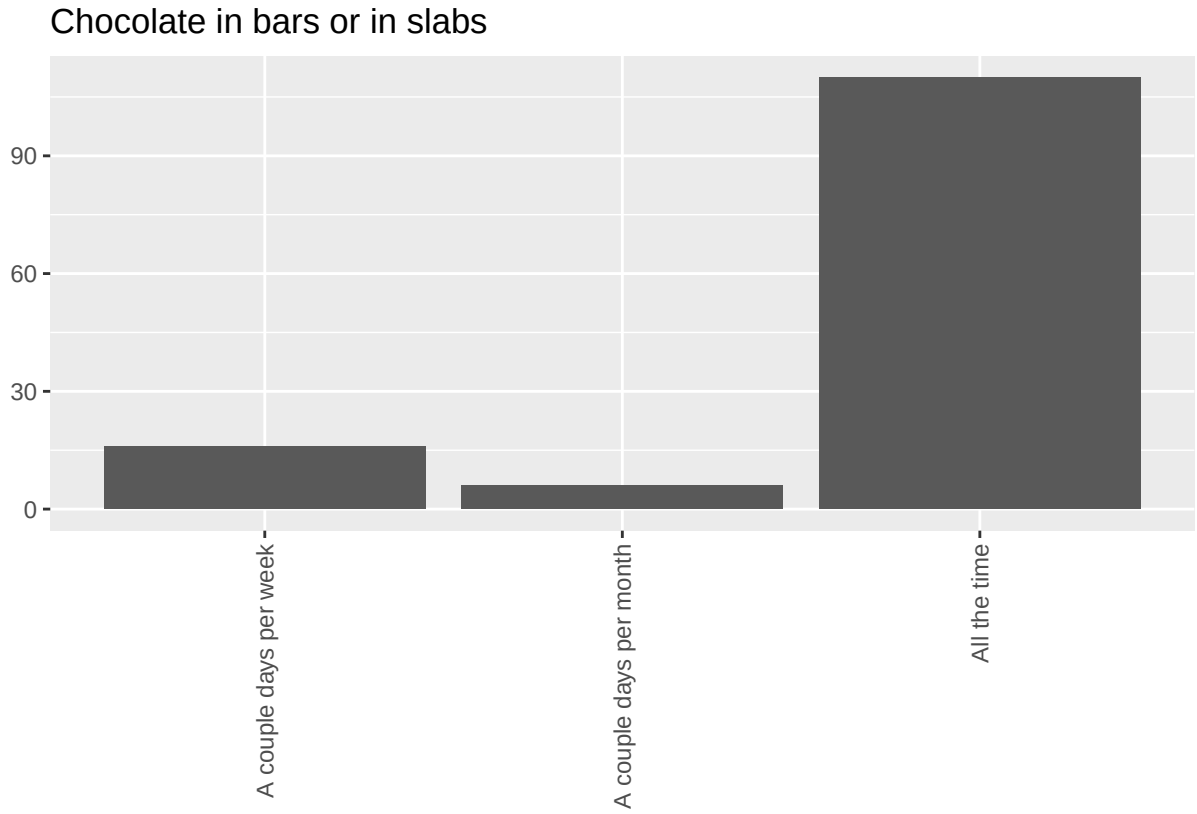

Chewing gum
90
60
30
0
A couple days per week
A couple days per month
All the time

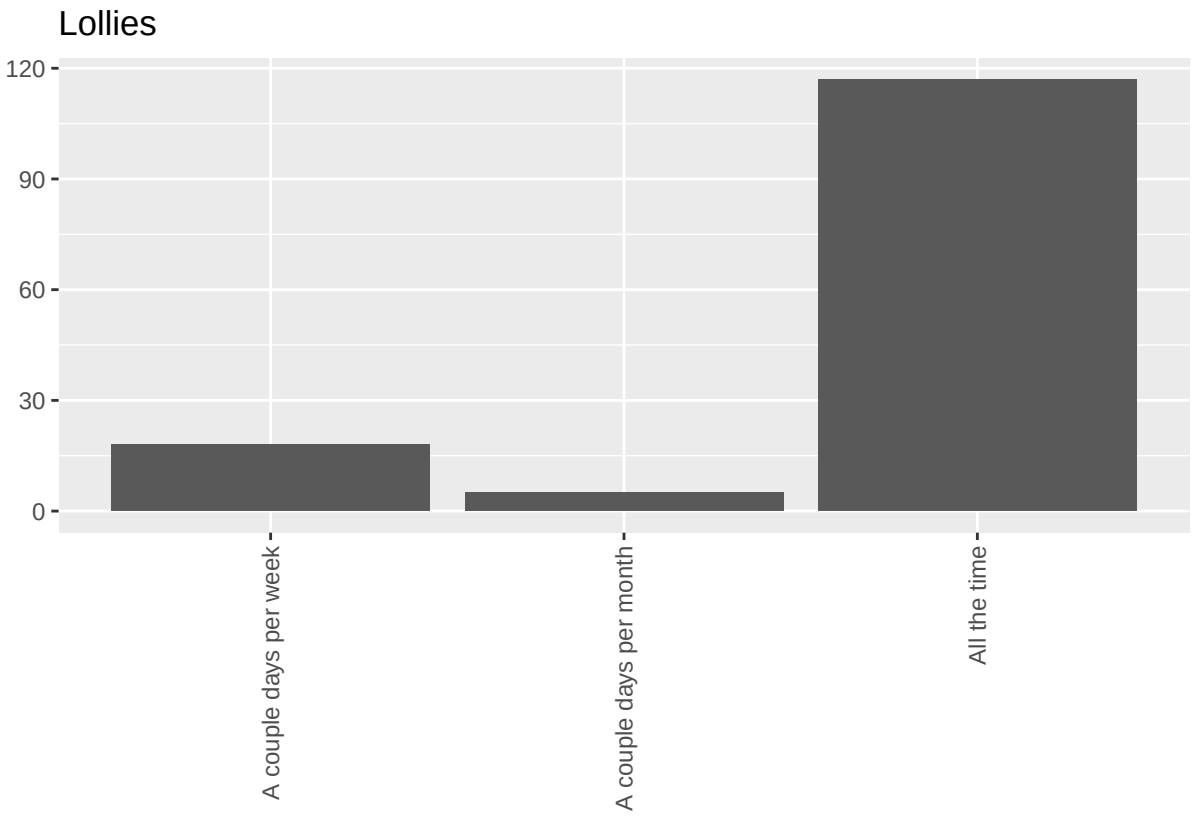

Chinese sweets (mango skin, pawpaw skin etc
30
20
10
0
A couple days per week
A couple days per month
All the time

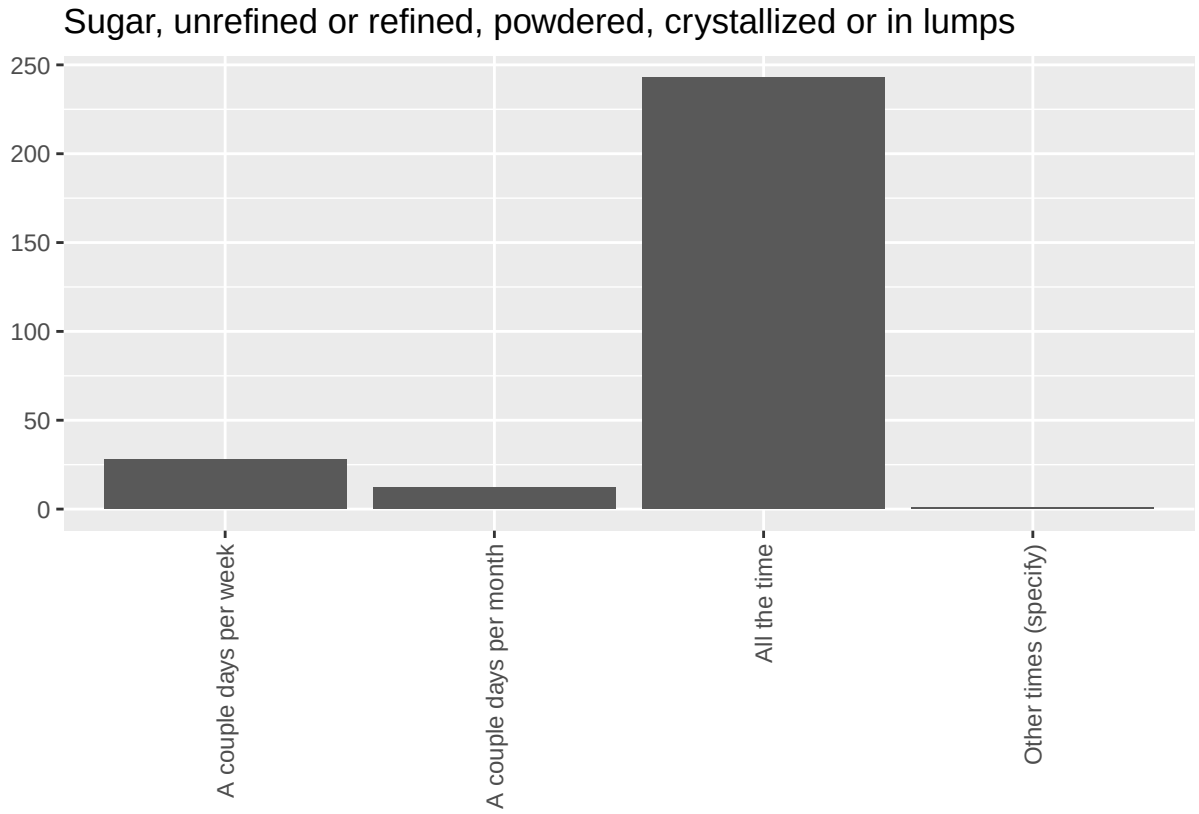

Ice block, icies, ice frubu etc
60
40
20
0
A couple days per week
All the time
Other times (specify)


