

GUIDED PHOTON EMISSION

RENDERING WATER FOR “ALITA: BATTLE ANGEL”

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WETA DIGITAL

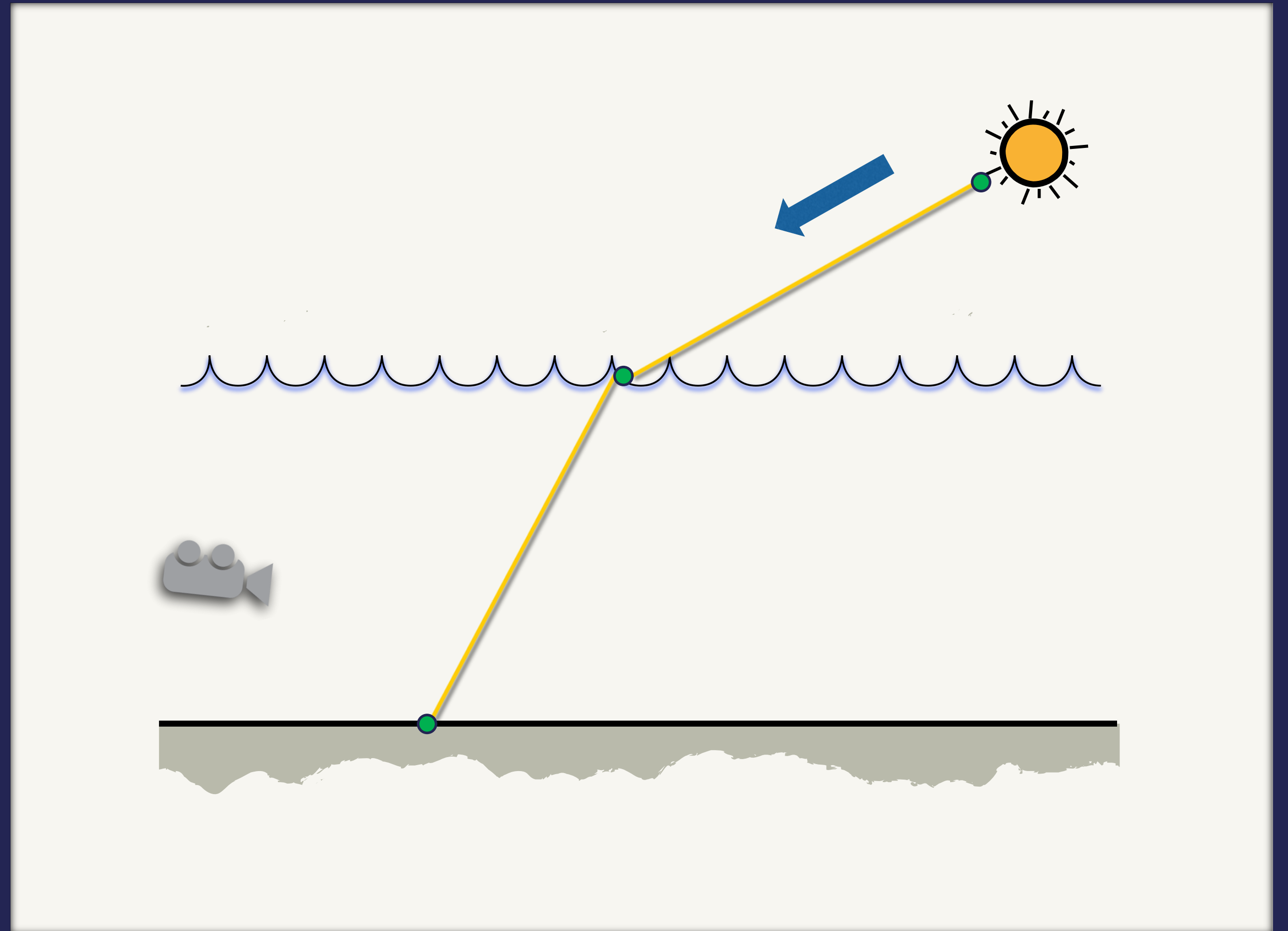
Alita: Battle Angel | © 2018 Twentieth Century Fox Film Corporation

