Suriname weakfish and corvina trawl and driftnet fishery Three-Year Evaluation Report

Version 1.3, November 2022

FIP Information

Fill in the following table. The management authority is the regulatory authority with fishing management responsibilities; there may be multiple authorities where joint jurisdictional responsibilities occur.

Target species	*Cynoscion acoupa*: acoupa weakfish, bang bang; *Cynoscion virescens*: corvina, kandratiki
Fishery location	Suriname
Gear type(s)	Bottom trawl and driftnet
Estimated FIP Landings	1500 t (2022)
Vessel type(s) and size(s)	Trawl UoA: Stern or outrigger trawlers; engine restricted to <500 hp (but not clear if this is the case in practice) Driftnet UoA: Open or closed Guyana boats, 14-18m with outboard or inboard diesel engines
Number of vessels	See vessel list on FIP site
Management authority	Ministry of Agriculture, Animal Husbandry and Fisheries (Ministry of LVV)
Assessor name(s)	Jo Gascoigne
Assessor Organization/Affiliation	consultant
Date of report completion	23/11/23

Stakeholder Consultation & Meetings

Name	Affiliation	Date and Subjects Discussed
Tomas Willems	Suriname Fisheries Department (Research and Statistics Division) and CeDePesca (FIP coordinator)	10/11/23 • Overview of FIP activities and progress • How the FIP and CeDePesca work on the ground with the Fisheries Department • Stock assessment – progress, uncertainties and future plans, including how to define reference points • Capacity building for the Fisheries Department data collection / analysis teams • Implementing logbooks in the industrial fishery • Data collection in the artisanal fishery • Biological data collection – what is required for stock assessment, progress to date • At sea observers for industrial fishery, and planning for artisanal fishery • Enforcement, inspection and IUU • Licensing and capacity • Links with neighbouring countries, regional bodies (CRFM, WECAFC) and FAO regional projects • Bycatch data availability and plans for risk assessment • Planning and timelines for each UoA
Kim Sys	Marisa Fisheries (trawling company)	16/11/23 • Marisa Fisheries and Ocean Delight (affiliated processing company) and her role as a fisheries scientist • Data collection on board their vessels, and connection to Fisheries Department data system; improvements in both systems over the last few years • Company traceability system • Observers on board their vessels • Sampling of catch for size and biological data • Interactions of Marisa Fisheries with FIP (regular meetings and reporting, engagement with CeDePesca) • Issues with licensing and artisanal fishery • Trends in catch rates from their vessels and data sets, or anecdotally
Stephen Fisher and Dario Suárez	Sea Delight (seafood buyers)	17/11/23 • Progress and achievements of FIP, timetable towards MSC for each UoA • Social elements of FIP • Interaction with Fisheries Department; cooperation and support for industry

		• Work to reduce ghost gear • Stock assessment and plans for update • Role of FIP in the Fisheries Management Plan (FMP) • Management of the artisanal fleet

Summary of Findings and Recommendations

This FIP has a list of very impressive achievements which go beyond the target fishery and support fisheries management in Suriname in general. It is clear that the stakeholders are very happy with the work of the CeDePesca / Fisheries Department team, as well they should be. They are hopeful that at least the trawl UoA will be able to enter MSC assessment according to the planned timetable. As regards the FIP activities, I have no recommendations other than keep doing what you are doing.

I also wanted to note that the FisheryProgress site for this FIP is very thorough and easy to follow, which makes a pleasant change. I appreciate the system of quite general 'Actions' covering multiple MSC PIs, with more specific 'Tasks' under each action. It avoids duplication and means that the specifics can be more easily adjusted as you go along (as will inevitably be needed) without turning the whole Actions tab into a mess of cancelled and rewritten actions. I don't doubt that this was very time-consuming to set up and I salute you for making the effort.

Summary of MSC Performance Indicator Scores

Prin-ciple	Compo-nent	PI		Previous Score Dec. 2022	Current Score Nov. 2023	Rationale or Key Points
1	Out-come	1.1.1	Stock status	<60	<60	*C. acoupa* Based on the improved size-frequency data that the FIP has been able to collect, they have published a peer-reviewed stock assessment using the length-based spawner potential ratio (LB-SPR) method, which is suitable for data-limited stocks (Willems et al. 2023). This estimates the SPR of *C. acoupa* at 13% (of the unfished level). The stock assessment takes 20%SPR as a proxy reference point for the PRI, and based on this the scoring remains valid.
		1.1.1	Stock status	60-79	<60	*C. virescens* Willems et al. (2023) also evaluated *C. virescens*, arriving at an estimate of SPR of 11%. Based on the 20% LRP this means that the score would be reduced to <60. (NB: This is not a scoring mistake; the stock assessment post-dates the last scoring

