

Supplementary Materials

Evolution and objectives of diverse Australian recreational fisheries monitoring programs

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Supplementary Information Table 6: Grouped recreational fisheries monitoring programs onsite and offsite classifications, and the associated definition based on classification.

Grouped Program	Onsite vs Offsite	Definition
Aerial Survey	Onsite	Is a combination of access point and roving surveys, where an aircraft is used to conduct stratified random sampling. During this process counts of boats or anglers will be conducted to be able to estimate daily totals of fishing within a specified area.
Angler Diary Survey	Offsite	Inclusion of Mail-back Surveys and Angler Diary programs, where fishing activity and harvest is recorded by recreational fishers and is sent back to fisheries personnel for monitoring.
Boat Ramp Surveys	Onsite	Inclusion of Boat Ramp Surveys and Bus-route/ Creel Surveys, where returning boat-based fishers will be surveyed on their fishing activity and catch. Information such as location fished, number of kept and released fish, methods, fish lengths is recorded within both surveys.
Charter Fishery Logbooks	Offsite	Where Charter Fishery Operators as part of mandatory reporting will record their fishing activity and harvest, which will be submitted to fisheries to monitor the charter and recreational fishing sector.
Charter Fishery Observer Program	Onsite	The Charter Fishery Observer Program collects harvest and activity information onboard charter fishery operators but will also collect biological information such as number of fish kept and released to a species level, length and occasionally age data from the extraction of otoliths (fish ear bones)

Donation Program	Offsite	The inclusion of four programs from New South Wales (the Research Angler Program), Queensland (the Keen Angler Program), Tasmania (Framed Tagged and More), and Western Australia (Send Us Your Skeletons), where almost exclusively biological data will be retrieved. The donation of fish frames means that length, sex, and age data can be retrieved.
Gamefish Angler Diary	Offsite	Exclusive to Tasmania the program had a diary mailed out to recreational fishers based on the participants in four different clubs. The process was voluntary in terms of participation and similar to the broader Angler Diary/ Mail-back survey process. The information of the trip/ day where the date, if fishing was part of competition, location, number of people fishing, methods, and the hours spent fishing for each trip/ day.
Game Fishing Monitoring Programs	Onsite	The classification includes New South Wales Gamefish Tournament Monitoring Programs people, where estimates of gamefish fishing and the level of catch and effort data. The information is used to advise and answer questions regarding the sustainability and allocation of fishing opportunities. All information is collected through Sched Update- radio updates of the catch and associated information announced during Gamefish tournaments/ competitions. Additional 'Onsite Surveys' occur within this overarching program to collect data not announced during the Sched Updates.
Game Fishing Tagging Program	Onsite	During events such as that recorded in the 'Game Fishing Monitoring Programs,' the tagging program will collect biological information of game fish species caught in New South Wales. Some of the events will be exclusively tag-and-release programs where only select fish (trophy or point) will be kept. Distribution and size of fish will be recorded in these processes.
Offshore and Game Fishing Onsite Survey	Onsite	Referred to as the Gamefish Boat Ramp Survey two main areas of Tasmanian will have the boat ramps sampled for offshore and game fishing that takes place. The methodologies of sampling within this program, is similar to the general 'Onsite Survey' and 'Boat Ramp Survey' but exclusively samples within the niche group of gamefish and offshore fisheries. These two boat ramps combined captured the majority of the offshore and game fishing that took place, essentially sampling the entire state's offshore and game fishing. This program includes the initial onsite survey which only sampled game fishing and then expanded to sample both offshore and game fishing. Was also conducted in conjunction with the initial 'Offshore and Game Fishing Telephone-diary Survey.'
Offshore and Game Fishing Telephone-diary Survey	Offsite	The process is similar to the broader 'Telephone-diary Survey' but will only sample offshore and gamefish fishers within Tasmania. Has instead been implemented to capture the level of offshore and game fishing within Tasmania. This program also includes the voluntary 'Charter Fishery Logbooks' that is administered to Tasmanian Charter Fishery Operators, to collect this data if they are willing to participate.