Snacks (pop corns, twisties, bongoes....)
80
60
40
20
0
A couple days per week
A couple days per month
All the time

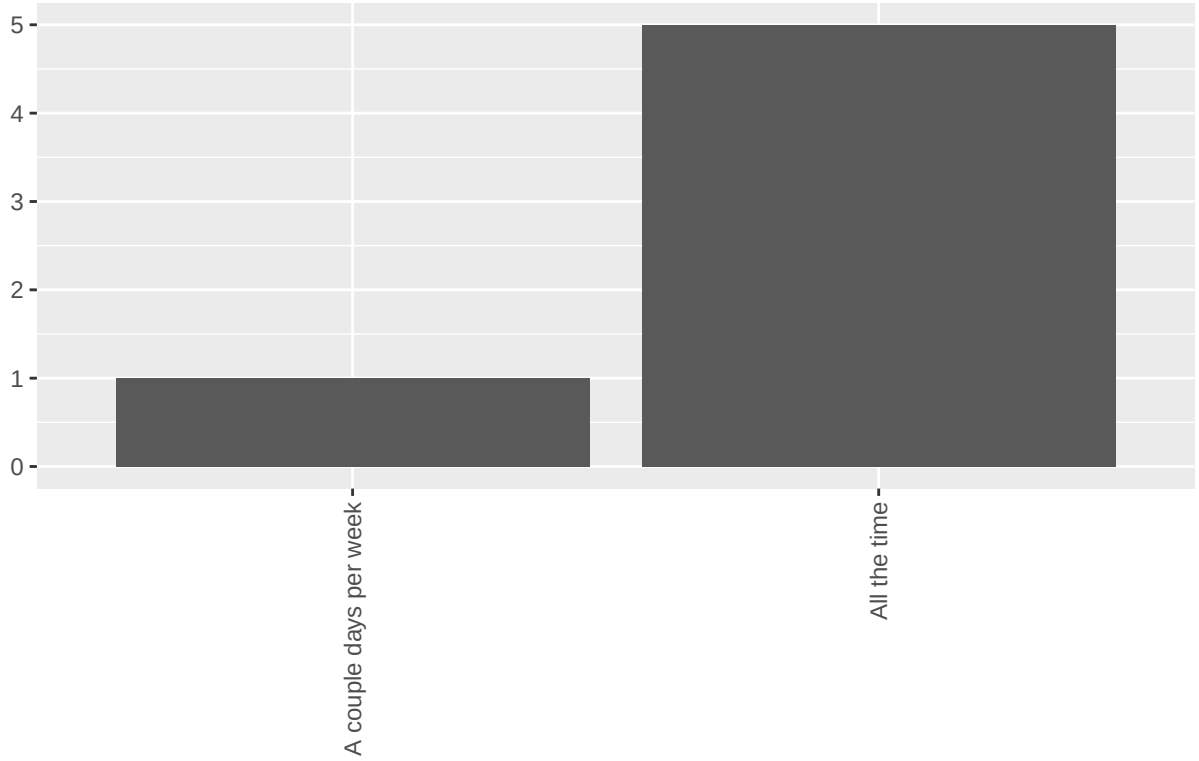

Other snack or sugar product (specify)
20
15
10
5
0
A couple days per week
All the time

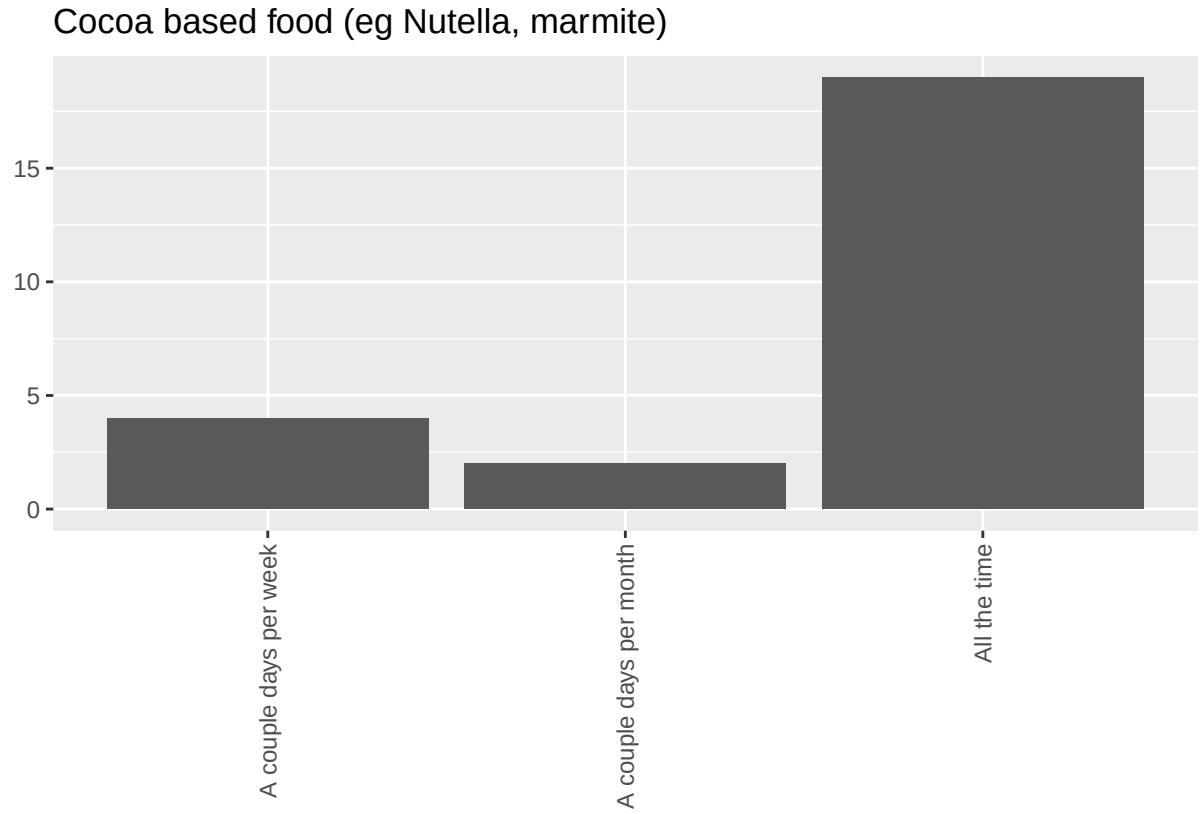

Chocolate in bars or in slabs
90
60
30
0
A couple days per week
A couple days per month
All the time

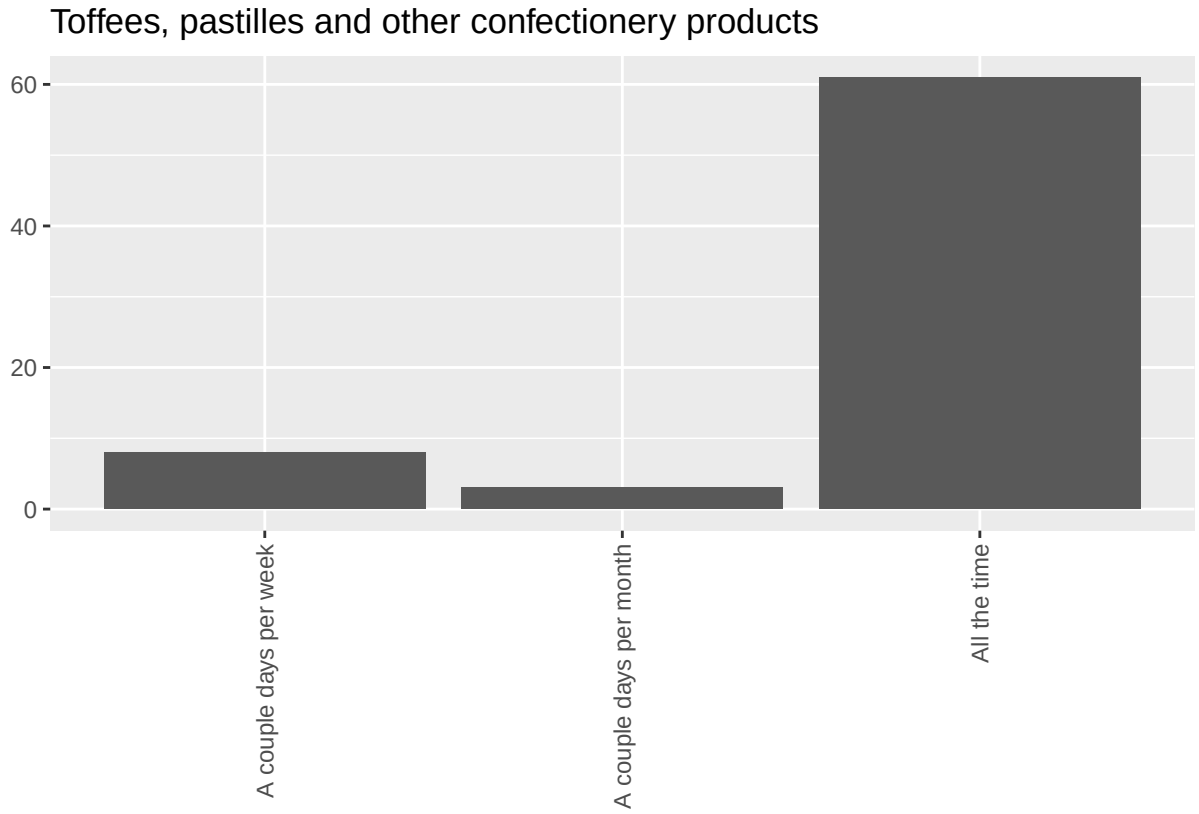

Lollies
120
90
60
30
0
A couple days per week
A couple days per month
All the time