						update in December 2022, which was correctly based on the data in the pre-assessment.)
		1.1.2	Stock rebuilding	<60	<60	Dr Willems noted that before a stock rebuilding plan and timeline is possible they need to be more confident about the stock assessments, which currently are very uncertain (as is made clear in the stock assessment report; Willems et al. 2023).
	Manage-ment	1.2.1	Harvest Strategy	<60	<60	See above
		1.2.2	Harvest control rules and tools	<60	<60	See above
		1.2.3	Information and monitoring	<60	60-79	The FIP has made extremely impressive progress with at-sea and dockside monitoring of landings, effort and size-frequency, as well as biological data. Taking the SIs in turn: SIa) Stock structure is always a difficult problem and this fishery is no different. The analysis in the pre-assessment and in Willems et al. (2023) about ecosystem connectivity is reasonable, but I don't think has to imply that management has to be at the ecosystem scale. Most likely, since these species are not (as far as I know) significantly migratory in this ecosystem, there will be isolation by distance, and therefore assessment and management at a smaller scale than the entire ecosystem / stock is still appropriate. The pragmatic approach taken in Willems et al. (2023) to consider data from Suriname and Guyana, on the basis of what is effectively a shared fishery, seems reasonable to me. In terms of stock productivity, estimating a maturity ogive is important for the stock assessment methodology, and since data were not sufficient, data from neighbouring countries has been used for now, which is OK. Biological data are now being collected as part of the FIP. In terms of fleet composition, a recent survey has been carried out of artisanal landing sites, and the licensing system is being rationalised, so there is clearly some information, but according to the FMP seems that there remain some issues (e.g. vessels operating on the same license). SIb) Stock abundance is evaluated in Willems et al. (2023), and the assessments are due to be updated next year with improved data. Estimates of SPR are used as an indicator, and these estimates will also be improved with better data collection.

						SIc) There remains an issue with unreported landings and landings in neighbouring countries, according to the FMP. Overall, it seems that the situation does not reach 80 as yet, but there have clearly been massive improvements which can be reflected in the scoring.
		1.2.4	Assessment of stock status	60-79	60-79	Taking the SG80s in relation to Willems et al. (2023): SIa) The assessment approach is appropriate for the stocks and fisheries, and more particularly for making best use of the data available. For *C. acoupa*, the point made in the discussion about variable recruitment is well made, although the sensitivity analyses suggest that the qualitative conclusion of the assessment is appropriate, even if the specific reference case estimates of the various parameter values are not. SIb) The stock assessment estimates reference points for each stock, and these are suitable (precautionary) estimates of the MSC parameters (the PRI and 'a level consistent with MSY'). However, they are quite uncertain at present. SIc) The stock assessment report (Willems et al. 2023) includes a detailed discussion of the sources of uncertainty, and they have been addressed in a sensible way based on information from the literature. For example, where samples sizes were insufficient to estimate a maturity ogive directly (as for both species under consideration here), data were sourced from French Guiana and Venezuela. Based on the analysis about ecosystem extent and connectedness, and associated stock distribution in the pre-assessment, this approach seems valid. SId) The assessment is published in a peer-reviewed journal. I considered whether the score could be increased to 80, but based on my discussion with Dr Willems, I think the stock assessment remains too uncertain. However, it is due to be updated next year with much improved data collected by the FIP, so it is definitely on the way.
2	Primary species	2.1.1	Outcome	>=80	>=80	No main primary species (there is an occasional small catch of seabob by the trawl UoA, which would be considered a primary species, but it makes up <0.1% of the total catch so would be a minor species, only intervening in the scoring at SG100).
		2.1.2	Management strategy	>=80	>=80	

		2.1.3	Information	<60	<60	
	Second-ary species	2.2.1	Outcome	<60	<60	
		2.2.2	Management strategy	<60	<60	
		2.2.3	Information	<60	<60	The FIP has been collecting bycatch data but the process of data validation, entry and analysis is still underway
	ETP species	2.3.1	Outcome	<60	<60	
		2.3.2	Management strategy	<60	<60	
		2.3.3	Information	<60	<60	
	Habitats	2.4.1	Outcome	60-79	At least 60-79	There's a mistake in the scoring here somewhere, because the pre-assessment for the trawl UoA scores this PI at <60. Given the nature of benthic habitats, a significant impact is quite unlikely, but the pre-assessment states that a Consequence Spatial Analysis should be done. In fact, my experience of a CSA is that it requires more information than straightforward scoring of these PIs, and I feel that this scoring of <60 is harsh, particularly given that no VMEs have been identified. Neither UoA is likely to have a 'serious or irreversible impact' on the muddy habitats which characterise the Suriname coast. The MSC certified seabob fishery (Knapman et al. 2022) (also using trawls) scores 100 for this PI, so I suggest that a minimum score of at least 60-79 is appropriate – possibly higher depending on how relevant is the analogy with the seabob fishery (e.g. to what extent the footprints of the two fisheries overlap). The driftnet UoA is scored at 60-79 in the pre-assessment, but given the nature of the gear, I am struggling to see how it should score so much lower than the seabob fishery. I suggest that an analysis of the rough footprint of these two fisheries (how far offshore they go), the general level of interaction of the gear with the seabed (trawl =