Onsite Survey	Onsite	In a similar format as 'Boat Ramp Surveys,' however the recreational fishers surveyed are both shore- and boat-based fishers. Surveys included within this categorisation are 'Bus Route Access Point Surveys,' 'Roving Surveys,' and 'Onsite Surveys.' Information such as location fished, number of fish caught, kept and released, methods, and duration are recorded which is the same as 'Boat Ramp Surveys.' Methods differ between states.
Remote Camera Survey	Onsite	Using stationary camera's Western Australia has implemented this survey to monitor the amount of fishing effort taking place at the respective locations. Movement is detected at 5-minute intervals, where trained staff will determine the launch and retrieval time of fishers.
Satisfaction and Expectation Survey	Offsite	Includes both Community Satisfaction Surveys, and Satisfaction and Expectation Surveys from both Western Australia and Queensland. This included recreational fishers who had fished recently or in the last 12-months to complete questionnaires about the level and frequency of fishing, their expectation when fishing and their satisfaction with fishing. However, in Western Australia the questionnaires were conducted over the phone for a one month survey period. Queensland instead had their surveys distributed at tackle stores and participants were screened in person prior to the survey.
Telephone-diary Survey	Offsite	The Telephone-diary Survey encompasses three different surveys within the one. It is composed of the 'Screening Survey,' 'Diary Survey,' and the 'Satisfaction and Expectation Survey.' During these three phases different recreational fishers are surveyed on their eligibility to participate, and all fishing activity over a 12-month period. Each state and territory that uses this program refers to it as the 'Telephone-diary Survey.'

Supplementary Information Table 7: Summary of Grouped Programs initial objectives outlined within the literature and the grouped objectives used in the present review.

State	Grouped Programs	Initial Objectives	Grouped Objectives
Western Australia	Donation Program	Age Representation	Age Representation
Western Australia	Donation Program	Increase in Data	Increase in Data and Sector Representation
Western Australia	Donation Program	Increase Recreational Representation	Increase in Data and Sector Representation
Western Australia	Donation Program	Fish Length	Fish Length
Western Australia	Onsite Survey	Catch Representation	Catch Representation
Western Australia	Onsite Survey	Effort Representation	Effort Representation
Western Australia	Onsite Survey	Fish Length	Fish Length
Western Australia	Angler Diary Survey	Catch Representation	Catch Representation
Western Australia	Angler Diary Survey	Effort Representation	Effort Representation
Western Australia	Angler Diary Survey	Socio-economic Information	Socio-economic information
Western Australia	Angler Diary Survey	Effort Representation	Effort Representation
Western Australia	Ariel Survey	Complementation to other Programs	Complementation to other Programs
Western Australia	Boat Ramp Survey	Weight Representation	Weight Representation
Western Australia	Boat Ramp Survey	Fish Length	Fish Length
Western Australia	Boat Ramp Survey	Complementation to other Programs	Catch Representation
Western Australia	Onsite Survey	Catch Representation	Catch Representation
Western Australia	Onsite Survey	Effort Representation	Effort Representation
Western Australia	Onsite Survey	Spatial Range	Spatial Representation

Western Australia	Onsite Survey	Fish Length	Fish Length
Western Australia	Charter Fishery Logbook	Catch Representation	Catch Representation
Western Australia	Charter Fishery Logbook	Effort Representation	Effort Representation
Western Australia	Charter Fishery Logbook	Assessment of Impacts	Impact Assessment
Western Australia	Charter Fishery Logbook	Management Strategies	Management strategies
Western Australia	Angler Diary Survey	Spatial Range	Spatial Representation
Western Australia	Angler Diary Survey	Catch Representation	Catch Representation
Western Australia	Angler Diary Survey	Effort Representation	Effort Representation
Western Australia	Angler Diary Survey	Fisher Attitudes and Opinions	Fisher Attitudes and Opinions
Western Australia	Telephone-diary Survey	Catch Representation	Catch Representation
Western Australia	Telephone-diary Survey	Effort Representation	Effort Representation
Western Australia	Telephone-diary Survey	Fisher Attitudes and Opinions	Fisher Attitudes and Opinions
Western Australia	Telephone-diary Survey	Profiling Information	Demographic and Profiling Information
Western Australia	Remote Camera Survey	Effort Representation	Effort Representation
Western Australia	Remote Camera Survey	Complementation to other Programs	Complementation to other Programs
Western Australia	Onsite Survey	Catch Representation	Catch Representation
Western Australia	Onsite Survey	Effort Representation	Effort Representation
New South Wales	Telephone-diary Survey	Catch Representation	Catch Representation
New South Wales	Telephone-diary Survey	Effort Representation	Effort Representation