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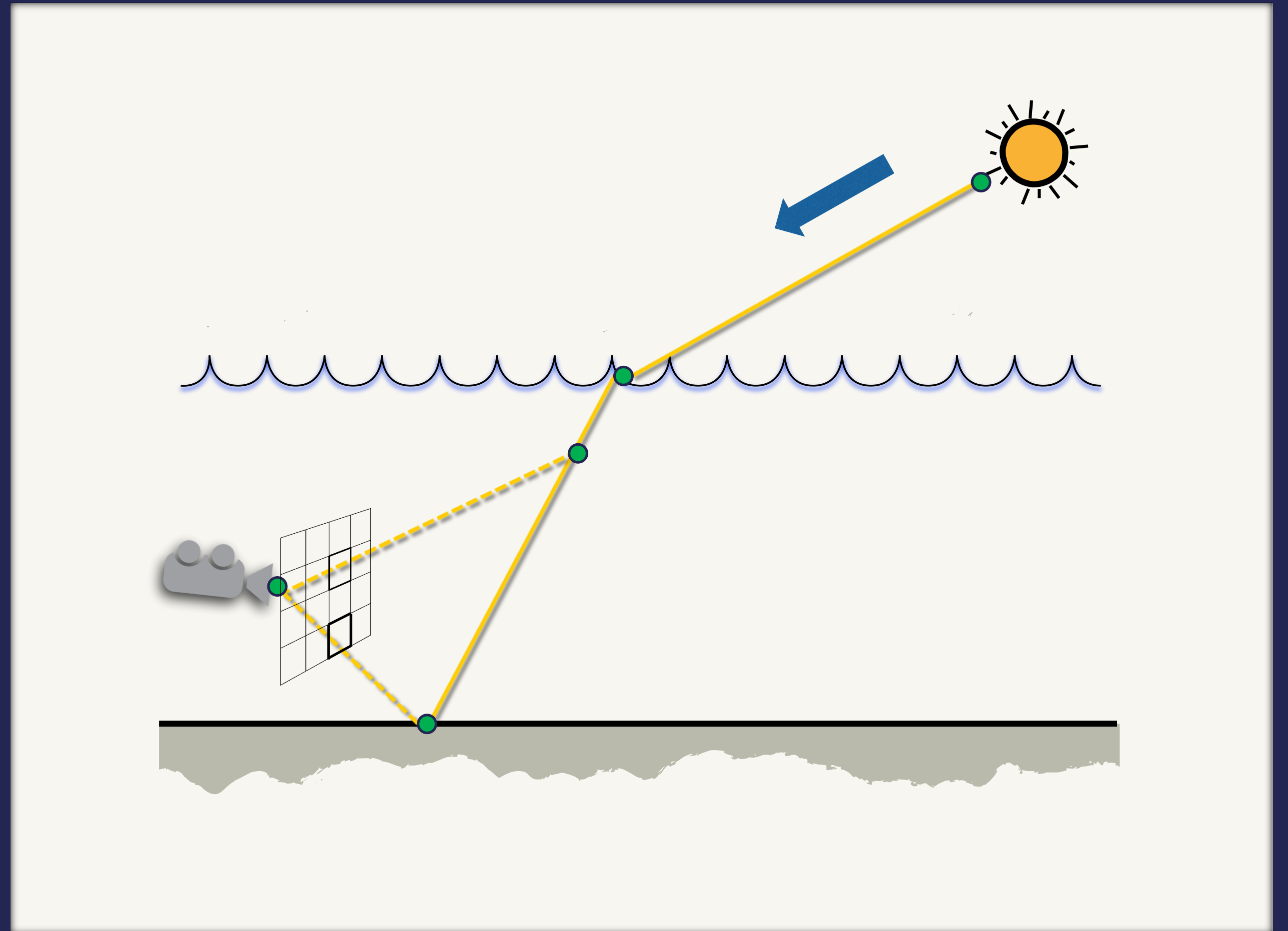
PATH TRACING / LIGHT TRACING

- Without VCM
- No photon lookups
- Merging is problematic (hair, volumes, ...)



