

3 GFS descriptions

Each GFS has been described according to the attributes listed in the Audit (NLWRA, 2001) and the suggested description in the Evaluation Framework (Coram, Dyson & Evans, 2001). Additional descriptive information has been added in an attempt to add historical and landscape context to each system.

Individual GFS Map: The map polygons show the boundaries of each GFS at the Earth's surface and do not indicate their extent at depth. The boundaries of each GFS are based on the combination of geological outcrop, land systems, landforms and local expert knowledge.

Region: The general geographic location of the GFS within the PPWP CMA is stated.

Type areas: Two or three localities in the PPWP CMA region when the GFS occurs.

Description: A brief overview of the geology and groundwater flow for the GFS.

Problem statement. The 'salinity problem statement' provides context for the GFS's role in the salinity issue.

3.1 Landscape attributes

Geology: Geological units derived from the GSV 1:250,000 digital geology map.

Topography: Description of the landforms of the GFS area.

Land Systems: As mapped in the Land Systems of Victoria (Rees, 2000).

Regolith: General description of regolith (weathered mantle) materials.

Annual rainfall: Range in millimetres derived from the Bureau of Meteorology's rainfall model (CLPR, 2003).

Dominant mid-1800s vegetation type: General description of native vegetation cover for the GFS area, derived from the Land Systems of Victoria (Rees, 2000).

Current dominant land uses: General description of land-uses with the GFS area.

Mapping method: Method used to delineate the GFS boundaries.

3.2 Hydrogeology

Aquifer type (porosity): Aquifer materials and porosity (primary or secondary porosity).

Aquifer type (conditions): Unconfined, semi-confined (leaky confined), or confined

Hydraulic Conductivity (lateral permeability): Range for hydraulic conductivity in m/d.

Aquifer Transmissivity: Range for transmissivity in m²/d.

Aquifer Storativity: Range for storativity (dimensionless).

Hydraulic gradient: Descriptive indicator of hydraulic gradient (Steep, low, etc.).

Flow length: Range for groundwater flow distances from recharge to discharge.

Catchment size: Estimate of the recharge and discharge area of a flow system.

Recharge estimate: Recharge estimate in millimetres (depth) per year.

Temporal distribution of recharge: Estimate of when recharge occurs.

Spatial distribution of recharge: Estimate of where recharge occurs.

Aquifer uses: Description of groundwater uses.

3.3 Salinity

Groundwater salinity (TDS): Salinity range of the groundwater in mg/L.

Salt store: Estimate of salt store in the GFS materials.

Salinity occurrence: Description of where salinity occurs in the landscape.

Soil Salinity Rating: S1, S2, or S3, based on the DPI's standard rating (Allen, 1996)

Salt export: Description of how the salt is exported (i.e. wash off from surface or baseflow to streams).

Salt impacts: Stated as either on-site or off-site impacts.

3.4 Risk

Soil salinity hazard: Estimation of soil salinisation hazard (High / medium / low).

Water salinity hazard: Estimation of water salinisation hazard (High / medium / low).

Assets at risk: A general description of the PPWPCMA region's assets at risk.

Responsiveness to land management: Estimation of hydrologic response (i.e. recharge response) to changes in land-management.

3.5 Conceptual model(s)

A variety of cross-sectional models illustrate the conceptualised groundwater flow for the system. The models are schematic only and based on the consensus of opinion of those who attended the second day of the October 2003 workshop.