

TO: PIRSA FISHERIES AND AQUACULTURE (PROF. GAVIN BEGG – EXECUTIVE DIRECTOR)

FROM: SARDI AQUATIC AND LIVESTOCK SCIENCES

SUBJECT: REVIEW OF THE TEMPORAL SPAWNING CLOSURE FOR KING GEORGE WHITING

DATE: 17 JUNE 2026

KEY ISSUES

- PIRSA Fisheries and Aquaculture have requested further advice on the appropriate timing of the King George Whiting (KGW) spawning closure in southern Spencer Gulf and Investigator Strait following industry feedback.
- Previous advice recommended an April–July closure based primarily on back-calculated hatch dates from settlement stage larvae.
- Additional biological data show that (1) March–May represents the peak reproductive development and spawning period, (2) some spawning also occurs in June, and (3) only limited spawning occurs in July.
- In combination, these analyses suggest the most appropriate seasonal spawning closure is from March to June.

BACKGROUND

KGW are multiple-batch spawners capable of spawning repeatedly over a prolonged period, with spawning occurring every 1–3 days during the main reproductive season (Drew et al. 2020). Closure periods are intended to protect aggregations immediately prior to spawning and to protect fish actively spawning.

PIRSA Fisheries and Aquaculture requested further advice on the temporal extent of the King George Whiting spawning closure for southern Spencer Gulf and Investigator Strait following feedback from industry that the timing proposed in a previous Advice Note (SARDI 2026) does not reflect industry-observed spawning activity. The initial advice recommended a closure extending from April to July, based primarily on back-calculated hatch dates of settlement-stage larvae, which showed successful recruitment originating from spawning occurring between approximately April and July.

Industry subsequently suggested that mature fish are commonly encountered in March and that spawning activity is concluded earlier than implied by the hatch-date analysis.

Additional biological information has now been compiled from annual fish sampling undertaken since 2003 within marine fishing areas that overlap the spawning closure (MFAs 33, 34, 39–42). This dataset provides a direct measure of reproductive condition of ovaries in females through macroscopic gonad staging and gonadosomatic index (GSI = gonad weight ÷ gonad-free body weight).

This Advice Note considers both sources of information: (1) hatch-date reconstructions that identify periods of successful spawning and relative contributions to recruitment; and (2) direct observations of reproductive development and spawning condition in adult fish.

RESULTS/DISCUSSION

Analysis of 4,194 female KGW sampled between 2003 and 2025 from MFAs overlapping the spawning closure demonstrates a clear seasonal progression in reproductive development (Fig. 1). Based on the macroscopic gonad developmental stages in Fowler et al. (1999), frequencies of developing (stage III) and running-ripe (stage IV) ovaries increase rapidly during March, peak during April and May, and decline through June. The high proportion of Stage III females observed during March indicates that many fish are undergoing rapid gonadal development and are likely to progress to spawning condition, and contribute to spawning output, within days to weeks. Mean GSI shows a similar pattern, increasing sharply from March, peaking in April, remaining elevated through May, before declining in June (Fig. 1). Both macroscopic indicators demonstrate that (1) March–May represents the peak reproductive development and spawning period, and (2) some spawning also occurs in June.

In a study on the early-life history of KGW, Rogers et al. (2019) reconstructed hatch dates of settlement-stage larvae and found that most of the successful recruits (52–71%) originated from spawning over a 3-week period in May, with comparatively low recruitment contribution from late June and July spawning. Whilst back-calculated hatch dates indicated that spawning had occurred from March until July, adult reproductive activity is highest between March and May, which is consistent with the recognised spawning season for southern Spencer Gulf and Investigator Strait (Fowler et al. 1999)

In combination, these analyses suggest the most appropriate seasonal spawning closure is from March to June.

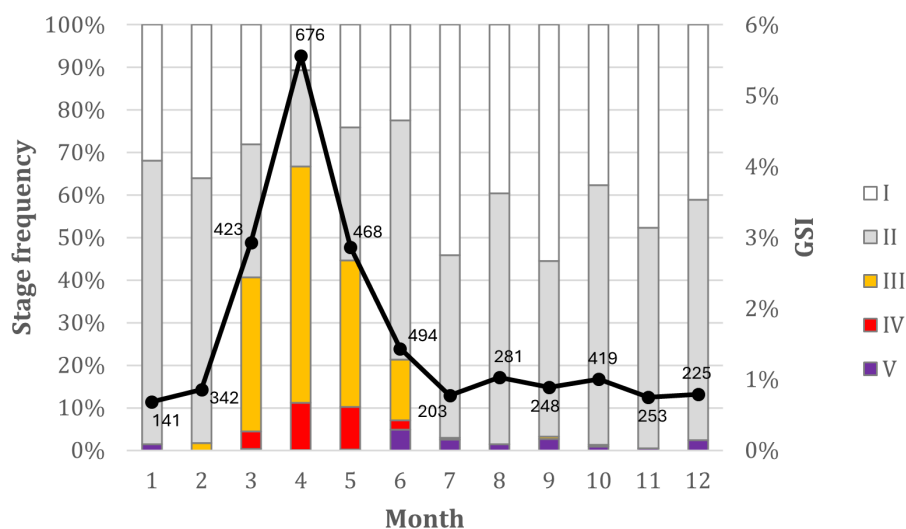


Fig. 1. Monthly frequency distributions of female gonad maturity stages (I–V) and mean gonadosomatic index (GSI; line) for King George Whiting sampled from marine fishing areas overlapping the spawning closure between 2003 and 2025 (n = 4,194 females). Numbers above points indicate monthly sample size.

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References

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