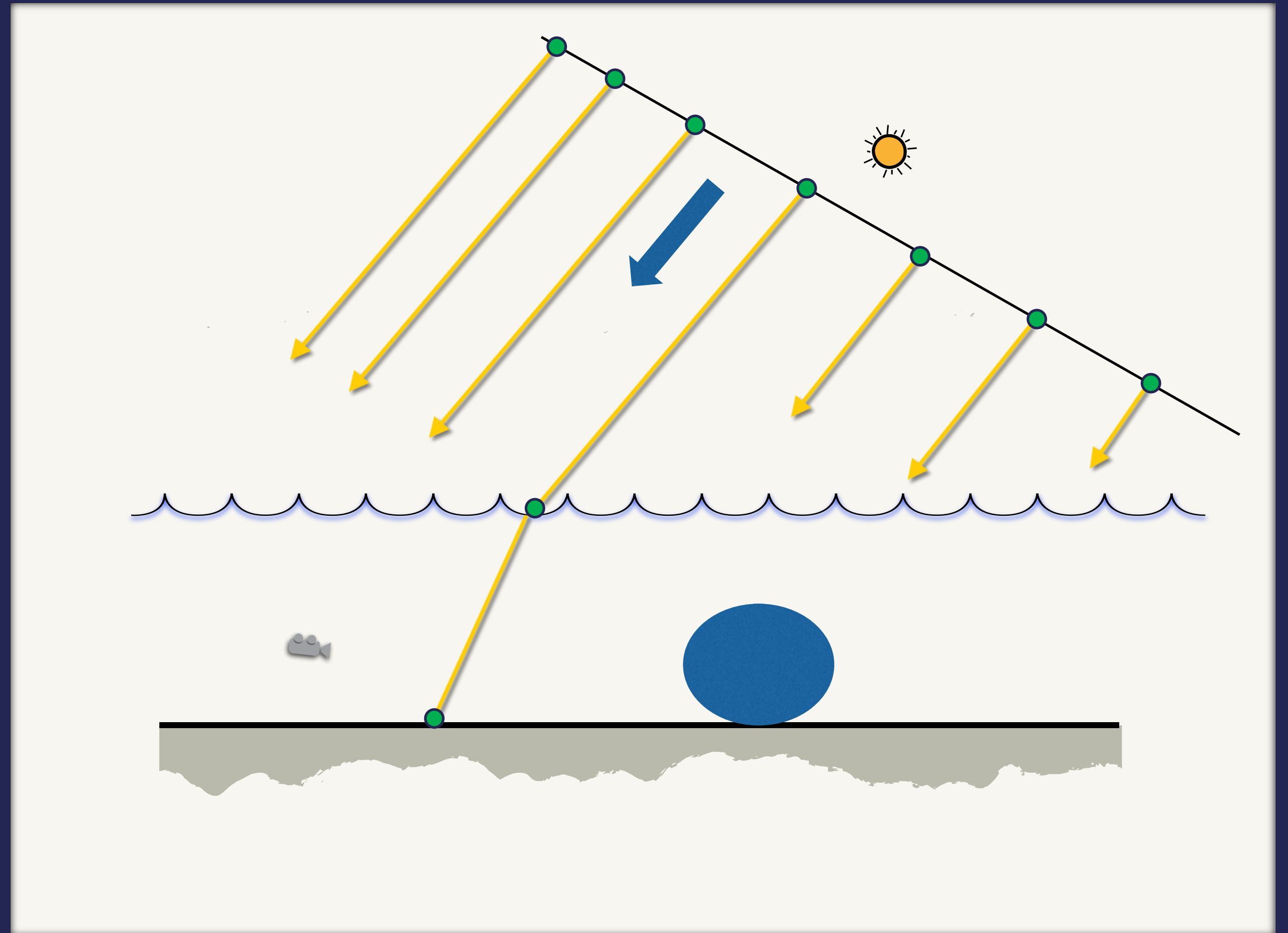
PATH TRACING / LIGHT TRACING

- Without VCM
- No photon lookups
- Merging is problematic (hair, volumes, ...)
- Only direct connection