New South Wales	Telephone-diary Survey	Profiling Information	Demographic and Profiling Information
New South Wales	Telephone-diary Survey	Fisher Attitudes and Opinions	Fisher Attitudes and Opinions
New South Wales	Telephone-diary Survey	Spatial Range	Spatial Representation
New South Wales	Telephone-diary Survey	Participation Rates	Effort Representation
New South Wales	Game fishing Monitoring Program	Temporal Range	Temporal Range
New South Wales	Game fishing Monitoring Program	Complementation to other Programs	Complementation to other Programs
New South Wales	Charter Fishery Logbook	Temporal Range	Temporal Range
New South Wales	Charter Fishery Logbook	Spatial Range	Spatial Representation
New South Wales	Charter Fishery Logbook	Catch Representation	Catch Representation
New South Wales	Charter Fishery Logbook	Effort Representation	Effort Representation
New South Wales	Charter Fishery Logbook	Fish Length	Fish Length
New South Wales	Charter Fishery Logbook	Post- Release/ Capture Condition	Fish Condition
New South Wales	Charter Fishery Logbook	Profiling Information	Demographic and Profiling Information
New South Wales	Charter Fishery Observer Program	Spatial Range	Spatial Representation
New South Wales	Charter Fishery Observer Program	Temporal Range	Temporal Range
New South Wales	Charter Fishery Observer Program	Catch Representation	Catch Representation
New South Wales	Charter Fishery Observer Program	Effort Representation	Effort Representation
New South Wales	Charter Fishery Observer Program	Fish Length	Fish Length
New South Wales	Donation Program	Age Representation	Age Representation

New South Wales	Donation Program	Fish Length	Fish Length
New South Wales	Donation Program	Sex Data	Sex Data
New South Wales	Onsite Survey	Catch Representation	Catch Representation
New South Wales	Onsite Survey	Effort Representation	Effort Representation
New South Wales	Onsite Survey	Complementation to other Programs	Complementation to other Programs
New South Wales	Gamefishing Tagging Program	Fish Length	Fish Length
New South Wales	Gamefishing Tagging Program	Growth Representation	Growth Representation
Queensland	Telephone-diary Survey	Catch Representation	Catch Representation
Queensland	Telephone-diary Survey	Effort Representation	Effort Representation
Queensland	Telephone-diary Survey	Profiling Information	Demographic and Profiling Information
Queensland	Telephone-diary Survey	Fisher Attitudes and Opinions	Fisher Attitudes and Opinions
Queensland	Boat Ramp Survey	Catch Representation	Catch Representation
Queensland	Boat Ramp Survey	Effort Representation	Effort Representation
Queensland	Boat Ramp Survey	Temporal Range	Temporal Range
Queensland	Boat Ramp Survey	Fish Length	Fish Length
Queensland	Donation Program	Fish Length	Fish Length
Queensland	Donation Program	Age Representation	Age Representation
Queensland	Donation Program	Complementation to other Programs	Complementation to other Programs
Queensland	Charter Fishery Logbook	Fish Length	Fish Length
Queensland	Charter Fishery Logbook	Complementation to other Programs	Complementation to other Programs
Queensland	Onsite Survey	Catch Representation	Catch Representation
Queensland	Onsite Survey	Effort Representation	Effort Representation
Queensland	Onsite Survey	Spatial Range	Spatial Representation
Queensland	Onsite Survey	Temporal Range	Temporal Range

Queensland	Satisfaction and Expectation Survey	Profiling Information	Demographic and Profiling Information
Queensland	Satisfaction and Expectation Survey	Fisher Attitudes and Opinions	Fisher Attitudes and Opinions
Queensland	Angler Diary Survey	Catch Representation	Catch Representation
Queensland	Angler Diary Survey	Effort Representation	Effort Representation
South Australia	Telephone-diary Survey	Catch Representation	Catch Representation
South Australia	Telephone-diary Survey	Effort Representation	Effort Representation
South Australia	Telephone-diary Survey	Profiling Information	Demographic and Profiling Information
South Australia	Telephone-diary Survey	Fisher Attitudes and Opinions	Fisher Attitudes and Opinions
South Australia	Onsite Survey	Fish Length	Fish Length
South Australia	Angler Diary Survey	Catch Representation	Catch Representation
South Australia	Angler Diary Survey	Effort Representation	Effort Representation
South Australia	Angler Diary Survey	Participation Rates	Effort Representation
South Australia	Charter Fishery Logbook	Fishing Activities	Fishing Activity
South Australia	Charter Fishery Logbook	Catch Representation	Catch Representation
South Australia	Charter Fishery Logbook	Effort Representation	Effort Representation
South Australia	Charter Fishery Logbook	Client participation	Client Participation
South Australia	Charter Fishery Logbook	Spatial dynamic	Spatial Representation
South Australia	Charter Fishery Logbook	Interaction with Threatened, Endangered, Protected Species	Impact Assessment
Tasmania	Telephone-diary Survey	Spatial Range	Spatial Representation
Tasmania	Telephone-diary Survey	Profiling Information	Demographic and Profiling Information
Tasmania	Telephone-diary Survey	Participation Rates	Effort Representation