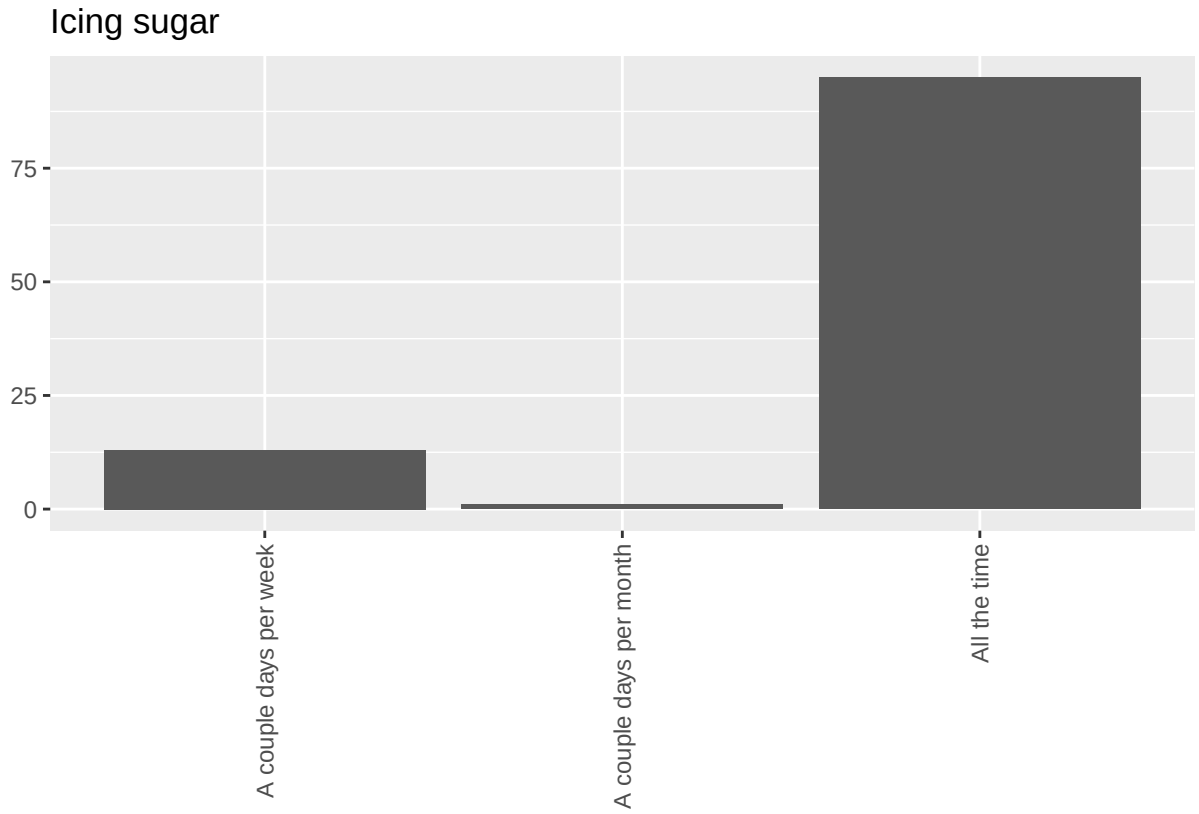

Sugar, unrefined or refined, powdered, crystallized or in lumps
250
200
150
100
50
0
A couple days per week
A couple days per month
All the time
Other times (specify)

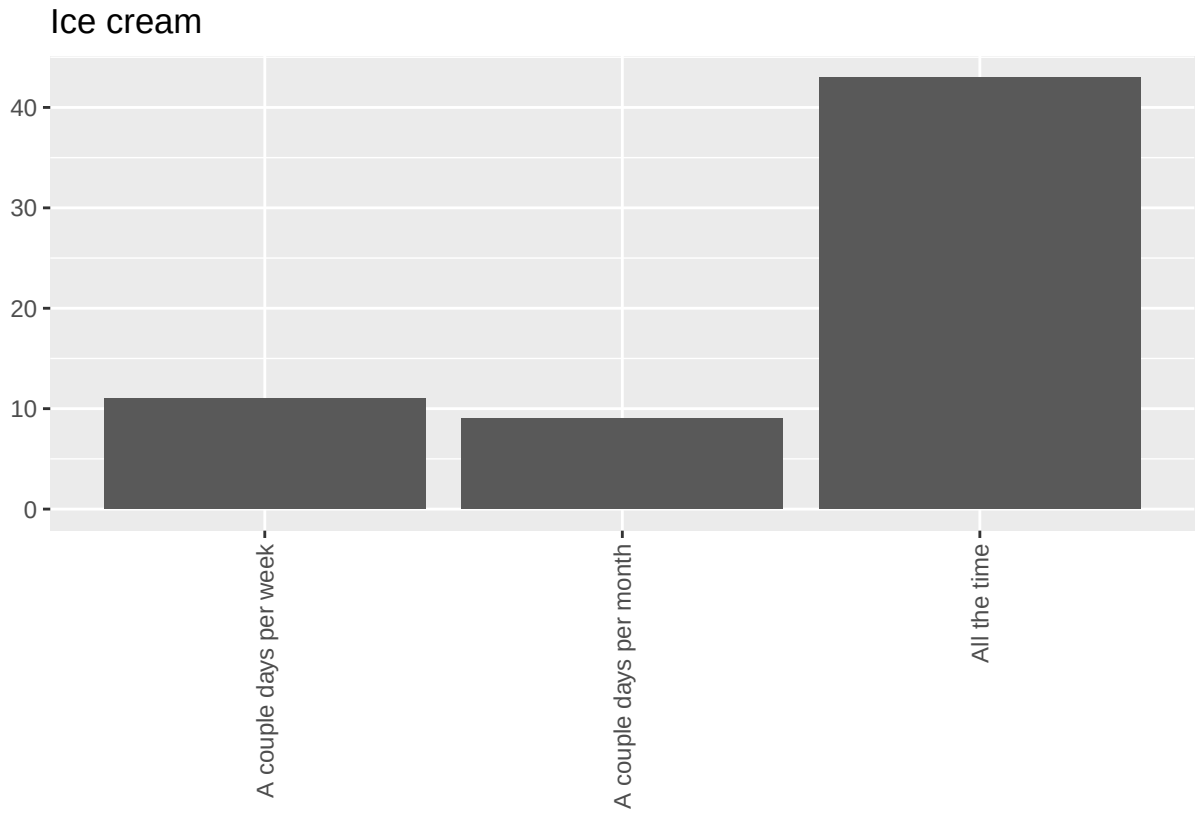
Jam, Jelly, Honey (pawpaw jam, coconut jam.....)