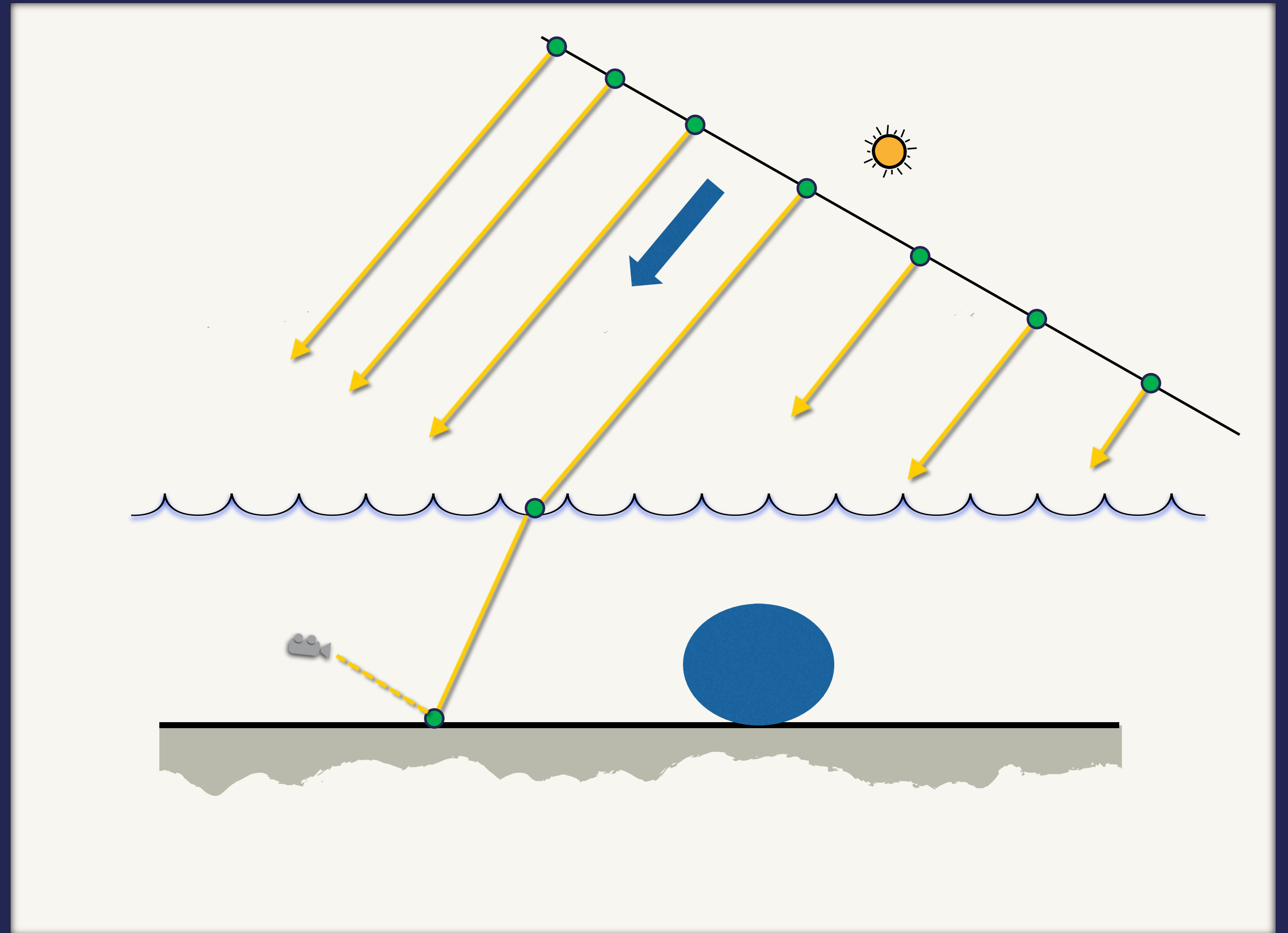
GUIDED EMISSION

- Problem: large scenes
- Small ratio of non-zero contributions



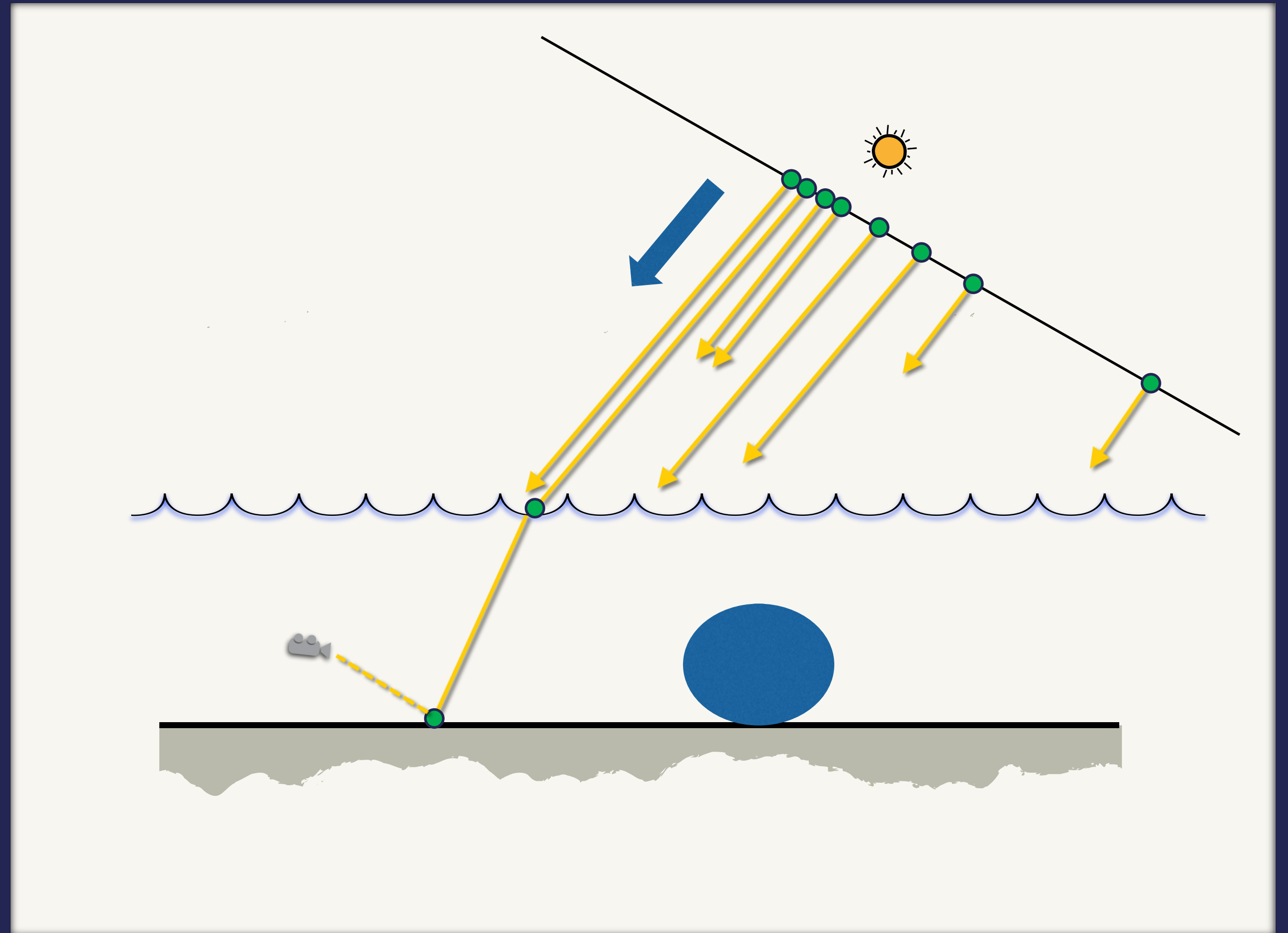
GUIDED EMISSION

- Problem: large scenes
- Small ratio of non-zero contributions
- **Progressive** rendering (forward learning)