						high, driftnet = medium or low?) and what is known about habitats (as per seabob MSC report) might well be sufficient to score this PI up to 80 or above.
		2.4.2	Management strategy	60-79	At least 60-79	Same comment as above. According to the pre-assessment the trawl UoA should be scored at <60 but again in my opinion this is not appropriate. Note that SIa SG80 includes the phrase 'if necessary' and consider the seabob report by analogy.
		2.4.3	Information	<60	60-79?	The issue of considering the vulnerability of the main habitats (raised in the scoring for SIa) I disagree with – I think there is sufficient general information available to be confident that these types of habitats are robust to disturbance. However, the reason that this is scored at <60 in the pre-assessment is a lack of information on the fishery footprint. However, it seems that the trawl fleet has VMS, and it is also being trialled in the artisanal (driftnet) fleet. Again, I don't have enough information on the availability of these data, or the extent to which it can be used to judge the full footprint of the fishery, but I think there is scope to review and potentially increase this score.
	Eco-system	2.5.1	Outcome	60-79	60-79	There is a mistake in the trawl pre-assessment, which highlights SG60 as met, but puts the score at <60. It might be worth checking back which score was intended (although the moment has probably passed). The driftnet UoA is scored at 60-79, but the rationales seem to highlight a difference between the two, in that the trawl fishery operates further offshore, in the transition zone between the coastal and offshore ecosystems. Potentially now that bycatch data are becoming available, the general nature of the ecosystem in the trawl fishing zone is more clear? I don't have enough information to suggest a change in the score but it would be worth reviewing next time round.
		2.5.2	Management strategy	<60	<60	These PIs have been scored at <60 because of a lack of bycatch information, meaning that the impact of the fishery on the ecosystem is difficult to determine. This seems reasonable, but can be reviewed as bycatch data become available.
		2.5.3	Information	<60	<60	
3	Govern-ance and Policy	3.1.1	Legal and customary framework	60-79	60-79	NB: FMP=Fisheries Management Plan (Ministry LVV 2021) In the MSC-certified seabob fishery, SG60a is scored as met because the legislation is complemented by the FMP, but at the time of the pre-assessment this had expired. However, there is now a new FMP which establishes an effective

						management framework, including regional cooperation, so it makes sense that this scoring has been revised upwards by the FIP.
		3.1.2	Consultation, roles and responsi-bilities	>=80	>=80	Consultation, roles and responsibilities are now set out in the FMP (2021-25) (see e.g. p.12).
		3.1.3	Long term objectives	>=80	>=80	Long and short-term objectives are set out in the FMP (2021-25) (p.9).
	Fishery specific manage-ment system	3.2.1	Fishery specific objectives	>=80	>=80	The FMP contains a specific set of goals for the bottom trawl fishery (p.38-40) and the SK driftnet fishery (p.42-5).
		3.2.2	Decision making processes	<60	60-79	No change in scoring since pre-assessment. Regarding SG60b (responsiveness of decision-making to key issues); the FMP certainly shows awareness of critical issues such as over-exploitation, overcapacity, IUU, ETP species etc. – but only those on the ground can judge to what extent decisions are actually being taken (and implemented) on the ground. I had the impression from stakeholders that efforts are being made to implement the FMP, which might support a higher score, but I can't say for sure. Regarding SG60d (availability of information on request) – the scoring in the pre-assessment is a bit odd, in as much as this seems to be scored as not met on the basis that some key historical data was lost and is therefore not available on request. While this is certainly unfortunate, I think the SI is asking about the current system for making data available, rather than the past situation – in any case, lost historical data cannot be fixed by a FIP or anyone without a time machine. Of course, the intent of the FIP has been to improve the data management so that such data loss does not reoccur. So the scoring of this SI could also be reviewed based on the availability of currently existing data and documents on request. Again, this is not something I can easily judge from the outside, but for example the FMP contains quite a good bit of data, while CeDePesca notes that this year it has been possible to estimate total fishery and UoA landings with some kind of confidence, for the first time.