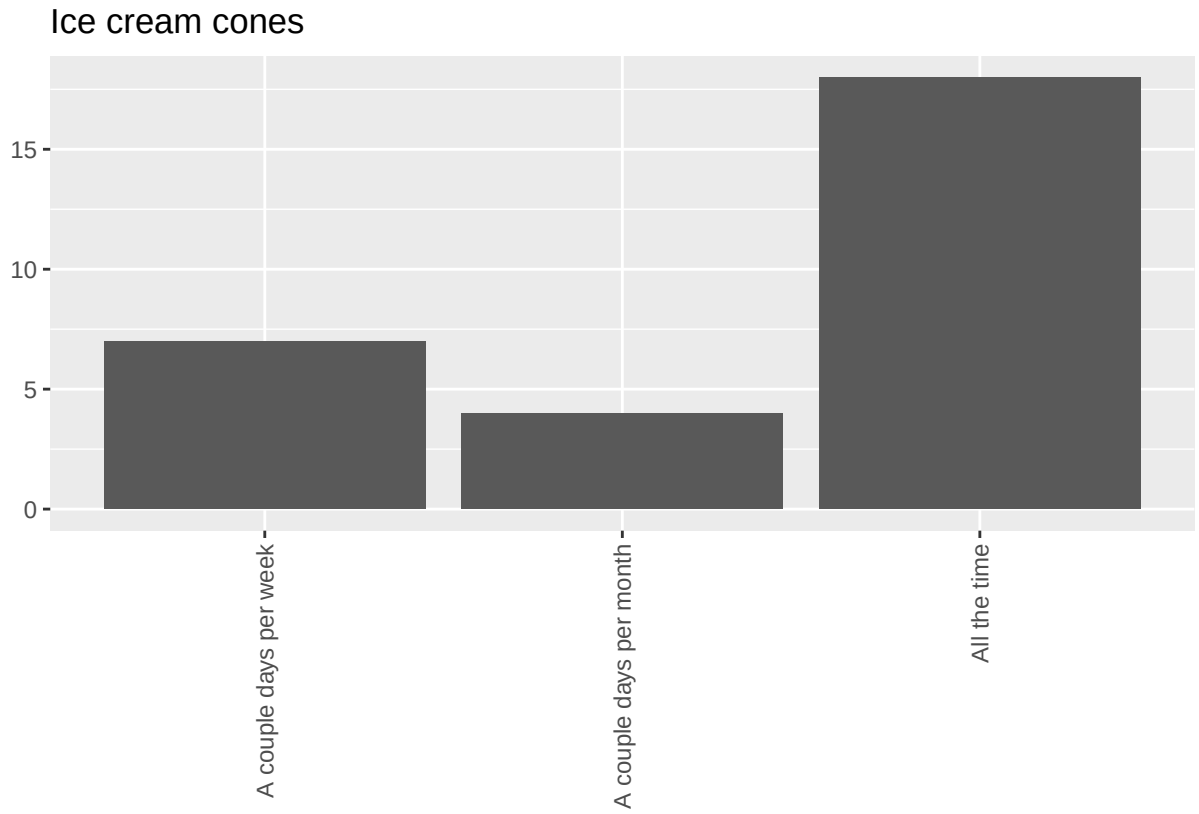


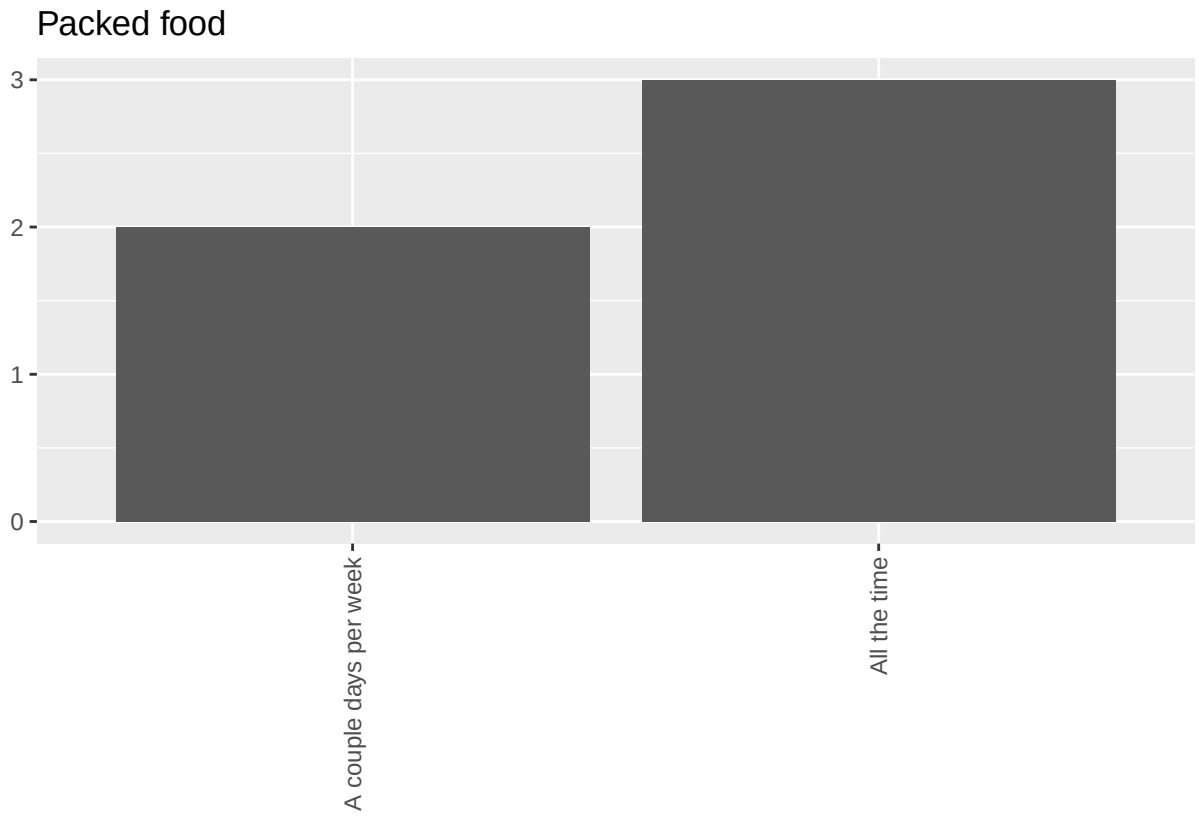

Cocoa based food (eg Nutella, marmite)
15
10
5
0
A couple days per week
A couple days per month
All the time

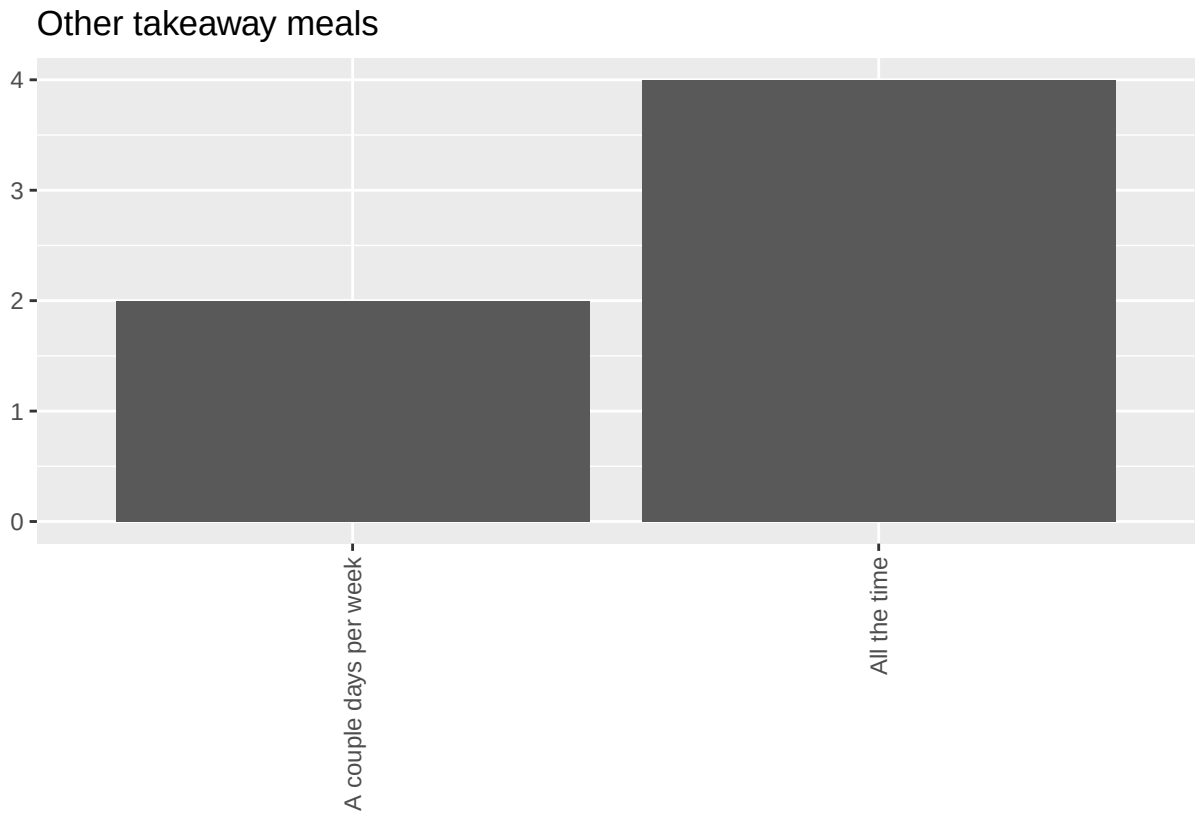

Toffees, pastilles and other confectionery products
60
40
20
0
A couple days per week
A couple days per month
All the time