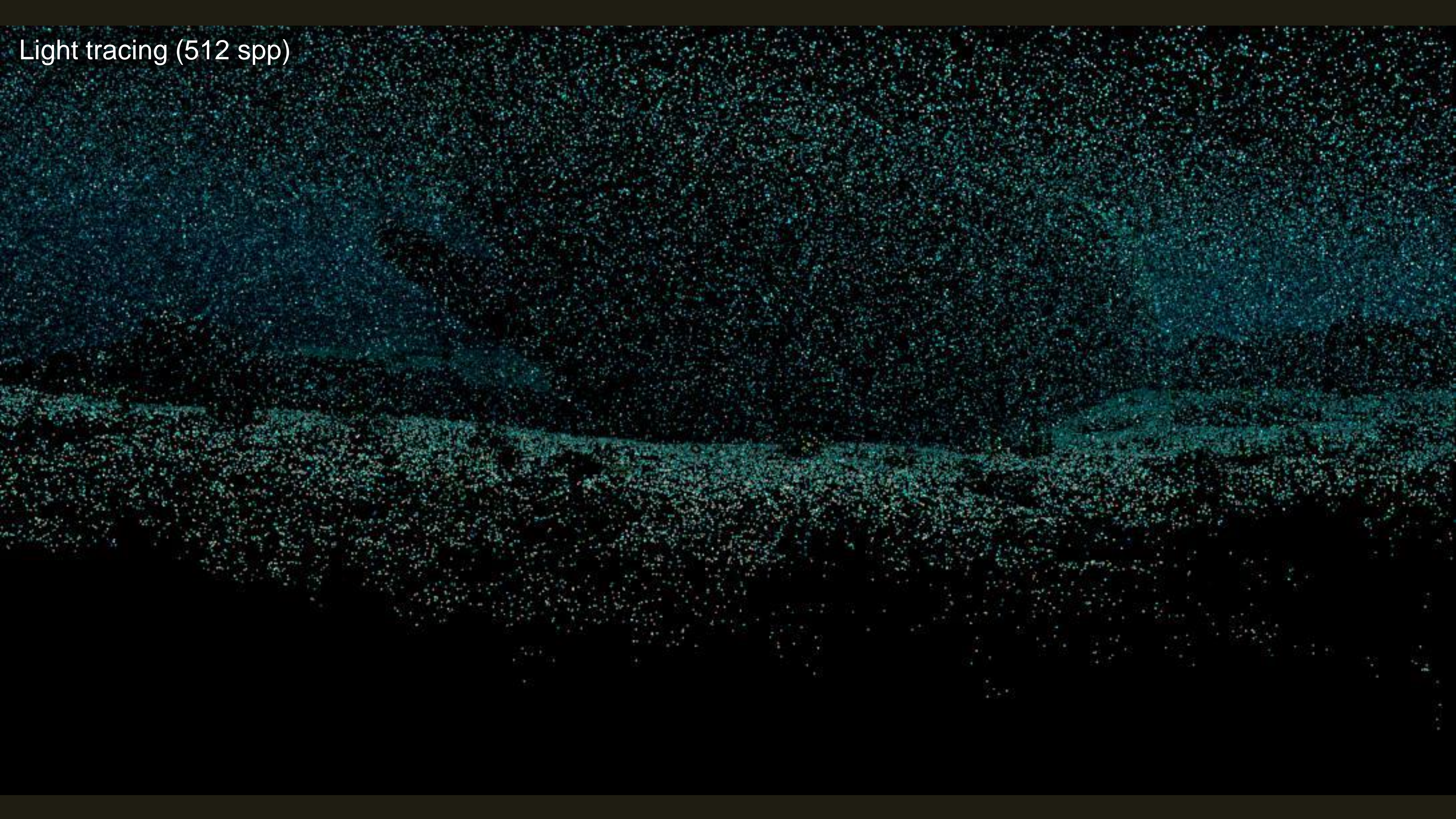


GUIDED EMISSION

- Problem: large scenes
- Small ratio of non-zero contributions
- **Progressive** rendering (forward learning)



Light tracing (512 spp)



Light tracing + guided emission (512 spp)



WHY PATH TRACING?