						I'm tentatively going to suggest that this scoring might be increased; at the next annual review you could consider reviewing these two SIs to see whether this is appropriate.
		3.2.3	Compliance and enforcement	<60	<60	No change since pre-assessment. Judging by the information in the FMP, the scoring is correct.
		3.2.4	Management performance evaluation	60-79	60-79	No change since pre-assessment

Environmental Workplan Results

Result	Related Action on FisheryProgress	Related MSC Performance Indicator	Explanation
Improved catch and effort data for both fisheries (industrial and artisanal)	Action 2: Implement a data collection programme to improve stock assessment	1.2.3 (and pre-requisite for the rest of P1)	The FIP coordinator sees the improved catch, effort and biological data as the biggest achievement of the FIP to date, particularly since it applies across the board to the Suriname data collection system, not just to the target fishery of the FIP. This is because CeDePesca (through the FIP) has brought extra resources of both finance and expertise to the Fisheries Department: two staff members working in the Fisheries Department but supported by the FIP; support for training and stipends for enumerators (for the artisanal fishery) and observers; support for implementing logsheets for the industrial fleet; improvement of IT systems and training in data entry, processing and quality control etc. Marisa Fisheries (trawl company) reported that there is biological sampling in their factory several times per week, and they have an observer on board one of their vessels monthly, plus they have also been working themselves to improve their data reporting. The trawl UoA has VMS and this is also being trialled in the artisanal fleet, which will support analyses around habitat impacts (although given the nature of the ecosystem, I do not see these as likely to be problematic). The new information on catch, effort and biology of the target species is already starting to feed into improved stock assessment, with an update
Improved biological data (size, maturity etc.)	Action 2: Implement a data collection programme to improve stock assessment	1.2.3, 1.2.4	
Data collection on bycatch (observers) for trawl UoA	Action 3: Implement a data collection programme for ecosystem impacts (pre-requisite for Actions 4 and 5)	2.1.3, 2.2.3, 2.3.3 (pre-requisite for the rest of 2.1, 2.2 and 2.3)	

			planned next year. The bycatch data from observers is still in the process of being entered and analysed, although Dr Willems noted that they already have a general idea of the main species of concern, and will soon be able to start conducting risk assessments (Action 4).
Cooperation with vessel skippers for catch sampling of driftnet UoA	Action 3: Implement a data collection programme for ecosystem impacts (pre-requisite for Actions 4 and 5)	2.1.3, 2.2.3, 2.3.3 (pre-requisite for the rest of 2.1, 2.2 and 2.3)	The FIP is working with a group of artisanal vessel skippers who have agreed to help them with an observer / self-sampling programme. This starts to fill the last key data gap for the FIP UoAs.
Stock assessment for target species	Action 2: Implement a data collection programme to improve stock assessment	1.2.4 (pre-requisite for the rest of P1)	A stock assessment is available for the target species (Willems et al. 2023) although Dr Willems noted that it should be seen more as a test of the methodology than a robust evaluation of stock status at present, being based on the data available largely before the FIP sampling programme got underway. An update is planned in 2024 with the vastly improved data set, and it will be interesting to see how it turns out.
Update, validation and implemention of new FMP	Action 1: Adopt a management plan	1.2.1, 1.2.2, all of P3	The update of the FMP may have happened with or without the FIP, but stakeholders were insistent that the FIP played an important role in getting it done in a timely fashion, with the outcome a very robust and comprehensive management plan. According to Dr Willems, the Fisheries Department is committed to implementation, with the data collection and better surveillance and enforcement key priorities at present. For example, the FMP identifies unjustified increases in the number of licences distributed as an important past problem, but this is now being addressed by freezing the number of licences and retiring instead of reallocated licences which are surrendered, resulting in a gradual downwards trend. According to a stakeholder, the Fisheries Department have also done excellent work on ghost gear.
Regional scientific cooperation	Action 2: Implement a data collection programme to improve stock assessment	1.2.4	Reportedly, there is significant work going on at a regional level. CRFM have hired a stock assessment expert with a remit to support their members with data collection methodologies and stock assessment – he has reviewed the data collection methodology in Suriname. There are also two FAO regional projects about to start, on data-driven fisheries management and bycatch reduction, both pertinent to the FIP. Although these projects are not formally part of the FIP, they will be greatly facilitated in their interaction with Suriname by the expertise and resources that the FIP has brought to the Fisheries Department.

Supporting References

Knapman P., Addison J. and Blyth-Skyrme R. 2022. Suriname Atlantic seabob shrimp fishery: MSC Public Certification Report. https://fisheries.msc.org/en/fisheries/suriname-atlantic-seabob-shrimp/@@assessments

Ministry of Agriculture, Animal Husbandry and Fisheries 2021. Fisheries Management Plan for Suriname 2021-25. [version Google-Translated from Dutch on FIP website]

Willems T., Liverpool E. and Hiwat M. 2023. A Preliminary Assessment of the Spawning Potential Ratio of Five Target Species of the Coastal Gillnet Fishery in Guyana and Suriname. Gulf and Caribbean Research 31(1), 29-42.