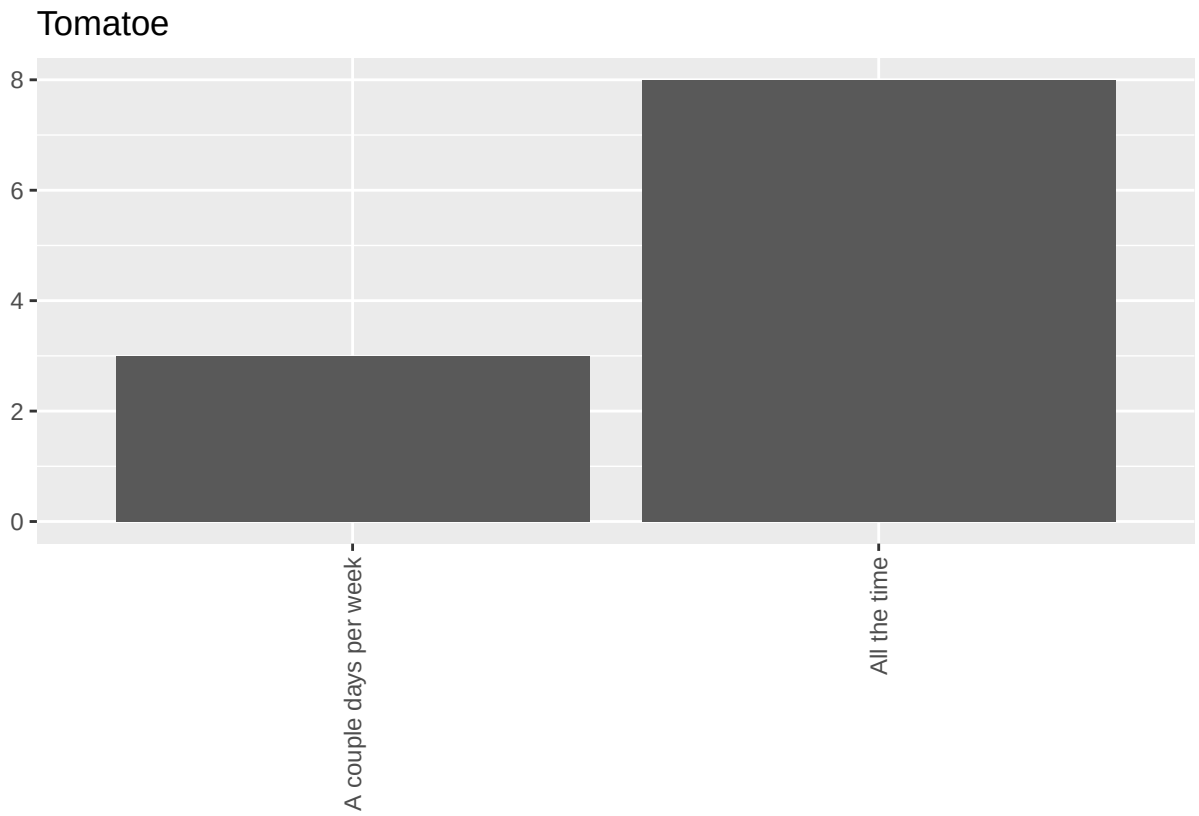

Icing sugar
75
50
25
0
A couple days per week
A couple days per month
All the time

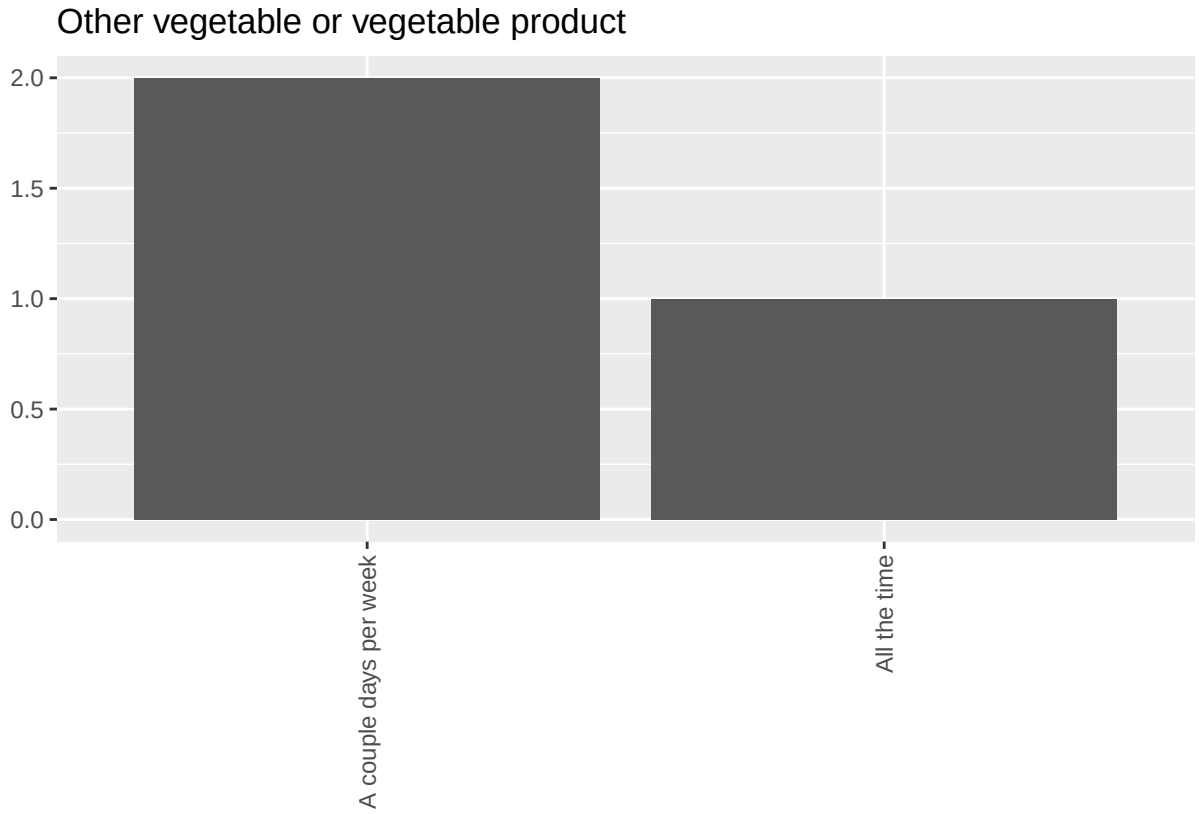

Ice cream
40
30
20
10
0
A couple days per week
A couple days per month
All the time

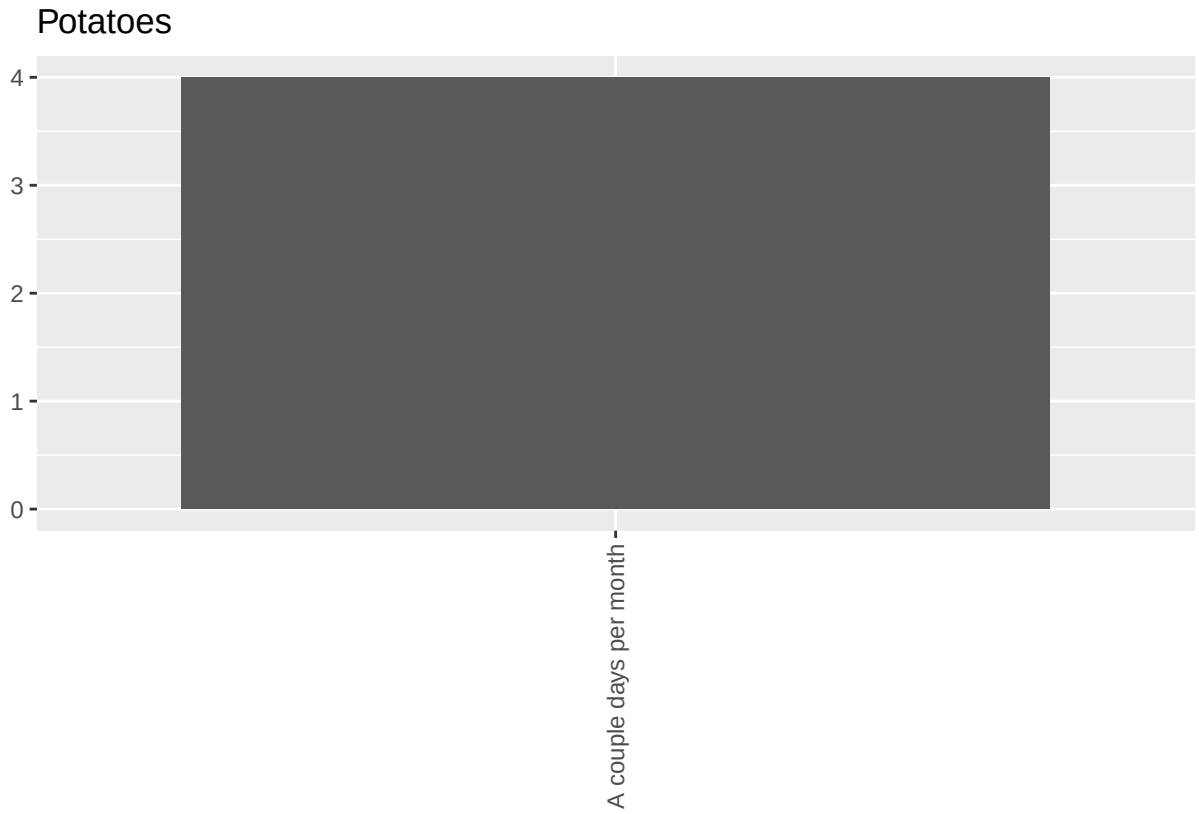

Ice cream cones
15
10
5
0
A couple days per week
A couple days per month
All the time