- Specular reflection/transmission
- Skin
- Adaptivity in the image plane

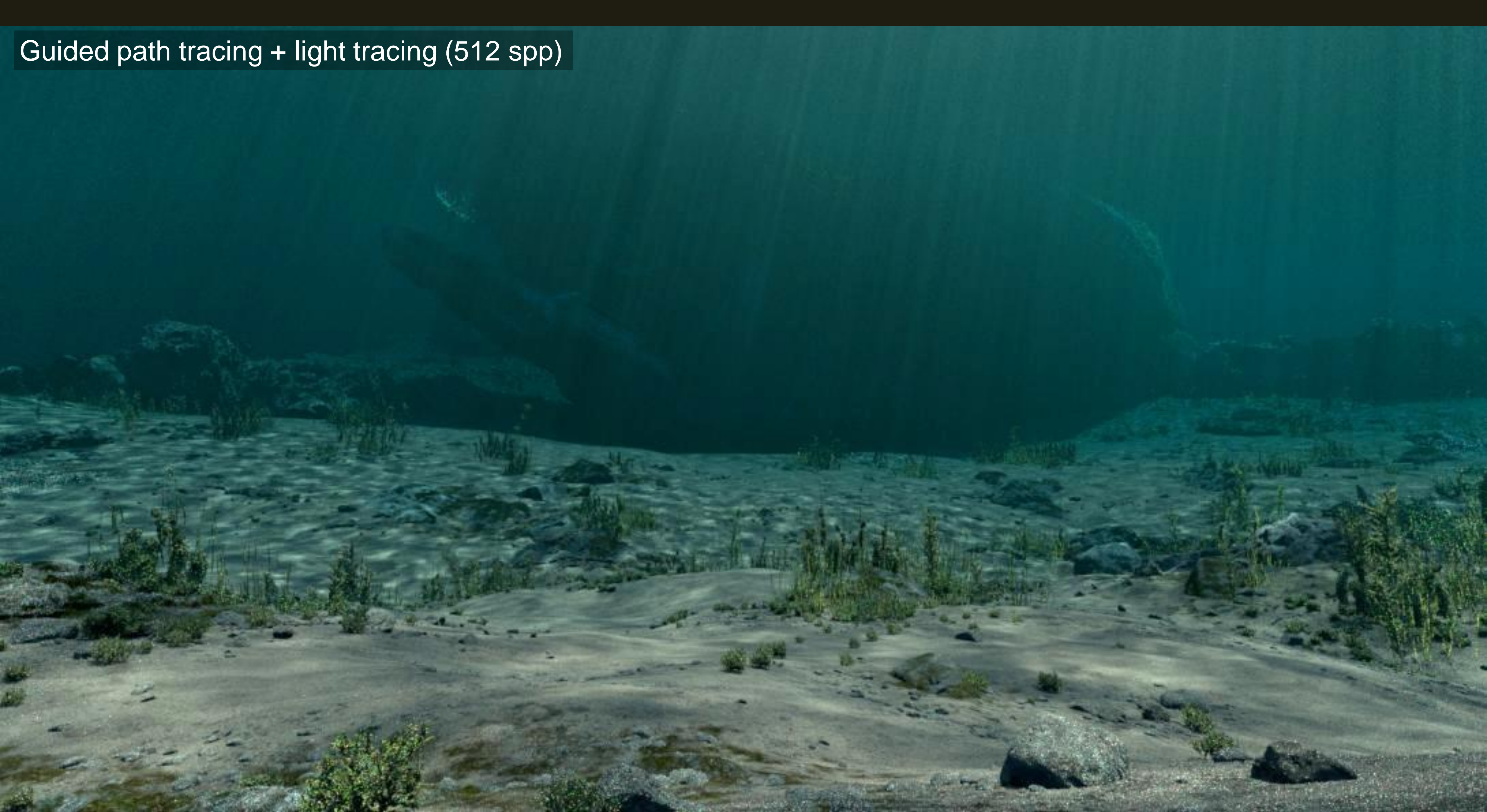
Path tracing (512 spp)