Tasmania	Telephone-diary Survey	Catch Representation	Catch Representation
Tasmania	Telephone-diary Survey	Effort Representation	Effort Representation
Tasmania	Telephone-diary Survey	Economic Information	Socio-economic information
Tasmania	Telephone-diary Survey	Temporal Range	Temporal Range
Tasmania	Onsite Survey	Fish Length	Fish Length
Tasmania	Games fishing and Offshore Telephone-diary Survey	Effort Representation	Effort Representation
Tasmania	Games fishing and Offshore Telephone-diary Survey	Catch Representation	Catch Representation
Tasmania	Games fishing and Offshore Telephone-diary Survey	Fisher Attitudes and Opinions	Fisher Attitudes and Opinions
Tasmania	Charter Fishery Logbook	Effort Representation	Effort Representation
Tasmania	Charter Fishery Logbook	Catch Representation	Catch Representation
Tasmania	Charter Fishery Logbook	Predation Assessment	Impact Assessment
Tasmania	Offshore and Game fishing Onsite Survey	Catch Representation	Catch Representation
Tasmania	Gamefishing Angler Diary	Catch Representation	Catch Representation
Tasmania	Offshore and Game fishing Onsite Survey	Effort Representation	Effort Representation
Tasmania	Gamefishing Angler Diary	Effort Representation	Effort Representation
Tasmania	Offshore and Game fishing Onsite Survey	Fish Length	Fish Length
Tasmania	Offshore and Gamefishing Onsite Survey	Weight Representation	Weight Representation
Tasmania	Charter Fishery Logbook	Weight Representation	Weight Representation
Tasmania	Angler Diary Survey	Catch Representation	Catch Representation
Tasmania	Angler Diary Survey	Effort Representation	Effort Representation
Tasmania	Donation Program	Fish Length	Fish Length
Tasmania	Donation Program	Age Representation	Age Representation
Tasmania	Donation Program	Complementation to other Programs	Complementation to other Programs

Northern Territory	Telephone-diary Survey	Profiling Information	Demographic and Profiling Information
Northern Territory	Telephone-diary Survey	Economic Information	Socio-economic information
Northern Territory	Telephone-diary Survey	Catch Representation	Catch Representation
Northern Territory	Telephone-diary Survey	Effort Representation	Effort Representation
Northern Territory	Onsite Survey	Visitor Information	Visitor Information
Northern Territory	Onsite Survey	Catch Representation	Catch Representation
Northern Territory	Onsite Survey	Effort Representation	Effort Representation
Northern Territory	Onsite Survey	Complementation to other Programs	Complementation to other Programs
Northern Territory	Charter Fishery Logbook	Complementation to other Programs	Complementation to other Programs
Northern Territory	Charter Fishery Logbook	Maintaining Sustainability	Maintaining Sustainability
Northern Territory	Onsite Survey	Identification Skills	Client Participation
Victoria	Telephone-diary Survey	Catch Representation	Catch Representation
Victoria	Telephone-diary Survey	Effort Representation	Effort Representation
Victoria	Onsite Survey	Complementation to other Programs	Complementation to other Programs
Victoria	Onsite Survey	Behavioural differences	Participant Behavioural Differences
Victoria	Angler Diary Survey	Temporal Range	Temporal Range
Victoria	Angler Diary Survey	Catch Representation	Catch Representation
Victoria	Angler Diary Survey	Fish Length	Fish Length
Victoria	Angler Diary Survey	Age Representation	Age Representation
Victoria	Angler Diary Survey	Spatial Range	Spatial Representation
Victoria	Angler Diary Survey	Management Strategies	Management strategies
Victoria	Boat Ramp Survey	Catch Representation	Catch Representation
Victoria	Boat Ramp Survey	Spatial Range	Spatial Representation
Victoria	Boat Ramp Survey	Temporal Range	Temporal Range

Victoria	Angler Diary Survey	Maintaining Sustainability	Maintaining Sustainability
Victoria	Boat Ramp Survey	Effort Representation	Effort Representation