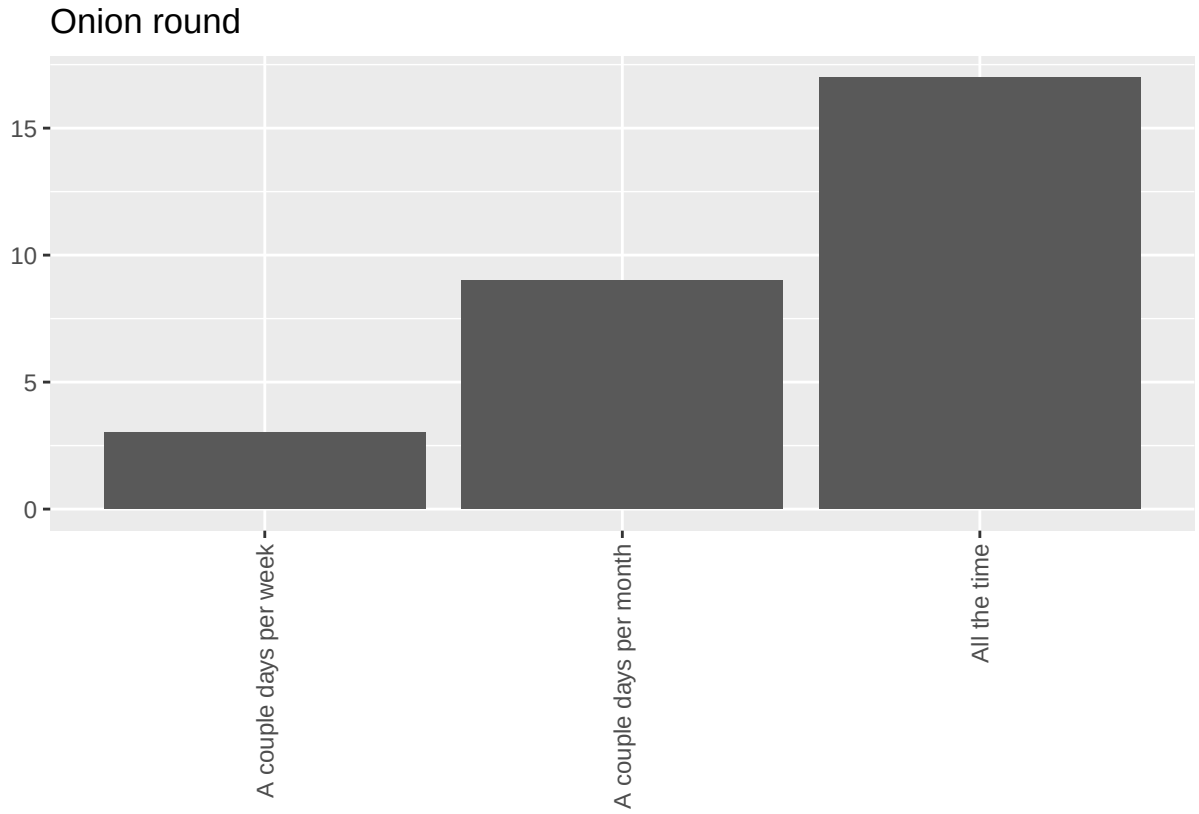

Packed food
3
2
1
0
A couple days per week
All the time

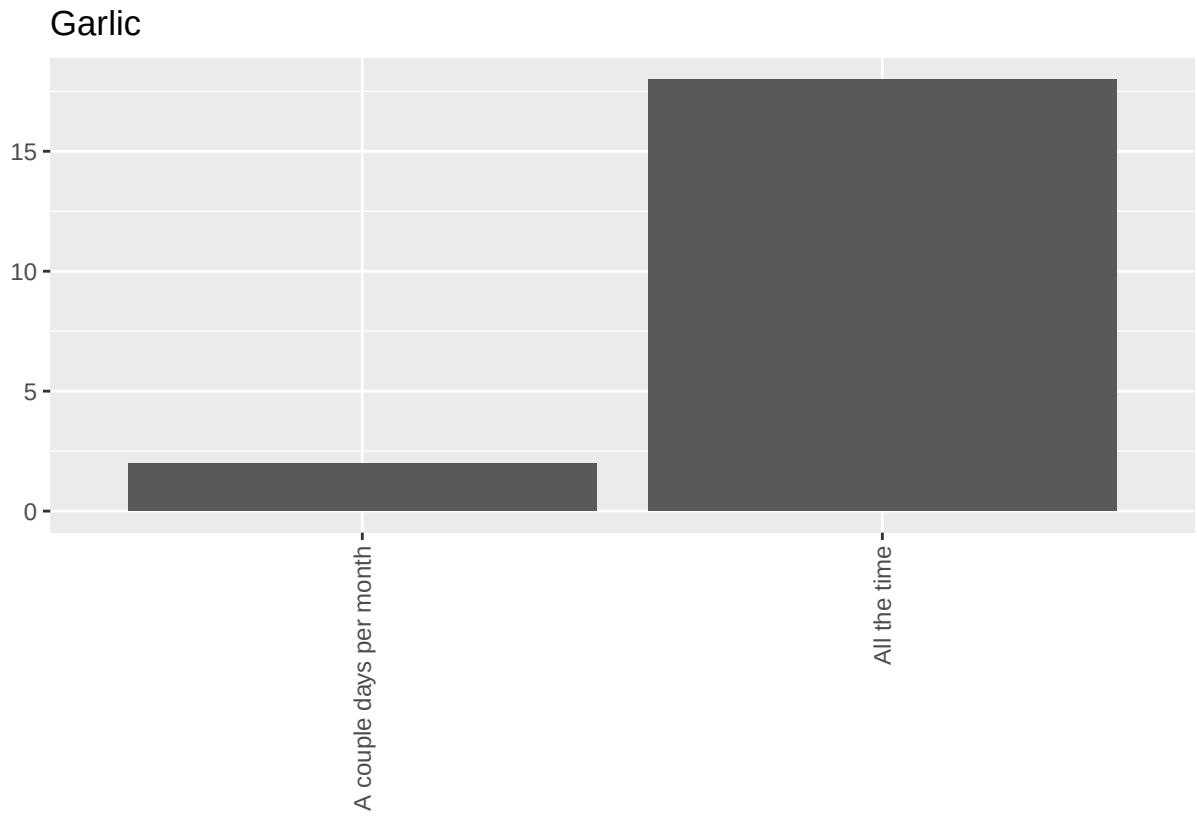

Other takeaway meals
4
3
2
1
0
A couple days per week
All the time

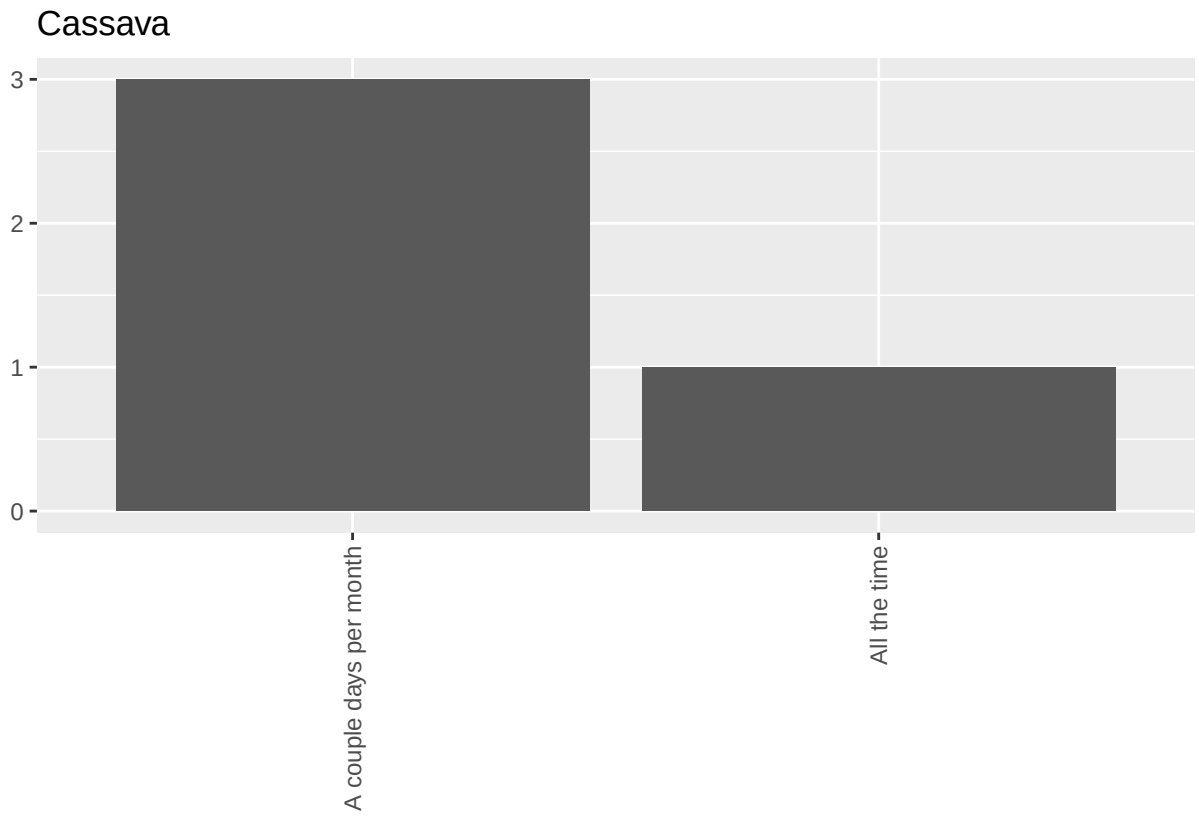

Tomatoe
8
6
4
2
0
A couple days per week
All the time