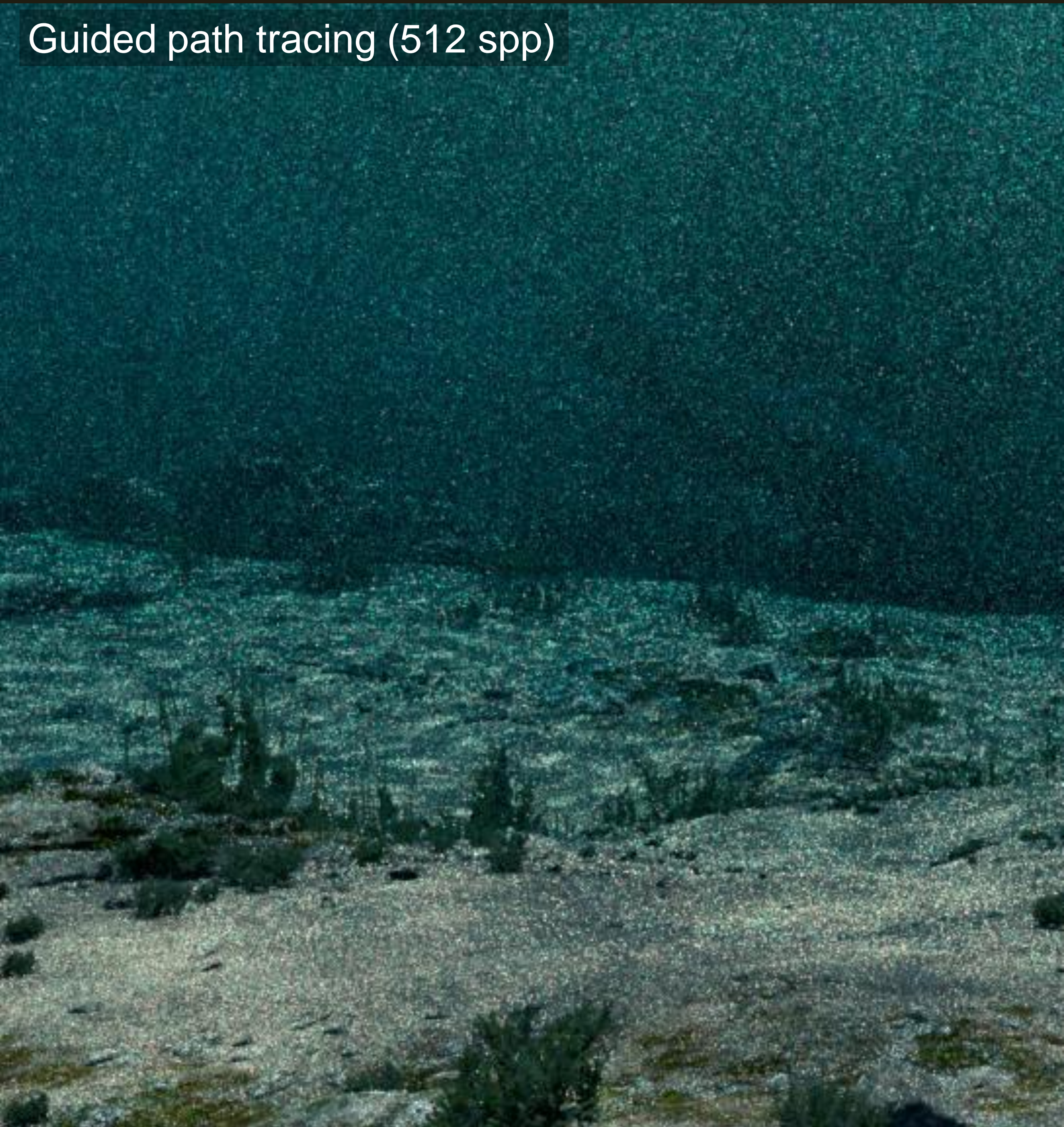
Guided path tracing (512 spp)



Guided path tracing + light tracing (512 spp)



Guided path tracing (512 spp)



Guided path tracing + light tracing (512 spp)



THANK YOU

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