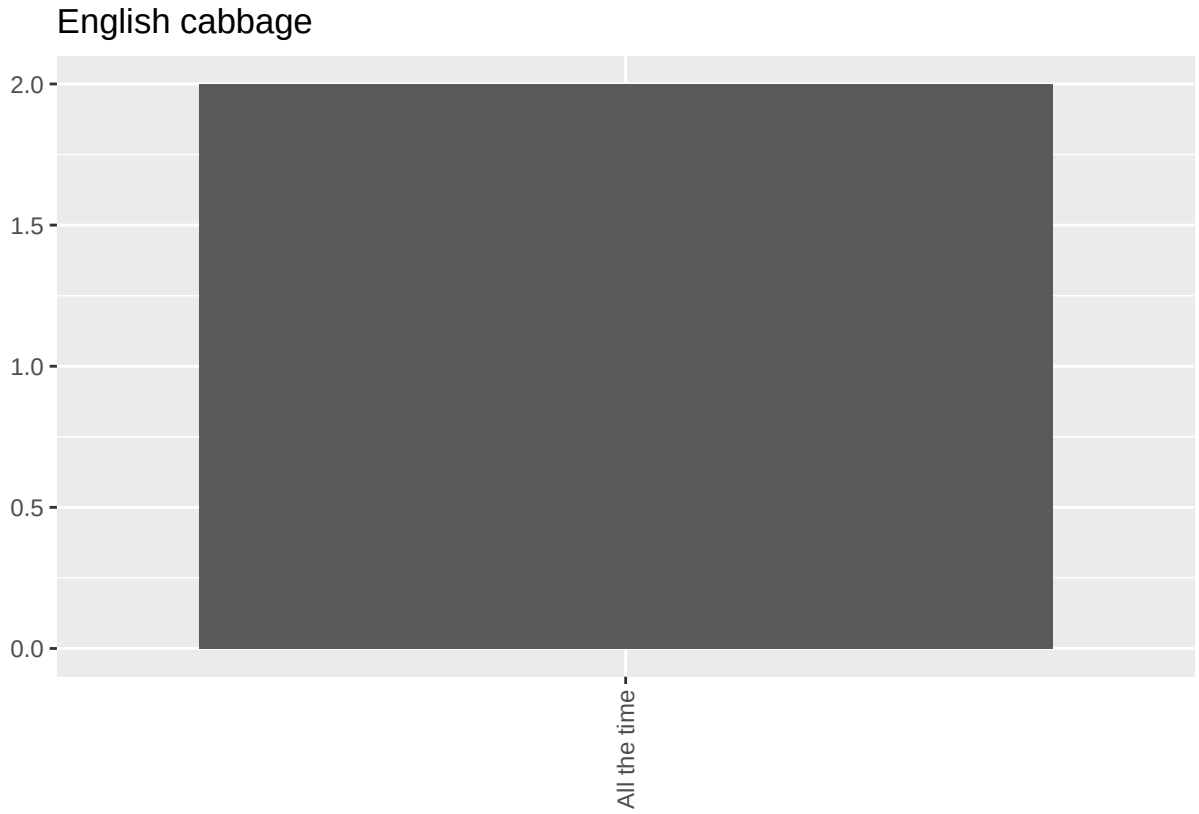

Other vegetable or vegetable product
2.0
1.5
1.0
0.5
0.0
A couple days per week
All the time

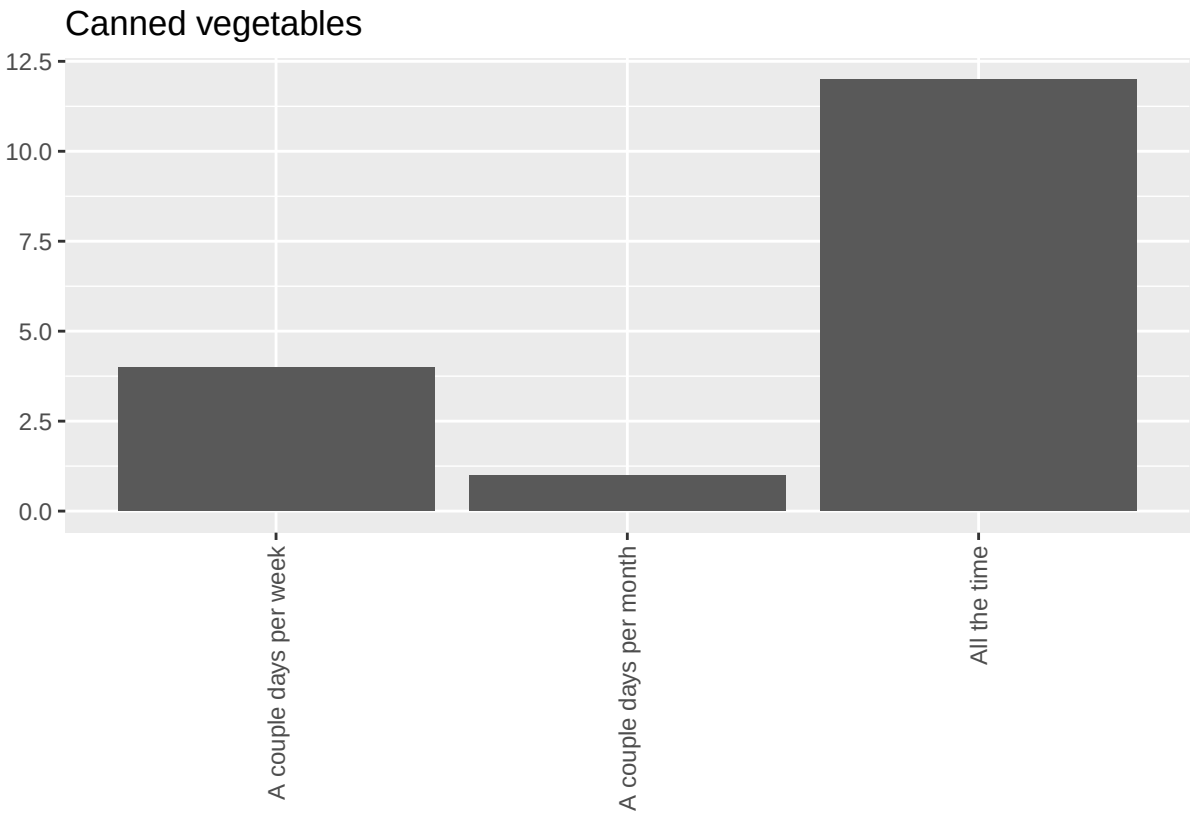

Potatoes
4
3
2
1
0
A couple days per month

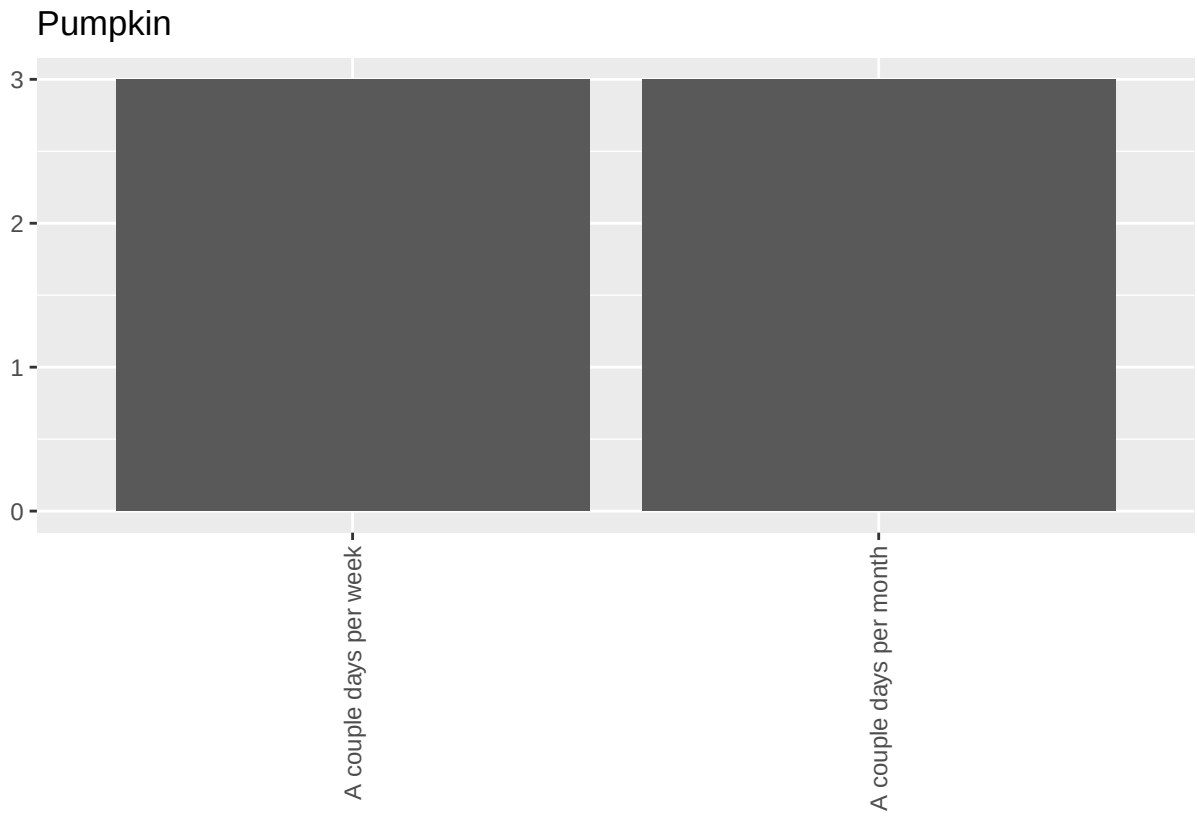

Onion round
15
10
5
0
A couple days per week
A couple days per month
All the time

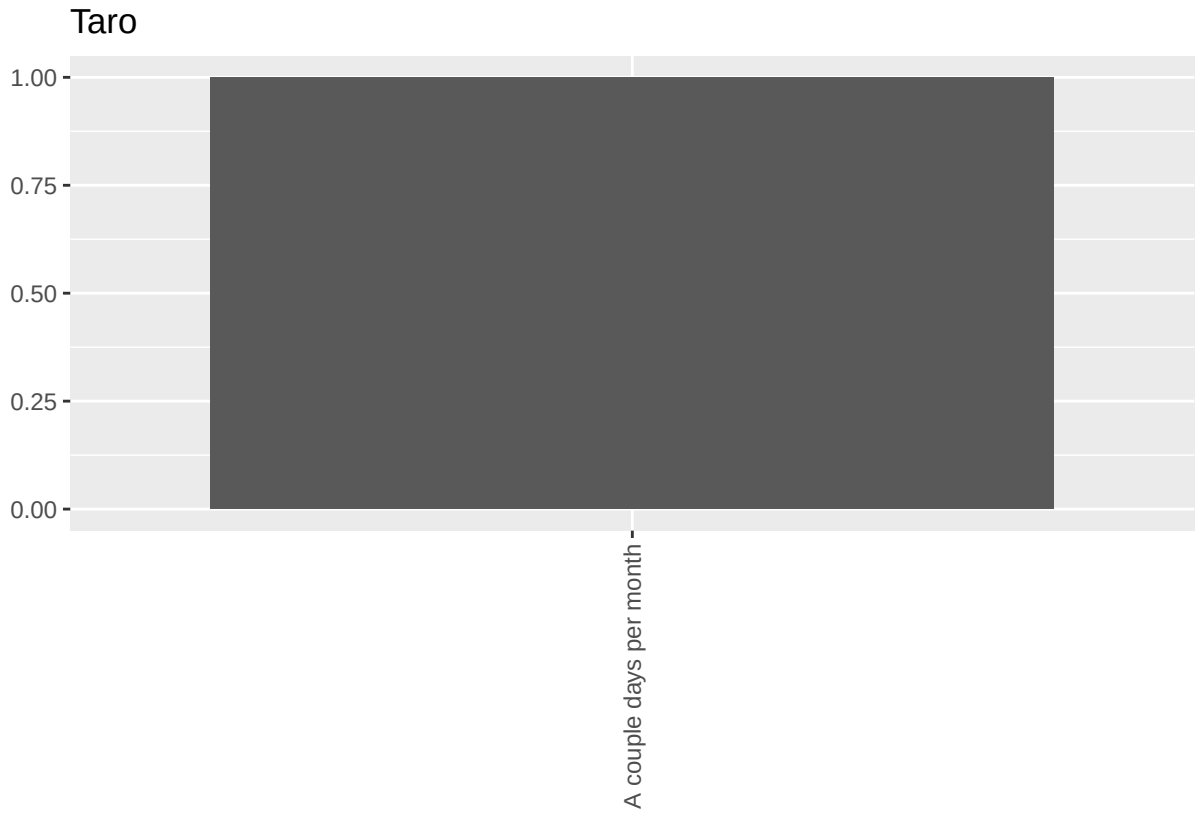

Garlic
15
10
5
0
A couple days per month
All the time

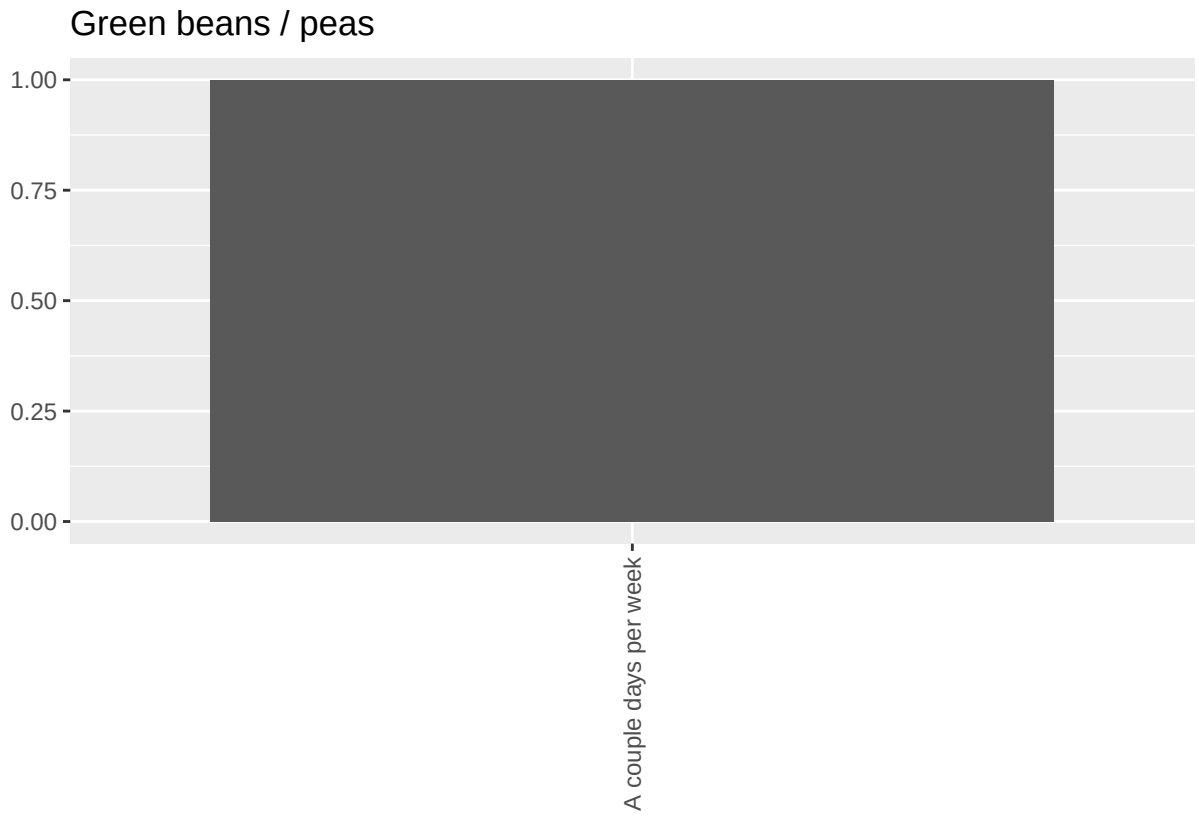

Cassava
3
2
1
0
A couple days per month
All the time

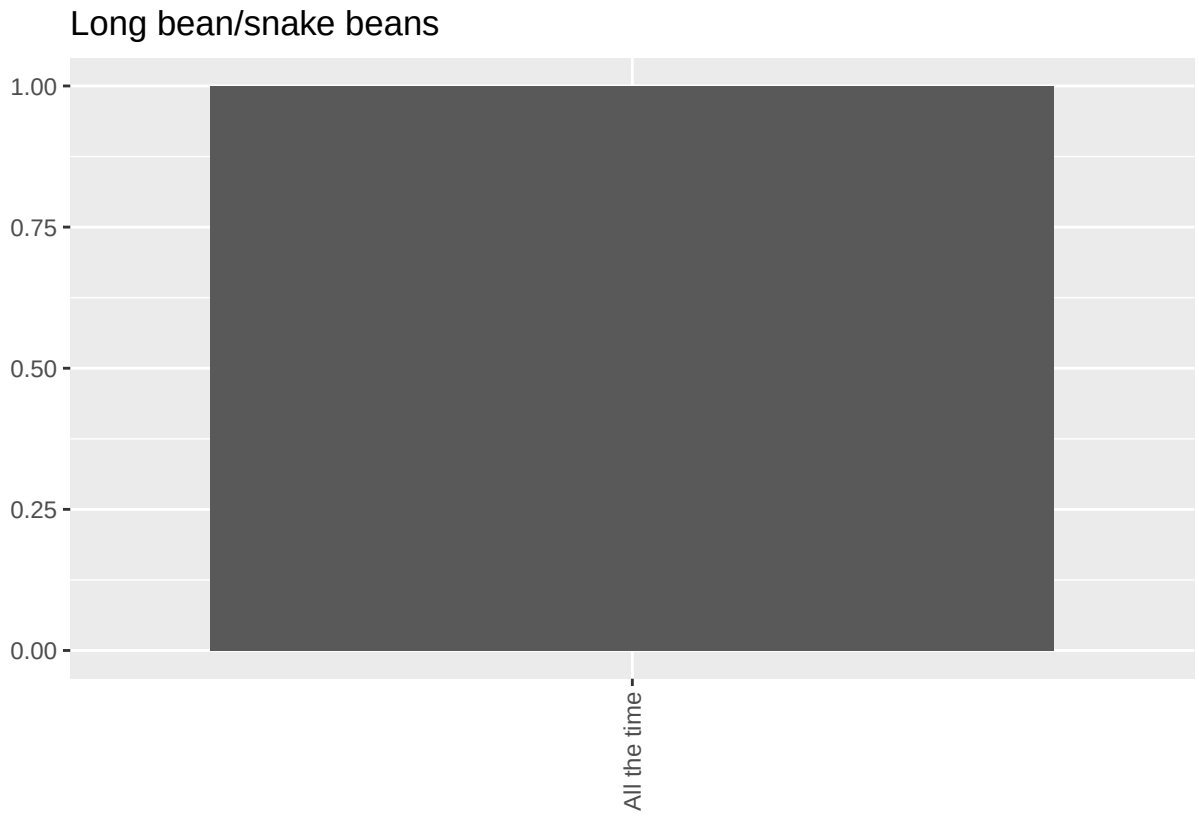

English cabbage
2.0
1.5
1.0
0.5
0.0
All the time


Canned vegetables
12.5
10.0
7.5
5.0
2.5
0.0
A couple days per week
A couple days per month
All the time


Pumpkin
3
2
1
0
A couple days per week
A couple days per month


Taro
1.00
0.75
0.50
0.25
0.00
A couple days per month


Green beans / peas
1.00
0.75
0.50
0.25
0.00
A couple days per week


Long bean/snake beans
1.00
0.75
0.50
0.25
0.00
All the time